1. Legal Ad

    Documents:

        PB LEGAL AD 11-28-17.PDF

2. Agenda

    Documents:

        PB AGENDA 11-28-17.PDF

3. 510 Cumberland Avenue

    3.I. Memo

        Documents:

            CUMBERLAND AVE. - 510 (MEMO).PDF

    3.II. Staff Attachments

        Documents:

            CUMBERLAND AVE. - 510 (STAFF ATTACHMENTS).PDF

    3.III. Applicants Submittal

        Documents:

            CUMBERLAND AVE. - 510 (APPLICANTS SUBMITTAL).PDF

    3.IV. Public Comment

        Documents:

            CUMBERLAND AVE. - 510 (PUBLIC COMMENT).PDF

    3.V. Plans

        Documents:

            CUMBERLAND AVE. - 510 (PLANS).PDF

4. 1700 Westbrook Street

    4.I. Memo

        Documents:

            WESTBROOK ST. - 1700 (MEMO).PDF

    4.II. Staff Attachments

        Documents:

WESTBROOK ST. - 1700 (STAFF ATTACHMENTS).PDF

4.III. Applicants Submittal (1 Of 2)

Documents:

WESTBROOK ST. - 1700 (APPLICANTS SUBMITTAL) 1 OF 2.PDF

4.IV. Applicants Submittal (2 Of 2)

Documents:

WESTBROOK ST. - 1700 (APPLICANTS SUBMITTAL) 2 OF 2.PDF

4.V. Plans (1 Of 2)

Documents:

WESTBROOK ST. - 1700 (PLANS) 1 OF 2.PDF

4.VI. Plans (2 Of 2)

Documents:

WESTBROOK ST. - 1700 (PLANS) 2 OF 2.PDF

4.VII. Additional Public Comment Received

Documents:

STROUDWATER VILLAGE ASSOCIATION STATEMENT 11-17.PDF

4.VII.i. Mary Davis 11-24-17

Documents:

MARY DAVIS 11-24-17.PDF

5. 58 Boyd Street

5.I. Memo And Attachments

Documents:

BOYD ST. - 58 (MEMO).PDF
BOYD ST. - 58 (STAFF ATTACHMENTS).PDF
BOYD ST. - 58 (PUBLIC COMMENT).PDF
BOYD ST. - 58 (APPLICANTS SUBMITTAL).PDF
BOYD ST. - 58 (PLANS).PDF

6. 48 Brown Street

6.I. Report And Attachments

Documents:

BROWN ST. - 48 (REPORT).PDF

BROWN ST. - 48 (REPORT ATTACHMENTS).PDF
BROWN ST. - 48 (APPLICANTS SUBMITTAL).PDF
BROWN ST. - 48 (PLANS).PDF

6.II. Additional Public Comment Received

Documents:

ADDITIONAL PC - GEORGE RHEAULT 11-28-17.PDF

LEGAL ADVERTISEMENT
PORTLAND PLANNING BOARD
MEETING AGENDA

The Portland Planning Board will hold a meeting on **Tuesday, November 28, 2017**, Council Chambers, 2nd Floor, City Hall, 389 Congress Street.

Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov

Workshop – 4:30 p.m.

i. Level III Subdivision and Site Plan and Conditional Use for Inclusionary Zoning Applications; Deering Place; 510 Cumberland Avenue; Avesta Housing Development Corp, Applicant. (4:30-5:30 p.m. estimated time). The Portland Planning Board will hold a workshop to consider the subdivision and site plan application by Avesta Housing for 82 units of affordable housing in two buildings. A four-story addition is proposed to the existing structure at 510 Cumberland Avenue, which would add 42 residential units creating a total of 55 apartments. A second building is proposed along Deering Street with 27 residential units. Total parking for 59 vehicles is proposed on the ground floor level of the Cumberland Avenue building and 5 surface parking spaces are proposed accessing Deering Street. The workshop will focus on the site plan and subdivision. aspects for the project. The Historic Preservation Board is reviewing the building design.

Public Hearing 6:30 p.m. (note change in time)

i. Level III Subdivision and Site Plan and Conditional Use for Inclusionary Zoning Applications, Stroudwater Preserve Residential Development, 1700 Westbrook Street, Stroudwater Development Partners, LLC., Applicant. (6:30 - 7:30 p.m. **estimated time**) The Board will hold a public hearing on an application for a housing development with 98 single family house lots, a separate lot for a planned residential unit development with 25 townhouses, and twenty-four acres of open space within the development. Twelve affordable home ownership units are proposed under the City's inclusionary zoning regulations. The 55.3 acre site is zoned Residential R-3 and Recreation Open Space. It is subject to review under Portland's Subdivision, Site Plan, Shoreland Zoning, and Affordable Housing Ordinances. The proposal is also subject to review under Maine's Site Location of Development Act and Maine's DEP Chapter 500 rules for stormwater management.

ii. Level III Site Plan, Subdivision, Conditional Use for a Neighborhood Center, and Inclusionary Zoning Conditional Use; 58 Boyd Street; 58 Boyd St., LP., Applicant. (7:30 - 8:30 p.m. **estimated time**) The Board will hold a public hearing on a proposal for a 47,800 sf building in which 44 workforce units and 11 market-rate units are proposed for a total of 55 units. 23 parking spaces are proposed on site and a neighborhood center for Cultivating Community is proposed on the first floor. The site is zoned R-7 and applicant is seeking height, density bonuses, and parking reduction for the project under the Affordable Housing provisions.

iii. Level III Site Plan; Parking Garage; 48 Brown Street; Ocean Gate, LLC., Applicant. (8:30 p.m. **estimated time**) The Board will hold a public hearing on a proposed five level parking garage with 98,125 sq. ft. and a total of 281 parking spaces. The lower level will have access from Brown Street with an entrance only off of Cumberland Avenue. The upper levels will be accessed from Casco Street. The 0.9 acre site is currently a surface parking lot. The site is in the Downtown B-3 zone and is subject to review under Portland's site plan ordinance.

ELIZABETH BOEPPLE, CHAIR – PORTLAND PLANNING BOARD

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Carol Morrissette
David Eaton
Brandon Mazer
Maggie Stanley
Lisa Whited

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BREAK FOR DINNER

PUBLIC HEARING – 6:30 p.m.

1. ROLL CALL AND DECLARATION OF QUORUM
2. COMMUNICATIONS AND REPORTS
3. REPORT OF ATTENDANCE AT THE MEETINGS HELD ON NOVEMBER 14, 2017:

Workshop: Boepple, Dundon, Eaton, Mazer, Morrissette and Whited present; Stanley absent.
Public Hearing: Boepple, Dundon, Eaton, Mazer, Morrissette and Whited present; Stanley absent.

4. REPORT OF DECISIONS AT THE MEETINGS HELD ON NOVEMBER 14, 2017:

i. Zoning Map Amendment from IL-b to B1b; 233 Anderson Street; 2 Walnut, LLC., Applicant. Dundon moved and Mazer seconded a motion to table this item to December 6, 2017 at 7:00 p.m. Vote: 5-0, Stanley absent and Morrissette recused.

ii. Level III Site Plan; Museum and Theater; Thompson's Point; Children's Museum & Theatre of Maine, Applicant. Dundon moved and Morrissette seconded a motion to approve the site plan with eight (8) conditions of approval. Vote: 6-0, Stanley absent.

iii. Handicap Ramp – Technical Manual Update, City of Portland, Applicant. Dundon moved and Morrissette seconded a motion to approve the proposed amendments to the Technical Manual. Vote: 6-0, Stanley absent.

iv. Amended Inclusionary Zoning Conditional Use; 443 Congress Street, Northland Enterprises, LLC, Applicant. Dundon moved and Morrissette seconded a motion to approve the amended Conditional Use Application to Ensure Workforce Housing with the condition that a $280,000 contribution is made to the Housing Trust Fund. Vote: 6-0, Stanley absent.

5. NEW BUSINESS

i. Level III Subdivision, Site Plan and Conditional Use for Inclusionary Zoning Applications, Stroudwater Preserve Residential Development, 1700 Westbrook Street, Stroudwater Development Partners, LLC., Applicant. (6:30 - 7:30 p.m. **estimated time**) The Board will hold a public hearing on an application for a housing development with 98 single family house lots, a separate lot for a planned residential unit development with 25 townhouses, and twenty-four acres of open space within the development. Twelve affordable home ownership units are proposed under the City's inclusionary zoning regulations. The 55.3 acre site is zoned Residential R-3 and Recreation Open Space. It is subject to review under Portland's Subdivision, Site Plan, Shoreland Zoning, and Affordable Housing Ordinances. The proposal is also subject to review under Maine's Site Location of Development Act and Maine's DEP Chapter 500 rules for stormwater management.

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Memorandum
Planning and Urban Development Department
Planning Division

To: Elizabeth Boepple, Chair and Members of the Portland Planning Board
From: Shukria Wiar, Planner
Date: November 22, 2017
Re: Deering Place, 510 Cumberland Avenue, Avesta Housing Development Corporation
Project #: 2017-132 (Level III) and 2017-156 (Conditional Use) CBL: 047 B Lots 1,2,3 and 29
Meeting Date: November 28, 2017

I. INTRODUCTION

Avesta Housing Development Corporation is requesting a second workshop on a Level III application for subdivision and site plan review of their project called Deering Place. The proposal includes renovating and expanding the existing building at 510 Cumberland Avenue, building a new structure facing Deering Street, and creating a separate lot for the building located on the corner of Deering and Mellen Street. A total of seventy-nine (79) units are proposed in the two buildings and forty-seven (47) of the units are proposed as affordable housing units and thirty-two (32) to be market rate. The introductory workshop was held on September 12, 2017. There have been changes since the last workshop. Below are the changes described Tom Greer, Applicant's project Engineer, cover letter dated November 17, 2017:

1. *The architecture has been revised in response to HP comments. The Deering Street building has been significantly modified, see drawings [below].*
2. *The parking layout for the Cumberland Avenue parking and the Deering Street parking has been revised.*
3. *Included in our submittal is a Parking Study by Traffic Solutions justifying the reduced number of spaces.*
4. *The Landscaping along Deering Street has been modified to match the new building footprint.*
5. *The application data sheets have been modified to reflect the unit count and impervious area.*

The application is subject to review under Portland's Subdivision and Site Plan Ordinances. It is also being reviewed as a conditional use under Portland's Affordable Housing Ordinance. The site is within an Historic District and both the addition and new building are subject to review by the Historic Preservation Board.

Applicant: Avesta Housing Development Corporation, Matthew Peters
Consultants: Tom Greer, Pinkham and Greer, Engineer; David Lloyd, Archetype, Architect; and Owen Haskell, Owen Haskell Inc, Surveyor.

II. REQUIRED REVIEWS

Review	***Applicable Standards***
Subdivision	Article IV- Section 14-497
Site Plan	Article V - Section 14-526
Ensuring Work Force Housing	Division 30 - Section 14-487
Historic Preservation	Article IX

III. POTENTIAL WAIVERS

Waiver Requested by the Applicant	***Standards that Apply***
Waiver of required parking from 66 to 49	*Division 20. Off Street Parking – Sec 14-332.2 (b) Incentives*

spaces.	*for affordable housing-parking reductions*
Waiver of drive aisle width from 24 to 19.1 feet. The aisle widths vary in the new garage from 24.2 (maximum) to 19.1 (minimum). The widths are 20.3 feet, 21.7 feet, 21.9 feet, and 22 feet.	*Technical Manual – Transportation – 1.7.2.3 Minimum driveway width (two-way): Any site with driveway access to a street shall have a minimum width of 20 feet for two-way ingress and egress, with a preferred width of 24 feet.*
Waiver for driveway separation for the Deering Street driveway	*Technical Manual 1.7.2.7. Location and spacing of driveways: The location and spacing of driveways shall be determined as follows: Along local streets, access driveways to corner lots shall be located a minimum of thirty-five (35) feet from the intersection of the projection of right-of-way lines to the center line of the driveway, except as provided hereinafter.*

IV. PROJECT DATA

Existing Zoning	Residential R-6
Existing Use	510 Cumberland Ave- 13 units above office 73 Deering Ave- Office space with three units above (to remain)
Proposed Use	Residential: Lot A – 3 units; Lot B- 77 units
Proposed Development Program	Lot A- Building A would include a community room and parking on the first level of the existing structure. Building B would be all residential. Lot B- Building is an existing structure with office space and residential units that will remain as is.
Parcel Size	53,368 sf: Lot A 47,500 SF and Lot B 5,868 SF
Proposed Disturbed Area	27,900 sf
Number of Affordable Housing	Lot A – 76; Lot B – 0

		Existing	*Proposed*
Building Footprint	Lot A: Bldg A	20,655 SF	28,895 SF
	Bldg B	0	5,165 SF
	Lot B:	2,250 SF	2,250 SF
Residential	Lot A: Bldg A	13	53
	Bldg B	0	23
	Lot B	3	3
Building Floor Area	Lot A: Bldg A	46,681 SF	73,361 SF
	Bldg B	0	19,433 SF
Impervious Surface Area-	Lot A	40,455 SF	39,452 SF
	Lot B	3,115 SF	3,300 SF
Parking Spaces (on site)		58	64
Bicycle Parking Spaces		0	35
Estimated Cost of Project		$10,000,000	

IV. EXISTING CONDITIONS

Avesta Housing Development Corporation owns the buildings at 510 Cumberland Avenue and at 73 Deering Street. The combined lots have frontage on Cumberland Avenue, Mellon Street and Deering Street. The three-story building at 510 Cumberland Avenue has a building footprint of 20,655 sf and there is a surface parking area for 36 vehicles with access from Cumberland Avenue. Currently there are 13 3-bedroom units in this building on the third floor with office space on two floors. The existing building at 73 Deering Street has 3

residential units and office space on the first and second floors with a 22-space parking lot. The site is located within the Deering Street Historic District.

V. PROPOSED DEVELOPMENT

The preliminary application before the Planning Board has several components to the overall project. The project has been revised since the Planning Board workshop to reduce the total number of units from 80 to 79 and to revise the bedroom mix.

The site has frontage along Cumberland Avenue, Mellen Street and Deering Street with an overall area of 53,368 sf (1.23 acres). The proposed site plan includes a building addition to 510 Cumberland Avenue with parking on the first level and a new building facing Deering Street. The proposal also includes creating a separate lot for the existing building at 73 Deering Street with 5729 square feet.

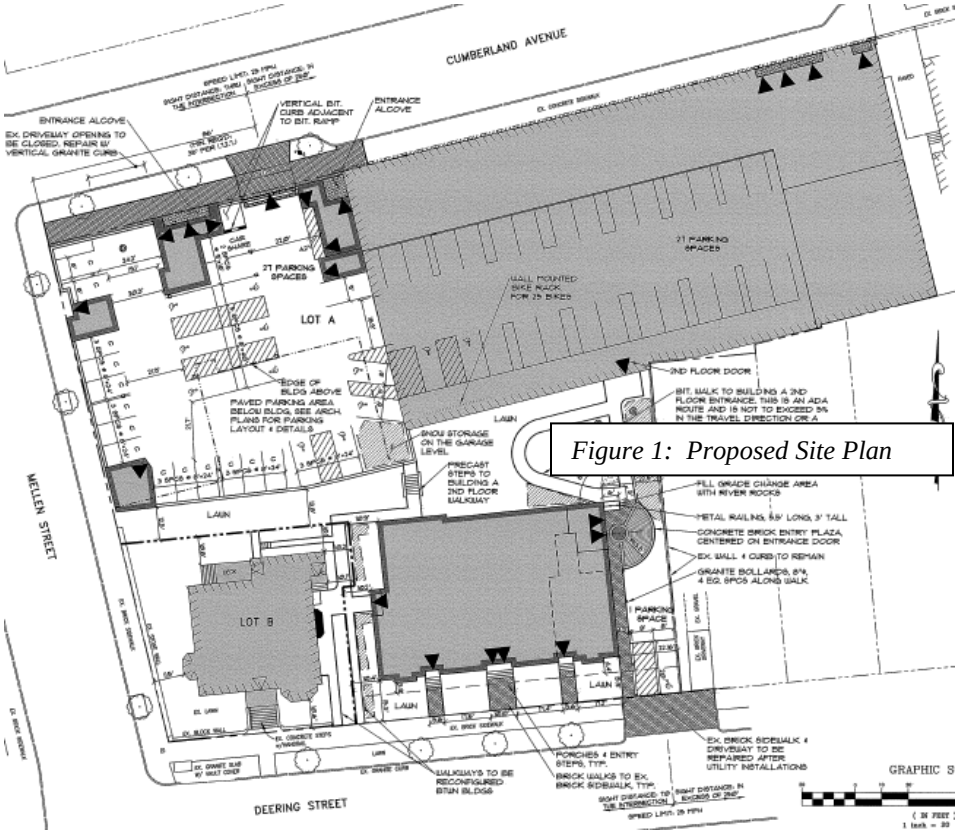


Figure 1: Proposed Site Plan

510 Cumberland Avenue building, the addition, and the new building on the existing parking on Deering Street are referred to as Lot A. There are thirteen (13) existing three-bedroom apartments on the third floor of 510 Cumberland Avenue. This building will be renovated with 7 units and a community room on the first level. A total of 11,250 square feet of the first level will be converted to indoor parking for twenty-eight (28) vehicles and the remainder of the first floor is proposed for community room, two lobbies, and a community policing office. An addition is proposed that would extend toward Mellen Street for a total building length of approximately 319 feet. The addition would have three floors of units above the first level of structured parking. Lot A is proposed with a total of 76 units (53 in the existing building and in the proposed addition, 23 unit in the new building on Deering Street) and 55 parking spaces (six of these spaces will be leased to the existing building at 73 Deering Street). The bedroom mix is 7 efficiencies, 25 one-bedroom, 8 two-bedroom, and 13 three-bedroom units. The Deering Street building is proposed on the current surface parking lot that has 22 spaces. The structure would have 23 units with a bedroom mix of 9 efficiencies and 14 one-bedroom. A shared curb cut with the adjoining property is shown on the plan.

Since the site is in the Deering Historic District, the applicant preceded with a concurrent review with the Historic Preservation Board; the first workshop was held on November 1, 2017 and the second workshop will be held on November 29, 2017. David Lloyd, Applicant's Consultant Architect, has submitted revised designs for the HP Board to consider at their November 29th meeting, please see changes in the design below:

1. We have revised designs on the Deering Street building based upon board and neighborhood comments.

a. The parking under the building has been eliminated.
b. A floor has been eliminated from the building allowing higher floor to ceiling height and proportions of windows to more closely relate to its neighboring buildings.
c. We have included two designs for the boards consideration, one with a mansard and one without.
d. We have added doorways directly off the street to units in respect to neighboring buildings.
e. We have eliminated the fencing along the front of the building per Boards comments.
(see figures 5-8 on pages 5 and 6)

2. We have revised the Cumberland Street addition per boards comments.
a. The main entry way has been scaled down in size.
b. The mansard roof is now standing seam painted metal VS copper.
c. The stair entry at connector has been made more premiant with a canopy.
d. The stair entry off Mellen Street has been made more prominent with canopy and door entry design.
(see figures 3-4 on below)

3. We are waiting to hear from the MHR Commission via Deb Andrews regarding adding back the porch entries to the existing building. We are very willing to add these but cannot do so without permission from the Maine Human Rights Commission.

Figure 3: Building A Cumberland Avenue Elevation

Figure 4: Building A Mellen Street Elevation

Figures 5 and 6: One of the Option for the Deering Street New Building- With Mansard Roof

Figures 7 and 8: One of the Option for the Deering Street New Building- Without Mansard Roof

Deb Andrews, Historic Preservation Manger, has reviewed the above information and her memo to the HP Board is Attachment 5. Section 14-609 states the responsibilities of the Historic Preservation Board shall be the following responsibilities:

> (b)To review all areas, sites, structures and objects listed in the National Register of Historic Places, including the boundaries of areas so listed, and make recommendations to the planning board and council for the adoption of ordinances designating those areas, sites, structures and objects as landmarks or districts.
>
> (c) To investigate and recommend to the planning board the adoption of ordinances designating areas, sites, structures and objects not listed in the National Register of Historic Places as landmarks and districts and to make recommendations to the planning board concerning sites, structures and objects that have contributing significance or are intrusions within nominated or designated districts.

VI. PUBLIC COMMENT

The required neighborhood meeting was held on August 17, 2017 and the materials from that meeting are included in the Applicant's submission (Attachment K through N). Approximately 50 residents attended the meeting. According to the meeting summary, issues raised by the neighbors focused on a shortage of parking in the neighborhood and that the current parking lot provides parking for a nearby church. There were also comments regarding the building design, building size and massing, and number of units. In response to the neighborhood meeting, the applicant has revised the original proposal by reducing the unit count to seventy-nine (79) apartments and reducing the affordable units from 50 to 48. The applicant has so revised the bulk and design of the buildings as well.

The Planning Division has received written comments from three neighbors on the project, which are included in the packet. As with the comments from the neighborhood meeting, concerns raised include lack of parking, increased density in the neighborhood, and design considerations of the proposed building in relation to the existing historic context of the district. The proposal for both buildings is subject to Historic Preservation Board review. The applicant has had one workshop with the HP Board and the second one is scheduled on November 19, 2017.

VII. RIGHT, TITLE, & INTEREST

The applicant has submitted a deed for the properties at 510 Cumberland Avenue and for 61-73 Deering Street.

VIII. FINANCIAL & TECHNICAL CAPACITY

The estimated cost of the development is $10,000,000.00. In the cover letter, the consulting team is listed as Archetype, Owen Haskell and Pinkham Greer. The financing for the project will be through a combination of LIHTC Equity and Private Bank Financing. As part of the final plan submission, the applicant and the consultant team must submit documentation for both the technical and financial capacity.

IX. ZONING ANALYSIS

A review of the zoning for the site has been conducted and majority of the standards are being met; a more detailed zoning review will be done for the final review. Following is the zoning assessment included on the proposed subdivision plat. The calculations for the density properly exclude the proposed lot area for 73 Deering Street, and the applicant is applying eligible density bonuses under Division 30, Affordable Housing. The lot split and setbacks for the existing and proposed buildings on Deering Street meet the zoning code. The parking for 73 Deering Street is being accounted for in the overall development, six spaces will be leased in the new parking garage; evidence of how this will be accommodated must be submitted as part of the final submission. Section 14-333 of the Land Use Code states parking will need to be within 300 feet of the site and the term of the lease is to be five years with options to renew.

X. CONDITIONAL USE REVIEW OF ENSURE WORKFORCE HOUSING

The applicant is proposing to create seventy-nine (79) residential units with forty-eight (48) affordable units. The proposed number of affordable units exceeds the minimum 10% requirement under the city's Affordable Housing ordinance. Victoria Volent, Housing Planner, is reviewing the conditional use application and provide her final comments for the Board's public hearing. In the meantime, she has stated the following in regard to the project:

> *Avesta Housing and Development Corporation (AHDC) is proposing to renovate and construct an eighty unit mixed-income rental housing development on a site they own located at 61 Deering Street and 510 Cumberland Avenue.*
>
> *The project will consist of 80 units of rental housing including 15 efficiency units, 40 one-bedroom units, 12 two-bedroom units, and 13 three-bedroom units. The units will be affordable to households earning 40%, 50% and 60% of the area median income. Sixty percent (or 48 units) of the units will be affordable to households earning at or below 60% of the AMI. The remaining 32 units will be at market rate.*
>
> *The applicant has satisfied the requirement that all developments of ten or more units comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.*
>
> *The Block containing the "Building A totals" indicates the proposed two-bedroom count as 7. The correct proposed two-bedroom count is actually 8.*

XI. SUBDIVISION RECORDING PLAT REQUIREMENTS (Section 14-496)

For the final submission, the boundary survey and recording plat must be updated to meet City standards. The Planning staff note that the subdivision plat shall state all of the final zoning and project information, along with any waivers that are granted, if applicable. The draft Subdivision Plan has been submitted (Plan 6 and 7) for review. The draft Subdivision Plan needs the following information added, and a suggested condition of approval relates to this requirement:

- The number of units will need to be stated
- Parking provision on and off site
- All easements, including reference to new easements needed e.g. for pedestrian access on private land
- Street trees
- Approved waivers and conditions of approval will be need to be stated on the plat

XI. DEVELOPMENT REVIEW

The preliminary plans for Deering Place are being reviewed by staff for conformance with the relevant review standards of the City of Portland's Land Use Code. Preliminary staff comments are below.

1. Transportation Standards

a. Access, Circulation and Impact on Surrounding Neighborhood

Currently there are two curb cuts along Cumberland Avenue that provide access to the surface parking lot serving 510 Cumberland Avenue. One curb cut is roughly eighty-eight (88) feet from the Mellen Street intersection and the other one is approximately thirty (30) feet. One access driveway is proposed along Cumberland Avenue that would be approximately eighty- three (83) feet from the intersection. A twenty (20) foot wide curb cut would lead into a garage entrance that provides access to the twenty-seven (27) parking spaces in the existing building and the twenty-seven (27) spaces on the first floor of the addition.

The second access point on the site is a twenty (20) foot driveway off Deering Street. The location of this curb cut is not changing from existing conditions and it serves as a shared curb cut with the adjoining property. While this is the existing condition, there are no cross easements for access shown on the proposed subdivision plan. This needs to be clarified for the final submission. The applicant is now proposing one parking space at this location and will be accessed by this driveway.

Tom Errico, Consultant Traffic Engineer with TY Lin, has reviewed the application and offers the following comments:

- I find the location of the Cumberland Avenue driveway to be reasonable, particularly in combination with the closing of the driveway nearest the Mellen Street intersection. The applicant should note if corner clearance standards are met and if a waiver is required.
  Status: The applicant has noted that the driveway meets City standards and I concur. I have no further comment.

- The applicant shall provide vehicle auto-turn graphics supporting the 19.8 foot wide parking aisle.
  Status: The applicant has provided the requested auto-turn graphic. The dimensions of the vehicle used in the analysis shall be provided.

- I support waivers for the 22 foot and 22.4-foot aisle widths, although the applicant should formally request waivers with documentation.
  Status: Detailed support documentation is outstanding.

- The applicant shall provide supporting documentation for exceeding the allowable percentage of compact spaces per City Ordinance.
  Status: The applicant shall provide documentation of vehicle type through field surveys of existing Avesta project sites. My observations do not support the claim of widespread smaller vehicle usage for similar sites.

- How will existing parked vehicles be accommodated.
  Status: The applicant has noted that the demand for the existing on-site parked vehicles will be eliminated. I have no further comment.

- An auto-turn schematic shall be provided for the HC parking spaces off Deering Street.
  Status: The plan has been modified and one off-street HC parking space is proposed. Given that only one space is proposed, the applicant should investigate an on-street option for providing a HC space.

- The applicant shall provide a driveway separation waiver evaluation for the driveway on Deering Street. I am supportive of a waiver given that it is an existing condition and traffic from the proposed site will decline.
  Status: See prior comment and if the plan remains unchanged, d**etailed supporting documentation should be provided.**

b. Sidewalks and Pedestrian Access

The plans show building entrances and walkways connecting with the public sidewalk. A brick sidewalk is shown on both Mellen and Deering Streets. There is an existing concrete sidewalk along Cumberland Avenue. The sidewalk policy requires brick in Historic Districts. It is assumed that at a minimum the sidewalk along Cumberland Avenue will be disturbed in front of building addition, so this will need to be brick. The Department of Public Works will review the condition of the concrete walk. Bruce Hyman, Transportation Program Manager, has reviewed the plans and below are his comments:

- The Site Plan (C2.1 V5) nor the Existing Conditions and Demolition Plan show the existing and any planned changes to curb ramps, crosswalks and other pedestrian provisions within the ROW along the frontage of the site. The curb ramp at the corner of Cumberland Avenue and Mellen Stree is not ADA-compliant (per Google Streetview, Oct 2016 - I have not field verified); if it is currently non-compliant, it is to be brought fully up to ADA-standards, including Detectable Warning Panel. The sidewalk immediately adjacent to it along Cumberland Avenue is being reconstructed in brick.

- The Site Detail Sheet (C3.2) is to be revised to show at 2% maximum cross-slope for: the full width of the adjoining sidewalk in the Brick Driveway Apron with Bituminous Base (2); and the full width of the sidewalk as shown in Brick Sidewalk with Bituminous Base (1). Ideally, the Site Plan (C2.1 V5) would also show these maximums as well. The Detail for Driveway Apron Layout (3) illustrates the 2% maximum cross-slope but also shows concrete sidewalk and driveway but only brick sidewalks are to be constructed - an FYI mostly.

c. Parking

The total number of parking spaces on the site is fifty-five (55): twenty-seven (27) parking spaces in the existing building and the twenty-seven (27) spaces on the first floor of the addition, and one at the new building on Deering Street. Six parking spaces of the total spaces will be leased to the existing building at the corner of Deering and Mellen Street. One of the spaces is proposed for a shared use vehicle, which can be used to satisfy eight required parking spaces in the R-6 zone per the off-street parking provisions.

In addition, only one parking space per unit is required for affordable housing units and the Planning Board may establish a parking ratio that is less than one per unit as part of the final review. Section 14-332 (a) 3 (c) of Division 20, Required Parking, allows the Planning Board to determine the number of parking spaces for multi-family units on the peninsula under certain criteria, including housing that participates in a transportation demand management program. Since the proposal is to provide less than one for one parking, the applicant has provided documentation on the implementation of the shared car and address the overall parking demand for the project.

The proposed development is for 79 residential units with 55 parking spaces, of which six are for the existing building, there 49 spaces are actually proposed for the residential development. Following is the breakdown of the parking that is required by zoning versus the reduced ratio that the applicant is requesting:

	1:1 Ratio (As required by Zoning)	.64 :1 Ratio (As requested by Applicant)
Parking spaces as required per zoning (minus the first three proposed units and space used for the car share)	75	76 x .64 = 49
One Car Share	8	8
Total of Spaces Required	**67**	**41**

Below is the parking analysis that the applicant provided on their site plan:

PARKING INFORMATION

EXISTING VEHICLE SPACES:	58
LOT A:	
VEHICLE SPACES REQUIRED, 76 UNITS:	
FIRST 3 UNITS:	0
REMAINING UNITS, 1 PER UNIT:	73
SHARED CAR BONUS: - 8 SPACES, + 1 SPACE	-7①
TOTAL VEHICLE SPACES REQUIRED:	66
LOT B:	
TOTAL VEHICLE SPACES REQUIRED, 3 UNITS:	6
VEHICLE SPACES PROVIDED:	
9'x18' STANDARD SPACES:	13
9'x18' CAR SHARE SPACE:	1①
8'x15' COMPACT SPACES:	28
8'x18' HANDICAP ACCESSIBLE SPACES:	13
TOTAL VEHICLE SPACES PROVIDED:	55

SPACES USED: LOT A = 49 LEASED TO LOT B: 6

① AVESTA IS COMMITTED TO PROVIDING ONE SHARE CAR FOR USE BY THE RESIDENTS OF THIS PROJECT.

d. Public Transit

Transit service is available on Congress Street and Forest Avenue. Route 1 (Congress), Route 8 (Peninsula Loop) and Route 9 (Deering and North Deering) run on Congress Street. Route 2 is available from Forest Avenue.

e. Construction Management Plan

The applicant has submitted a construction management plan for review. The plans have been revised to relocated the dumpster and address the sidewalk issues. The plan is currently being review by the Department of Public Works.

2. **Environmental Quality Standards**

a. Landscaping and Street Trees

A landscaping plan has been submitted for review. The plan shows ten (10) street threes but it is difficult to tell if they are new or existing; the applicant will want to address the street tree requirement for residential development in the updated application.

b. Water Quality/Stormwater Management/Erosion Control

Tom Greer states in the cover letter and in the project data of the application that the total increase in impervious surface area is less than 1,000 sf and that the building placement over the impervious surface area is exempt from the 5,000-sf redevelopment review. Lauren Swett, Consulting Civil Engineer, notes that the project is subject to meeting the basic standards under Section 5 of the technical manual. She is seeking more information regarding the basic standards, utility capacity letters, and a stormwater management plan, if stormwater infrastructure is proposed (Attachment 2). Keith Gray, DPW Engineer, notes that the newly installed green infrastructure at the corner of Deering and Mellen shall be protected during construction. Lauren Swett's comments are as follows:

1) The application is preliminary. As such, we anticipate that additional documents will be submitted for the final application including letters from utilities confirming capacity to serve the proposed development. Woodard & Curran will perform a review of the Final Application upon receipt of those documents.
2) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. As described below, this project only meets the thresholds to require compliance with the Basic Standards. We offer the following comments:
    a) Basic Standards: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
    b) General Standards: The project will result in a de minimis increase in impervious area of approximately 330 square feet. As such, the project is not required to include any specific stormwater management features for stormwater quality control. We encourage the Applicant to review the City's Stormwater Service Charge Credit Manual (available online) to evaluate whether they may want to incorporate stormwater quality treatment measures that qualify for a future Stormwater Service Charge credit.
    c) Flooding Standards: The project will result in a de minimis increase in impervious area of approximately 330 square feet. As such, the project is not required to include any specific stormwater management features to control the rate or quantity of stormwater runoff from the site.
3) We have provided markup on the attached grading and utilities plan. A summary of the comments identified on that plan are as follows.
    a) Existing utility conditions appear to be incorrect. The Applicant should review their survey and coordinate with the Department of Public Works to obtain information about the

utilities installed near the project as part of the Deering Street project that was recently completed.

b) It appears that the sewer service is connected to the stormdrain, and the stormwater from the parking lot is connected to the sanitary sewer.

c) Deering Street is now in moratorium, and all work in this street will be required to meet moratorium repair standards, if street impact is allowed.

d) Mellen Street has not yet received final pavement, but paving is planned for 2018. The City has indicated that the stormwater connection from the project should be into Mellen Street. If possible, other utility services should also be into the street, and should be coordinated prior to paving in 2018.

e) Onsite stormwater routing is unclear. An existing catch basin between the existing Building A and new Building B is being maintained, but the basin is not connected to any discharge location. A new catch basin in this area and the Building B foundation drain appear to be connected to the new Building A parking area, but it is not clear what the discharge location is. The invert at this location is approximately 6 feet above grade.

f) The grading between Building B and the new Building A parking area shows a steeply sloped area down to a retaining wall. No drainage structures are shown in this area. Additional clarification should be provided on how drainage works in this area.

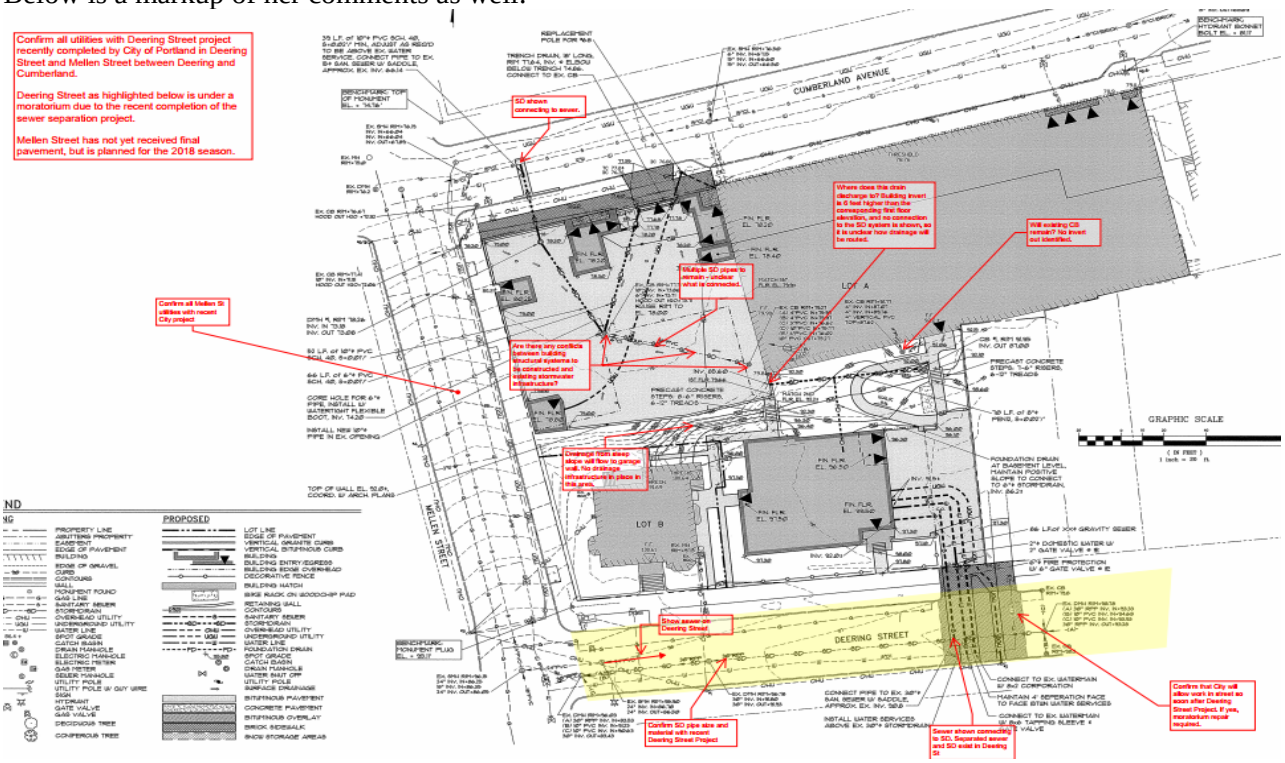
g) Multiple storm drain pipes remain connected to existing catch basin at center of garage space. It is unclear what remains connected to the stormdrain system.

h) The garage is to be located over the existing paved parking lot, and two existing catch basins are being maintained. The Applicant should confirm that with the proposed work to construct building foundations and structural components that the existing catch basins and piping can remain in place.

4) Snow storage is identified inside of the garage. The purpose of this area should be clarified, and the floor drainage should ensure that the area will drain.

5) The driveway apron layout detail references concrete sidewalk. This should be updated to show brick sidewalk.

Below is a markup of her comments as well:



3. Public Infrastructure and Community Safety Standards

a. Public Safety and Fire Prevention

The proposed lot split and new building is being reviewed for zoning and the fire department is looking at the separation for access and safety to the existing building. Lieutenant John Brennan of the Fire Department has submitted the following comments:

- Access between new Building B and existing Building C appears to be tight. Access to the egress windows of the upper floors will need to be made via portable ground ladders. The new building shall not affect the egress or required Fire Department access for the neighboring building.
- Emergency vehicle access is excellent for the building on Cumberland Avenue, Mellen St and Deering Avenue.
- Premises Identification:
    - The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.
    - Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer.
    - If the building entry faces a different street, both the street name and number should be large enough to read from the street.
    - Address numbers must be a minimum of 6 inches high.
    - The number should be in Arabic numerals rather than spelled out (for example, "130" instead of "One Hundred and Thirty').
    - Color: Addresses should be in a color that contrasts with the background.
    - Whenever possible, should be illuminated.
    - Provide additional address signs at entrances to the property when the building address is not legible from the public street.
    - Buildings set back in groups that share common entrances can make quickly locating a specific building and the shortest route difficult. On such sites, additional signs with directional arrows and/or diagrams of the buildings and access layout should be posted.

Tom Greer, the applicant's engineer has responded by stating "[t]he buildings will be addressed as noted in his memo". Documentation as how the access between new building on Lot A and existing building on Lot B, on Deering Street, is being addressed.

b. Availability and Capacity of Public Utilities

Evidence of sufficient capacity to serve the proposed development from the relevant utilities is required for the final submission. The applicant has submitted the sewer capacity application, which is being reviewed by the Water Resources Division of Department of Public Works.

4. Site Design Standards

a. Historic Resources

The proposed site is within the Deering Street Historic District and both the building addition to 510 Cumberland Avenue and the new building on Deering Street are subject to Historic Preservation Review. Thus, the design review will be conducted by the Historic Preservation Board. The applicant has initiated this review process, so the two reviews can proceed concurrently. The Historic Preservation Board is holding a second workshop in this proposal on November 29, 2017. Attachment 5 is the memorandum from Deb Andrews, HP Manger, to the HP Board from their consideration.

b. Exterior Lighting

Details regarding exterior lighting have not been provided at this time. A photometric plan and cut sheets will be required at the time of final review. The final design of the lighting fixtures will be reviewed by the HP Board.

c. Noise and Vibration

All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will have to be shown on the plans and meet state and federal emissions requirements. These mechanical equipment should be located to the interior of the site, away from abutting residential properties and be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, fencing, masonry wall or a combination thereof. This information will have to be submitted for review as part of the final plans.

d. Signage and Wayfinding

No signage or wayfinding is proposed at this time. This plan will need to be submitted as l

XIII. NEXT STEPS

1. Finalize zoning review with staff and applicant;
2. Address staff comments;
3. Address additional comments of the Planning Board;
4. Prepare final plan submission, including subdivision and site plan submittal requirements as included in 14-496(a) and (b) and 14-527(e) and (f) for review by the Planning Authority and Planning Board; and
5. Hold Planning Board Hearing.

XIV. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Traffic Engineer review (memo from Thomas Errico, 11.22.2017)
2. Civil Engineer review (memos from Lauren Swett, 11.21.2017)
3. Fire Department review (memo from John Brennan (09.08.17)
4. Transportation Manager review (memo from Bruce Hyman, 11.21.2017)
5. Historic Preservation Manager, Deb Andrews (11.20.2017)

PUBLIC COMMENT

PC 1 Richard Bilodeau 8-4-17
PC 2 Steven Fender 8-31-17
PC 3 Christopher Ring 9-6-17
PC 4 Marilyn MacDowell 9-22-17
PC 5 Mary Elizabeth Lell Duggan 9-11-17
PC 6 Cynthia A. Murray-Beliveau 9-12-17
PC 7 Alicia Allen 9-12-17

APPLICANT'S SUBMITTALS

A. Cover Letter (from Tom Greer, 11.11.2017, 11.07.17)
B. Level III Site Plan application
C. Recorded Deed
D. Wastewater Capacity Application
E. Waiver Request
F. Stormwater Report
G. Deering Place Parking Study Dated 11.16.17
H. Deering Place Parking for 73 Deering St.
I. Light Cut Sheets
J. Deb Andrews Resubmission Letter
K. Neighborhood Meeting Notice
L. Neighborhood Meeting Certification
M. Attendee List
N. Neighborhood Meeting Summary

PLANS

Plan 1	Survey
Plan 2	Civil Engineer Site Plan
Plan 3	Existing Conditions & Demolition Plan
Plan 4	Grading & Utilities Plan
Plan 5	Landscape Plan, Notes & Details
Plan 6	Sheet 1 – Subdivision Plat
Plan 7	Sheet 2 Subdivision Plat
Plan 8	Photometric Plans
Plan 9	Construction Management Plan
Plan 10	Erosion Control Plan, Notes & Details
Plan 11	Erosion Control Plan, Notes & Detailspg021996
Plan 12	Details
Plan 13	Details
Plan 14	510 Cumberland Street View
Plan 15	Mellen Street View
Plan 16	61 Deering Mansard View
Plan 17	61 Deering Mansard Street View
Plan 18	61 Deering View
Plan 19	61 Deering Street View
Plan 20	Building A - Floor Plans
Plan 21	Building B Floor Plans

Att. 1

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

510 Cumberland Avenue - Status Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Nov 22, 2017 at 11:25 AM
To: "Shukria Wiar (shukriaw@portlandmaine.gov)" <shukriaw@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>

Hi Shukria – The following presents at status update of my preliminary traffic comments following a review updated application materials.

- I find the location of the Cumberland Avenue driveway to be reasonable, particularly in combination with the closing of the driveway nearest the Mellen Street intersection. The applicant should note if corner clearance standards are met and if a waiver is required.

  Status: The applicant has noted that the driveway meets City standards and I concur. I have no further comment.

- The applicant shall provide vehicle auto-turn graphics supporting the 19.8 foot wide parking aisle.

  Status: The applicant has provided the requested auto-turn graphic. The dimensions of the vehicle used in the analysis shall be provided.

- I support waivers for the 22 foot and 22.4-foot aisle widths, although the applicant should formally request waivers with documentation.

  Status: Detailed support documentation is outstanding.

- The applicant shall provide supporting documentation for exceeding the allowable percentage of compact spaces per City Ordinance.

  Status: The applicant shall provide documentation of vehicle type through field surveys of existing Avesta project sites. My observations do not support the claim of widespread smaller vehicle usage for similar sites.

- How will existing parked vehicles be accommodated.

  Status: The applicant has noted that the demand for the existing on-site parked vehicles will be eliminated. I have no further comment.

- An auto-turn schematic shall be provided for the HC parking spaces off Deering Street.

  Status: The plan has been modified and one off-street HC parking space is proposed. Given that only one space is proposed, the applicant should investigate an on-street option for providing a HC space.

- The applicant shall provide a driveway separation waiver evaluation for the driveway on Deering Street. I am supportive of a waiver given that it is an existing condition and traffic from the proposed site will decline.

Status: See prior comment and if the plan remains unchanged, detailed supporting documentation should be provided.

Additional Comments

- **I have conducted a preliminary review of the parking demand study and my initial review is that the supply appears reasonable. I would note that I continue to review the data and site conditions and final determination will be provided in the future.**

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

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DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Shukria Wiar, Planner
FROM: Lauren Swett, P.E. & Loren Joyce, E.I.T.
DATE: November 21, 2017
RE: 510 Cumberland Avenue, Level III Site Plan Application

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed Avesta Deering Place Project located at 510 Cumberland Avenue in Portland, Maine. The project involves construction of two (2) new four story buildings with ground level parking; one on the Cumberland Avenue Lot and another four story building on the Deering Street Lot.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Application and attachments, dated October 20, 2017, prepared by Thomas S. Greer, P.E. of Pinkham & Greer Civil Engineers, on behalf of Matthew Peters of Avesta Housing Development Corporation.
- Engineering Plans, Sheets, dated October 19, 2017, prepared by Thomas S. Greer, P.E. of Pinkham & Greer Civil Engineers, on behalf of Matthew Peters of Avesta Housing Development Corporation.

Comments

1) The application is preliminary. As such, we anticipate that additional documents will be submitted for the final application including letters from utilities confirming capacity to serve the proposed development. Woodard & Curran will perform a review of the Final Application upon receipt of those documents.
2) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. As described below, this project only meets the thresholds to require compliance with the Basic Standards. We offer the following comments:
   a) Basic Standards: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standards: The project will result in a de minimis increase in impervious area of approximately 330 square feet. As such, the project is not required to include any specific stormwater management features for stormwater quality control. We encourage the Applicant to review the City's Stormwater Service Charge Credit Manual (available online) to evaluate whether they may want to incorporate stormwater quality treatment measures that qualify for a future Stormwater Service Charge credit.
   c) Flooding Standards: The project will result in a de minimis increase in impervious area of approximately 330 square feet. As such, the project is not required to include any specific stormwater management features to control the rate or quantity of stormwater runoff from the site.
3) We have provided markup on the attached grading and utilities plan. A summary of the comments identified on that plan are as follows.
   a) Existing utility conditions appear to be incorrect. The Applicant should review their survey and coordinate with the Department of Public Works to obtain information about the utilities installed near the project as part of the Deering Street project that was recently completed.
   b) It appears that the sewer service is connected to the stormdrain, and the stormwater from the parking lot is connected to the sanitary sewer.
   c) Deering Street is now in moratorium, and all work in this street will be required to meet moratorium repair standards, if street impact is allowed.

d) Mellen Street has not yet received final pavement, but paving is planned for 2018. The City has indicated that the stormwater connection from the project should be into Mellen Street. If possible, other utility services should also be into the street, and should be coordinated prior to paving in 2018.
e) Onsite stormwater routing is unclear. An existing catch basin between the existing Building A and new Building B is being maintained, but the basin is not connected to any discharge location. A new catch basin in this area and the Building B foundation drain appear to be connected to the new Building A parking area, but it is not clear what the discharge location is. The invert at this location is approximately 6 feet above grade.
f) The grading between Building B and the new Building A parking area shows a steeply sloped area down to a retaining wall. No drainage structures are shown in this area. Additional clarification should be provided on how drainage works in this area.
g) Multiple storm drain pipes remain connected to existing catch basin at center of garage space. It is unclear what remains connected to the stormdrain system.
h) The garage is to be located over the existing paved parking lot, and two existing catch basins are being maintained. The Applicant should confirm that with the proposed work to construct building foundations and structural components that the existing catch basins and piping can remain in place.

4) Snow storage is identified inside of the garage. The purpose of this area should be clarified, and the floor drainage should ensure that the area will drain.
5) The driveway apron layout detail references concrete sidewalk. This should be updated to show brick sidewalk.

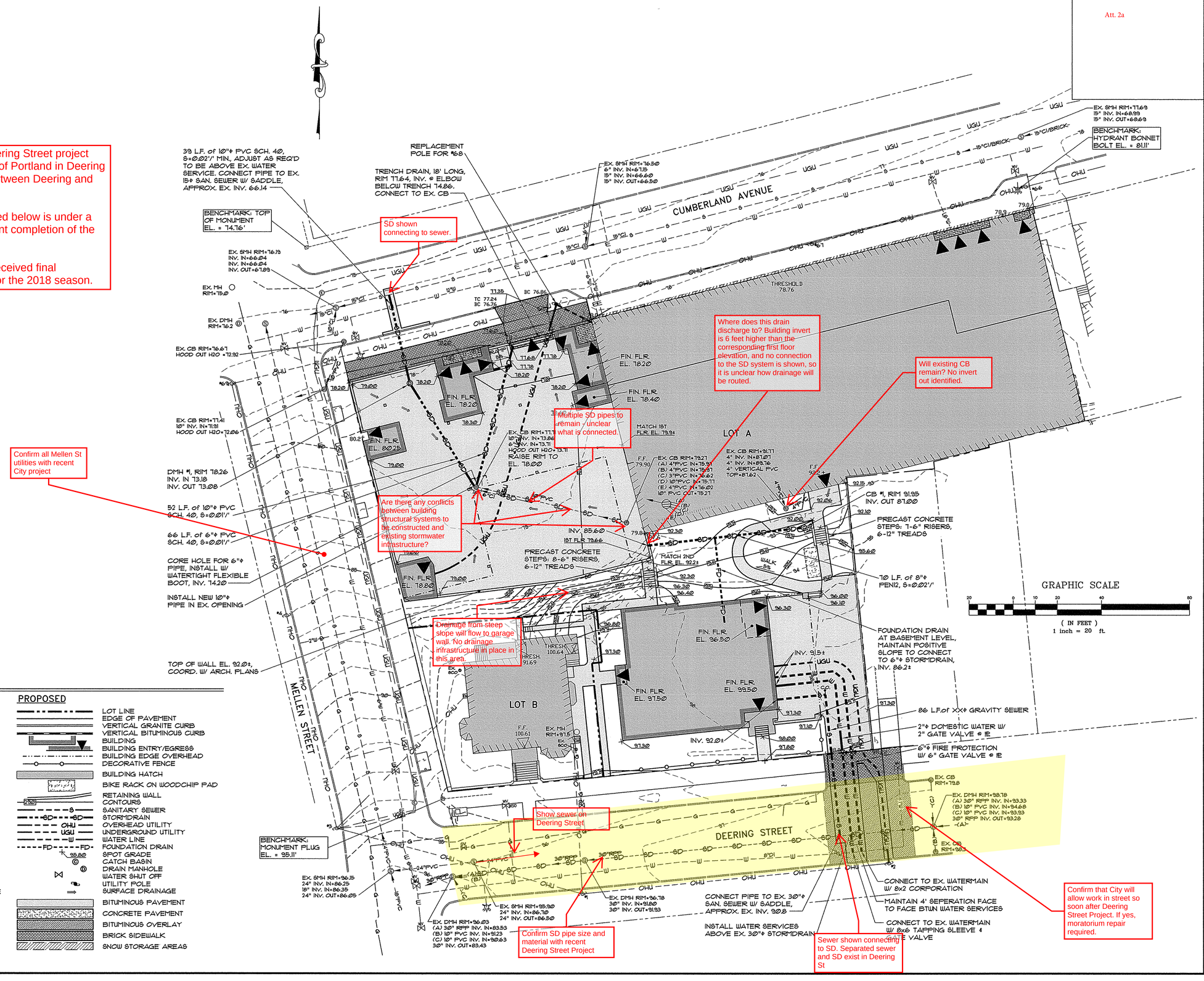
Comments by Lauren Swett
11/21/17

Att. 2a

Confirm all utilities with Deering Street project recently completed by City of Portland in Deering Street and Mellen Street between Deering and Cumberland.

Deering Street as highlighted below is under a moratorium due to the recent completion of the sewer separation project.

Mellen Street has not yet received final pavement, but is planned for the 2018 season.



LEGEND

EXISTING

- PROPERTY LINE
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- BUILDING
- EDGE OF GRAVEL
- CURB
- CONTOURS
- WALL
- MONUMENT FOUND
- GAS LINE
- SANITARY SEWER
- STORMDRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- SPOT GRADE
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC METER
- GAS METER
- SEWER MANHOLE
- UTILITY POLE
- UTILITY POLE W/ GUY WIRE
- SIGN
- HYDRANT
- GATE VALVE
- GAS VALVE
- DECIDUOUS TREE
- CONIFEROUS TREE

PROPOSED

- LOT LINE
- EDGE OF PAVEMENT
- VERTICAL GRANITE CURB
- VERTICAL BITUMINOUS CURB
- BUILDING
- BUILDING ENTRY/EGRESS
- BUILDING EDGE OVERHEAD
- DECORATIVE FENCE
- BUILDING HATCH
- BIKE RACK ON WOODCHIP PAD
- RETAINING WALL
- CONTOURS
- SANITARY SEWER
- STORMDRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- FOUNDATION DRAIN
- SPOT GRADE
- CATCH BASIN
- DRAIN MANHOLE
- WATER SHUT OFF
- UTILITY POLE
- SURFACE DRAINAGE
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BITUMINOUS OVERLAY
- BRICK SIDEWALK
- SNOW STORAGE AREAS

PINKHAM & GREER
CIVIL ENGINEERS
28 WASHINGTON AVE. PORTLAND, ME. 04103
TEL. 207.781.5242 FAX. 207.781.4753

STATE OF MAINE — THOMAS GREER No. 4206 — LICENSED PROFESSIONAL ENGINEER — 10/24/17

REV.	DATE	DESCRIPTION
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN
DATE: OCTOBER 19, 2017
PROJECT: 17127
DRN BY: JDC
DESG BY: TSG
CHK BY: TG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

GRADING & IUTILITIES PLAN

C2.3

MAP/LOT 47/B/1, 2, 3 & 29

MEMORANDUM

To: FILE

From: Shukria Wiar

Att. 3

Subject: Application ID: 2017-132

Date: 9/8/2017

Comments Submitted by: John Brennan/Fire on 8/17/2017

Access between new Building B and existing Building C appears to be tight. Access to the egress windows of the upper floors will need to be made via portable ground ladders. The new building shall not affect the egress or required Fire Department access for the neighboring building.

Comments Submitted by: John Brennan/Fire on 8/17/2017

Premises Identification
The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.
Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer.
If the building entry faces a different street, both the street name and number should be large enough to read from the street.
Address numbers must be a minimum of 6 inches high.
The number should be in Arabic numerals rather than spelled out (for example, “130” instead of “One Hundred and Thirty’).
Color: Addresses should be in a color that contrasts with the background.
Whenever possible, should be illuminated.
Provide additional address signs at entrances to the property when the building address is not legible from the public street.
Buildings set back in groups that share common entrances can make quickly locating a specific building and the shortest route difficult. On such sites, additional signs with directional arrows and/or diagrams of the buildings and access layout should be posted.

Comments Submitted by: John Brennan/Fire on 8/17/2017

Emergency vehicle access is excellent for the building on Cumberland Avenue, Mellen St and Deering Avenue.

Portland Maine Yes. Google's good here.

Att. 4

Shukria Wiar <shukriaw@portlandmaine.gov>

PEZ 2017.132 Pedestrian Accessibility and Public ROW Comments - 510 Cumberland Ave

Bruce Hyman <bhyman@portlandmaine.gov> Tue, Nov 21, 2017 at 4:16 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Tom Errico <thomas.errico@tylin.com>, Keith Gray <kgray@portlandmaine.gov>, Jeremiah Bartlett <jbartlett@portlandmaine.gov>

My comments related to Pedestrian Accessibility and the design of within the Public Right of Way are:

- The Site Plan (C2.1 V5) nor the Existing Conditions and Demolition Plan show the existing and any planned changes to curb ramps, crosswalks and other pedestrian provisions within the ROW along the frontage of the site. The curb ramp at the corner of Cumberland Avenue and Mellen Stree is not ADA-compliant (per Google Streetview, Oct 2016 - I have not field verified); if it is currently non-compliant, it is to be brought fully up to ADA-standards, including Detectable Warning Panel. The sidewalk immediately adjacent to it along Cumberland Avenue is being reconstructed in brick.
- The Site Detail Sheet (C3.2) is to be revised to show at 2% maximum cross-slope for: the full width of the adjoining sidewalk in the Brick Driveway Apron with Bituminous Base (2); and the full width of the sidewalk as shown in Brick Sidewalk with Bituminous Base (1). Ideally, the Site Plan (C2.1 V5) would also show these maximums as well. The Detail for Driveway Apron Layout (3) illustrates the 2% maximum cross-slope but also shows concrete sidewalk and driveway but only brick sidewalks are to be constructed - an FYI mostly.

Please don't hesitate to contact me if you have any questions.

Bruce
--
Bruce Hyman
Transportation Program Manager
Transportation Division

Department of Planning & Urban Development
389 Congress Street
Portland, Maine 04101
(207) 874-8717 phone

bhyman@portlandmaine.gov
http://www.portlandmaine.gov/1363/Transportation-Division
Yes! Transportation's Good Here ....

Att. 5

HISTORIC PRESERVATION BOARD
CITY OF PORTLAND, MAINE

WORKSHOP
61 DEERING STREET and 510 CUMBERLAND

TO: Chair Benson and Members of the Historic Preservation Board

FROM: Deb Andrews, Historic Preservation Program Manager

DATE: November 20, 2017

RE: November 29, 2017 **2nd Workshop** – Preliminary Review of Proposed New Construction, Alterations to Existing Non-Contributing Buildings and Building Addition

Address: 61 Deering Street and 510 Cumberland

Applicant: Avesta Housing Development Corporation

Architect: David Lloyd, Archetype

Introduction

Following an initial workshop on November 1st, architect David Lloyd and representatives of Avesta Housing Development Corporation have requested a second workshop to present revised plans for the redevelopment of property at 61 Deering Street and 510 Cumberland Avenue. Board members will recall that the subject property occupies the western end of the block bounded by Deering Street, Mellen Street and Cumberland Avenue and includes a surface parking lot and contributing historic structure fronting on Deering Street as well as two connected noncontributing buildings and a surface parking lot on Cumberland. The applicant intends to sell the historic structure at the corner of Deering and Mellen and redevelop/renovate the balance of the parcel. "Deering Place" will accommodate approximately 80 units of housing, with 48 units reserved for affordable housing.

The proposed project calls for the following construction activities: 1) new infill construction on the existing parking lot at 61 Deering; 2) renovation of two adjoining non-contributing structures at 510 Cumberland; and 3) new construction on the existing parking lot at the corner of Cumberland and Mellen. The new building will adjoin the existing Cumberland Avenue structures, creating a contiguous complex of 3 buildings.

As the entire development area falls within the Deering Street Historic District, design review authority rests with the Historic Preservation Board. The project is also subject to site plan and subdivision review by the Planning Board.

Enclosed for the second workshop is a memo from David Lloyd itemizing the design revisions made in response to Board and public input at the November 1 workshop (Attachment 1) together with the revised renderings (Attachment 2). Enclosed for reference purposes is a copy of the proposal presented on November 1 (Attachment 3). Also enclosed is a summary of Archetype's initial outreach to Maine Human Rights Commission, together with a description of the Commission's findings (Attachment 4). Finally, enclosed is a copy of staff's e-mail to the Maine Human Rights Commission requesting an opportunity to discuss the project pursuant to the HP Board's comments during its initial review. (Attachment 5).

Summary of Board Comments at First Workshop

As noted above, the applicant's initial design proposal is included for reference—see Attachment 2. Based on the preliminary design proposal, the Board expressed a number of concerns and observations with respect to the proposed development's compatibility with its Deering Street and Cumberland Street contexts. Following is a summary of Board comments:

General Comments

- There was general acknowledgement that the project needs to respond to two distinct contexts. Deering Avenue is noteworthy for its uniform character--in terms of architectural expression, scale, material palette, setback from the street, etc., and for its preponderance of formal, high-style late 19th century residential structures. Cumberland Avenue, by contrast, features a more eclectic, generally vernacular, mix of residential buildings. The street exhibits a greater variety of building styles, exterior materials and building heights.

- Questions were raised about rooftop mechanicals and vents. Given the residential context and the absence of such features on traditional residential structures, the project architect was encouraged to give careful consideration to the number and location of necessary mechanicals.

Renovation of former House of Lights Building

- The Board responded favorably to the proposed modifications to the roofline, which include removing the peaked parapets and faux mansard roof. These relatively modest changes succeeded in providing a more cohesive architectural expression for the building. And while it was noted that the window-to-wall ratio on the upper floors was unfortunate and that the upper floors were ill-proportioned, it was understood that changing the masonry openings was likely not possible from a cost perspective.

- Board members raised concerns about the proposed treatment of the ground floor level. As presented, there were no identifiable entrances to this building. Although physically connected to abutting structures and served by entrances on the abutting structures, the former House of Lights building reads, as it should, as a separate building. As such, its ground floor should feature one or more identifiable building entrances. Without entrances, the aggregated buildings read as a development that is separate and apart from the surrounding neighborhood. Board members expressed the view that the

building would be significantly improved by introducing individual entrances at each of the storefront bays that would access the individual units behind these storefronts. By introducing a series of raised stoops, the building would relate to the prevailing development pattern along Cumberland Avenue and better integrate the project into the neighborhood.

Responding to this concern, Mr. Lloyd explained that he initially proposed to provide a series of entrances along this façade, but that the Maine Human Rights Commission found that the project would not meet the requirement of all units being accessed from a common entrance and corridor. (See Attachment 4.) Pursuant to the HP Board's comments, staff offered to contact the MHRC to discuss the matter and determine whether a waiver might be considered in light of local historic preservation ordinance requirements. (See enclosed communication to MHRC—Attachment 5.)

<u>New Addition at Corner of Cumberland and Mellen Streets</u>

- Board members expressed concern about the relatively grand scale of the addition's entrance surround, noting that its scale did not appear appropriate for the building's residential context.

- Given the more vernacular nature of the new addition with its clapboard exterior and less formal architectural treatment, it was suggested that copper for the mansard roof might not be the most appropriate choice. Board members suggested that painted standing seam metal or zinc-coated metal shingles be considered for the roofing.

- Board members noted that the "windows" on the ground floor look into a parking garage. Rather than a window, some suggested that the openings be infilled with another treatment that was a more honest expression of what was behind the façade.

- Mr. Lloyd was encouraged to revisit the proportions of the upper floor windows, particularly within the dormer. Traditionally, windows at the top floor or dormer level are shorter than those on the floors below.

- Concern was expressed about the Mellen Street elevation. Board members noted that Mellen Street has its important context and that the building base reads as a blank wall that does not engage the street. Board members argued that the lower end of the building base, close to the Cumberland Ave corner, warranted further articulation to provide visual interest.

- Regarding the "hyphen" that separates the new addition and the existing structure on Cumberland, Board members questioned the depth of its setback and the very recessive nature of the entrance at this location. In general, Board members noted that the entrances along Cumberland, other than the one main entrance on the new addition, appeared too incidental and recessive. Making the additional entrances a bit more prominent would punctuate the ground level façade and better engage the building with the neighborhood.

New Construction on Deering Street

- Although it was clear that an effort had been made to take visual cues from the surrounding context—in terms of building height, setback, material palette, mansard roof form, vertical windows, raised building base, etc.—Board members noted that the proposed development departed from its context in one very fundamental respect. The building was designed to accommodate four floors of housing within the same vertical dimension as the three-story buildings that surround it. By introducing a fourth story, the floor-to-ceiling heights had to be reduced, as did the window and bay heights. The overall number of windows was also significantly increased. This "compressing" effect resulted in a design solution that was fundamentally at odds with the existing development pattern of Deering Street. The buildings that line Deering Street feature generous floor-to-ceiling heights, tall windows and bays, deep cornice overhangs and other architectural features of generous scale and proportion. Board members expressed concern that the desired density of units for this building was driving a design solution that would be difficult to find compatible.

- As with the Cumberland Avenue addition, Board members noted that the windows at the fourth floor level should be reduced in height, consistent with the established tradition of graduated window heights.

- From the submitted renderings, it was difficult to tell whether the building base was articulated/differentiated in any way from the upper façade. As a defined base is a consistent feature of the buildings on the street, the project architect was encouraged to revisit this detail.

- Board members questioned the need for a fence at the sidewalk line, noting that this was not a characteristic of the immediate context.

- Board members expressed the view that the façade would benefit from greater articulation. Given that the Deering Street's historic residences exhibit a consistently high level of architectural distinction and richness of detail, introducing a new building into this context becomes especially challenging. While it is neither possible nor appropriate to replicate the architectural details of surrounding buildings, a skillful contemporary interpretation of key historic details will likely be important in achieving compatibility.

Summary of Public Comment

Several neighborhood residents attended the workshop and a number of them provided public comment. While some comments addressed issues not within the purview of the Historic Preservation Board, those relevant to the historic preservation review process are summarized here. Some residents expressed the view that the development as proposed had no relationship to its context. (In some instances, it was difficult to know whether this sentiment applied to both the Cumberland Avenue addition as well as the Deering Street infill.) One Deering Street resident argued that the Deering Street infill building was "too massive", had "too many units"

and that the windows were "too small". Several members noted that existing buildings on Deering Street range from 2 to 3 stories and that a 4-story building was out of context. One member of the public summed up what seemed to be the consensus view of those attending the workshop: "we want better design with fewer units".

Revised Proposal

David Lloyd has provided a written summary of the design revisions made since the first workshop. Given his itemized summary, there is no need to repeat the information here. As you will note, two roof options are provided for the Deering Street infill structure: one with a mansard roof and the other with a flat roof.

Enclosed for reference purposes are the renderings provided for the first workshop.

Staff Comments

Deering Street infill

In staff's view, the elimination of one floor represents a significant improvement in the overall design. This has allowed the floor and window heights to be adjusted, making the building much more compatible with its context. The elimination of one floor has also reduced the number of windows on the upper façade, thereby calming the façade. Staff also supports the elimination of the covered parking at the east end of the building. While this elevation was not shown in detail at the first workshop, the large opening would likely have been disconcerting as viewed from the street.

In terms of the roof options, staff finds the mansard roof option more contextual, not just because the building is flanked by historic structures with mansard roofs. In fact, as noted at the first workshop, there are flat- or shallow hipped-roof buildings just across the street. More important is the fact that the mansard roof helps achieve the overall facade proportions that characterize many of the buildings on Deering Street.

Pursuant to the Board's comments at the last workshop regarding articulation of the façade, staff finds the Deering Street façade notably spare. While it is inappropriate within the ordinance standards to replicate details of historic structures, a contemporary interpretation of key details is appropriate. Perhaps the introduction of projecting porch hoods, a feature shared by virtually all of the buildings on the street, would provide more detail and enrich the façade. The hoods could be interpreted in a contemporary treatment. Also, as the design proposal is further developed, the detailing of the bays and the recessed entries warrants careful study.

Renovation of former House of Lights building

Enclosed is a copy of staff's e-mail to the Maine Human Rights Commission regarding the issue of individual entries along the Cumberland Avenue façade. Despite a follow-up e-mail, staff has not yet heard back from the staff person who made the original finding which led to the current design proposal.

Should the MHRC's original requirement of no individual entries be confirmed, the Board will need to review more closely the proposed treatment of the storefront window bays. Staff assumes there have been no modifications to this aspect of the proposal pending word from MHRC.

The entry at the recessed connector between the new addition and existing building has been made more prominent with the inclusion of a canopy. From the renderings, it is difficult to tell whether the connector or the entry has been brought forward as well.

New Addition on Cumberland

In staff's view, the move away from a copper roof is appropriate for this more vernacular building. The scaled-down entrance surround is also an improvement from the initial proposal. It also appears that the proportions of the roof dormers have been adjusted slightly, which is an improvement.

Regarding the Mellen Street elevation, while staff understands that interior conditions within the ground floor garage limit the architect's ability to make significant adjustments, the introduction of a suspended canopy and wider entrance bay represent positive modifications. One question: now that the entry is a more prominent feature, does the offset position of the long vertical window above become visually awkward? Should this long vertical window assembly be changed to individual windows to make this offset less apparent?

Applicable Review Standards

In reviewing the proposed development, the Board will be referring to the ordinance's Standards for Review of Alterations to Non-Contributing Buildings and Standards for Review of New Construction. As the addition to the existing non-contributing building on Cumberland is intended to read essentially as a connected, but independent structure, the new construction standards apply to both the proposed addition and freestanding building on Deering Street.

Sec. 14-651.5 Standards for Review of Alterations to or Redesign of Noncontributing Structures

(a) In considering an application for a certificate of appropriateness involving alteration(s)

to a noncontributing structure the standards for review of alterations…..shall apply as applicable. The intent to the review shall be to ensure no further erosion of any architectural character of the subject structure determined to be significant by the historic preservation board and, where practicable, to guide projects toward a more compatible relationship with the surrounding context.

(b) In considering an application for a certificate of appropriateness involving comprehensive redesign of a contributing structure, the standards for review of construction….shall apply.

Sec. 14-651 Standards for Review of Construction

In considering a certificate of appropriateness involving new construction, the historic preservation board shall consider the following compatibility factors *as may be applicable to the context of the proposed construction.*

Scale and Form
- *Height*
- *Width*
- *Proportions of principal facades*
- *Roof Shapes*
- *Scale of the structure*

Compositions of Principal Facades
- *Proportion of Openings*
- *Rhythm of solids to voids in facades*
- *Rhythm of entrance porch and other projections*
- *Relationship of materials, texture and color*
- *Presence of signs, canopies and awnings*

Relationship to the Street
- *Walls of continuity*
- *Rhythm of spacing and structures on streets*
- *Directional expression of principal elevations*

Attachments

1. Letter from David Lloyd summarizing design revisions
2. Updated renderings
3. Original proposed renderings
4. Communication from Archetype regarding determination of Maine Human Rights Commission
5. Staff e-mail to Maine Human Rights Commission
6. Photos of project context

ATT. 1

A R C H E T Y P

November 16, 2017

Deb Andrews
Historic Preservations Program Manager
Portland City Hall
389 Congress Street
Portland, ME 04101

RE: Deering Place Re-Submission – Portland, Maine

Dear Deb,

We are submitting revised designs for the Board to consider at their November 29th meeting. Please note the following:

1. We have revised designs on the Deering Street building based upon board and neighborhood comments.

    a. The parking under the building has been eliminated.
    b. A floor has been eliminated from the building allowing higher floor to ceiling height and proportions of windows to more closely relate to its neighboring buildings.
    c. We have included two designs for the boards consideration, one with a mansard and one without.
    d. We have added doorways directly off the street to units in respect to neighboring buildings.
    e. We have eliminated the fencing along the front of the building per Boards comments.

2. We have revised the Cumberland Street addition per boards comments.

    a. The main entry way has been scaled down in size.
    b. The mansard roof is now standing seam painted metal VS copper.
    c. The stair entry at connector has been made more premiant with a canopy.
    d. The stair entry off Mellen Street has been made more prominent with canopy and door entry design.

3. We are waiting to hear from the MHR Commission via Deb Andrews regarding adding back the porch entries to the existing building. We are very willing to add these but cannot do so without permission from the Maine Human Rights Commission.

Thank you for the consideration of this project we look forward to our next workshop with the board and please feel free to call to discuss any concerns.

Respectfully Submitted,

David Lloyd
Maine Licensed Architect

48 Union Wharf, Portland, Maine 04101 (207) 772-6022• Fax (207) 772-4056

ATT. 2
REVISED
DESIGN
PROPOSAL

61

61

ATT. 3

ORIGINAL PROPOSAL

VIEW 1 - CUMBERLAND AVE ELEVATION

VIEW 2 - MELLEN ST ELEVATION

DEERING PLACE

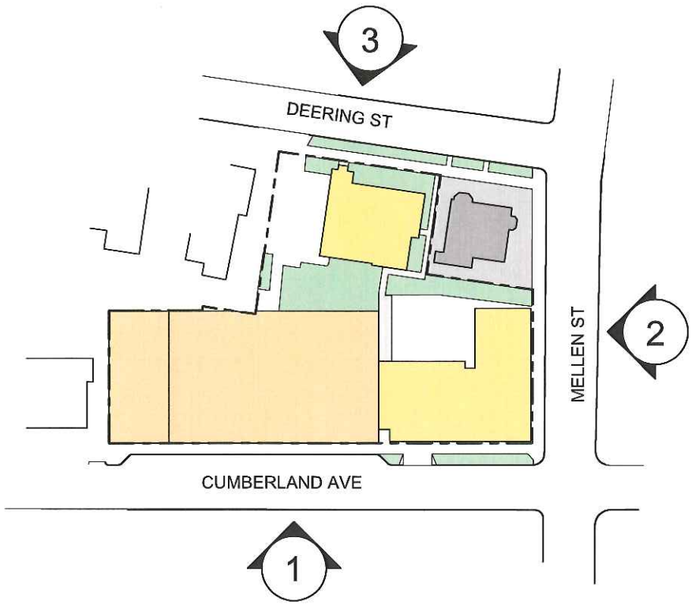
Portland, ME 04101

20 OCT 2017

A2.00

ARCHETYPE architects
48 Union Wharf Portland, Maine 04101

VIEW 3 - DEERING ST ELEVATION



DEERING PLACE

Portland, ME 04101

20 OCT 2017

A2.01

ARCHETYPE architects
48 Union Wharf Portland, Maine 04101

ATT. 4

ARCHETYPE'S SUMMARY OF COMMUNICATIONS W/ MHRC

DEERING PLACE, PORTLAND

NOTES REGARDING OUR APPLICATION FOR A WAIVER ON ONE ACCESSIBLITY REQUIREMENTS

The Maine Human Rights Act and the Americans with Disabilities Act both require a specific percentage of the units to be Accessible. These will be provided and detailed in the construction drawings.

The Maine Human Rights Acts also requires that the remainder of the units (those not required to be Accessible) shall be Adaptable. Adaptable units are sometimes referred to as ANSI Type B units. These Adaptable units have some of the features of Accessible Units, but not all the features. The particular feature that prompted us to ask for a waiver was that Adaptable units must be on an accessible route.

The seven proposed units on the ground floor of the existing building have security and privacy issues. Cumberland Avenue is viewed as being a security problem. The Community Policing Office is proposed to be located right next to these seven units.

To provide these units both security and privacy, we proposed that they be raised approximately 3 feet above the sidewalk elevation. This would enable their only windows to be above the level of people on the sidewalk. To achieve this we had to provide a short flight of stairs to each unit. Ramps were not feasible because of the length of the ramps necessary to meet Accessibility codes (the ramps would have to be 36' long).

The flight of stairs would mean these units were not on an accessible route and we approached The Maine Human Rights Commission to ask for a waiver on just these seven units out of the total number of seventy Adaptable units required.

I met with Barbara Archer Hirsch, the Commission Counsel at the Maine Human Rights Commission on August 10, 2017. I showed her the plans and discussed the issues and our desire to eliminate the security and privacy issues in these seven units. She agreed that what we proposed seemed justified, in light of the security concerns, and said that she would discuss it with her colleagues.

I told her that we would be willing to increase the overall accessibility of the project by making some of those seven units available for the hearing or vision impaired tenants, or adding additional fully Accessible units. We have, with advice from the Maine Human Rights Commission, done this previously where there have been accessibility issues. I left her the set of drawings and waited for their decision.

I received the response on September 8, 2017. The response was that there were no grounds for a waiver (such as structural infeasibility due to existing floor elevations). The seven units had to be on an accessible route.

I am including the contents of the response below:

I'm sorry for the delay in responding to you. I have been waiting to connect with our Executive Director to discuss this issue, and arranging time to do so has been unexpectedly difficult.

As you know, the proposal we discussed does not comply with the relevant MHRA standards. The ground floor units with raised entries would not be compliant because there would be no accessible route into and throughout the units. 5 M.R.S. sec. 4582-C(3). You have asked whether it would be acceptable to make 7 ground-floor units on Cumberland Ave. inaccessible (entry stairs) because of concerns about the neighborhood and the potential safety of tenants.

In this case, there is nothing about the building's historical value or its location which makes it impracticable for the units to be accessible. In fact, as I understand the matter, the units currently have street-level accessible entries (as storefronts, not apartments), which you would be raising in order to add stairs.

While we certainly understand the concern about safety, our job is to enforce the MHRA. The deliberate construction of inaccessible units violates the law where there is no arguably applicable exception to the MHRA's requirements. There are, we believe, ways in which you can improve the safety of the ground floor units without eliminating access for individuals with disabilities. Again, we understand that you would like to enhance security and privacy for tenants, but there is nothing in the law that would allow a finding that the project is in substantial compliance with the MHRA.

ATT. 5
STAFF E-MAIL TO MHRC

Portland Maine | Yes. Google's good here

Deb Andrews <d

Proposed Avesta Housing project at 510 Cumberland Avenue/61 De Portland

1 message

Deb Andrews <dga@portlandmaine.gov> Tue, Nov 7, 2017 at 11:35 AM
To: Barbara.ArcherHirsch@mhrc.maine.gov

Dear Ms. Archer Hirsch,

I am writing to you in my capacity as staff to the City of Portland's Historic Preservation Board in hopes of scheduling a time to discuss Avesta Housing's project at 510 Cumberland Avenue/61 Deering Street in Portland.

As you may be aware, the entire project site is located within the boundaries of Portland's Deering Street Historic District. Last week, the Historic Preservation Board held a preliminary workshop on the proposal, during which the Board raised concerns that there were no proposed entries into the former House of Lights building on Cumberland Avenue. Although the existing building is considered a "noncontributing" structure in the historic district, renovations are nonetheless subject to review under the provisions of Portland's historic preservation ordinance. The Board found the absence of entries across the entire facade of the building to be both inconsistent with the prevailing development pattern on Cumberland Avenue and counterproductive to the goal of integrating residents of the development into the neighborhood. The Board strongly encouraged that the proposal include a series of raised entries for the units at the ground floor level on Cumberland.

We learned in the meeting that the elimination of raised entries had been a requirement of the Maine Human Rights Commission and that the seven units across the frontage of the building had to be on an accessible route. Accordingly, all the units were shown accessed from an interior corridor.

I am hoping that you would be willing to discuss this matter further with me in light of the Historic Preservation Board's input. Recognizing that you're likely very busy, could you suggest a time that might be convenient for me to call?

Thank you for your consideration.

Deb Andrews

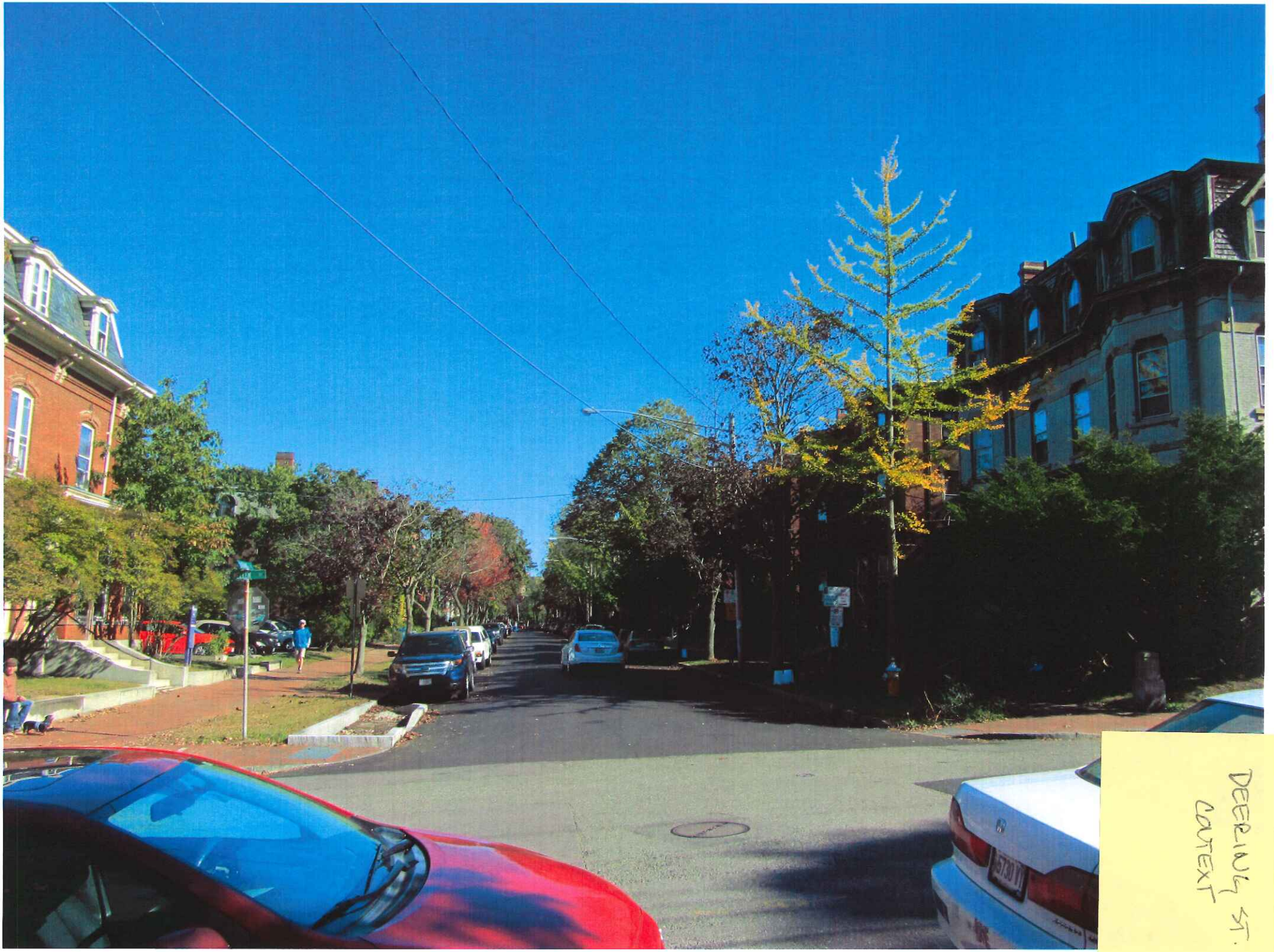
--
Deb Andrews
Historic Preservation Program Manager
City of Portland
389 Congress Street
Portland, Maine 04101
(207) 874-8726

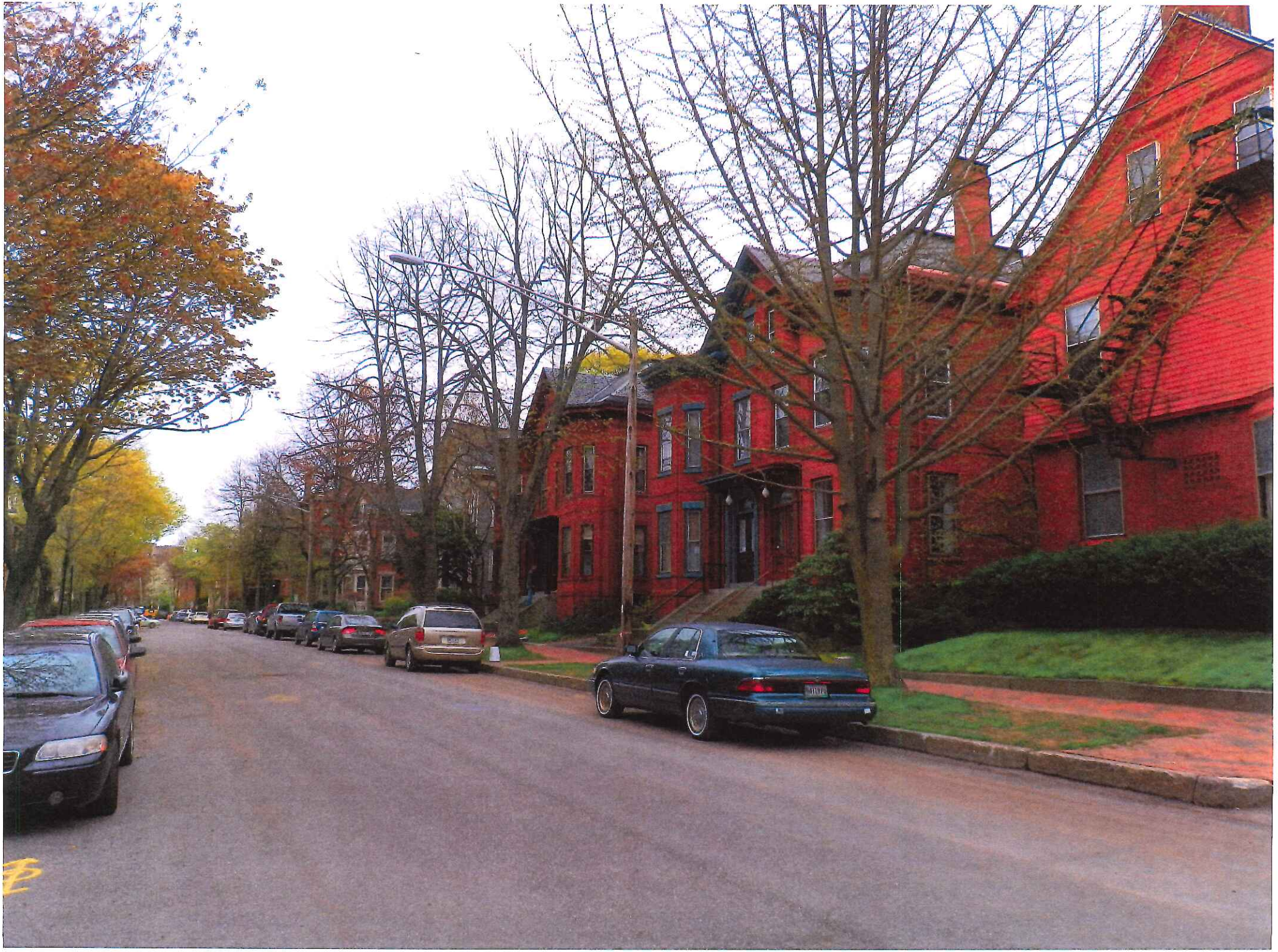
ATT. 6
PROJECT
CONTEXT

CORNER OF
MELLEN &
CUMBERLAND

DERBY ST.
INFILL SITE

CUMBERLAND AVE.
CONTEXT


DEERING ST.
CONTEXT



Att. 5

BUILDING A TOTALS
EXISTING UNITS -
13 - THREE BEDROOM UNITS
NEW UNITS -
7 - EFFICIENCY UNITS
25 - ONE BEDROOM UNITS
8 - TWO BEDROOM UNITS
53 TOTAL UNITS

59 TOTAL PARKING SPACES
34,870 SF - TOTAL NEW CONSTRUCTION
(INCL NEW UNITS & COMM RM.
IN EXIST BLDG)

BUILDING B TOTALS

8 - EFFICIENCY UNITS
15 - 1 BEDROOM UNITS
4 - 2 BEDROOM UNITS
27 UNITS TOTAL

5 PARKING SPACES
21,160 SF NEW CONSTRUCTION

PROJECT TOTALS

13 - 3 BEDROOM UNITS
12 - 2 BEDROOM UNITS
40 - 1 BEDROOM UNITS
15 - EFFICIENCY UNITS
80 UNITS TOTAL

64 PARKING SPACES
56,030 SF -TOTAL NEW CONSTRUCTION
(INCL NEW UNITS & COMM RM.
IN EXIST BLDG A)

1 SITE PLAN
1/16" = 1'-0"

Prepared For:
AVEST
HOUSIN

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207)772-6022ARCHETYPE@ARCHETYPEPA.COM

Project:
DEERING PLACE
Portland, ME 04101

Revisions:

Scale: 1/16" = 1'-0"

Date: 02 OCT 2017

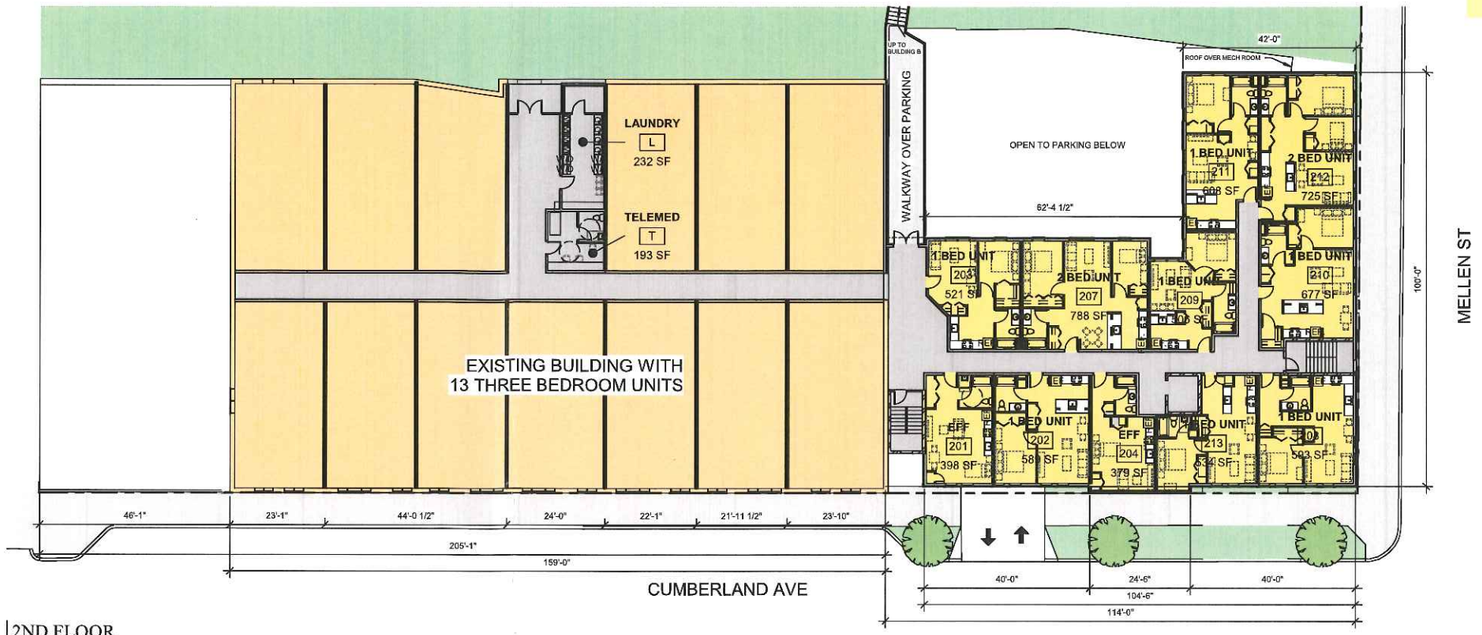
SITE PLAN

A0.00

ATT. 6

3 | 3RD & 4TH FLOOR PLANS
1/16" = 1'-0"

NEW CONSTRUCTION 8,584 SF

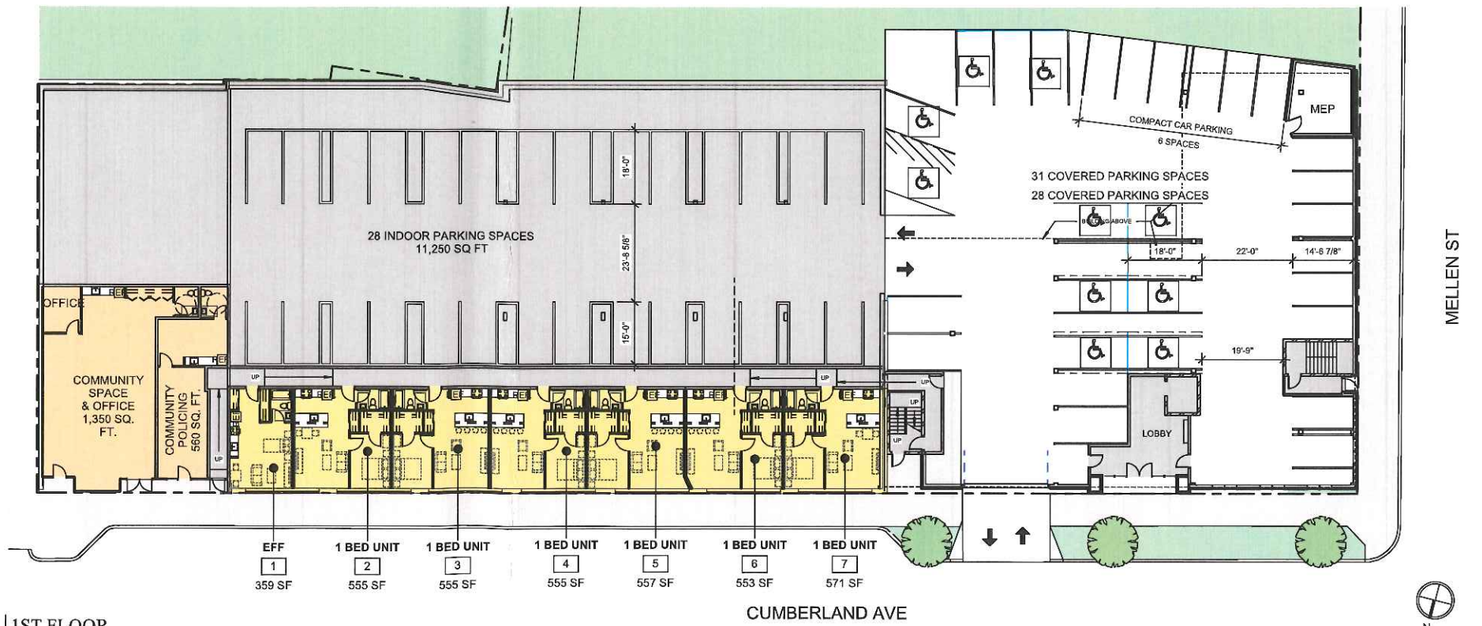


2 | 2ND FLOOR
1/16" = 1'-0"

NEW CONSTRUCTION - 8,584 SF

BUILDING A TOTALS
EXISTING UNITS -
13 - THREE BEDROOM UNITS
NEW UNITS -
7 - EFFICIENCY UNITS
25 - ONE BEDROOM UNITS
7 - TWO BEDROOM UNITS
53 TOTAL UNITS
59 TOTAL PARKING SPACES

34,870 SF - TOTAL NEW CONSTRUCTION
(INCL NEW UNITS & COMM RM.
IN EXIST BLDG)



1 | 1ST FLOOR
1/16" = 1'-0"

NEW CONSTRUCTION - 1,330 SF
NEW UNITS & COMMUNITY IN EXIST BLDG - 5,915 SF

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Consultant:

Prepared For:
AVESTA HOUSING

Project:
DEERING PLACE
Portland, ME 04101

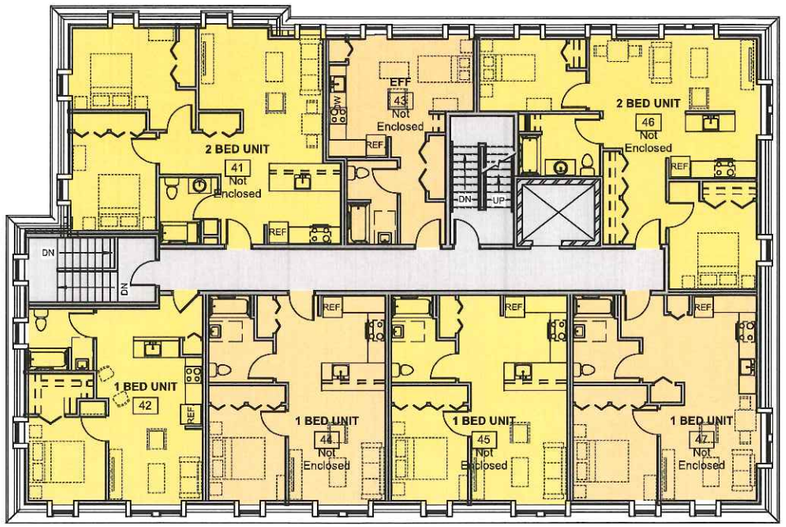
Revisions:

Scale:
1/16" = 1'-0"

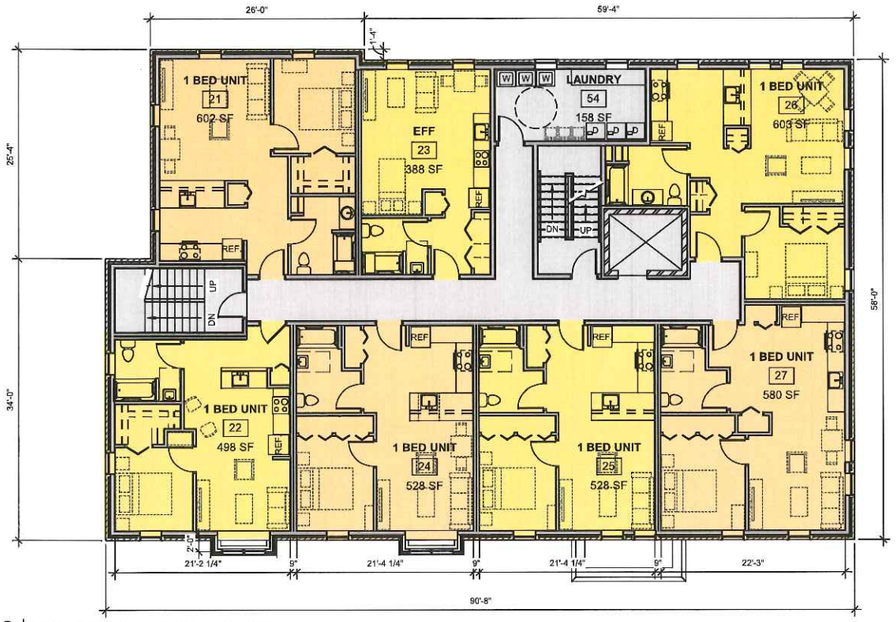
Date:
02 OCT 2017

BUILDING A - FLOOR PLANS

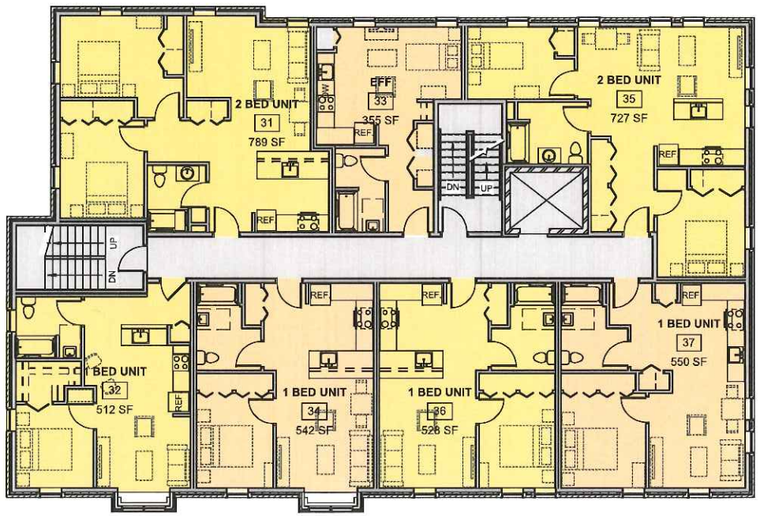
A1.01



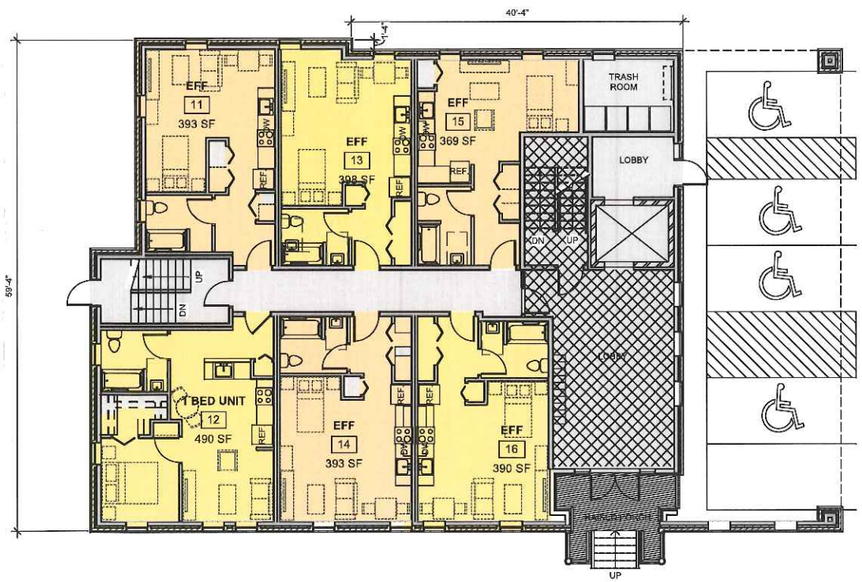
4 | 4TH FLOOR 5,136 SF GROSS
1/8" = 1'-0"



2 | 2ND FLOOR 5,165 SF GROSS
1/8" = 1'-0"



3 | 3RD FLOOR 5,165 SF GROSS
1/8" = 1'-0"



1 | 1ST FLOOR 3,967 SF GROSS
1/8" = 1'-0"

- INDICATES BASEMENT BELOW

BUILDING B TOTALS

8 - EFFICIENCY UNITS	**27 UNITS TOTAL**
15 - 1 BEDROOM UNITS	21,160 TOTAL GROSS SF
4 - 2 BEDROOM UNITS	5 PARKING SPACES

Prepared For:
AVESTA HOUSING

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
510 CUMBERLAND AVENUE HOUSING
510 Cumberland Ave, Portland, ME 04101

Revisions:

Scale: 1/8" = 1'-0"

Date: 02 OCT 2017

BUILDING B FLOOR PLANS

A1.02

File: 17127

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

November 7, 2017

Ms. Shukria Wiar
City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: MODIFICATIONS, 510 CUMBERLAND AVENUE
DEERING PLACE, AVESTA HOUSING

Dear Shukria,

We have made the following changes to the plans in response to Staff comments.

Lauren Swett & Loren Joyce – Woodard & Curran

1. We have provided additional information on Stormwater Management, Erosion Control, Grading and Utilities. Detail sheets are also provided.
2. We have provided Good Housekeeping notes and a Maintenance & Inspection Report referencing Chapter 32 of the Technical Standards.
3. We have requested waivers for parking standards.

Keith Gray – Public Works

The Construction Management Plan has been revised to relocate the dumpster and address the sidewalk issues.

We anticipate no work on the corner of Deering and Mellen.

John Brennan – Fire Department

Proposed sidewalk material is in accordance with the sidewalk policy.

The buildings will be addressed as noted in his memo.

William Scott – Public Works

The plans have been stamped by the Surveyor. The requested changes to the plans have been made.

PINKHAM & GREER
CIVIL ENGINEERS

Tom Errico – TY LIN International

Corner clearances to the relocated driveway on Cumberland are met. The dimension has been added to the Site Plan.

Auto-turn diagrams for the HC parking were included in the recent submittal.

Waivers are noted on the Subdivision Plan for drive aisle dimensions.

We have added a waiver for the driveway separation on Deering Street.

The compact spaces are appropriate as the majority of the residents will have small vehicles as lower incomes accommodate.

The parking lot at 510 Cumberland is used for the existing 13 residents and existing office space. The office space will be converted to residential units or parking and be eliminated from this site.

Sincerely,

PINKHAM & GREER,
CIVIL ENGINEERS

Thomas S. Greer, P.E.

Enclosures

cc: Matthew Peters, David Lloyd, Patrick Hess, File

TSG/rjs

Att. A

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

File: 17127

November 17, 2017

Ms. Shukria Wiar
City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: SUBMITTAL, 510 CUMBERLAND AVENUE
DEERING PLACE, AVESTA HOUSING

Dear Shukria,

We have made the following changes to the 510 Cumberland Avenue project.

1. The architecture has been revised in response to HP comments. The Deering Street building has been significantly modified, see drawings.
2. The parking layout for the Cumberland Avenue parking and the Deering Street parking has been revised.
3. Included in our submittal is a Parking Study by Traffic Solutions justifying the reduced number of spaces.
4. The Landscaping along Deering Street has been modified to match the new building footprint.
5. The application data sheets have been modified to reflect the unit count and impervious area.

Please note the Subdivision Plat is not stamped by the surveyor, that is in the works and will be updated shortly.

Please let me know if you have any questions.

Sincerely,

PINKHAM & GREER,
CIVIL ENGINEERS

Thomas S. Greer, P.E.

Enclosures

cc: Matthew Peters, David Lloyd, Patrick Hess, File

TSG/rjs

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Deering Place
Proposed Development Address:	510 Cumberland Avenue / 61 Deering Street
Project Description:	Construction of 2 Apartment Buildings for 84 Units.
Chart/Block/Lot:	Map 47, Block B / Lots 1, 2, 3, & 29
Preliminary Plan	Yes
Final Plan	

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	Matthew Peters
Business Name:	Avesta Housing Development Corporation
Address:	307 Cumberland Avenue
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-245-3370
Home #:	
Cell #:	
Fax #:	
E-mail:	MPeters@avestahousing.org

OWNER

Name:	Same as Applicant
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

AGENT/REPRESENTATIVE

Name:	Thomas S. Greer, P.E. (Pinkham & Greer Civil Engineers)
Address:	28 Vannah Avenue
City/State:	Portland, ME
Zip Code:	04103
Work #:	207-781-5242
Home #:	
Cell #:	
Fax #:	207-781-4245
E-mail:	tgreer@pinkhamandgreer.com

BILLING (to whom invoices will be forwarded to)

Name:	Avesta Housing Development Corporation
Address:	307 Cumberland Avenue
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-245-3370
Home #:	
Cell #:	
Fax #:	
E-mail:	MPeters@avestahousing.org

ENGINEER

Name:	Thomas S. Greer, P.E. (Pinkham & Greer Civil Engineers)
Address:	28 Vannah Avenue
City/State:	Portland, ME
Zip Code:	04103
Work #:	207-781-5242
Home #:	
Cell #:	
Fax #:	207-781-4245
E-mail:	tgreer@pinkhamandgreer.com

SURVEYOR

Name:	Owen Haskell
Address:	390 US Route One #10
City/State:	Falmouth, ME
Zip Code:	04105
Work #:	207-774-0424
Home #:	
Cell #:	
Fax #:	207-774-0511
E-mail:	

ARCHITECT

Name:	David Lloyd (Archetype Architects)
Address:	48 Union Wharf
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-772-6022
Home #:	
Cell #:	
Fax #:	207-772-4056
E-mail:	lloyd@archetypepa.com

ATTORNEY

Name:	
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	Rita Sawyer
E-mail:	rsawyer@pinkhamandgreer.com
Name:	Thomas S. Greer
E-mail:	tgreer@pinkhamandgreer.com
Name:	
E-mail:	

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☑	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☐	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☐	Traffic Movement	$1,500.00
☐	Stormwater Quality	$250.00
☑	Subdivision	$500.00
	# of Subdivision Lots 69 x $25.00 (per lot)	$ 1,725.00
☐	Site Location	$3,500.00
	# of Site Location Lots x $200.00 (per lot)	$
☐	Change of Use	
☐	Flood Plain	
☐	Shoreland	
☐	Design Review	
☐	Housing Replacement	
☑	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$ 2,231.25

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($50.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

Original 53,368

TOTAL AREA OF SITE	A-47,500, B-5,868		sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	27,900		sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.			
IMPERVIOUS SURFACE AREA			
Impervious Area (Total Existing)	A-40,455, B-3,115		sq. ft.
Impervious Area (Total Proposed)	A-39,452, B-3,300		sq. ft.
Building Ground Floor Area and Total Floor	Lot A	Lot B	
Building Footprint (Total Existing)	A-20,655, B-0	2,250	sq. ft.
Building Footprint (Total Proposed)	A-29,239, B-5,165	No change	sq. ft.
Building Floor Area (Total Existing)	A-61,965, B-0	6,750	sq. ft.
Building Floor Area (Total Proposed)	A-67,062, B-15,495	No Change	sq. ft.
ZONING			
Existing	R6		
Proposed, if applicable	R6		
LAND USE			
Existing	Residential		
Proposed	Residential		
RESIDENTIAL, IF APPLICABLE			
# of Residential Units (Total Existing)	Lot A 13, Lot B 3		
# of Residential Units (Total Proposed)	Lot A 76, Lot B 3		
# of Lots (Total Proposed)	2		
# of Affordable Housing Units (Total Proposed)	Lot A 76, Lot B 0		
	Lot A		
PROPOSED BEDROOM MIX	Bldg A	Bldg B	
# of Efficiency Units (Total Proposed)	7	9	
# of One-Bedroom Units (Total Proposed)	25	14	
# of Two-Bedroom Units (Total Proposed)	8	0	
# of Three-Bedroom Units (Total Proposed)	13	0	
PARKING SPACES	Lot A	Lot B	
# of Parking Spaces (Total Existing)	58	0	
# of Parking Spaces (Total Proposed)	49	6 Leased from Lot A	
# of Handicapped Spaces (Total Proposed)	13	0	
BICYCLE PARKING SPACES	Lot A	Lot B	
# of Bicycle Spaces (Total Existing)	Lot A 0, Lot B 0		
# of Bicycle Spaces (Total Proposed)	Lot A 35, Lot B 0		
ESTIMATED COST OF THE PROJECT	$10,000,000.00		

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	Thomas Saucier AGENT
Date:	11/17/17

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
x		1	Completed Application form
x		1	Application fees
x		1	Written description of project
x		1	Evidence of right, title and interest
n/a		1	Evidence of state and/or federal approvals, if applicable
x		1	Written assessment of proposed project's compliance with applicable zoning requirements
x		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
x		1	Written requests for waivers from site plan or technical standards, if applicable.
x		1	Evidence of financial and technical capacity
x		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
x		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
x		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
x		Proposed grading and contours;	
x		Existing structures with distances from property line;	
x		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
n/a		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
n/a		Preliminary infrastructure improvements;	
		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
x		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
x		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
x		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
x		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
x		1	* Completed Application form
x		1	* Application fees
x		1	* Written description of project
x		1	* Evidence of right, title and interest
n/a		1	* Evidence of state and/or federal permits
x		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
x		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
x		1	* Evidence of financial and technical capacity
x		1	Construction Management Plan
x		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
x		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
x		1	Stormwater management plan and stormwater calculations
		1	Written summary of project's consistency with related city master plans
		1	Evidence of utility capacity to serve
		1	Written summary of solid waste generation and proposed management of solid waste
		1	A code summary referencing NFPA 1 and all Fire Department technical standards
n/a		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
n/a		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
x		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
x		1	**Final Site Plans including the following:**
x			Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);
			Existing and proposed structures on parcels abutting site;
x			All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
x			Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
x			Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
x			Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
n/a			Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
x			Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
x			Location of all snow storage areas and/or a snow removal plan;
x			A traffic control plan as detailed in Section 1 of the Technical Manual;
n/a			Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);
n/a			Location and proposed alteration to any watercourse;
n/a			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
n/a			Proposed buffers and preservation measures for wetlands;
n/a			Existing soil conditions and location of test pits and test borings;
x			Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
n/a			A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;
x			Grading plan;
x			Ground water protection measures;
x			Existing and proposed sewer mains and connections;

- Continued on next page -

		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
x		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
n/a		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
x		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
x		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
n/a		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
n/a		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
x		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

Att. C

Doc#: 56966 Bk:33552 Pg: 280

MAINE REAL ESTATE TAX PAID

QUITCLAIM DEED WITH COVENANT

The Opportunity Alliance, a non-profit corporation organized and existing under the laws of the State of Maine, with a place of business at 50 Lydia Lane, South Portland, Maine 04106, for consideration paid, grants to **Avesta Housing Development Corporation,** a Maine non-profit corporation, with a mailing address of 307 Cumberland Avenue, Portland, Maine 04101, with Quitclaim Covenant, certain real property situated at 510 Cumberland Avenue (a/k/a 498-500 Cumberland Avenue) and 61-73 Deering Street, Portland, Cumberland County, Maine, as more fully described in Schedule A appended hereto and incorporated herein (the "Premises").

IN WITNESS WHEREOF, **The Opportunity Alliance** has caused this instrument to be executed and delivered in its corporation name by Michael J. Tarpinian, its President thereunto duly authorized this 25th day of October, 2016.

The Opportunity Alliance

By: _____
Michael J.Tarpinian
Its President

State of Maine
Cumberland, ss

October 25, 2016

Then personally appeared the above-named Michael J. Tarpinian, President of The Opportunity Alliance, and acknowledged the foregoing instrument to be his free act and deed in such capacity, and the free act and deed of The Opportunity Alliance.

Before me,

_____
Notary Public/Attorney at Law

Gary D. Vogel
Print name

SCHEDULE A

to

Quitclaim Deed with Covenant

The Opportunity Alliance to Avesta Housing Development Corporation

A certain lot or parcel of land, with the buildings thereon, situated in Portland, Cumberland County, Maine, and bounded and described as follows:

Beginning at the intersection of the easterly sideline of Mellen Street and the southerly sideline of Cumberland Avenue; thence easterly along the southerly sideline of Cumberland Avenue three hundred twenty (320) feet and eight (8) inches to land now or formerly of Donald L. Donnelly, Jr., et al.; thence southerly by said Donnelly land twenty-four (24) inches to a point; thence westerly at right angles to the last course of eight (8) inches to a point; thence southerly ninety-six and eight tenths (96.8) feet, more or less, to land formerly of one Harris; thence westerly by land formerly of Harris forty-five (45) feet to a point; thence southerly one and two tenths (1.2) feet to a point; thence westerly twenty-five and eight tenths (25.8) feet to a point, which point is one hundred (100) feet southerly from Cumberland Avenue; thence southerly three and forty-six hundredths (3.46) feet to land formerly of Marion D. Noyes; thence westerly by said Noyes land forty (40) feet to a corner thereof; thence southerly by said Noyes land one hundred twenty-four (124) feet to the northerly sideline of Deering Street; thence westerly by the northerly sideline of Deering Street, one hundred ninety-four (194) feet, more or less, to the easterly sideline of Mellen Street; thence northerly by the easterly sideline of Mellen Street to the southerly sideline of Cumberland Avenue and the point of beginning.

Also hereby conveying the right to enter on land of Donald L. Donnelly, Jr., et al. for the maintenance of a pilaster as set forth in Deed to Lloyd H. Holmes, et al. dated October 15, 1976, recorded in Book 3926, Page 199.

Together with an easement for the construction, maintenance, repair, replacement and use of a fire emergency exit and all purposes related thereto, but no other purposes, described in Easement Deed from Peter L. Adams et ux. to People's Regional Opportunity Program dated April 28, 1992, recorded in Book 10064, Page 216.

The premises is conveyed subject to all encumbrances of record, which Grantee by its acceptance of this deed agrees to satisfy, other than with respect to the obligations, set forth in an Agreement between the City of Portland and People's Regional Opportunity Program dated May 13, 1993, recorded in Book 10693, Page 290 which shall remain the obligation of Grantor to the extent, if any, not satisfied.

For Grantor's title see Deed dated May 13, 1992, from Fleet Bank of Maine to Peoples Regional Opportunity Program, recorded with Cumberland County Registry of Deeds in Book 10064, Page 213. As reflected in the records of the Maine Secretary of State, The Opportunity Alliance was formerly known as Peoples Regional Opportunity Program.

Received
Recorded Register of Deeds
Oct 26,2016 09:55:26A
Cumberland County
Nancy A. Lane

Att. D

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: June 1, 2017

Bradley Roland, P.E.
Water Resources Division

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 510 Cumberland Avenue / 61 Deering Street

Chart Block Lot Number: 47/B/1, 2, 3 & 29

Proposed Use: Residential
Previous Use: Residential
Existing Sanitary Flows: 936 GPD
Existing Process Flows: 5,906 GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.
Cumberland Avenue & Deering Street

Site Category		
	Commercial *(see part 4 below)*	
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	X
	Other *(specify)*	

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Barbara Barhydt Phone: 207-874-8699
Owner/Developer Name: Avesta Housing
Owner/Developer Address: 307 Cumberland Avenue, Portland, ME 04101
Phone: 207-245-3370 Fax: E-mail: MPeters@avestahousing.org
Engineering Consultant Name: Thomas S. Greer, P.E. Pinkham & Greer Civil Engineers
Engineering Consultant Address: 28 Vannah Avenue, Portland, ME 04103
Phone: 207-781-5242 Fax: 207-781-4245 E-mail: tgreer@pinkhamandgreer.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 82x1.2x60 per person, per day = 5,906 GPD
Peaking Factor/ Peak Times: am & pm domestic peak times
Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __"Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, Other (specify)* 60 gallons per day per person

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: n/a

Size of External Grease Interceptor: n/a

Retention Time: n/a

Peaking Factor/ Peak Times: n/a

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: n/a GPD

Do you currently hold Federal or State discharge permits? Yes ____ No ____

Is the process wastewater termed categorical under CFR 40? Yes ____ No ____

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

DEERING PLACE
61 Deering Street & 510 Cumberland Avenue
File: 17127

1. Waiver for required parking spaces from 66 spaces to 49 spaces.
2. Reduction of Drive Aisle from 24 feet to 19.1 feet, 20.3 feet, 21.7 feet, 21.9 feet and 22.0 feet.
3. Waiver of Deering Street driveway, driveway separation requirement from tax map 47-B-10 & 11.

Deering Place
61 Deering Street & 510 Cumberland Avenue
Portland, Maine

October 19, 2017

INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

The owner will be responsible for the inspection and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book as described herein. At a minimum, the appropriate and relevant activities for each of the stormwater management facilities should be performed on the prescribed schedule. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion and remove pollutants from stormwater runoff.

POST CONSTRUCTION MONITORING:

32-38. Post-construction stormwater management plan compliance.

Any person owning, operating, or otherwise having control over a BMP required by a post Construction stormwater management plan shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with that plan as follows:

(a) Inspections. The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

(b) Maintenance and repair. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services ("DPS") in the annual report.

(c) Annual report. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective

action(s) taken.

(d) Filing fee. Any persons required to file and annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) Right of entry. In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

(Ord. No. 35-09/10, 8-17-09)

SWALES, DITCHES AND PAVED SURFACES:

Swales, ditches and paved surfaces are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events such as thundershowers and periods of heavy or extended rainfall and during periods of significant snowmelt. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged pavement or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved surfaces should be visually inspected monthly during the winter. The inspector should pay particular attention to the build up of ice and sand along the edge of the road and remove accumulations that block the free flow of surface runoff to the catch basins. Paved areas should be swept at least once annually. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made.

CATCH BASINS, FIELD INLETS AND DRAIN MANHOLES:

Catch Basins and field inlets are precast concrete structures with sumps and cast iron grates used to collect stormwater and trap heavy sediments. Drain Manholes are similar structures constructed with a channel instead of a sump and a solid cast iron cover instead of a grate. Drain Manholes exist at changes in direction and/or size of storm drain pipe. Catch Basins, field inlets and drain manholes provide access to the closed storm drain system for inspection and maintenance.

Throughout the winter / spring sanding period, inspect catch basins and field inlets monthly and after every significant rainfall event or period of heavy snowmelt. Clean catch basin and field inlet sumps when sediment level is within 3 inches of the outlet pipe invert. Record dates of inspections, observations and maintenance measures implemented (if any) on the forms provided and initial the entry.

Confined space entry safety procedures should be practiced when entering these structures.

DEERING PLACE – 61 DEERING STREET & 510 CUMBERLAND AVENUE PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES AND PAVED SURFACES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
10/3/17	ABC	I, C	EXAMPLE: removed sand along the edge of the road. Heavy rain over the weekend.

DEERING PLACE – 61 DEERING STREET & 510 CUMBERLAND AVENUE PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
CATCH BASINS, FIELD INLETS, DRAIN MANHOLES AND OUTLET CONTROL STRUCTURE			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
10/3/17	ABC	I, C	EXAMPLE: Remove sand deposits and debris as necessary.

STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	**X Mow**		**X**	
Pavement	Review for damage and buildup of debris and sand.	**X**	**X Sweep**		
Catchbasin and Drain Manholes	Inspect grates to assure optimum water flows into the structures. Inspect sump and casco traps for blockage and sediment accumulation. Clean out sumps.	**X Inspect**		**X Sediment removal**	

HOUSEKEEPNG REPORT

DEERING PLACE
61 DEERING STREET & 510 CUMBERLAND AVENUE
PORTLAND, MAINE

October 19, 2017

Housekeeping: The developer is responsible for notifying the contractor and owner of the housekeeping standards.

1. Spill Prevention: The contractor and owners need to take care with construction and waste materials such that contaminates do not enter the stormwater. The storage of materials such as paint, petroleum products, cleaning agents and the like are to be stored in watertight containers. The use of the products should be in accordance with manufacturer recommendations. When fueling equipment, including snowblowers and lawnmowers, have oil absorbent pads available below the fueling.

   Staging areas are noted on the Construction Management Plan for the contractor's use. Refueling of small engines by the owner should occur in the garage or on a paved surface.

   Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at: http:/www.maine.gov/dep/spills/emergspillresp/

2. Groundwater Protection: Protection of the groundwater is required by the contractor and owner. Petroleum products should be stored in manufactured cans designed for the purpose. Spill preventions procedures should be followed.

3. Fugitive Sediment and Dust: The contractor is required to minimize dust from the construction operation. The road should be swept regularly (weekly) and prior to any rain event. The gravel areas are to be watered regularly to minimize dust. Any mud that is tracked off site should be cleaned up prior to it drying and becoming a dust issue.

   Do not use oil to control dust.

   Dewatering a stream without a permit from the Department may violate state water quality standards and the Natural Resources Protection Act.

4. Debris and Other Materials: Construction materials and construction debris should be covered to prevent rainwater from washing contaminants off the site. Any fertilizers, cleaning products, herbicides should be protected from the weather and used in accordance with manufacturers recommendations.

   Note any contaminants that are washed off the site by rainwater is a violation of the Clean Waters Act.

Storage Handling and Disposal of Solid Waste items must comply with Maine's Solid Waste Management Rules. Lack of appropriate pollutant control may result in violations of the Groundwater Quality Standards.

This project has a written Erosion Control Plan and Stormwater Maintenance Plan. Modifications to the plan must be approved by the City.

Maintenance of stormwater treatment and control systems must occur regularly. The Stormwater Maintenance Report provides inspection details and time lines for doing the inspections and reporting to the City and DEP

Traffic Solutions
William J. Bray, P.E.
235 Bancroft Street
Portland, ME 04102
(207) 774-3603
(207) 400-6890 mobile
trafficsolutions@maine.rr.com

November 7, 2017

Parking Assessment
Proposed
DEERING PLACE
Portland, Maine

INTRODUCTION

Avesta Housing Development Corporation is proposing construction of an 80-unit multi-family housing project on a parcel of property located at 510 Cumberland Avenue and 61 Deering Street. The subject property is located on the Portland Peninsula within the R-6 Residential Zone.

The proposed project will provide a total of 80 multi-family units that will include 11 efficiency units, 45 one-bedroom units, 11 two-bedroom units and 13 three-bedroom units. The proposed site design provides a total of 61 on-site parking spaces.

The City's Zoning Ordinance presently requires one parking space for each proposed residential unit within the R-6 and R-6A residential zones on the peninsula (Sec. 14-332.1 (k). Except;

> *2. "The required parking for multi-unit residential buildings may be partially met through provisions of shared use vehicles…One shared use vehicle shall be deemed to satisfy eight (8) required car spaces…"*
> *4. "No parking shall be required for the first three units in the R-6 Residential Zone…"*

Avesta Housing Development Corporation is proposing to locate a "*shared -use vehicle*" on-site consistent with the City's Zoning Ordinance provision.

Accounting for the parking space reduction provisions in the City Land-Use Code, the proposed project is required to provide a total of 69 parking spaces. The current site design provides a total of 61 on-site parking spaces leaving a required balance of 8 parking spaces.

Section 14-332.1(k) of the City's Land-Use Ordinance allows: "*the Planning Board may establish a parking requirement that is less than the normally required number of spaces upon a finding of unique conditions that result in a lesser parking demand…*".

This report has assimilated parking data from previous Portland Peninsula multi-family projects and parking data collected in the fall of 2017 at two Avesta Housing multi-family apartment sites in support of a much lower

parking demand requirement for the proposed project. The parking data conclusively demonstrates that the proposed 61 on-site parking spaces exceed, by a considerable margin, the actual parking demand of the project.

PARKING DEMAND

A January 16, 2015 memorandum from Planning Staff to Members of the Planning Board proposing text amendments to the R-6 Residential Zone cites information presented in a housing study conducted by the Greater Portland Council of Governments that the percentage of households on the peninsula with 0 to 1 vehicle is 77% greater than the national average of 44%. The document further states that, "*current trends can be found in several recent assessments for specific development proposals which have assessed the average need of the peninsula to be 0.48 spaces per apartment unit. Though parking space demand will vary across households, this assessment has been affirmed, and peer reviewed, in several recent studies that have accompanied development proposals to the Planning board*".

A March 26, 2014 parking study conducted by Gorrill-Palmer Consulting Engineers for a proposed 134-unit Washington Avenue project; concluded, based upon the collection of detailed parking occupancy counts, the appropriateness of a 0.48 parking space per apartment unit. The parking data from that report is highlighted as follows:

53 Danforth Street: 43 total units ÷ 29 spaces occupied		= 0.67 spaces/unit
645 Congress Street: 56 units ÷ 28 spaces occupied		= 0.50 spaces/unit
Walker Terrace: 40 units ÷ 20 spaces occupied		= 0.50 spaces/unit
Oak Street Lofts: 37 units ÷ 16 spaces occupied		= 0.43 spaces/unit
Franklin Towers: 200 units ÷ 58 spaces occupied		= 0.29 spaces/unit
	Average:	= 0.48 spaces/unit

Parking space utilization surveys were performed at two Avesta Housing sites on the Portland Peninsula during the month of October 2017 to establish and compare the parking demand of these sites with the prior parking demand information. The two multi-family housing sites included: 1) Munjoy Commons, a 39-unit apartment complex located on Emerson Street and, 2) Pearl Place #1 and Pearl Place #2, a large apartment complex located on Pearl Street. Specific site information related to the number and mix of apartment units for each location are presented for each property as follows:

- Munjoy Commons, a 39-unit site includes 1 efficiency unit, 10 one-bedroom units, 20 two-bedroom units and 8 three-bedroom units. A total of 39 on-site surface parking spaces are provided for tenants of the facility.
- Pearl Place #1 Pearl Place #2, a very large 114-unit multi-family project located on Pearl Street at Lancaster Street. The combined Pearl Place project includes a total of 46 one-bedroom units, 42 two-bedroom units, and 26 three-bedroom units. A total of 90 on-site parking spaces are provided with a mix of both covered and open-lot spaces.

The following table 1 presents the results of the parking utilization study:

Table 1
Avesta Housing
Parking Space Utilization Study
Summary

Apartment Site Location	Number of Units	Total Parking Spaces	October 30 Utilization Data		October 31 Utilization Data			November 1 Utilization Data
			5:00PM	6:00PM	5:00AM	5:00PM	6:00PM	5:00AM
Munjoy Commons	39 Apts.	39 spaces	5 veh.	9 veh.	11veh.	6 veh.	6 veh.	12 veh.
Pearl Place I & II	114 Apts.	90 spaces	37	43	64	36	34	63
TOTAL	153 Apts.	129 spaces	42	52	75	42	40	75

The average peak parking demand measured at the two Avesta Housing sites occurs, as one would expect, in the early morning hours of a typical weekday. Seventy-five (75) of the 129 combined on-site parking spaces were found occupied during this single hourly time period. Accordingly, the average peak parking demand of the two Avesta Housing project sites, based upon full occupancy, is estimated at 0.49 spaces per unit (75 ÷ 153 = 0.49). Avesta Housing has advised that four of the 153 apartment units are currently vacant, therefore, the adjusted average peak parking demand for the two apartment developments is 0.50 spaces per unit (75 ÷ 149 = 0.50). The most recent parking data collected at the two local Avesta Housing sites on the Portland Peninsula affirms the appropriateness of the previous average peak parking demand ratio of 0.48 parking spaces per unit recommended by City Staff in 2015.

Traffic Solutions, applying the slightly greater peak parking demand value of 0.50 spaces per unit, estimates the proposed 510 Cumberland Avenue and 61 Deering Street project will require a minimum of 40 parking spaces to meet the estimated peak parking demand of the building tenants. The current site design provides a total of 61 on-site parking spaces or 21 additional spaces.

SUMMARY

- The proposed Avesta Housing project proposes a total of 80 multi-family units that include 11 efficiency units, 45 one-bedroom units, 11 two-bedroom units, and 13 three-bedroom units. The proposed site design provides a total of 61 on-site parking spaces for the tenants of the proposed project. The City's Zoning Ordinance in Chapter 14.332.1 (k) requires residential development on the Peninsula in the R-6 and R-6A zones to provide 1 parking space per apartment unit or specific to the proposed Avesta Housing site a total of 80 parking spaces. The City Code provides two parking space reductions; 1) an 8-space parking reduction if a "*shared-use vehicle*" is located on-site and 2) no parking is required for the first three units in the R-6 zone. The site design provides an on-site space for the "*shared-use vehicle*". These two exceptions reduce the parking demand requirements of the proposed site based upon the City Code to a total of 69 parking spaces. Finally, the City Ordinance allows the Planning Board, "*to establish a parking requirement less than the required number upon a finding of unique conditions that result in a lesser number...*". The body of the Parking Assessment report, and as summarized below, conclusively demonstrates the appropriateness of a much lower parking space requirement for the proposed apartment project.

- City Staff, in a January 2015 report to the Planning Board, suggested the appropriateness of a reduced parking demand rate for peninsula apartment projects. The report references several recent development

parking studies that determined the average peak parking demand requirement is likely near 0.48 parking spaces per unit vs. the current Zoning Ordinance requirement of 1 parking space per unit.

- Parking studies were conducted at two Avesta Housing apartment buildings on the Portland Peninsula in late October 2017 to determine the peak parking demand requirements specific to Avesta Housing project sites. The parking utilization study findings show a nearly identical peak parking demand ratio (0.48 vs. 0.50) to the 2015 City Staff recommendation.

- Traffic Solutions estimates that the proposed 80-unit multi-family housing project at 510 Cumberland Avenue and 61 Deering Street requires a minimum of 40 parking spaces to meet the peak parking demand of the proposed site. The proposed site design provides a total 61 on-site parking spaces or 21 more than the calculated peak parking demand of the site.

Att. H

AVESTA
HOUSING

November 7, 2017

Shukria Wiar, Planner
Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

RE: Deering Place -- parking for existing structure at 73 Deering Street

Shukria,

As part of the Deering Place project, we will dedicate spaces in the new development for the adjacent property, the existing building at 73 Deering Street. These spaces will be located in the parking lots proposed as part of the Deering Place redevelopment. Our plan is to sell the 73 Deering Street building and, at such time, we would lease the dedicated spaces to the new owner. At the time of Planning Board approval, a five-year lease with renewal options for six spaces will be provided for the benefit of 73 Deering Street.

Regards,

Patrick Hess
Development Officer

ORBEON SERIES

SURFACE/CEILING/GARAGE

Cat.#	
Job	Type

BEACON design . performance . technology

Approvals

Att. I

SPECIFICATIONS

Intended Use:

Orbeon is a commercial grade LED parking garage and canopy luminaire which utilizes high powered LEDs, precise efficient optical control, and features application versatility through integrated intelligent control options. Orbeon is designed to replace up to 100 Watt HID lamps with 40 watts and 175 Watt HID lamps with 60 watts while at the same time reducing maintenance by delivery of over 100,000 hours of projected life.

Construction:

- Monolithic die cast aluminum housing, providing direct convective heat exchange between the LED light engine and the cool ambient air.
- LED drivers are strategically heat sinked to the main housing for maximum reliability and longevity.
- Electro-galvanized mounting bracket is provided for quick and easy mounting to an overhead junction box.

LED/Optics:

- Each Orbeon luminaire is supplied with one of multiple lamp and optical systems designed to meet specific needs of optical performance or control.
- Each of these options features an LED engine with thermally conductive metal clad PCB, high power and efficient LED lamps, and PMMA (acrylic) optics/lenses.
- Silicone foam gasketing ensures a weather tight seal around the optical assembly.

Electrical:

- 120V through 277V, 50 Hz to 60 Hz.
- Orbeon comes standard with 70 CRI.
- Power factor is min 0.90 at full load.
- All electrical components are rated over 100,000 hours at full load and 25ºC ambient conditions.
- Driver is specially designed to minimize the burden of wiring and connections within the luminaire - and the concurrent risk of failure of those components.
- Driver is also specially designed for use with SiteSync – including the ability to turn off LED lamps without use of a relay.

SiteSync™ Controls:

- Dimming schedules, diagnostics, and other advanced features are optionally available through SiteSync lighting control system.
- Proprietary SiteSync board is tightly integrated to the LED module, for an affordable solution with aggressive return on investment times.
- Battery-backed real time clock.
- Self-contained wireless control for maximum simplicity and reliability.
- The feature shall be wirelessly adjustable with respect to dimmed and high brightness levels, cycle duration, time periods when the motion detection is active, and sensitivity level.
- A luminaire so equipped may also be set as a "master" to remotely drive one or more "satellite" luminaires to a high level upon detecting motion.
- This functionality can be used to limit motion sensors to strategic locations, with "satellites" acting in near unison and with minimal latency.
- An integrated photo sensor can be utilized for daylight harvesting by inhibiting motion activation in the presence of sufficient ambient light.
- In addition, Orbeon can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit: www.hubbelllighting.com/sitesync/ for more details.

Installation:

- Eight pound luminaire body is easily hung from the bracket to facilitate wiring, then is swung up and secured in place with a single screw to complete the installation process.
- An optional bird guard provides a conical surface surrounding the junction box, to deter birds from nesting atop the luminaire.

Finish:

- IFS polyester powder-coat electro-statically applied and thermocured.
- IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Listings:

The luminaire shall be NRTL certified to IP65, UL 1598 and 8750 standards for use in wet locations.

Warranty:

Five year limited warranty for more information visit:
www.hubbelllighting.com/resources/warranty

CERTIFICATIONS/LISTINGS

C SP US · UL 1598 · UL 8750 · DLC DLC QPL LISTED · IP65

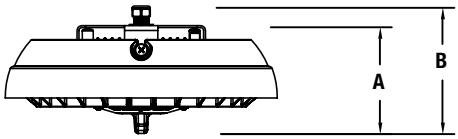
PRODUCT IMAGE(S)

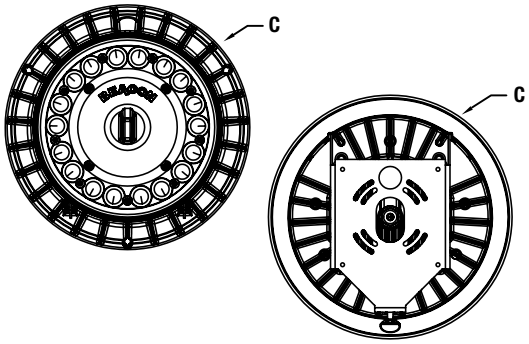
60W Shown with SiteSync and Occupancy Sensor options

40W version shown with Occupancy Sensor option

DIMENSIONS

Direct to Surface Mount





A	B	C	Weight:
4.5" (114 mm)	5.31" (135 mm)	11.25" (286 mm)	8.0 lbs (3 kg)

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HUBBELL Lighting

VIPER S SERIES

SMALL VIPER LUMINAIRE

Cat.# VPS-24L-55-3K7-2 WALL MOUNT

Job

Type S2

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is ≥.90 at full load.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- The housing is designed for an optional twist lock photo control receptacle.
- Ambient operating temperature -40°C to 40°C
- Surge protection - 20KA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see www.beaconproducts.com/products/energeni).
- In addition, Viper can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/sitesync for more details.

Installation:

- Mounting options for horizontal armd, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electro-statically applied and thermocured.
- IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermosetsuper TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Listings:

- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Certified to UL 1598 and CSA C22.2 No.250.0
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/vipersmall

Warranty:

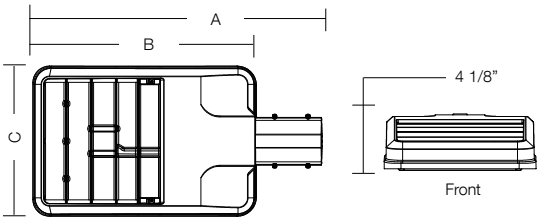
Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

CERTIFICATIONS/LISTINGS

*3000K and warmer CCTs only

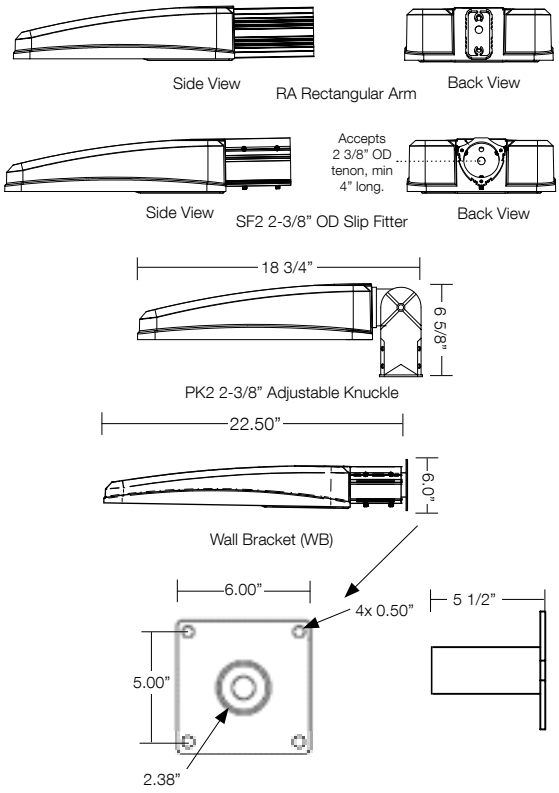
PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	Weight:	EPA
22.75" (578 mm)	16.75" (425 mm)	11.25" (286 mm)	15.0 lbs (6.8 kg)	.67 ft²

MOUNTING OPTIONS



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HUBBELL Lighting

TRAVERSE SERIES

SURFACE/CEILING/GARAGE

Cat.# TRV-24L-55-3K7-2

Job

Type S3

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:
The Traverse luminaire is a wall surface mounted luminaire with a field replaceable LED light engine & optical bezel system. Internal components are totally enclosed in rain-tight and corrosion-resistant die cast aluminum housing. The TRV Luminaire is suitable for wet locations.

Construction:
- Traverse luminaire consists of a die cast aluminum two-piece housing.
- Die cast main (thermal) housing provides direct heat exchange between the LED light engine and the cool outdoor air by drawing heat through integral heat channels and out to the sculptured and functional luminaire surface.
- LED drivers are thermally isolated from the main housing, mechanically attached and heat sinked to the rear housing.
- Main housing is designed with heat dissipat ing fins for LED thermal management without the use of metallic screens, cages, or fans.
- Shape of the main housing is designed to prevent debris accumulation and as a bird nesting deterrent. The back and main housings are designed to hinge open for easy mounting and easy access.

LED/Optics:
- Optical one piece cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- A two-piece die cut silicone and polycarbon ate foam gasket ensures a weather-proof seal around each individual LED and allows the Traverse luminaire to be rated for high-pressure hose down applications.
- Optical cartridge is secured to the extruded housing with fasteners and a heat pad to ensure thermal conductivity.
- Optics are held in place without the use of adhesives and the complete assembly is gasketed for high pressure hose down cleaning.
- Cartridge assembly is available in various lighting distributions using TIR designed acrylic optical lenses over each LED.

Electrical:
- 100V through 277V, 50 Hz to 60 Hz (UNV).
- Power factor is min 0.92 at full load.
- All electrical components are rated at 50,000 hours at full load and 40°C ambient conditions per MIL-217F Notice 2.
- Optional 0 to 10 volt dimming drivers are available upon request.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is listed by UL for use at 600VAC at 50°C or higher.
- Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. 15A rating applies to primary (AC) side only.
- Surge protection - 20KA

Controls/Options:
- Traverse is available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage down to a factory preset level, reducing light level accordingly. When motion is detected, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from the standard configurations
- Available with Energeni for optional set dimming with simple delay, or timed dimming based on time of night (see Energeni product page for more details www.beaconproducts.com/products/energeni
- In addition, Traverse can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit: www.hubbelllighting.com/sitesync/ for more details

Installation:
- Rear housing (back plate) is designed with various bolt patterns for direct wall mounting or mounting to a recessed 4" junction box.
- Rear housing has three integral 3/4" NPT power feed locations (bottom and each side) for surface mounted conduit applications.
- After mounting the rear housing to the wall or junction box, the main housing is designed to hang and hinge closed after connecting the male and female quick connectors.
- Mounting design permits a simple retrofit to existing wall luminaires that utilize surface mount or recessed junction boxes.

Finish:
- IFS polyester powder-coat electro-statically applied and thermocured.
- IFS finish consists of a five stage iron phosphate chemical pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 perfor mance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Listings:
- The luminaire shall bear a CSA label and be marked suitable for wet locations (standard).
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/traverse

Warranty:
Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

CERTIFICATIONS/LISTINGS

C SA US

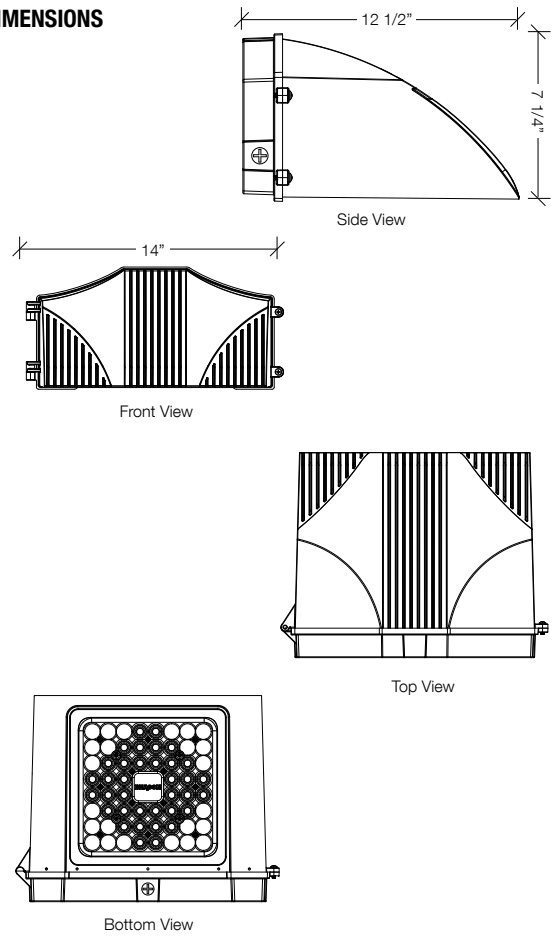
ida DARK SKY APPROVED 2016

*3000K and warmer CCTs only

PRODUCT IMAGE(S)

Shown with SiteSync™

DIMENSIONS



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HUBBELL® Lighting

CDL

4”, 5” or 6” Recessed LED Downlight

DESCRIPTION

The CDL4 and CDL6 are recessed downlights designed for new construction or retrofit applications. Each downlight is offered in 3000K color temperature, with a CRI of 90 for exceptional color rendering. The dimming range is from 100 - 10%. The CDL series is designed to meet Energy Star and California Title 24 standards for residential and non-residential applications.

CDL4

CDL6

tradeSELECT®

FEATURES

- Highly reflective matte white finish with baffle
- 3000K color temperature LED
- 90 CRI
- 120V
- Dimming range from 100% through 10%
- Wet Location rated
- Title 24
- Lighting Facts Listed
- Energy Star® Qualified

PRODUCT AVAILABILITY TABLE

	VAC	Lumens	Watts	LpW
CDL4-7L30KA WH	120	705	9	81
CDL6-8L30KA WH	120	763	10	76

Note:
Photometric files available for download at www.hubbelllighting.com

APPLICATION

The CDL Series is designed to be a cost competitive downlight for retrofit or new construction applications. The CDL6 has a telescoping retention bracket that allows it to be used in both 5” and 6” recessed housings. The CDL4 is designed to fit into 4” recessed housings.

STANDARDS, CERTIFICATIONS & COMPLIANCE

California Title 24 residential and non-residential
UL Listed to UL 1598
Energy Star® Qualified

WARRANTY

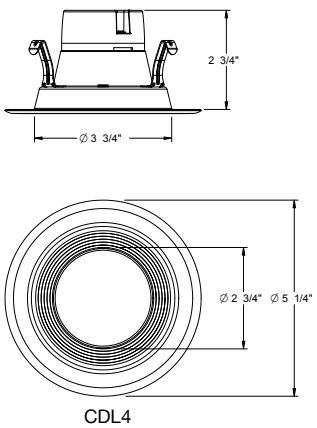
5 year limited warranty

Single Carton Weight CDL4: .52 lbs.
Single Carton Weight CDL6: .96 lbs.
Master Carton Quantity: 8 each

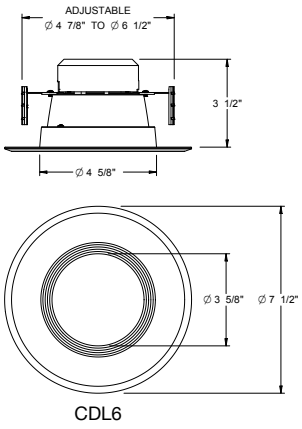
ORDERING GUIDE

Catalog Number	Description
CDL4-7L30KA WH	4” Downlight, 700 Lumen, 3000K, 90 CRI, White
CDL6-8L30KA WH	5” or 6” Downlight, 800 Lumen, 3000K, 90 CRI, White

DIMENSIONS



CDL4



CDL6

ELECTRICAL DATA	4"	5” & 6”
Input Voltage	120V AC	120V AC
Input Frequency	50/60 Hz	50/60 Hz
Input Current	0.08A	0.09A
Input Power	8.7W	10.0W
Power Factor	>0.90	>0.90
THD	<20%	<20%
EMI Filtering	FCC 47CFR Part 15, Class B	FCC 47CFR Part 15, Class B
Operating Temperature	-30°C to 40° C	-30°C to 40° C
Dimming	Yes*	Yes*

Over-voltage, over-current, short-circuit protected
*See Dimming Notes for more information

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HUBBELL® Lighting

A R C H E T Y P E

November 16, 2017

Deb Andrews
Historic Preservations Program Manager
Portland City Hall
389 Congress Street
Portland, ME 04101

RE: Deering Place Re-Submission – Portland, Maine

Dear Deb,

We are submitting revised designs for the Board to consider at their November 29th meeting. Please note the following:

1. We have revised designs on the Deering Street building based upon board and neighborhood comments.

    a. The parking under the building has been eliminated.
    b. A floor has been eliminated from the building allowing higher floor to ceiling height and proportions of windows to more closely relate to its neighboring buildings.
    c. We have included two designs for the boards consideration, one with a mansard and one without.
    d. We have added doorways directly off the street to units in respect to neighboring buildings.
    e. We have eliminated the fencing along the front of the building per Boards comments.

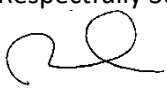
2. We have revised the Cumberland Street addition per boards comments.

    a. The main entry way has been scaled down in size.
    b. The mansard roof is now standing seam painted metal VS copper.
    c. The stair entry at connector has been made more premiant with a canopy.
    d. The stair entry off Mellen Street has been made more prominent with canopy and door entry design.

3. We are waiting to hear from the MHR Commission via Deb Andrews regarding adding back the porch entries to the existing building. We are very willing to add these but cannot do so without permission from the Maine Human Rights Commission.

Thank you for the consideration of this project we look forward to our next workshop with the board and please feel free to call to discuss any concerns.

Respectfully Submitted,



David Lloyd
Maine Licensed Architect

48 Union Wharf, Portland, Maine 04101 (207) 772–6022• Fax (207) 772–4056

Neighborhood Meeting

August 2, 2017

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for the construction of two (2) apartment buildings with 82 units at 510 Cumberland Avenue.

Meeting Location: 510 Cumberland Avenue (Community Room)
Meeting Date: August 17, 2017 (Thursday)
Meeting Time: 6:00pm

The purpose of this meeting is to introduce the project to our neighbors as part of the City approval process.

If you have any questions, please call Thomas S. Greer, P.E., Pinkham & Greer, Civil Engineers at 207-781-5242 or email him at tgreer@pinkhamandgreer.com.

PARKING INFORMATION — 82 UNITS

EXISTING VEHICLE SPACES:	58
CONVENTIONAL VEHICLE SPACES REQUIRED:	
FIRST 3 UNITS:	0
REMAINING UNITS, 1 PER UNIT:	79
SHARED CAR BONUS:	-8①
TOTAL VEHICLE SPACES REQUIRED:	71
VEHICLE SPACES PROVIDED:	
9'x18' STANDARD SPACES:	39
9'x18' CAR SHARE SPACE:	1①
8'x18' COMPACT SPACES:	14
8'x18' HANDICAP ACCESSIBLE SPACES:	0
TOTAL VEHICLE SPACES PROVIDED:	64

① AVESTA IS COMMITTED TO PROVIDING ONE SHARE CAR FOR USE BY THE RESIDENTS OF THIS PROJECT.

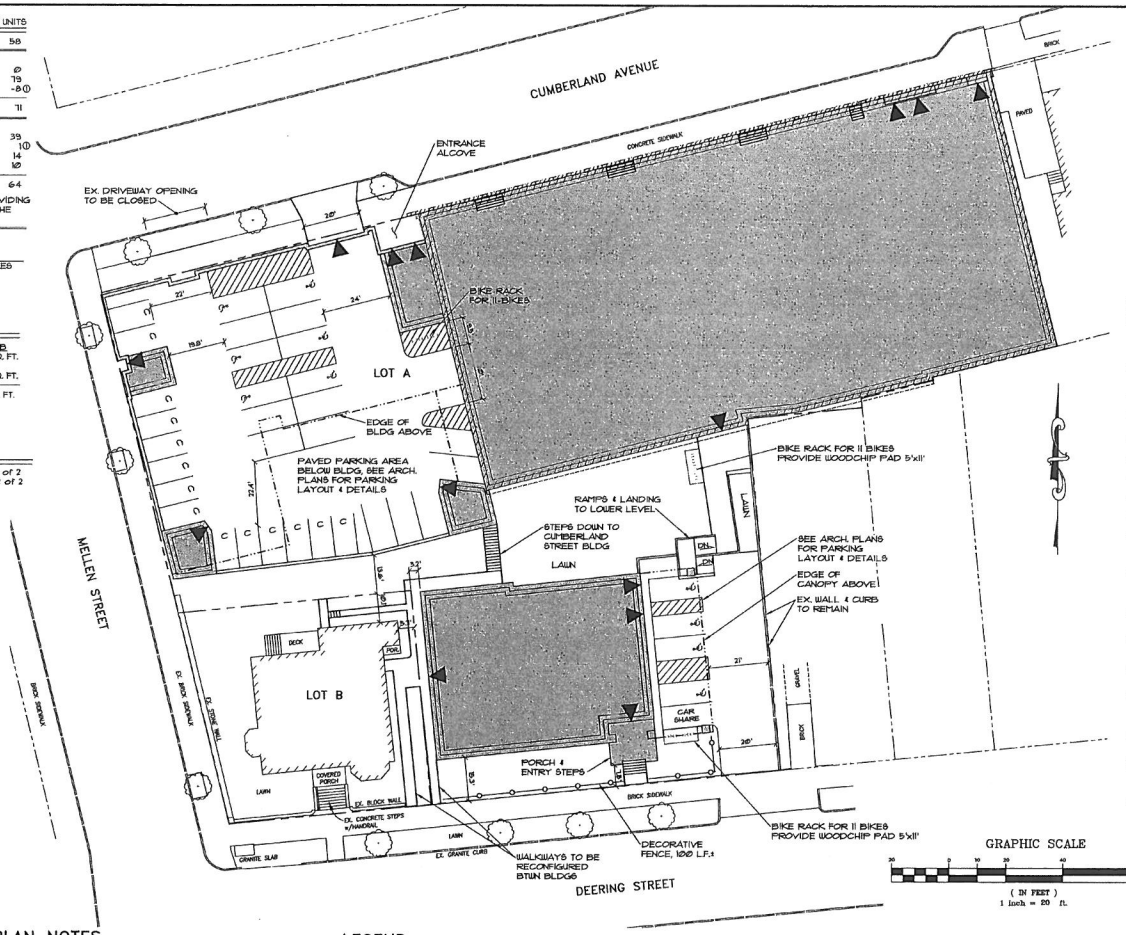
BIKE SPACES REQUIRED:
2 BIKE SPACES PER
5 DWELLING UNITS (82/2.5) 33
PROVIDED: 3 RACKS OF 11 BIKES = 33 BIKES

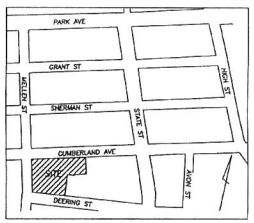
IMPERVIOUS INFORMATION

	LOT A	LOT B
EXISTING IMPERVIOUS	40,945 SQ. FT.	3,118 SQ. FT.
PROPOSED IMPERVIOUS	41,885 SQ. FT.	3,113 SQ. FT.
NET IMPERVIOUS	+ 940 SQ. FT.	+ 5 SQ. FT.

PROJECT DRAWINGS

C1.1 SUBDIVISION RECORDING PLAT, SHEET 1 of 2
C1.2 SUBDIVISION RECORDING PLAT, SHEET 2 of 2
C2.1 SITE PLAN
1 BOUNDARY PLAN





LOCATION PLAN

SCALE: 1"=250'±

GENERAL NOTES

1. OWNER/DEVELOPER: AVESTA HOUSING DEVELOPMENT CORP., 307 CUMBERLAND AVENUE, PORTLAND MAINE 04101, CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33552, PAGE 280, RECORDED DATE 10/26/16.
2. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
3. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
4. TOPOGRAPHIC AND BOUNDARY INFORMATION PROVIDED BY OWEN HASKELL, INC. 390 US ROUTE ONE, FALMOUTH, MAINE.
5. ZONE: R-6, RESIDENTIAL, PROPOSED USE: MULTIFAMILY DWELLING
6. TAX MAP REFERENCE: MAP 47 / BLOCK B / LOTS 1, 2, 3 & 29.
7. TOTAL PARCEL = 1.225 acres
8. WAIVERS: NONE REQUESTED AT THIS TIME.
9. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 811 OR 1-888-DIG-SAFE.
10. UNITS TO BE SERVICED BY EXISTING PUBLIC WATER, SEWER, AND GAS FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES ARE SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
12. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
13. THE SUBJECT PARCEL KNOWN AS 510 CUMBERLAND AVENUE IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
14. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR DEERING PLACE SITE PLAN.
15. FLOODPLAIN: THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0014 B, EFFECTIVE DATE JULY 17, 1986. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
16. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON SHEET C1.2 UNDER SNOW CLEARANCE NOTES.
17. NEW PROPERTY PINS TO BE SET AT THE EXPENSE OF THE DEVELOPER AT THE END OF CONSTRUCTION. ANY MONUMENTATION DAMAGED BY CONSTRUCTION IS TO BE REPLACED.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, MARCH 2003.

GRAPHIC SCALE
30 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

CITY OF PORTLAND SITE PLAN NOTES

1. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
2. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS AND LOCATION AND SIZE OF BUILDINGS.
3. ALL POWERLINE UTILITIES SHALL BE UNDERGROUND.
4. SIDEWALKS AND CURBING SHALL BE DESIGNED AND BUILT WITH TIPDOWN RAMPS AT ALL STREET CORNERS, CROSSWALKS AND DRIVEWAYS IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
7. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES (SEE ABOVE).
8. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORKS REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
9. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL GROUPINGS OF TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. REGRADING SHALL NOT TAKE PLACE WITHIN THE DRIP-LINE OF TREES DESIGNATED FOR PRESERVATION. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN THE DRIP-LINE OF TREES TO BE PRESERVED.

LEGEND

EXISTING	PROPOSED
PROPERTY LINE	LOT LINE
ABUTTERS PROPERTY	EDGE OF PAVEMENT
EASEMENT	VERTICAL GRANITE CURB
EDGE OF PAVEMENT	GRADE BREAKS AT SIDEWALK
BUILDING	BUILDING
EDGE OF GRAVEL	BUILDING ENTRY/EGRESS
CURB	BUILDING EDGE OVERHEAD
DECIDUOUS TREE	HANDICAP PARKING
CONIFEROUS TREE	DECORATIVE FENCE
	BUILDING HATCH
	BIKE RACK
	RETAINING WALL

WAIVERS REQUESTED

1. LANDSCAPE OPEN SPACE RATION FOR LOT A THE TOTAL SUBDIVISION COMPLIES.
2. FRONT, REAR AND SIDE SETBACKS OF 5, 10 & 10 FEET FOR THE EXISTING BUILDING. THE EXISTING BUILDING TO BE RENOVATED HAS SETBACKS OF 0 FEET.
3. WAIVER FOR REQUIRED PARKING SPACES FROM 71 SPACES TO 64 SPACES.
4. REDUCTION OF DRIVE AISLE FROM 24 FEET TO 19.8 FEET.

ZONE INFORMATION

ZONE: R-6, RESIDENTIAL
PERMITTED USE: MULTI-FAMILY DWELLING

SPACE STANDARDS	REQUIRED	EXISTING	LOT A	LOT B	TOTAL SUBDIVISION
MINIMUM LOT SIZE	2,000 SQ. FT.	53,368 SQ. FT.	47,620 SQ. FT.	5,148 SQ. FT.	5,148 SQ. FT.
MINIMUM AREA PER DWELLING UNIT	725 SQ. FT.	3,336 SQ. FT.	581 SQ. FT. ①	1,916 SQ. FT.	581 SQ. FT.
MINIMUM STREET FRONTAGE	20 FEET	198 FEET	115.5 FEET	70.8 FEET	70.8 FEET
MINIMUM FRONT YARD	5 FEET	0 FEET	0 FEET	10.6 FEET	0 FEET
MINIMUM REAR YARD	10 FEET	0.2 FEET	0.2 FEET	10.2 FEET	0.2 FEET
MINIMUM SIDE YARD	10 FEET	0 FEET	0 FEET	5.1 FEET	0 FEET
MAXIMUM LOT COVERAGE (BUILDINGS)	60%	43%	56%	39%	56%
MINIMUM LOT WIDTH	20 FEET	198 FEET	115 FEET	70.8 FEET	70.8 FEET
MAXIMUM BUILDING HEIGHT	45 FEET	43 & 36 FEET	35, 43 & 46 FEET	43 FEET	46 FEET
LANDSCAPE OPEN SPACE RATIO	20%	17%	12%	55%	55%

① LOT A AREA: 47,620 SF.
MIN. AREA PER DWELLING UNIT: ÷ 725 SF.
UNITS ALLOWED: 65.7 UNITS
DENSITY BONUS OF 25% (FOR AFFORDABLE UNITS, SECTION 14-488.) x 125 BONUS
UNITS ALLOWED: 82 UNITS

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04101
TEL. 207.781.4242 FAX. 207.781.4248

THOMAS S. GREER No. 4206 REGISTERED PROFESSIONAL ENGINEER STATE OF MAINE

REV.	DATE	DESCRIPTION
1	5/31/17	

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN DRN BY: JDC
DATE: MAY 31, 2017 DESG BY: TSG
PROJECT: 16108 CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

SITE PLAN

C2.1

MAP/LOT 47/B/1, 2, 3 & 29

Att. L

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Neighborhood Meeting Certification

I, Thomas S. Greer hereby certify that a neighborhood meeting was held on August 17, 2017 at 510 Cumberland Avenue, in Portland at 6:00PM concerning the 510 Congress Street Apartments.

I also certify that on August 2, 2017, invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change and the residents on the "interested parties" list.

Signed,

Thomas S. Greer 8/30/17 (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

Att. M

NEIGHBORHOOD MEETING ATTENDEE LIST
510 Cumberland Avenue
August 17, 2017

Name & Address	Name & Address
Thomas S. Greer Pinkham & Greer Civil Engineers 28 Vannah Avenue Portland, ME 04103	
TONY HOLT & DEB COOK	35 DEERING ST.
PAUL YOUNG 422 CUMBERLAND AVE 04101	
Rebecca Hatfield	Avesta
Travis Heynen, Avesta	
Catherine Elliott Avesta	
Kate Cordaro Avesta	
Pat ODonnell	442 Cumberland Ave #2
JOAN GRANT	442 Cumberland #4
Bettyduggan	420 Danforth St duggan.betty@gmail.com SHSD parishioner

Name	Address
Evan Howard	146 Sherman St.
Adam Smith	450 Cumberland Ave
Laurel McClead	51 Deering St.
Tom Walsh	515 Cumberland
Meagan L Lauer	288 State St, #1
Emma Hinds	78 Mellen
Jake Lory	76 Mellen
Michael Patterson	66 DEERING ST
Keri Lord klordr@mainerr.com	58 Deering St
HENRY STANOSKI	64 DEERING ST
SOPHIA CALLAHAN	49 Deering St
MATTHEW CALLAHAN	57 grant St
STEVEN WOITASEK	46 Deering St.
Andrea Zimble	

NEIGHBORHOOD MEETING ATTENDEE LIST
510 Cumberland Avenue
August 17, 2017

	ADDRESS
CAROL + STEVE LEASE	
Marilyn MacDonell	
CHRIS SHEA	78 Mellen St.
Maryann Shea	78 Mellen St.
Ray Rier	71 Smith St South Portland, 04106 ME
Richard Globerman Scott Augustine	492 Cumberland Ave. Portland ME 04101
Julie Mattei-Benn Leon Benn	494 Cumberland Ave Portland ME 04101
Janet Stebbins	501 Cumberland Ave #1 Portland, ME 04101
Wendy Cherubini	33 May Street Ptld 04102
Jeanne Orlando	235 Brackett #5 Portland 04102

510 Cumberland Avenue, Portland
August 17, 2017

SUMMARY OF PUBLIC INFORMATIONAL MEETING

The meeting started at 6:00 on August 9th. About 50 people attended. Dana Totman started the meeting with an overview of Avesta noted how Avesta came to own the property and its mission. Matt Peters described the project with the housings mix and how residents qualify for housing. Tom Greer went over the site aspects of the project and David Lloyd went over the architecture.

The public had multiple comments on the project and as expected most were concerning parking. It was noted multiple times that parking in the neighborhood is difficult.

There were a couple of people who go to the nearby church. They use the parking on the Deering side of the property. The loss of that parking would make it difficult.

There were several questions concerning the architecture. One was on the size of the Deering Street building and noted it is larger than anything else on the street. Several noted that the number of units is too many for the neighborhood.

It was noted this is the first public meeting. The Planning Board will hold a couple of meetings and the Historic Board will also hold meetings on the design aspects.

A City Counselor was present and noted the comments raised by the group.

The meeting ended at 7:45.

Respectfully Submitted

Thomas S. Greer P.E.

File: 17127

PC1

Google Groups

Concerns about 510 Cumberland Ave

Richard Bilodeau <bilodeaurj@hotmail.com> Aug 4, 2017 9:51 AM
Posted in group: **Planning Board**

To Whom It May Concern,

My name is Richard Bilodeau and I reside at 492 Cumberland Ave (the property located next to 510 Cumberland Ave). I am deeply concerned about the proposal to add on to the existing structure to create an apartment complex on the corner of Cumberland and Mellen. Here are my concerns:

1) This is a historic district. As an individual home owner I cannot change the color of my house or my windows without being sure that I comply with the standards of the historic society. These standards exist for a reason. I have reviewed the tax photos at city hall in the past to better understand these standards. I can assure you the building you are proposing will not comply!

2) The additional units you are proposing will more than double the number of people living in this single neighborhood block (between Mellen and State). This means a lot more foot traffic and more cars. When I decided to buy a house in Portland the "environment" of the neighborhood that I choose was important in my decision making. For example, I avoided buying on Congress Street or in the Old Port. The building you are proposing has the potential to transform the neighborhood into a mini-Congress Street in terms of noise and this seems unfair to the residents who currently live here.

3) Another reason I chose my house, the backyard. Currently I have a pleasant view of trees as I look towards the direction of Mellen St. After you build, I will be looking at your building.

4) This project could have an adverse effect on my property values. It will take away the "suburby" neighborhood feel the street currently has and potentially make it feel like a busy city street. A selling point for us when we purchased this house is we were living in the city without feeling like we were living in the city.

I fully understand the need to develop more affordable housing options in Portland. But I do understand the need to totally transform the neighborhood that I live in by building a four story addition onto the existing structure at 510 Cumberland Ave. It will forever change the neighborhood, and not for the better.

I believe the plan you are proposing in unfair to the residence of Cumberland Ave and I would urge you to reconsider the size of the project you are planning.

Sincerely,

Richard Bilodeau

492 Cumberland Ave

Portland Maine 04101

(207) 774-2793

PC2

Google Groups

Re: 510 Cumberland Avenue Project

Steven Fender <steven.fender@yahoo.com> Aug 31, 2017 2:48 PM
Posted in group: **Planning Board**

Hello, John Olson and I own Unit #3, at 14 Mellen Street, Portland, Maine, 04101. Our unit is within 500 feet of the proposed Avesta Development Corporation project at 510 Cumberland Avenue and the adjoining lots.

We are very concerned about this proposed development. We have lived here since 2012 and these blocks around us have becoming increasing more dense in population in the last 5 years. It has become very difficult to find any street parking in the blocks surrounding this area at any time of the day or night. The blocks are filled with pedestrians at all times of the day and night and it is already loud. The City has approved the conversion of the empty funeral home behind us into a luxury hotel, together with the construction of 7 condo units in the currently vacant parking lot behind us. The house across the street at 11 Mellen Street now has 4 units that are being sold as condominiums. The house next to it has been recently sold and is being turned into a multi-unit use. The house at 10 Mellen has just sold with a family moving in. The addition of an 82-unit multiresidential structure would bring at least 82 new people, not including their family members, into this area which is already bursting at the seams and make it even more congested. Two blocks off Congress in a residential neighborhood with three story structures, most of which have already been turned into multi-unit dwellings, is no place for an 82-unit structure and would make this section of town chaos and destroy its quaint historic nature. This area is already overcrowded, not even taking into account the terrible parking problem this proposed project would significantly compound.

The addition of 59 parking spaces does not remedy the addition of 82 more units. And building a multi-story garage is wholly inconsistent with this neighborhood. This is a residential area and while many of the large homes have been converted to multi-unit dwellings, these large homes remain intact on the outside and preserve the architectural integrity of the neighborhood. We tried to add a railing on the elevated rear roof on our building that was not visible to the street and the City turned us down flat as being inconsistent with the neighborhood. But a multi-story parking garage isn't far worse? The need to build a multi-story parking garage as bait to allow this development unscores the problem with building this proposed development.

The Deering Historical District, in which this project would be located, consists almost entirely of three story buildings, mostly brick, and mostly constructed a century or more ago. Our home was built in 1881; most homes in the neighborhood are of similar vintage and are, collectively, historically significant. Most of the homes in the neighborhood have been substantially renovated in the last 5-10 years. For example, Deering Street -- which this project abuts -- is with singular exception among the best kept, late 19th century streets in the City. The proposed development is an architectural abomination which is completely inconsistent with the neighborhood and mocks the entire concept of a historical district. The proposed development is both ugly as sin and completely inapprpropriate for this area.

We rode home on CBL last night from Peaks Island and were reminded again of how the huge yellow brick condo tower on Munjoy Hill sticks out like a sore thumb and significantly detracts from the architectural beauty of the Eastern Prom. The City planning officials who approved that construction should be ashamed of themselves; they were surely wrong. The proposed development at 510 Cumberland Street would similarly blot our neighborhood. Please don't inflict that upon us.

Thank you for your consideration.
Steven Fender

Sent from Yahoo Mail for iPad

Google Groups

proposal at 510 Cumberland

Christopher Ring <untermarmot@yahoo.com> Sep 6, 2017 2:07 PM
Posted in group: **Planning Board**

Christopher Ring, Owner
CPR at 60 Mellen, LLC
41 Boban Street
York, ME 03909
207-475-5195

September 6, 2017

Re: Avesta Housing proposal / 510 Cumberland Avenue

To The Planning Board,

I am writing to express my concerns regarding the proposal for the 42 residential addition to 510 Cumberland Street by Avesta Housing. I am (through my LLC) the owner of 60 Mellen Street in Portland. I also own 477 Cumberland Avenue; though I did not receive a formal notice of proposal at this address, 477 Cumberland is situated on the same block as 510 Cumberland and likely to be impacted just as much.

First, I would like to note that I believe all building owners on the same block as 510 Cumberland Avenue should have received the notice I received for my building at 60 Mellen Street. Though some of these buildings may be situated beyond the 500 foot circumference, they will be equally impacted by such an addition, none the less.

Secondly, I do not believe the proposal is a sensible proposal for this neighborhood. This is a residential neighborhood with a historic character. The plans for 510 are not only out of sync with the existing feel of the area, they call into question existing restrictions on other building owners. Upon purchasing my building I desired to replace its windows using replacement windows. These windows would have improved the life of the building, the efficiency of the building and would have (by giving just incentive to remove the existing storm windows) provided a more historic appearance. However, due to the narrow scope of what the historic committee deems acceptable, my plans were denied. So, this all begs the question: how could a proposal such as the one at 510 Cumberland even be considered when a simple matter of installing better windows was denied to me. The other options proposed by the historic committee were entirely unaffordable. As a building owner, I expect equity in how properties are treated throughout the city. Approving this addition would, in my opinion, be proof of a great equity.

Third, and perhaps most importantly. As is, there is sufficient parking for 10 cars on this block of Cumberland, two of those spaces being designated for handicapped drivers. Lack of parking is already a problem in this neighborhood. The proposed amount of parking is extremely insufficient. There are 59 parking spaces proposed for a building of 55 apartments (on Cumberland Street alone) and another 27 residential units on Deering Street, with 1, 2 and 3 bedroom apartments. That is 18 fewer parking spaces then actual units. That shortage fails to account for the amount of units with multiple residents. Couples with one car each may occupy 1 bedroom units. Two and three bedroom units may have occupants with up to three cars. Permitting this plan, as proposed, is courting serious problems for the neighborhood.

Will people desire living in this neighborhood when parking is such an issue? Will such issues negatively impact the value of my investment; an investment I made so I can send my children to college.

Clearly, this proposal has been created on a maxim of deriving as much income as possible out of limited space. Approval of this project will have a very negative impact on the integrity of the neighborhood. I will stand against this project until a more reasonable proposal is offered – a proposal that properly accounts for parking needs and the integrity of the neighborhood.

Sincerely,

Christopher Ring

PC4

Google Groups

Fw: Parkside Housing Development/Parking

Marilyn MacDowell <portlandmam@yahoo.com> Sep 22, 2017 11:15 AM
Posted in group: **Planning Board**

Good Day:

The email below was sent to Spencer Thibodeau and later forwarded to Emma Holder, President of Parkside and President of my condo association Oakview.(Grant St/ Mellen St)

I have attended neighborhood meeting about Avesta housing for Cumberland Ave/ Deering Street and one with planning board at City Hall. I can't attend meeting on Monday Sept. 25 on Sherman St,away on vacation.

I am all for afforable housing.
Parking is still major concern.
Portland is not like Boston ,NY yet with public transportation.
Could someone live without a car? How does one do that? Why doesn't city put something out there how that can be done if they are encouraging less cars,letting develepers have less parking per number of units.
Many long time residents of Parkside can't live without a car. Should we be penalized?
What about Sacred Heart Church and parking for them? Nothing talked about to help them.

Please listen to complaints about parking because they are real. The developer saying study done saying no parking problem is not accurate. You try to find parking at night.

Thank you for your attention to this matter.

Marilyn A. MacDowell
98 Grant St unit 4
Portland

Sent from Yahoo Mail on Android

On Fri, Aug 11, 2017 at 10:04 PM, Marilyn MacDowell <portlandmam@yahoo.com> wrote:

> Hi Spencer,
>
> I am a Portland native. I grew up on Grant Street, where community center is located.
> Lived there until age 12 and then family moved to North Deering section of Portland. I never left Greater Portland area. 20 years ago I bought condo at 98 Grant Street,corner of Grant St and Mellen St. back in my old neighborhood. I have always liked area.
> A few weeks ago I read article in Portland Press Herald article about Bayside
> "Staff Favors Housing,Work Spaces at City's Former Public Works Land. The end of article caught my eye. Property Management Co, Port Properties, beside my Grant Street condo building wants to move to Bayside and build 4 story building with 23 apartments. Then on Wednesday August 8 Portland Press Herald article, Plan Calls for Affordably Priced Apartments in Parkside-Cumberland Ave,Mellen St, Deering St., 82 apartments with maybe 64 parking spaces.
> My major concern is parking. With Grant St. between Deering Ave and Mellen St, being fixed up now parking is a problem now.
> Students use to live there,not many cars.
> With new housing, doesn't seem enough parking. I know thinking is ,want city dwellers to use public transportation but if 2 persons to some units, probably 2 cars. Is parking ever discussed or is just affordable housing the main concern and parking not a concern.
> I am retired, live alone.I am a walker and recreational biker but I need a car for various reasons.
> There are no parking garages to go too either.

Does that mean I can't go to night events since I won't find parking? Do I have to use Uber,taxi?
Do you know status of these plans ? I know Cumberland Ave,having public meeting.
I don't know about Port Properties plan.
I have seen so many changes since I have lived in Portland.
Can you please address parking issues?

Thank you.
Marilyn A.MacDowell
98 Grant Street unit 4
Portland, Mel

Comments addressed to City Planning Board regarding Avesta Project 510 Cumberland

I am a parishioner at Sacred Heart/Saint Dominic (SHSD) on Sherman and Mellen Streets. I attended the Community Meeting to discuss plans for the development of 510 Cumberland by AVESTA. I share their concern to provide affordable housing to those rapidly being priced out of housing market in Portland.

Since 1896 SHSD has anchored Portland's Parkside community. It was designed by noted Portland architect Francis Henry Fassett and built by immigrants and continues to serve them. Our Food Pantry distributes over 3000 pounds of food per week. We provide space for additional programs such as AA and NA responding to a growing need. We also collaborate with other community organizations including Parkside Neighborhood Association, Parkside Policing and Opportunity Alliance's Parkside activities. Catholic Charities Refugee and Resettlement Program and the Hispanic Council that assist both our African and Hispanic immigrant populations are based at SHSD. An article in Greater Portland Landmarks Magazine estimated we provide over a million dollars worth of services to the City.

For many years SHSD has been able to use the PROP parking lot on Sundays for those attending Mass. The proposed structure and limited parking even for those who are residents is likely to decrease even further the availability of on street parking. SHSD draws parishioners from Portland and surrounding areas. Availability of parking is a major issue to ensure that individuals and families have access to religious services including Masses, weddings and funerals and the social services we provide to parishioners as well as others in the Parkside and Greater Portland area,

If this project is approved I hope that the City will consider alternative parking regulations on Sunday on Cumberland or other solutions so that Sacred Heart/Saint Dominic can continue to contribute as it always has to the Parkside community.

Mary Elizabeth Lell Duggan

Parishioner Sacred Heart/Saint Dominic

420 Danforth Street, Portland+

Google Groups

proposed new bldg for housing at Cumberland and Mellon Streets (Avesta 510 Cumberland)

Cynthia Murray-Beliveau <cmurraybeliveau@gmail.com> Sep 12, 2017 9:10 PM
Posted in group: **Planning Board**

Dear members of the planning board;

I am writing to you as I was unable to attend the 6:30 meeting you held in reference to the above location. I am a Portland resident (135 Sheridan St) and a member of the Sacred Heart/ St. Dominc's Catholic parish located nearby the proposed development.

I am pleased to see our city engage actively in developing more affordable housing for our many residents who currently struggle to find suitable dwellings for their families. I am also concerned that more housing in this area will minimize the land currently used by the public, (and possibly even the residents of the new building) for parking. Specifically, members of our parish make full use of the space there for weekend services and at other times for services provided to our citizens such as the food bank, and the "give away" project.

I hope you will solve how to provide parking for these and other communal activities as the density of the neighborhood increases. It is important that these needs be well provided for during the planning process. Thank you for your public service; I know it is not an easy task to be sure that all are cared for!

Sincerely
Cynthia A. Murray-Beliveau
cmurraybeliveau@gmail.com

-------- Original message --------
From: Alicia Allen <a_l_allen@hotmail.com>
Date: 9/12/17 3:18 PM (GMT-05:00)
To: sthibodeau@portlandmaine.gov, pali@portlandmaine.gov, nmm@portlandmaine.gov, jduson@portlandmaine.gov
Subject: Avesta Proposal - Parkside

Hello City Councilors,

I am writing in regards to the proposal Avesta has put forth for the building in Parkside on Cumberland Ave.

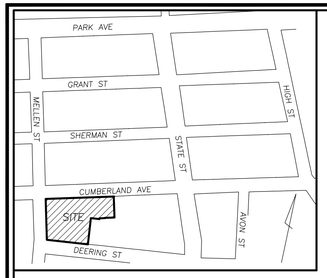
I live at 66 Deering Street, directly across from the parking lot for Deering Place. 66 Deering St was my first home in Portland when I was 19, and has been home again for the past two years. I've lived in Portland for almost 18 years. I've owned a house here, lived in every neighborhood on the peninsula, and a few off, and am raising my child here. I love Portland. And I love Parkside. I love my one bedroom apartment, which I share with my 5 year old (and it's a good thing, because frankly, I'm already priced out of two bedroom apartments in Portland, and I make a solid living).

Since moving back into the neighborhood I've noticed a lot of changes. Most of them are great. It's dense, but it feels far safer and friendlier than it did 16 years ago when I first moved in. The residents of Deering Place are great neighbors, and it feels like a neighborhood. I'm not opposed to more housing. I would prefer it to be even more low-income as I don't want to see my neighbors priced out of their homes, and I don't want to be priced out of mine (I find it really hard to swallow that for someone in my income bracket, which doesn't qualify me for low income housing, I wouldn't be able to afford even a one bedroom in the proposed building at market rate).

That said, Avesta has to include more parking in their plans. It's already a nightmare trying to park in the neighborhood. In the winter becomes even more difficult. Portland's public transportation doesn't offer a practical solution for anyone who needs to leave the peninsula daily, and with a lack of affordable grocery options in the area, it's somewhat impractical to not have a car anyway. I can't imagine many tenants of the proposed building will actually forgo a car (or more if they're a household with two adults), and I am very concerned about how this will impact those of us who live in the neighborhood already and would like to stay.

Portland is a great city. But it increasingly feels like development is squeezing those of us who have been here for a while out--including my neighbors at Deering Place, either physically by making it even more difficult to park cars that we actually need to get to work, or financially. For those of us who would like to stay in our neighborhoods and want to see Portland grow, it seems like the developer and the city should be able to find a balance.

Thank you,
Alicia Allen

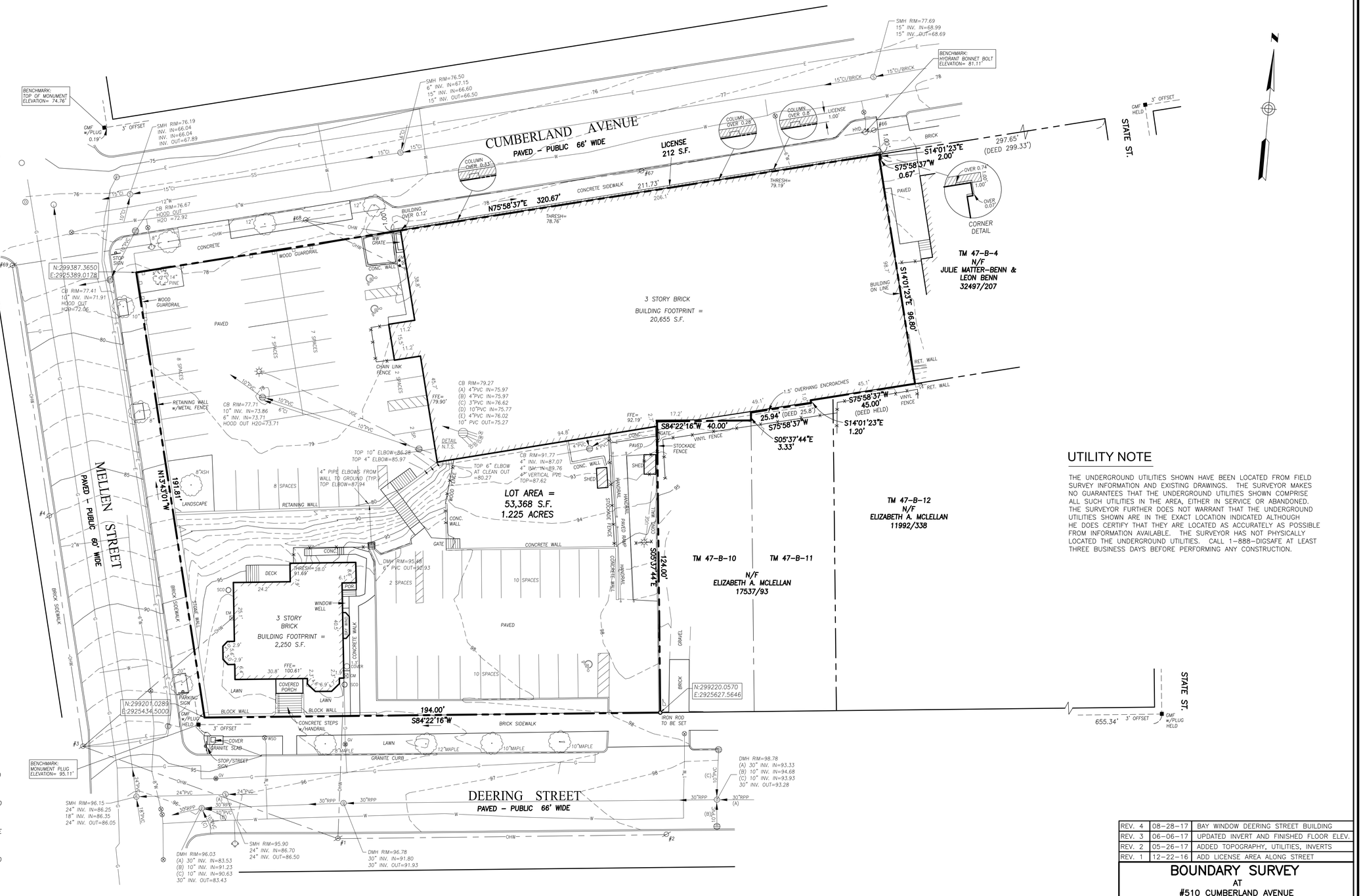


LOCATION MAP

N.T.S.

LEGEND

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- GAS VALVE
- UTILITY POLE
- MANHOLE
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- FENCE
- CURB
- OHW — OVERHEAD WIRES
- E — UNDERGROUND ELECTRIC
- W — WATER LINE
- G — GAS LINE
- SS — SANITARY SEWER
- SD — STORM DRAIN
- 90 — 1' CONTOUR
- CONC. — CONCRETE
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK AND PAGE



GENERAL NOTES

1. OWNER OF RECORD: THE OPPORTUNITY ALLIANCE F/K/A PEOPLE'S REGIONAL OPPORTUNITY PROGRAM, 510 CUMBERLAND AVENUE, PORTLAND, MAINE; CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 10064, PAGE 213.
2. LOCUS IS SHOWN AS LOTS 1, 2, 3, AND 29 IN BLOCK B ON PORTLAND PROPERTY MAP 47.
3. BEARINGS ARE CITY COORDINATES PROVIDED ON STREET MONUMENTS ON PLAN REFERENCE 5, WHICH IS GRID NORTH.
4. SPACE BETWEEN BUILDING AND FENCE ON LAND OF MCLELLAN APPEARS TO BE USED BY SUBJECT PROPERTY.
5. THE 1883 DEED IN BOOK 495, PAGE 84 FOR THE PORTION OF THE PREMISES WEST OF BENN IS FOR A LOT 100 FEET DEEP FROM CUMBERLAND STREET. THE DEEDS FOR MCLELLAN ARE FOR THAT SAME LINE. SUBSEQUENT DEEDS, STARTING IN 1922, HAVE CALLED FOR A DEPTH OF 98.8 FEET, POSSIBLY BASED ON PLAN REFERENCE 2, WHICH SHOWS A BUILDING LINE 98.8 FEET FROM CUMBERLAND AVENUE AND A PROPERTY LINE OF 100 FEET.
6. THE 1905 DEED IN BOOK 780, PAGE 239 FOR THE BENN PROPERTY DEFINES THE COMMON LINE AS BEING 300 FEET FROM STATE STREET, BASED ON PLAN REFERENCE 4. THE 1874 DEED IN BOOK 433, PAGE 132 FOR THE LOCUS DEFINES THE EAST LINE AS 275 FEET FROM MELLEN STREET. THE 1883 DEED, MENTIONED ABOVE, CALLS FOR A FRONTAGE OF 45 FEET ON CUMBERLAND AVENUE. PLAN REFERENCE 1 SHOWS THIS COMMON LINE (WITH THE EXCEPTION OF THE LATER 2.00 BY 0.67 FOOT STRIP) AS BEING 320 FEET FROM MELLEN STREET, WITH A NOTE "298.37 TO STATE ST. BY MEASURE. PLAN CALLS FOR 300." THE EXISTING BUILDING WAS BUILT TO MATCH THE 320 FEET FROM MELLEN AND THE SMALL PARCEL FOR THE PILASTER, CONVEYED BY A BENN PREDECESSOR, MATCHES ALSO.
7. ELEVATIONS ARE BASED ON NGVD 1929 – CITY DATUM.

GRAPHIC SCALE

0 10' 20' 40' 80'

PLAN REFERENCES

1. "SURVEYED FOR B.F. HARRIS SURVEYED FEB. 1883" IN FILES OF H.I. & E.C. JORDAN – SURVEYORS AND UNDATED UNTITLED MORE RECENT WORKING PLAN OF SAME.
2. "E.C.JORDAN & CO. CIVIL ENGINEERS OCT. 16, 1922" PLAN OF LAND OF HANNAH M. DOOLEY ON DEERING ST. AND ELVIRA LORELLO ON CUMBERLAND ST.
3. "BOUNDARY SURVEY AT 51 DEERING STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD SETH & LAUREL MCCLEAD AUGUST 21, 2014 OWEN HASKELL, INC. JOB NO. 2014-071P"
4. PLAN OF DIVISION BETWEEN DEERING AND PREBLE ESTATES RECORDED IN PLAN BOOK 3, PAGE 37 (TITLE LARGELY UNREADABLE)
5. CITY OF PORTLAND ENGINEERING DEPARTMENT WORKING PLAN PROVIDED OF THIS BLOCK AND SURROUNDING ONES SHOWING EXISTING MONUMENTATION.

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES TO:

FIRST AMERICAN TITLE INSURANCE COMPANY AND AVESTA HOUSING DEVELOPMENT CORPORATION

THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

DATE

JOHN C. SCHWANDA, PLS NO. 1252

REV. 4	08-28-17	BAY WINDOW DEERING STREET BUILDING
REV. 3	06-06-17	UPDATED INVERT AND FINISHED FLOOR ELEV.
REV. 2	05-26-17	ADDED TOPOGRAPHY, UTILITIES, INVERTS
REV. 1	12-22-16	ADD LICENSE AREA ALONG STREET

BOUNDARY SURVEY

AT

#510 CUMBERLAND AVENUE
A/K/A #498-500 CUMBERLAND AVENUE AND
#61-73 DEERING STREET
PORTLAND, MAINE
MADE FOR

AVESTA HOUSING

307 CUMBERLAND AVENUE, PORTLAND, MAINE

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424

Drawn By JCS	Date	Job No.
Trace By JLW	SEPT. 28, 2016	2016-286P
Check By JCS	Scale	Drwg. No.
Book No. 1147	1" = 20'	1

PARKING INFORMATION

EXISTING VEHICLE SPACES:	58
LOT A:	
VEHICLE SPACES REQUIRED, 76 UNITS:	
FIRST 3 UNITS:	0
REMAINING UNITS, 1 PER UNIT:	73
SHARED CAR BONUS: - 8 SPACES, + 1 SPACE	-1①
TOTAL VEHICLE SPACES REQUIRED:	66
LOT B:	
TOTAL VEHICLE SPACES REQUIRED, 3 UNITS:	6
VEHICLE SPACES PROVIDED:	
9'x18' STANDARD SPACES:	13
9'x18' CAR SHARE SPACE:	1①
8'x15' COMPACT SPACES:	28
8'x18' HANDICAP ACCESSIBLE SPACES:	13
TOTAL VEHICLE SPACES PROVIDED:	55
SPACES USED: LOT A = 49 LEASED TO LOT B: 6	

① AVESTA IS COMMITTED TO PROVIDING ONE SHARE CAR FOR USE BY THE RESIDENTS OF THIS PROJECT.

BIKE SPACES REQUIRED:	
2 BIKE SPACES PER 5 DWELLING UNITS (76/2.5):	31
PROVIDED:	
INTERIOR RACK FOR 25 BIKES	25
1-EXTERIOR RACK OF 10 BIKES	10
TOTAL BIKE STORAGE PROVIDED:	35

IMPERVIOUS INFORMATION

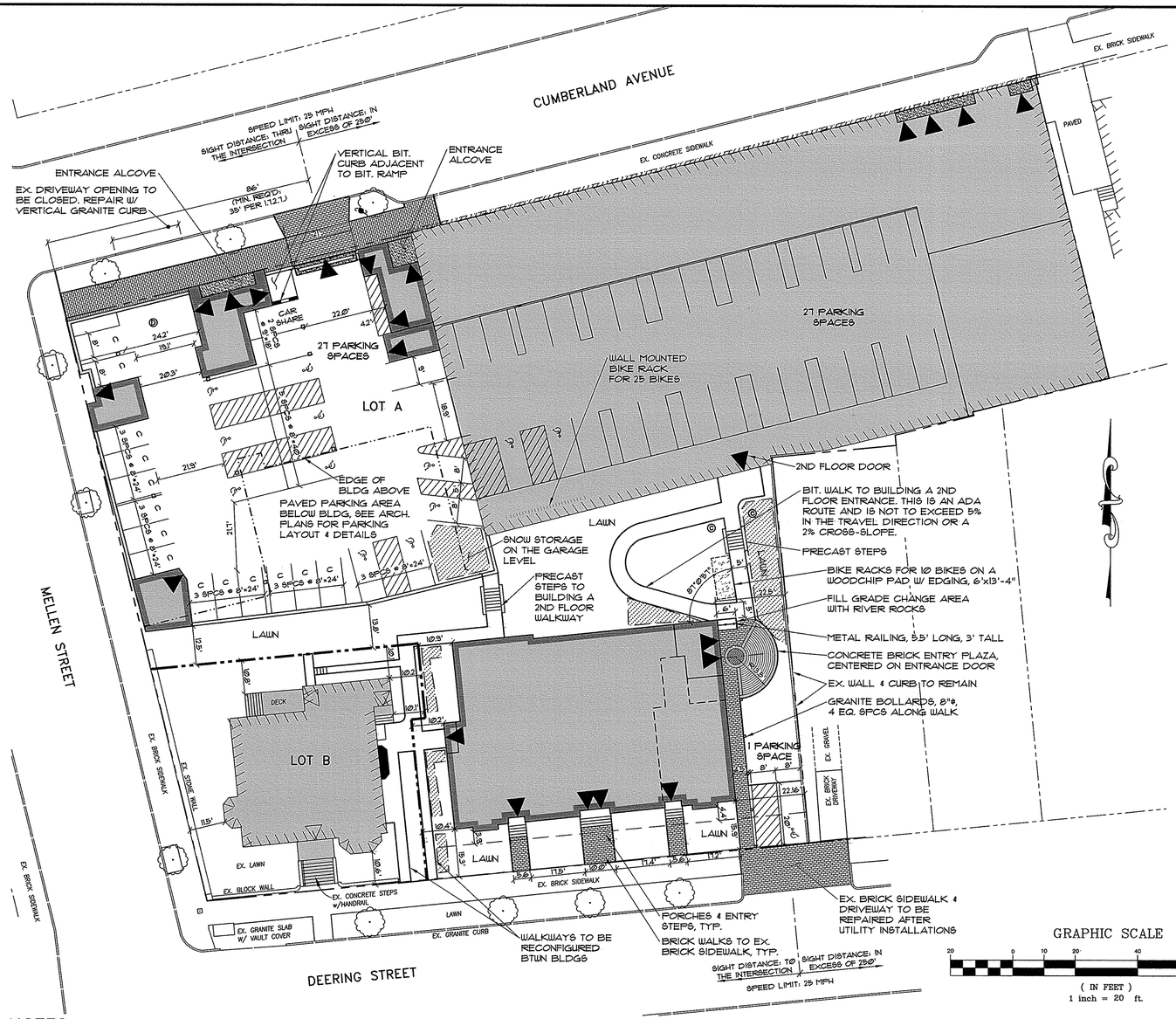
	LOT A	LOT B
EXISTING IMPERVIOUS	40,455 SQ. FT.	3,115 SQ. FT.
PROPOSED IMPERVIOUS	39,452 SQ. FT.	3,300 SQ. FT.
NET IMPERVIOUS	-1,003 SQ. FT.	+ 185 SQ. FT.

PROJECT DRAWINGS

C1.1	SUBDIVISION RECORDING PLAT, SHEET 1 of 2
C1.2	SUBDIVISION RECORDING PLAT, SHEET 2 of 2
C2.1	SITE PLAN
C2.2	EXISTING CONDITIONS AND DEMOLITION PLAN
C2.3	GRADING AND UTILITIES PLAN
C2.4	EROSION CONTROL PLAN, NOTES AND DETAILS
C2.5	LANDSCAPE PLAN, NOTES AND DETAILS
C3.1	DETAILS
C3.2	DETAILS
1	BOUNDARY SURVEY

WAIVERS REQUESTED

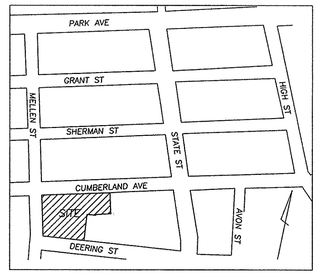
1. WAIVER FOR REQUIRED PARKING SPACES FROM 66 SPACES TO 55 SPACES.
2. REDUCTION OF DRIVE AISLE FROM 24 FEET TO 19.1 FEET, 20.3 FEET, 21.1 FEET, 21.9 FEET AND 22.0 FEET.
3. WAIVER OF DEERING STREET DRIVEWAY, DRIVEWAY SEPARATION REQUIREMENT FROM TAX MAP 47-B-10 & 11.



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



LOCATION PLAN

SCALE: 1"=250'±

GENERAL NOTES

1. OWNER/DEVELOPER: AVESTA HOUSING DEVELOPMENT CORP, 307 CUMBERLAND AVENUE, PORTLAND MAINE 04101. CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33552, PAGE 280, RECORDED DATE 10/26/16.
2. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
3. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
4. TOPOGRAPHIC AND BOUNDARY INFORMATION TAKEN FROM "BOUNDARY SURVEY AT 510 CUMBERLAND AVENUE A/K/A 498-500 CUMBERLAND AVENUE AND 61-73 DEERING STREET PORTLAND MAINE MADE FOR AVESTA HOUSING 307 CUMBERLAND AVENUE , PORTLAND, MAINE" BY OWEN HASKELL, INC., 390 US ROUTE ONE, FALMOUTH, MAINE. DATED SEPT. 26, 2016, 4TH REVISION 8-28-17.
5. ZONE: R-6, RESIDENTIAL, PROPOSED USE: MULTIFAMILY DWELLING
6. TAX MAP REFERENCE: MAP 47 / BLOCK B / LOTS 1, 2, 3 & 29.
7. TOTAL PARCEL = 1.225 acres
8. WAIVERS: SEE SUBDIVISION RECORDING PLAT, SHEET 2 OF 2 FOR LIST OF WAIVERS.
9. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 811 OR 1-888-DIG-SAFE.
10. UNITS TO BE SERVICED BY EXISTING PUBLIC WATER, SEWER, AND GAS FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES ARE SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
12. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
13. THE SUBJECT PARCEL KNOWN AS 510 CUMBERLAND AVENUE IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
14. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR DEERING PLACE SITE PLAN.
15. FLOODPLAIN: THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0014 B, EFFECTIVE DATE JULY 17, 1986. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
16. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON SHEET C1.2 UNDER SNOW CLEARANCE NOTES.
17. NEW PROPERTY PINS TO BE SET AT THE EXPENSE OF THE DEVELOPER AT THE END OF CONSTRUCTION. ANY MONUMENTATION DAMAGED BY CONSTRUCTION IS TO BE REPLACED.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, MARCH 2003.

CITY OF PORTLAND SITE PLAN NOTES

1. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
2. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS AND LOCATION AND SIZE OF BUILDINGS.
3. ALL POWERLINE UTILITIES SHALL BE UNDERGROUND.
4. SIDEWALKS AND CURBING SHALL BE DESIGNED AND BUILT WITH TIPDOWN RAMPS AT ALL STREET CORNERS, CROSSWALKS AND DRIVEWAYS IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
7. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES (SEE ABOVE).
8. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORK'S REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
9. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL, GROUPINGS OF TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. REGRADING SHALL NOT TAKE PLACE WITHIN THE DRIP-LINE OF TREES DESIGNATED FOR PRESERVATION. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN THE DRIP-LINE OF TREES TO BE PRESERVED.

LEGEND

EXISTING

- PROPERTY LINE
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- BUILDING
- BUILDING ROOF OVERHANG
- EDGE OF GRAVEL
- CURB
- WALL
- MONUMENT FOUND
- DECIDUOUS TREE
- CONIFEROUS TREE

PROPOSED

- LOT LINE
- EDGE OF PAVEMENT
- VERTICAL GRANITE CURB
- VERTICAL BITUMINOUS CURB
- BUILDING
- BUILDING ENTRY/EGRESS
- BUILDING EDGE OVERHEAD
- DECORATIVE FENCE
- BUILDING HATCH
- BIKE RACK ON WOODCHIP PAD
- RETAINING WALL
- CATCH BASIN
- DRAIN MANHOLE
- UTILITY POLE
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BITUMINOUS OVERLAY
- BRICK SIDEWALK
- SNOW STORAGE AREAS

PAINTED PAVEMENT SYMBOLS

- HANDICAP PARKING
- "NO PARKING" AREA
- VAN ACCESSIBLE PARKING SPACE
- CAR ACCESSIBLE PARKING SPACE

ZONE INFORMATION

ZONE: R-6, RESIDENTIAL
PERMITTED USE: MULTI-FAMILY DWELLING

SPACE STANDARDS	REQUIRED	EXISTING	LOT A	LOT B	TOTAL SUBDIVISION
MINIMUM LOT SIZE	2,000 SQ. FT.	53,368 SQ. FT.	47,512.5 SQ. FT.	5,855.6 SQ. FT.	53,368 SQ. FT.
MINIMUM AREA PER DWELLING UNIT	725 SQ. FT.	3,336 SQ. FT.	586 SQ. FT.①	1,952 SQ. FT.	635 SQ. FT.
MINIMUM STREET FRONTAGE	20 FEET	191.8 FEET	115.5 FEET	76.8 FEET	76.8 FEET
MINIMUM FRONT YARD	5 FEET	0 FEET	0 FEET	10.6 FEET	0 FEET
MINIMUM REAR YARD	10 FEET	0.2 FEET	0.2 FEET	10.2 FEET	0.2 FEET
MINIMUM SIDE YARD	10 FEET	0 FEET	0 FEET	5.1 FEET	0 FEET
MAXIMUM LOT COVERAGE (BUILDINGS)	60%	43%	54%	39%	50%
MINIMUM LOT WIDTH	20 FEET	191.8 FEET	115 FEET	76.8 FEET	191.8 FEET
MAXIMUM BUILDING HEIGHT	45 FEET	43 & 36 FEET	36 & 39.5 FEET	43 FEET	46 FEET
OPEN SPACE RATIO	20%	57%	24%	56%	31%

① LOT A AREA: 47,512.5 SF.
MIN. AREA PER DWELLING UNIT: ÷ 725 SF.
UNITS ALLOWED: 65.5 UNITS
DENSITY BONUS OF 25% (FOR AFFORDABLE UNITS, SECTION 14-488.) x 1.25 BONUS
UNITS ALLOWED: 81 UNITS

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE, PORTLAND, ME 04103
TEL: 207.775.2242 FAX: 207.781.4753

STATE OF MAINE
THOMAS GREER
No. 4206
REGISTERED PROFESSIONAL ENGINEER
LICENSED
11/17/17

REV.	DATE	DESCRIPTION
4	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
3	11/7/17	REVD PER ADDITIONAL REVIEW COMMENTS
2	10/19/17	SUBMITTED FOR FINAL APPROVAL
1	9/7/17	REVD BUILDING & FOOTPRINT, REVD NUMBER OF UNITS

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN DRN BY: JDC
DATE: MAY 31, 2017 DESG BY: TSG
PROJECT: 17127 CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

SITE PLAN

C2.1

MAP/LOT 47/B/1, 2, 3 & 29

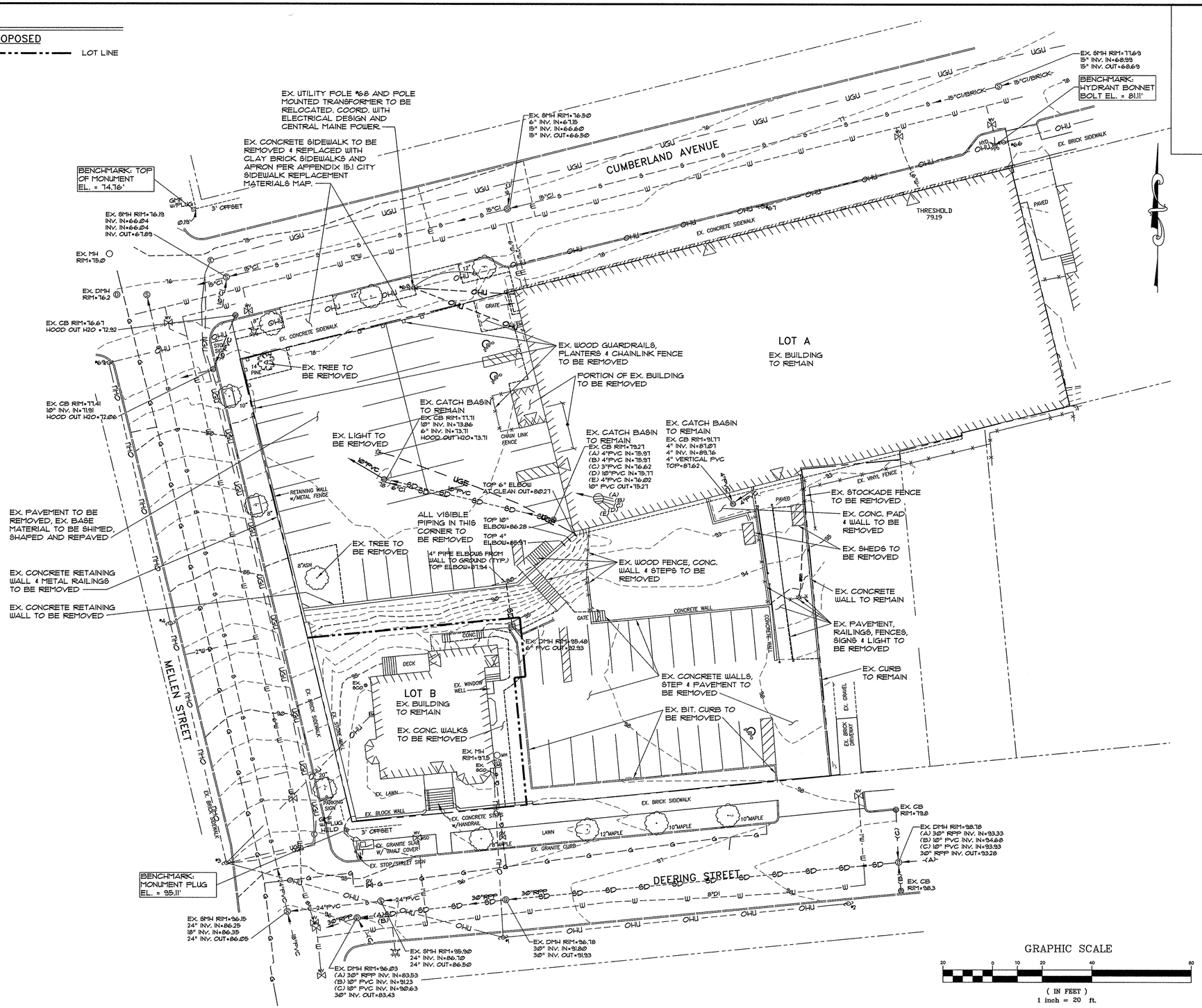
LEGEND

EXISTING

- PROPERTY LINE
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- BUILDING
- BUILDING ROOF OVERHANG
- BUILDING ENTRY/EGRESS
- EDGE OF GRAVEL
- CURB
- CONTOURS
- WALL
- MONUMENT FOUND
- GAS LINE
- SANITARY SEWER
- STORMDRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC METER
- GAS METER
- SEWER MANHOLE
- UTILITY POLE
- UTILITY POLE W/ GUY WIRE
- SIGN
- HYDRANT
- GATE VALVE
- GAS VALVE
- DECIDUOUS TREE
- CONIFEROUS TREE

PROPOSED

- LOT LINE



PINKHAM & GREER
CIVIL ENGINEERS
28 VAUGHAN ST. PORTLAND, ME. 04102
TEL: 207.781.3242 FAX: 207.781.4295

STATE OF MAINE — THOMAS S. GREER — No. 4036 — REGISTERED PROFESSIONAL ENGINEER

11/21/17

REV:	DATE	DESCRIPTION
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

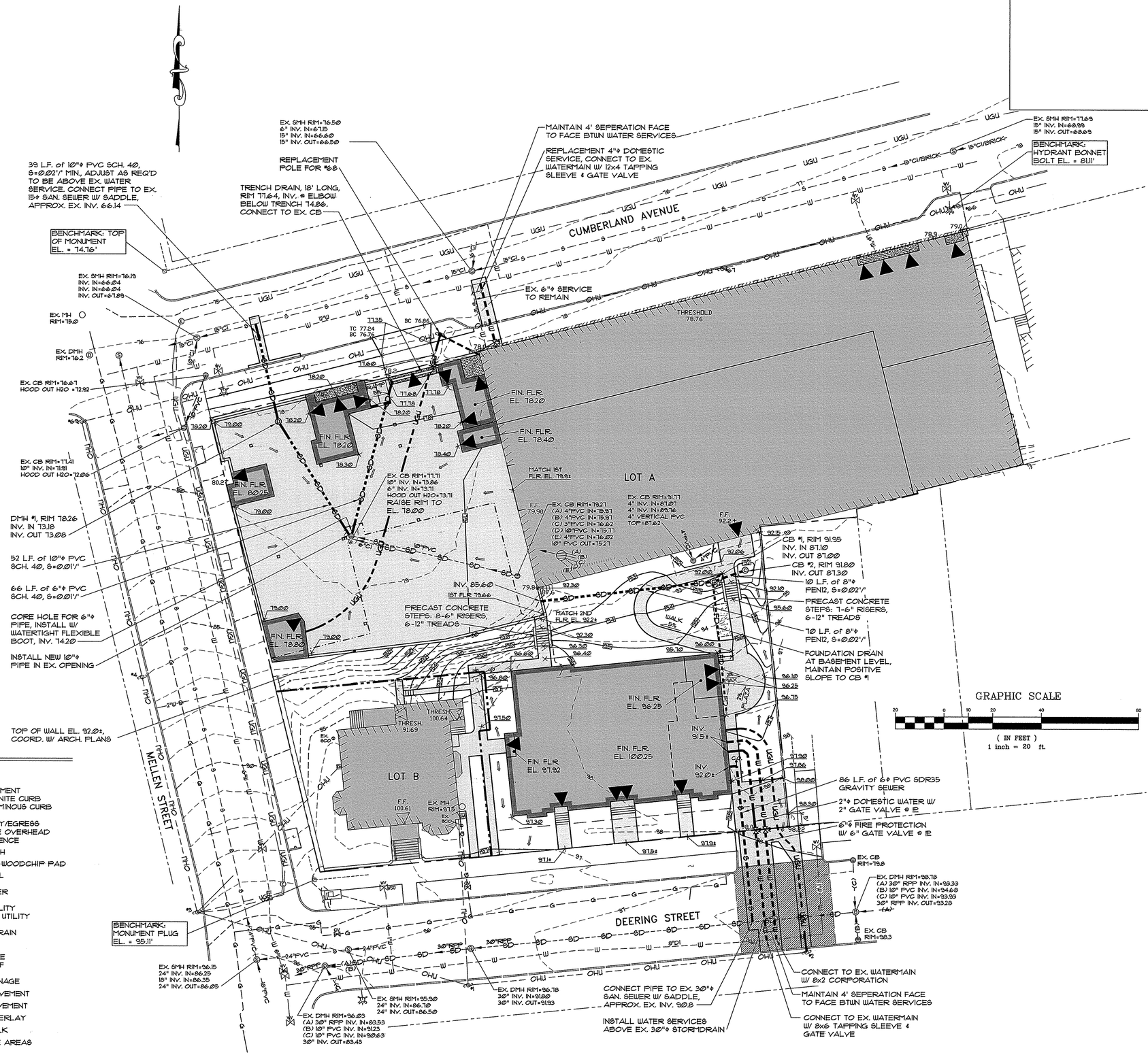
SCALE: AS SHOWN | DRN BY: JDC
DATE: OCTOBER 19, 2017 | DESG BY: TSG
PROJECT: 17127 | CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

EXISTING CONDITIONS AND DEMOLITION PLAN

C2.2

MAP/LOT 47/B/1, 2, 3 & 29



LEGEND

EXISTING

- PROPERTY LINE
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- BUILDING
- EDGE OF GRAVEL
- CURB
- CONTOURS
- WALL
- MONUMENT FOUND
- GAS LINE
- SANITARY SEWER
- STORMDRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- SPOT GRADE
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC METER
- GAS METER
- SEWER MANHOLE
- UTILITY POLE
- UTILITY POLE W/ GUY WIRE
- SIGN
- HYDRANT
- GATE VALVE
- GAS VALVE
- DECIDUOUS TREE
- CONIFEROUS TREE

PROPOSED

- LOT LINE
- EDGE OF PAVEMENT
- VERTICAL GRANITE CURB
- VERTICAL BITUMINOUS CURB
- BUILDING
- BUILDING ENTRY/EGRESS
- BUILDING EDGE OVERHEAD
- DECORATIVE FENCE
- BUILDING HATCH
- BIKE RACK ON WOODCHIP PAD
- RETAINING WALL
- CONTOURS
- SANITARY SEWER
- STORMDRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- FOUNDATION DRAIN
- SPOT GRADE
- CATCH BASIN
- DRAIN MANHOLE
- WATER SHUT OFF
- UTILITY POLE
- SURFACE DRAINAGE
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BITUMINOUS OVERLAY
- BRICK SIDEWALK
- SNOW STORAGE AREAS

PINKHAM & GREER
CIVIL ENGINEERS
28 WINTHROP AVE. PORTLAND, ME. 04102
TEL: 207.781.3242 FAX: 207.781.4245

STATE OF MAINE
THOMAS S. GREER
No. 10078
LICENSED PROFESSIONAL ENGINEER
11/17/17

REV.	DATE	DESCRIPTION
2	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

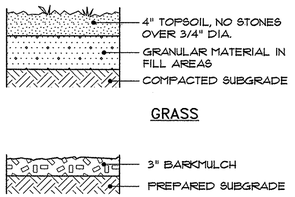
SCALE: AS SHOWN
DATE: OCTOBER 19, 2017
PROJECT: 17127
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

GRADING & IUTILITIES PLAN

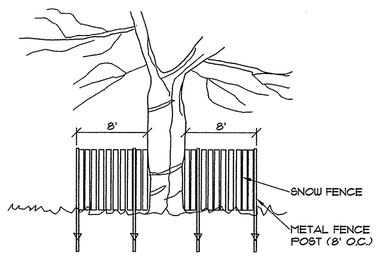
C2.3

MAP/LOT 47/B/1, 2, 3 & 29



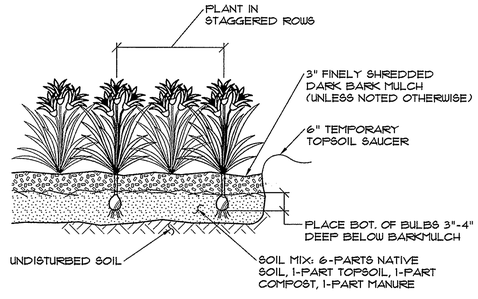
4 LANDSCAPE SURFACE FINISHES

NOT TO SCALE



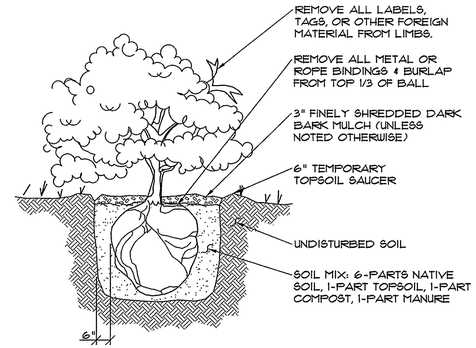
3 TREE PROTECTION FENCE

NOT TO SCALE



2 DAYLILY PLANTING DETAIL

NOT TO SCALE



1 SHRUB PLANTING DETAIL

NOT TO SCALE

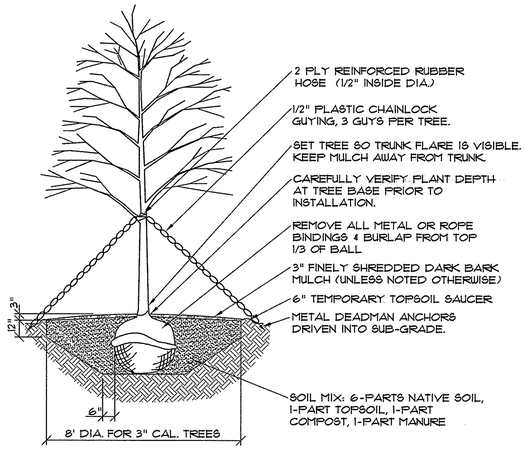
LANDSCAPE NOTES

GENERAL:

1. SAVE EXISTING TREES AS SHOWN. DO NOT CUT OR CLEAR ANY VEGETATION BEYOND THE IMPACT LIMIT LINE.
2. ALL PLANT MATERIALS INSTALLED ARE TO MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
3. ALL PROPOSED PLANT LOCATIONS SHALL BE AS SHOWN ON PLANS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLANTING AND WILL NOTIFY OWNER'S REPRESENTATIVE IN THE EVENT OF CONFLICTS.
4. PLANT LOCATIONS ARE TO BE SCALED FROM THELANDSCAPE PLAN UNLESS NOTED OTHERWISE.
5. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL FINAL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
6. FINAL QUANTITY FOR EACH PLANT TYPE IS NOTED IN THE PLANT LIST. THIS NUMBER SHALL TAKE PRECEDENCE IN THE CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE LIST AND ON THE PLAN.
7. ANY PROPOSED SUBSTITUTIONS MUST BE APPROVED BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
8. ALL DISTURBED AREAS TO BE LOAMED AND SEEDED.

MAINTENANCE:

1. LAWNS: SHALL BE WATERED, FERTILIZED AND MOWN ON A REGULAR BASIS ACCORDING TO SEASON AND RAINFALL, TO PRODUCE A STRONG TURF OF 80% MIN. COVERAGE WITHIN THE FIRST YEAR, FREE FROM SIZABLE THIN OR BARE SPOTS. REGRADING AND RESEEDING WILL BE PERFORMED ON BARE SPOTS UNTIL COVERAGE IS COMPLETE.
2. TREES & SHRUBS: THE ESTABLISHMENT PERIOD SHALL BE TWO CALENDAR YEARS FROM THE DATE OF FINAL ACCEPTANCE. DURING THE ESTABLISHMENT PERIOD THE OWNER OR OWNER'S CONTRACTOR SHALL WATER, CULTIVATE AND PRUNE AS REQUIRED TO MAINTAIN A HEALTHY GROWING CONDITION.
3. AT THE END OF THE ESTABLISHMENT PERIOD AND UPON SUBSEQUENT ANNUAL INSPECTIONS, PLANTS WHICH HAVE DIED OR FAILED TO THRIVE SHALL BE REPLACED WITH EQUIVALENT SIZE AND SPECIES. AFTER THE CONTRACTOR'S GUARANTEE PERIOD HAS ENDED, IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN AND REPLACE PLANTINGS.
4. TREES, SHRUBS AND LAWNS WHICH ARE NOT IRRIGATED WITH AN AUTOMATIC SPRINKLER OR DRIP SYSTEM SHALL BE THOROUGHLY WATERED ON A REGULAR BASIS DURING PERIODS OF BELOW AVERAGE RAINFALL. SOIL SHOULD BE SAMPLED AT A DEPTH OF 12" AND IF DRY, WATER TO DEPTH OF 24".
5. MULCH IS TO BE MAINTAINED AT A DEPTH TO COMPLETELY COVER THE SOIL AND TO PRESERVE MOISTURE AND MINIMIZE WEEDS.
6. TREES, SHRUBS AND LAWNS SHALL BE FERTILIZED ANNUALLY AND TREATED WITH INSECTICIDES AND/OR FUNGICIDES AS REQUIRED FOR CONTINUED HEALTHY GROWTH.
7. SUCKERS, WEEDS, AND DEAD WOOD SHALL BE REMOVED ON A SEASONAL BASIS, AND SHRUBS SHALL BE PRUNED TWICE A YEAR ACCORDING TO THE REQUIREMENTS OF EACH SPECIES (I.E. SOME SPECIES SHOULD NOT BE PRUNED AT ALL.) SHRUBS SHALL NOT BE PRUNED INTO INDIVIDUALS BUT ALLOWED TO GROW INTO A MASS.
8. WHERE TREES ARE LOCATED NEAR SIDEWALKS OR PARKING LOTS, THE CANOPY SHALL BE LIMBED UP TO PROMOTE SAFE CLEARANCE TO 8' ABOVE GRADE.
9. LAWN AREAS SHALL BE MOWN AS OFTEN AS NECESSARY TO KEEP LAWNS TO A 2 1/2 - 3" HEIGHT, AND AERATED ON A SEASONAL BASIS.
10. BEDS AND LAWN EDGES SHALL BE REGULARLY TRIMMED AND EDGED.
11. PERENNIAL AND ANNUAL BEDS SHALL BE DESIGNED, PLANTED AND MAINTAINED FOR SEASONAL COLOR AND INTEREST. ANNUALS MAY BE INCORPORATED TO A MAXIMUM LIMIT OF 25% OF THE BED AREA OF MAINTAINED BEDS FROM MAY 15 THROUGH NOVEMBER 15. PERENNIAL BEDS SHALL BE WATERED AS REQUIRED FOR HEALTHY PLANT GROWTH, AND WEEDED AND DEADHEADED ON A MONTHLY BASIS.



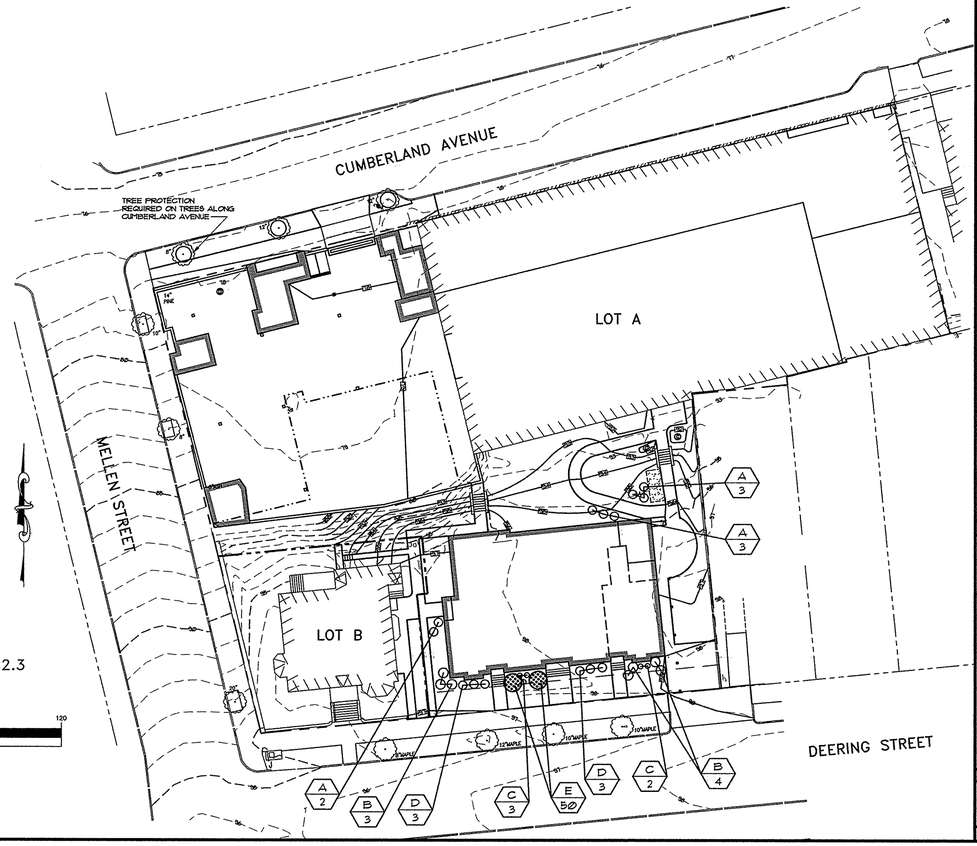
5 DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

PLANT LIST

(A / 12 = SYMBOL / QUANTITY)

SYMBOL	COMMON NAME/BOTANICAL NAME	SIZE	QUANTITY	ROOT	NOTES
A	Amur Privet / L. Amurense	4' tall	8	B&B	3 Canes min.
B	Cornellancherry Dogwood / C. Mas	5'-6' tall	7	B&B	3 Trunks
C	Blue billow Hydrangea / H. Serrata 'Blue billow'	#3	3	Cont.	
D	Viburnum / V. Plicatum Tomentosum 'summer Snowflake'	#5	6	Cont.	
E	Daylily Varieties / Hemerocallis	--	50	Cont.	select for bloom Early Summer to Fall



FOR PLAN LEGEND SEE SHEET C2.3

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

PINKHAM & GREER
CIVIL ENGINEERS
28 MARKET ST., PORTLAND, ME. 04102
TEL: 207.781.2442 FAX: 207.781.4245

STATE OF MAINE — THOMAS GREER No. 4206 — LICENSED PROFESSIONAL ENGINEER — 4/17/17

REV.	DATE	DESCRIPTION
2	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

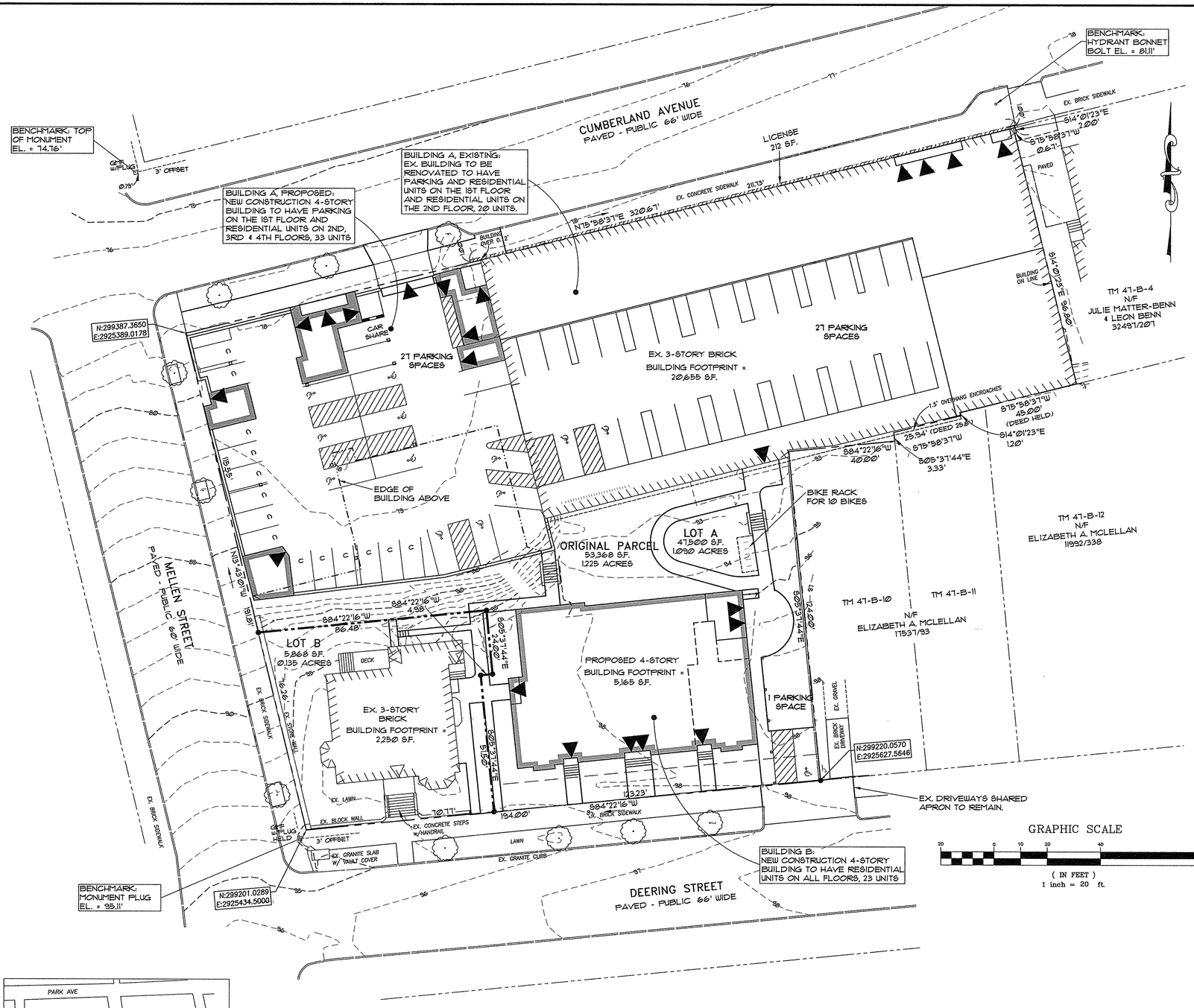
SCALE: AS SHOWN | DRN BY: JDC
DATE: OCTOBER 19, 2017 | DES'G BY: TSG
PROJECT: 17127 | CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

LANDSCAPE PLAN, NOTES AND DETAILS

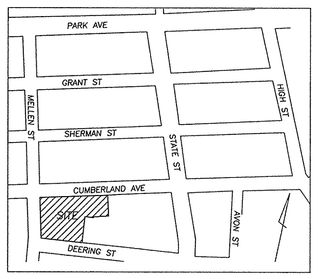
C2.5

MAP/LOT 47/B/1, 2, 3 & 29



GENERAL NOTES

1. OWNER/DEVELOPER: AVESTA HOUSING DEVELOPMENT CORP, 307 CUMBERLAND AVENUE, PORTLAND MAINE 04101. CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33552, PAGE 280, RECORDED DATE 10/26/16.
2. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVEUNE, PORTLAND, MAINE, 04103.
3. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
4. TOPOGRAPHIC AND BOUNDARY INFORMATION TAKEN FROM "BOUNDARY SURVEY AT #510 CUMBERLAND AVENUE A/K/A #498-500 CUMBERLAND AVENUE AND #61-73 DEERING STREET PORTLAND MAINE MADE FOR AVESTA HOUSING 307 CUMBERLAND AVENUE , PORTLAND, MAINE" BY OWEN HASKELL, INC., 390 US ROUTE ONE, FALMOUTH, MAINE. DATED SEPT. 26, 2016, 4TH REVISION 8-28-17.
5. ZONE: R-6, RESIDENTIAL, PROPOSED USE: MULTIFAMILY DWELLING
6. TAX MAP REFERENCE: MAP 47 / BLOCK B / LOTS 1, 2, 3 & 29.
7. TOTAL PARCEL = 1.225 acres
8. WAIVERS: SEE SUBDIVISION RECORDING PLAT, SHEET 2 OF 2 FOR LIST OF WAIVERS.
9. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 811 OR 1-888-DIG-SAFE.
10. UNITS TO BE SERVICED BY EXISTING PUBLIC WATER, SEWER, AND GAS FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND FROM CUMBERLAND, MELLEN OR DEERING STREETS. THESE SERVICES ARE SHOWN ON SHEET C2.3, GRADING AND UTILITIES PLAN.
12. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
13. THE SUBJECT PARCEL KNOWN AS 510 CUMBERLAND AVENUE IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
14. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR DEERING PLACE SITE PLAN.
15. FLOODPLAIN: THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0014 B, EFFECTIVE DATE JULY 17, 1986. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
16. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON SHEET C1.2 UNDER SNOW CLEARANCE NOTES.
17. NEW PROPERTY PINS TO BE SET AT THE EXPENSE OF THE DEVELOPER AT THE END OF CONSTRUCTION. ANY MONUMENTATION DAMAGED BY CONSTRUCTION IS TO BE REPLACED.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, MARCH 2003.



LOCATION PLAN

SCALE: 1"=250'±

LEGEND

EXISTING		PROPOSED	
	PROPERTY LINE		LOT LINE
	ABUTTERS PROPERTY		EDGE OF PAVEMENT
	EASEMENT		VERTICAL GRANITE CURB
	EDGE OF PAVEMENT		BUILDING
	BUILDING		BUILDING ENTRY/EGRESS
	BUILDING ROOF OVERHANG		BUILDING EDGE OVERHEAD
	EDGE OF GRAVEL		IRON PIPE TO BE SET
90	CURB		HANDICAP PARKING
	CONTOURS		DECORATIVE FENCE
	WALL		BUILDING HATCH
	MONUMENT FOUND		BIKE RACK ON WOODCHIP PAD
	DECIDUOUS TREE		RETAINING WALL
	CONIFEROUS TREE		

Date — John C. Schwanda, PLS No. 1252
For Boundary and Existing Conditions Only

SUBDIVISION PLAT, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE, PORTLAND, ME. 04103
TEL: 207.775.2242 FAX: 207.761.4245

STATE OF MAINE — THOMAS GREER No. 4206 — LICENSED PROFESSIONAL ENGINEER — 11/17/17

REV.	DATE	DESCRIPTION
3	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
2	10/19/17	SUBMITTED FOR FINAL APPROVAL
1	9/7/17	REVD BUILDING & FOOTPRINT , REVD NUMBER OF UNITS

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN — DRN BY: JDC
DATE: MAY 31, 2017 — DESG BY: TSG
PROJECT: 17127 — CHK BY: TG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

SUBDIVISION RECORDING PLAT
SHEET 1 of 2

C1.1

MAP/LOT 47/B/1, 2, 3 & 29

CITY OF PORTLAND
CONDITIONS OF APPROVAL

SURVEY GENERAL NOTES

1. OWNER OF RECORD: AVESTA HOUSING DEVELOPMENT CORP., 307 CUMBERLAND AVENUE, PORTLAND MAINE 04101. CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33552, PAGE 280, RECORDED DATE 10/26/16.
2. LOCUS IS SHOWN AS LOTS 1, 2, 3, AND 29 IN BLOCK B ON PORTLAND PROPERTY MAP 47.
3. BEARINGS ARE CITY COORDINATES PROVIDED ON STREET MONUMENTS ON PLAN REFERENCE 5, WHICH IS GRID NORTH.
4. SPACE BETWEEN BUILDING AND FENCE ON LAND OF MCLELLAN APPEARS TO BE USED BY SUBJECT PROPERTY.
5. THE 1883 DEED IN BOOK 495, PAGE 84 FOR THE PORTION OF THE PREMISES WEST OF BENN IS FOR A LOT 100 FEET DEEP FROM CUMBERLAND STREET. THE DEEDS FOR MCLELLAN ARE FOR THAT SAME LINE. SUBSEQUENT DEEDS, STARTING IN 1922, HAVE CALLED FOR A DEPTH OF 98.8 FEET, POSSIBLY BASED ON PLAN REFERENCE 2, WHICH SHOWS A BUILDING LINE 98.8 FEET FROM CUMBERLAND AVENUE AND A PROPERTY LINE OF 100 FEET.
6. THE 1905 DEED IN BOOK 780, PAGE 239 FOR THE BENN PROPERTY DEFINES THE COMMON LINE AS BEING 300 FEET FROM STATE STREET, BASED ON PLAN REFERENCE 4. THE 1874 DEED IN BOOK 433, PAGE 132 FOR THE LOCUS DEFINES THE EAST LINE AS 275 FEET FROM MELLEN STREET. THE 1883 DEED, MENTIONED ABOVE, CALLS FOR A FRONTAGE OF 45 FEET ON CUMBERLAND AVENUE. PLAN REFERENCE 1 SHOWS THIS COMMON LINE (WITH THE EXCEPTION OF THE LATER 2.00 BY 0.67 FOOT STRIP) AS BEING 320 FEET FROM MELLEN STREET, WITH A NOTE "298.31 TO STATE ST. BY MEASURE. PLAN CALLS FOR 300." THE EXISTING BUILDING WAS BUILT TO MATCH THE 320 FEET FROM MELLEN AND THE SMALL PARCEL FOR THE PILASTER, CONVEYED BY A BENN PREDECESSOR, MATCHES ALSO.
7. ELEVATIONS ARE BASED ON NGVD 1929 - CITY DATUM.
8. UTILTY NOTE:
   THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION.

SURVEY PLAN REFERENCES

1. "SURVEYED FOR B.F. HARRIS SURVEYED FEB. 1883" IN FILES OF H.I. & E.C. JORDAN - SURVEYORS AND UNDATED UNTITLED MORE RECENT WORKING PLAN OF SAME.
2. "E.C. JORDAN & CO. CIVIL ENGINEERS OCT. 16, 1922" PLAN OF LAND OF HANNAH M. DOOLEY ON DEERING ST. AND ELVIRA LORELLO ON CUMBERLAND ST.
3. "BOUNDARY SURVEY AT 51 DEERING STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD SETH & LAUREL MCCLEAD AUGUST 21, 2014 OWEN HASKELL, INC. JOB NO. 2014-07IP"
4. PLAN OF DIVISION BETWEEN DEERING AND PREBLE ESTATES RECORDED IN PLAN BOOK 3, PAGE 31 (TITLE LARGELY UNREADABLE)
5. CITY OF PORTLAND ENGINEERING DEPARTMENT WORKING PLAN PROVIDED OF THIS BLOCK AND SURROUNDING ONES SHOWING EXISTING MONUMENTATION.

SNOW CLEARANCE NOTES

1. SNOW IS TO BE STORED WITHIN THE SNOW STORAGE AREAS.
2. SNOW MAY BE PHYSICALLY REMOVED AND TRANSPORTED OFFSITE IF NECCESSARY.
3. SNOW TRANSPORTED OFFSITE SHALL BE BROUGHT TO A MAINE DEP APPROVED "SNOW DUMP" OR MEET THE EXEMPTION REQUIREMENTS SPECIFIED WITHIN CHAPTER 573 WHEN THE ABOVE REQUIREMENTS CANNOT BE MET DUE TO AN ABUNDANCE OF SNOW.
4. THE SNOW CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO VEGETATION, LANDSCAPING, CURBING, LIGHTING, FENCING ETC. RESULTING FROM THEIR ACTIVITIES.
5. THE SNOW CONTRACTOR SHALL USE SALT OR CHLORIDE SUBSTITUTE TO DEICE THE PARKING LOT.
6. THE OWNER IS RESPONSIBLE FOR SNOW REMOVAL BEING UNDERTAKEN IN A TIMELY FASHION.

WAIVERS REQUESTED

1. WAIVER FOR REQUIRED PARKING SPACES FROM 66 SPACES TO 55 SPACES.
2. REDUCTION OF DRIVE AISLE FROM 24 FEET TO 19.1 FEET, 20.3 FEET, 21.1 FEET, 21.9 FEET AND 22.0 FEET.
3. WAIVER OF DEERING STREET DRIVEWAY, DRIVEWAY SEPARATION REQUIREMENT FROM TAX MAP 47-B-10 & 11.

PARKING INFORMATION

EXISTING VEHICLE SPACES:	58
LOT A:	
VEHICLE SPACES REQUIRED, 76 UNITS:	
FIRST 3 UNITS:	0
REMAINING UNITS, 1 PER UNIT:	73
SHARED CAR BONUS: - 8 SPACES, + 1 SPACE	-1①
TOTAL VEHICLE SPACES REQUIRED:	66
LOT B:	
TOTAL VEHICLE SPACES REQUIRED, 3 UNITS:	6
VEHICLE SPACES PROVIDED:	
9'x18' STANDARD SPACES:	13
9'x18' CAR SHARE SPACE:	1①
8'x15' COMPACT SPACES:	28
8'x18' HANDICAP ACCESSIBLE SPACES:	13
TOTAL VEHICLE SPACES PROVIDED:	55
SPACES USED: LOT A = 49 LEASED TO LOT B: 6	

① AVESTA IS COMMITTED TO PROVIDING ONE SHARE CAR FOR USE BY THE RESIDENTS OF THIS PROJECT.

BIKE SPACES REQUIRED:	
2 BIKE SPACES PER	
5 DWELLING UNITS (76/2.5):	31
PROVIDED:	
INTERIOR RACK FOR 25 BIKES	25
1-EXTERIOR RACK OF 10 BIKES	10
TOTAL BIKE STORAGE PROVIDED:	35

IMPERVIOUS INFORMATION

	LOT A	LOT B
EXISTING IMPERVIOUS	40,455 SQ. FT.	3,115 SQ. FT.
PROPOSED IMPERVIOUS	39,452 SQ. FT.	3,300 SQ. FT.
NET IMPERVIOUS	-1,003 SQ. FT.	+ 185 SQ. FT.

ZONE INFORMATION

ZONE: R-6, RESIDENTIAL
PERMITTED USE: MULTI-FAMILY DWELLING

SPACE STANDARDS	REQUIRED	EXISTING	LOT A	LOT B	TOTAL SUBDIVISION
MINIMUM LOT SIZE	2,000 SQ. FT.	53,368 SQ. FT.	47,512.5 SQ. FT.	5,855.6 SQ. FT.	53,368 SQ. FT.
MINIMUM AREA PER DWELLING UNIT	725 SQ. FT.	3,336 SQ. FT.	586 SQ. FT.①	1,952 SQ. FT.	635 SQ. FT.
MINIMUM STREET FRONTAGE	20 FEET	191.8 FEET	115.5 FEET	70.8 FEET	70.8 FEET
MINIMUM FRONT YARD	5 FEET	0 FEET	0 FEET	10.6 FEET	0 FEET
MINIMUM REAR YARD	10 FEET	0.2 FEET	0.2 FEET	10.2 FEET	0.2 FEET
MINIMUM SIDE YARD	10 FEET	0 FEET	0 FEET	5.7 FEET	0 FEET
MAXIMUM LOT COVERAGE (BUILDINGS)	60%	43%	54%	39%	50%
MINIMUM LOT WIDTH	20 FEET	191.8 FEET	115 FEET	70.8 FEET	191.8 FEET
MAXIMUM BUILDING HEIGHT	45 FEET	43 & 36 FEET	36 & 39.5 FEET	43 FEET	46 FEET
OPEN SPACE RATIO	20%	57%	24%	56%	31%

① LOT A AREA: 47,512.5 S.F.
MIN. AREA PER DWELLING UNIT: ÷ 725 S.F.
UNITS ALLOWED: 65.5 UNITS
DENSITY BONUS OF 25% (FOR AFFORDABLE UNITS, SECTION 14-488.) × 1.25 BONUS
UNITS ALLOWED: 81 UNITS

CITY OF PORTLAND SUBDIVISION NOTES

1. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
2. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS AND LOCATION AND SIZE OF BUILDINGS.
3. ALL POWERLINE UTILITIES SHALL BE UNDERGROUND.
4. SIDEWALKS AND CURBING SHALL BE DESIGNED AND BUILT WITH TIPDOWN RAMPS AT ALL STREET CORNERS, CROSSWALKS AND DRIVEWAYS IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
7. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES (SEE ABOVE).
8. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORK'S REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
9. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL, GROUPINGS OF TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. REGRADING SHALL NOT TAKE PLACE WITHIN THE DRIP-LINE OF TREES DESIGNATED FOR PRESERVATION. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN THE DRIP-LINE OF TREES TO BE PRESERVED.
10. SUBDIVISION AT THE TIME OF APPROVAL IS DEFINED AS "SUBDIVISION SHALL MEAN THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING LOTS OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OR STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD AND THE DIVISION OF AN EXISTING STRUCTURE OR STRUCTURES PREVIOUSLY USED FOR COMMERCIAL OR INDUSTRIAL USE INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSE OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE ANY PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTIFAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS."

Date — John C. Schwanda, PLS No. 1252
For Boundary and Existing Conditions Only

SUBDIVISION PLAT, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

PINKHAM & GREER
CIVIL ENGINEERS
28 WAINWRIGHT AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE — THOMAS S. GREER No. 4228 — REGISTERED PROFESSIONAL ENGINEER — 8/16/17

REV.	DATE	DESCRIPTION
4	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
3	11/7/17	REVD PER ADDITIONAL REVIEW COMMENTS
2	10/18/17	SUBMITTED FOR FINAL APPROVAL
1	9/7/17	REVD BUILDING & FOOTPRINT, REVD NUMBER OF UNITS

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

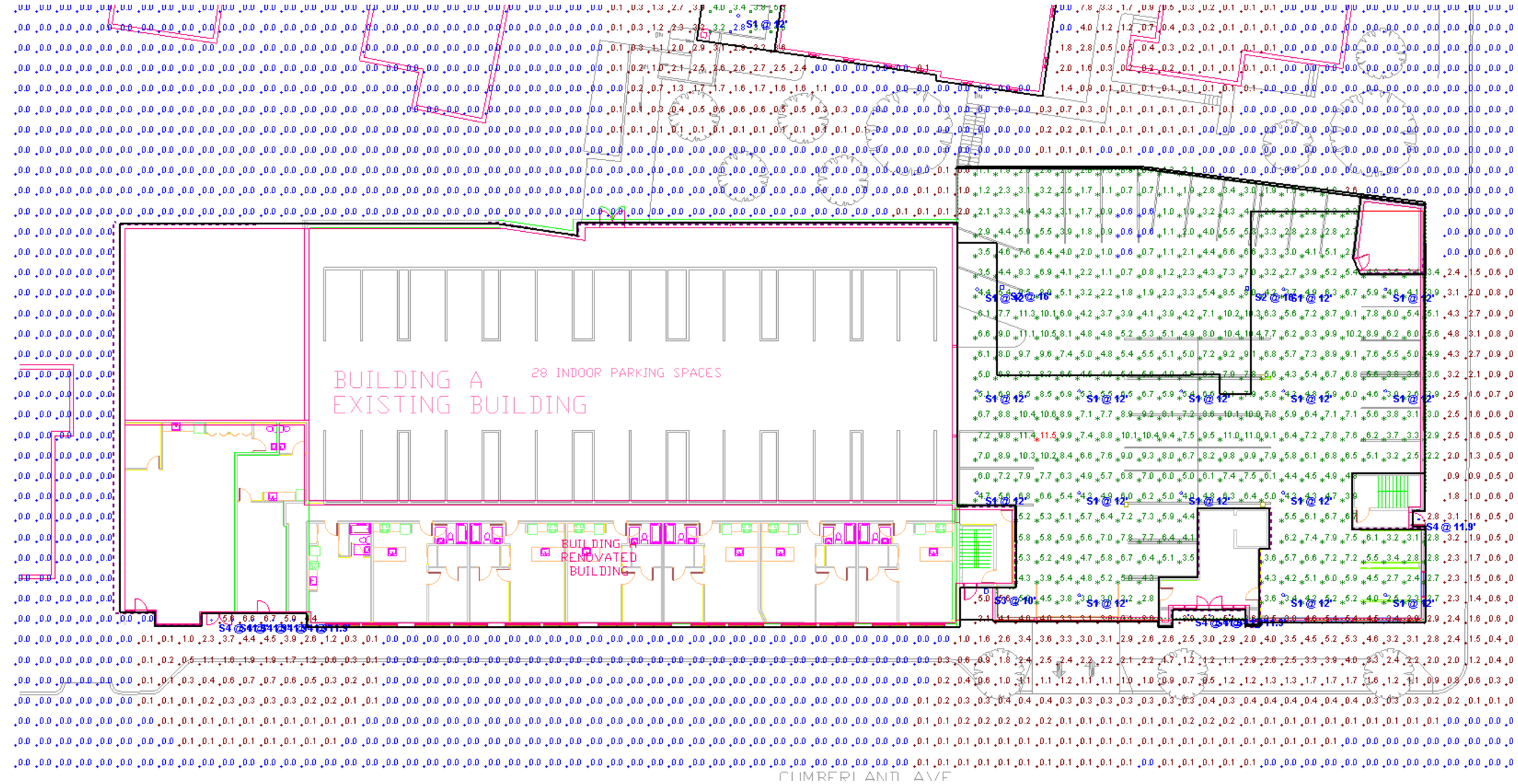
SCALE: AS SHOWN — DRN BY: JDC
DATE: MAY 31, 2017 — DESG BY: TSG
PROJECT: 17127 — CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

SUBDIVISION RECORDING PLAT
SHEET 2 of 2

C1.2

MAP/LOT 47/B/1, 2, 3 & 29



Building A

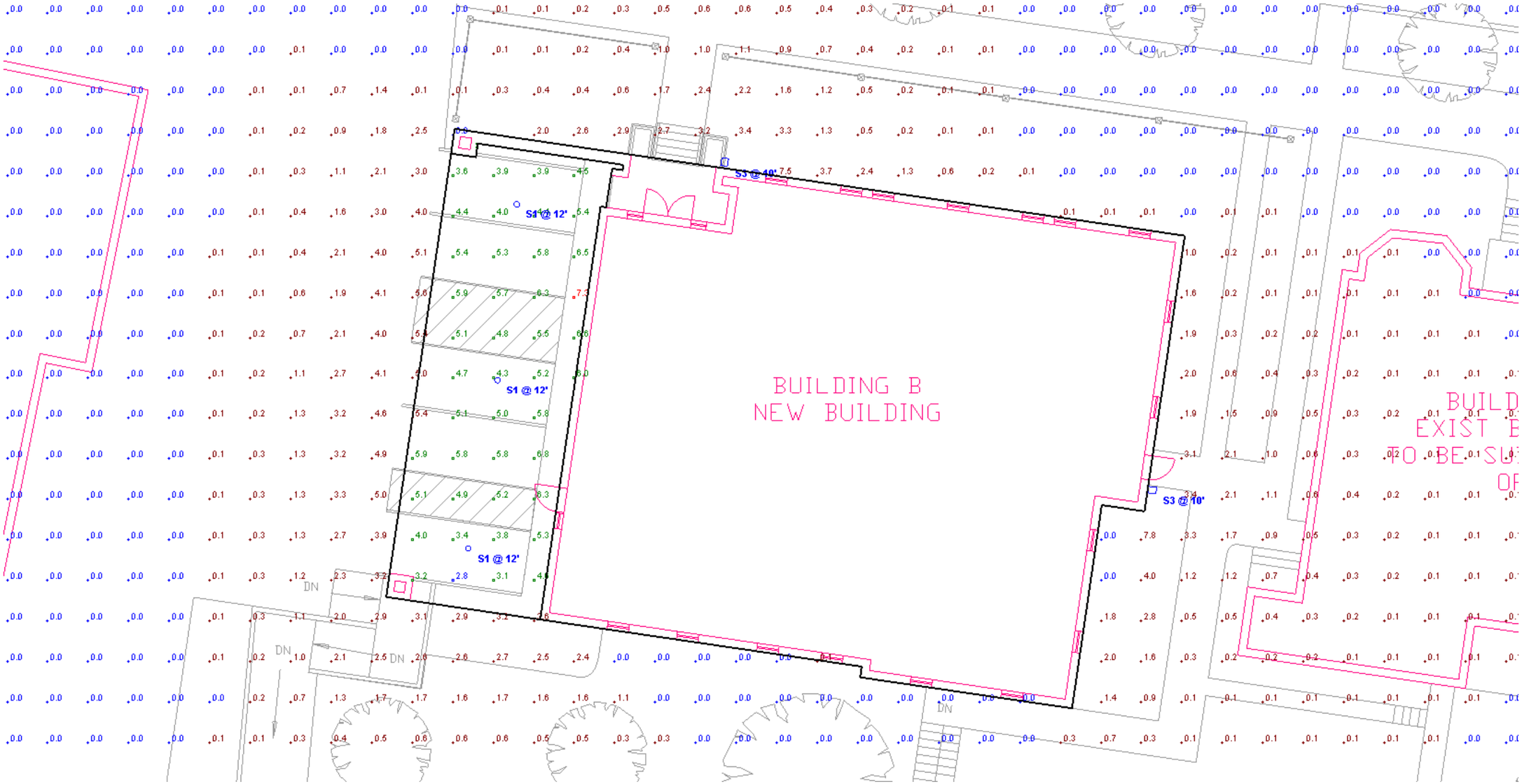
Statistics

Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min	Avg / Max
Building A Parking	✳	5.4 fc	11.5 fc	0.6 fc	19.2:1	9.0:1	0.5:1

VISUAL

DEERING PLACE
PHOTOMETRIC

Designer
SAJ
Date
10/13/2017
Scale
Not to Scale
Drawing No.
E0
Summary



Building B

Statistics

Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min	Avg / Max
Building B Parking		5.0 fc	7.3 fc	2.8 fc	2.6:1	1.8:1	0.7:1

VISUAL

DEERFIELD TOWNSHIP
PHOTOMETRIC

Designer
SAJ
Date
10/13/2017
Scale
Not to Scale
Drawing No.
E0
Summary

Luminaire Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	18	Beacon Products	ORB-18LED-60-3K-T5QM-UNV	Orbeon	18 white LEDs, 70CRI	1	ORB-18LED-60-3K-T5QM.ies	5457.896	0.8	61.2137
	S2	2	Hubbell Lighting Inc, dba Beacon Products	VPS-24L-55-3K7-2		X-70-CRI	1	VPS-24L-55-3K7-2.ies	5599.173	0.8	54
	S3	3	Beacon Products	TRV-24L-55-3K7-2	TRAVERSE	X-70-CRI	1	TRV-24L-55-3K7-2.ies	5688.013	0.8	57.9
	S4	9	HUBBELL LIGHTING	CDL6 8L30KAWH	6" Downlight, 3000K, 120V, 90 CRI, White Trim	14- Seoul 3000K LEDs	1	CDL6_8L30KAWH.ies	762.8011	0.8	10.1

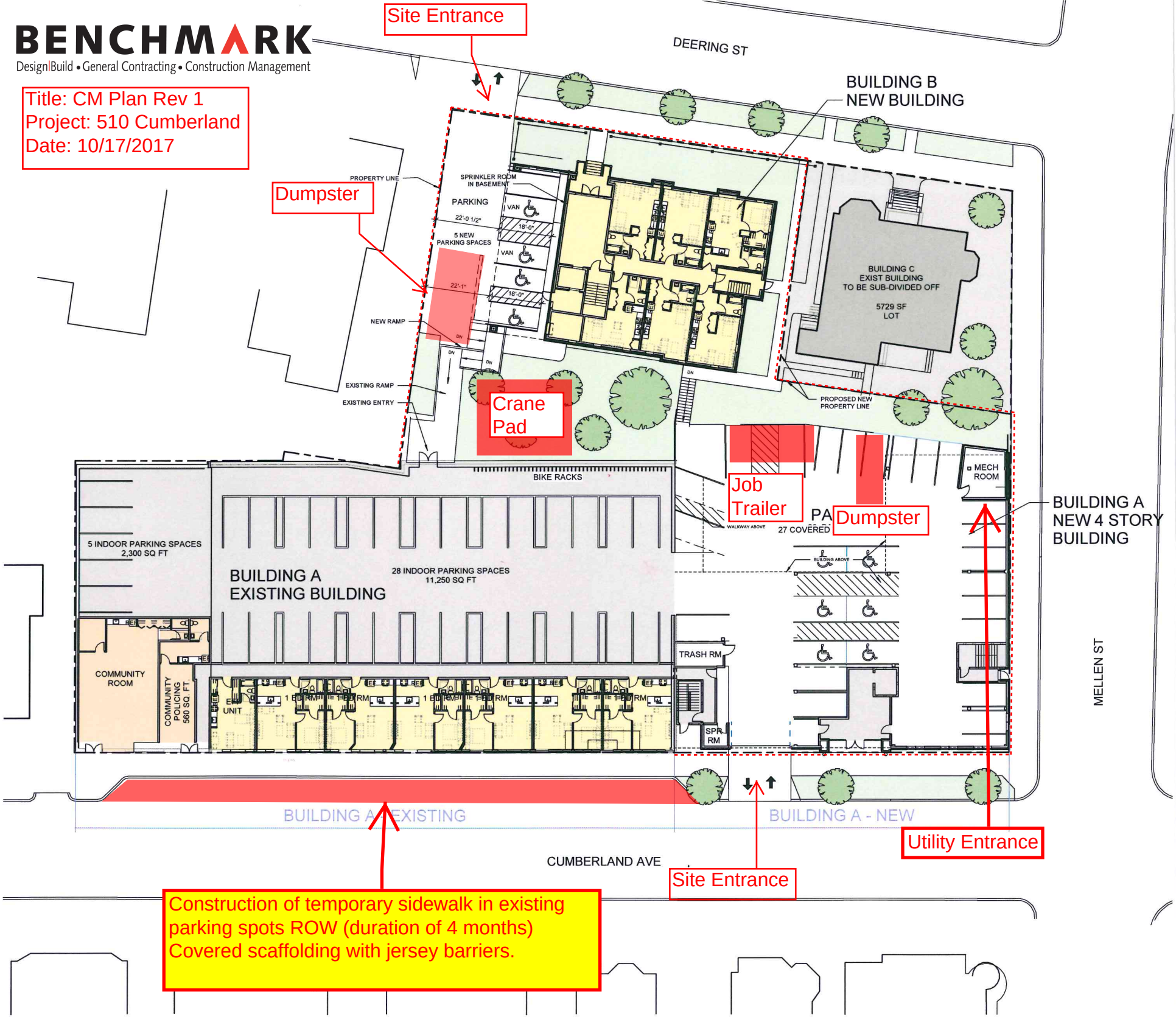
VISUAL

DEERING PLACE
PHOTOMETRIC

Designer
SAJ
Date
10/13/2017
Scale
Not to Scale
Drawing No.
E0
Summary

BENCHMARK
Design|Build • General Contracting • Construction Management

Title: CM Plan Rev 1
Project: 510 Cumberland
Date: 10/17/2017



1 | SITE PLAN

EROSION CONTROL NOTES

GENERAL:

1. DURING CONSTRUCTION THE CONTRACTOR IS REQUIRED TO HAVE A MAINTENANCE AND INSPECTION PLAN FOR STORMWATER CONTROL AND EROSION CONTROL DEVICES. INSPECT THE DISTURBED AREAS ONCE PER WEEK AND BEFORE AND AFTER RAIN STORMS. REPAIR OR CORRECT ANY AREAS THAT ARE DEFICIENT WITHIN 7 CALENDAR DAYS. KEEP A LOG OF THE INSPECTIONS AND NOTE ANY CORRECTIVE ACTION TAKEN. THE LOG MUST BE AVAILABLE FOR REVIEW BY THE TOWN AND DEP. KEEP RECORDS FOR 3 YEARS.

2. THE DRAWINGS DEPICT THE REQUIRED SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE IN SUCH A MANNER THAT:

   1. SOIL EROSION IS KEPT TO A MINIMUM.
   2. NO SEDIMENT LEAVES THE CONSTRUCTION SITE PROPER.
   3. ALL POSSIBLE MEASURES ARE EMPLOYED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE COURSES AND WETLANDS EVEN BEYOND THE DETAILS SHOWN ON THIS PLAN IF NECESSARY.

3. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2016.

4. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATERBODIES, OR WETLAND AS A RESULT OF THIS PROJECT.

5. LOAM AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE, BUT NO LONGER THAN 7 DAYS. LOAM AND SEED ANY DISTURBED AREA WITHIN 75' OF WETLANDS OR WATERBODEIS WITHIN 48 HOURS OR PRIOR TO AND STORM EVENT. USE WINTER SEED RATES AND SPECIFICATIONS IF APPROPRIATE.

6. INSPECT SOIL EROSION MEASURES WEEKLY AND AFTER SIGNIFICANT STORM EVENTS. MAKE ALL NECESSARY REPAIRS TO FACILITIES AS SOON AS POSSIBLE, BUT NO LONGER THAN 2 DAYS. CLEAN AND RESET SILT FENCES AND STONE CHECK DAMS WHICH ACCUMULATE SEDIMENT AND DEBRIS.

7. PROTECT AND STABILIZE ALL AREAS NOT SCHEDULED FOR EROSION PREVENTION OR STABILIZATION BUT THAT SHOW SIGNS OF EROSION. NOTIFY OWNER OF ANY SIGNIFICANT EROSION PROBLEM.

8. APPLY MULCH TO BARE SOILS WITHIN 7 DAYS OF INITIAL DISTURBANCE OF SOILS, WITHIN 48 HOURS IF WITHIN 75' OF WETLAND OR WATERBODY, PRIOR TO ANY RAIN EVENT, OR PRIOR TO ANY WORK SHUTDOWN LASTING MORE THAN ONE DAY.

9. TEMPORARILY SEED WITHIN 7 DAYS ANY AREA WHICH WILL BE LEFT DISTURBED AND UNWORKED FOR MORE THAN 14 DAYS WITH THE TEMPORARY SEED MIX LISTED BELOW. IF AREA IS WITHIN 75' OF A WETLAND OR WATERBODY, SEED WITHIN 48 HOURS. PERMANENTLY SEED ANY AREA WHICH CAN BE LOAMED AS SOON AS POSSIBLE WITH THE PERMANENT SEED MIX LISTED BELOW. DO NOT USE PERMANENT SEED MIX AFTER SEPTEMBER 15.

10. MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. DURING THE GROWING SEASON (APRIL 15 - SEPT. 30) USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
    - THE BASE OF GRASSED WATERWAYS
    - SLOPES STEEPER THAN 15%
    - WITHIN 100 FT. OF STREAMS AND WETLANDS

    BETWEEN OCT. 1 AND APRIL 14 USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
    - SIDE SLOPES OF GRASSED WATERWAYS
    - SLOPES STEEPER THAN 8%

11. INSTALL EROSION CONTROL MESH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. MESH TO BE EQUAL TO NORTH AMERICAN GREEN PRODUCT C125BN.

12. FOLLOW SILT FENCE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR INSTALLATION OF SILT FENCE. SECURE ENTIRE BOTTOM OF FENCE EITHER BY BURYING BOTTOM OF FENCE IN A TRENCH OR BERMING WITH SOIL OR CHIPPED GRUBBINGS. REFER TO SILT FENCE DETAILS.

13. PLACE AND GRADE LOAM IN A REASONABLY UNIFORM MANNER. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEED BED IS PREPARED. REMOVE FROM SURFACE ALL STONES LARGER THAN 2" AND ALL OTHER UNSUITABLE MATERIAL. LIME AND FERTILIZER SHOULD BE MIXED INTO SOIL PRIOR TO ROLLING EXCEPT IF INCLUDED IN HYDROSEED MIXTURE. PERMANENT STABILILIZATION OF REVEGETATED AREAS IS CONSIDERED AS 85% CATCH.

14. ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT SACKS DURING CONSTRUCTION.

15. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

TOPSOIL:

1. SUITABLE TOPSOIL SALVAGED FROM SITE OR SCREENED, LOOSE AND FRIABLE SANDY LOAM OR LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE CLASSIFICATION SYSTEM, FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS, ROOTS, WEEDS, RHIZOMES OR OTHER UNDESIREABLE FOREIGN MATTER AS DETERMINED BY THE INSPECTING AUTHORITY. CONTRACTOR SHALL SUBMIT REPORTS OF LOAM TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY FOR TOPSOIL FROM DIFFERENT SOURCES PRIOR TO PLACING. THE COST OF TESTING SHALL BE INCIDENTAL TO THE COST OF TOPSOIL. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:

2. MATERIAL

   SAND - 0.08 IN. TO 0.002 IN. DIAMETER (% BY VOLUME) ..... 45 - 75
   SILT - 0.002 IN. TO 0.000008 IN. DIAMETER (% BY VOLUME) ... 20 - 40
   CLAY - LESS THAN 0.000008 IN. DIAMETER (% BY VOLUME) .... 5 - 15

   ORGANICS (SHALL MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION 717.09 PEAT HUMUS) (% BY VOLUME) . 10 - 20

   NUTRIENTS:
   CALCIUM (CA) (% SATURATION) ..... 60 - 80
   MAGNESIUM (MG) (% SATURATION) ..... 10 - 25
   POTASSIUM (K) (% SATURATION) ..... 2.1 - 3.0
   PHOSPHORUS (P) (POUNDS/ACRE) ..... 10 - 40
   PH ..... 6.0 - 6.5

   PERMEABILITY (INCHES PER HOUR) ..... 3 - 10

   MAXIMUM STONE SIZE (INCHES) 3/4

SEEDING:

USE PERMANENT SEED MIXES AND RATES BETWEEN 5/15 AND 9/30. USE TEMPORARY SEED MIXES FOR PERIODS LESS THAN 12 MONTHS. IF USING TEMPORARY SEED MIXES AND RATES BETWEEN 10/1 AND 5/14, RE-SEED WITH PERMANENT SEED MIX AFTER 5/15.

PERMANENT SEED:

MDOT 717.03(a) METHOD NUMBER 3

TEMPORARY SEED:

OATS	80.00 LBS/ACRE	4/01 - 5/14
ANNUAL RYEGRASS	40.00 LBS/ACRE	
SUDANGRASS	40.00 LBS/ACRE	5/15 - 8/14
ANNUAL RYEGRASS	80.00 LBS/ACRE	5/15 - 9/14
WINTER RYE	112.00 LBS/ACRE	9/15 - 9/30
WINTER RYE (W/ MULCH COVER)	112.00 LBS/ACRE	10/01 - 3/31

LIME AND FERTILIZER:

APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 POUNDS PER 1000 SQUARE FEET). APPLY FERTILIZER (10-20-20) AT A RATE OF 800 POUNDS PER ACRE (18.4 POUNDS PER 1000 SQUARE FEET).

MULCH:

STRAW OR HAY (ANCHORED)	70 - 90 LBS	PROTECTED AREAS
STRAW OR HAY (ANCHORED)	185 - 275 LBS	WINDY AREAS
SHREDDED OR CHOPPED	185 - 275 LBS	
JUTE MESH	AS REQUIRED	MODERATE TO HIGH VELOCITY AREAS & STEEP SLOPES
EXCELSIOR MAT	AS REQUIRED	

MULCH ANCHORING

PEG AND TWINE	LIQUID ASPHALT
MULCH NETTING	WOOD CELLULOSE FIBER
ASPHALT EMULSION	CHEMICAL TACK

HOUSEKEEPING NOTES

THE DEVELOPER IS RESPONSIBLE FOR NOTIFYING THE CONTRACTOR AND OWNER OF THE HOUSEKEEPING STANDARDS.

1. SPILL PREVENTION: THE CONTRACTOR AND OWNERS NEED TO TAKE CARE WITH CONSTRUCTION AND WASTE MATERIALS SUCH THAT CONTAMINATES DO NOT ENTER THE STORMWATER. THE STORAGE OF MATERIALS SUCH AS PAINT, PETROLEUM PRODUCTS, CLEANING AGENTS AND THE LIKE ARE TO BE STORED IN WATERTIGHT CONTAINERS. THE USE OF THE PRODUCTS SHOULD BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. WHEN FUELING EQUIPMENT, INCLUDING SNOWBLOWERS AND LAWNMOWERS, HAVE OIL ABSORBENT PADS AVAILABLE BELOW THE FUELING.

   STAGING AREAS ARE NOTED ON THE CONSTRUCTION MANAGEMENT PLAN FOR THE CONTRACTOR'S USE. REFUELING OF SMALL ENGINES BY THE OWNER SHOULD OCCUR IN THE GARAGE OR ON A PAVED SURFACE.

   ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. GROUNDWATER PROTECTION: PROTECTION OF THE GROUNDWATER IS REQUIRED BY THE CONTRACTOR AND OWNER. PETROLEUM PRODUCTS SHOULD BE STORED IN MANUFACTURED CANS DESIGNED FOR THE PURPOSE. SPILL PREVENTIONS PROCEDURES SHOULD BE FOLLOWED.

3. FUGITIVE SEDIMENT AND DUST: THE CONTRACTOR IS REQUIRED TO MINIMIZE DUST FROM THE CONSTRUCTION OPERATION. THE ROAD SHOULD BE SWEPT REGULARLY (WEEKLY) AND PRIOR TO ANY RAIN EVENT. THE GRAVEL AREAS ARE TO BE WATERED REGULARLY TO MINIMIZE DUST. ANY MUD THAT IS TRACKED OFF SITE SHOULD BE CLEANED UP PRIOR TO IT DRYING AND BECOMING A DUST ISSUE. DO NOT USE OIL TO CONTROL DUST. DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

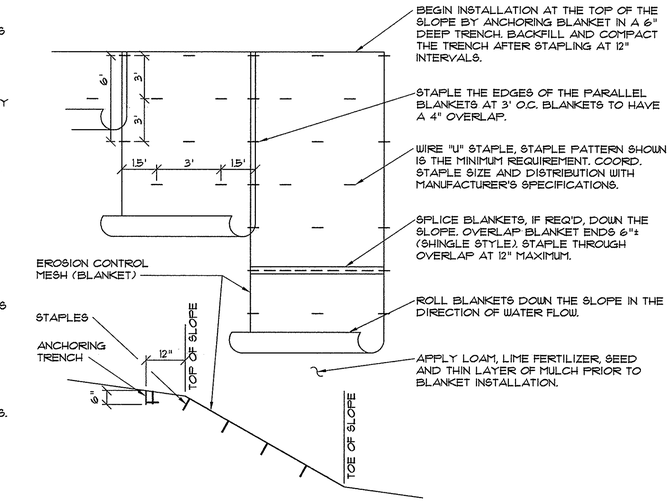
4. DEBRIS AND OTHER MATERIALS: CONSTRUCTION MATERIALS AND CONSTRUCTION DEBRIS SHOULD BE COVERED TO PREVENT RAINWATER FROM WASHING CONTAMINANTS OFF THE SITE. ANY FERTILIZERS, CLEANING PRODUCTS, HERBICIDES SHOULD BE PROTECTED FROM THE WEATHER AND USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

   NOTE ANY CONTAMINANTS THAT ARE WASHED OFF THE SITE BY RAINWATER IS A VIOLATION OF THE CLEAN WATERS ACT.

   STORAGE HANDLING AND DISPOSAL OF SOLID WASTE ITEMS MUST COMPLY WITH MAINE'S SOLID WASTE MANAGEMENT RULES. LACK OF APPROPRIATE POLLUTANT CONTROL MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARDS.

   THIS PROJECT HAS A WRITTEN EROSION CONTROL PLAN AND STORMWATER MAINTENANCE PLAN. MODIFICATIONS TO THE PLAN MUST BE APPROVED BY THE CITY.

   MAINTENANCE OF STORMWATER TREATMENT AND CONTROL SYSTEMS MUST OCCUR REGULARLY. THE STORMWATER MAINTENANCE REPORT PROVIDES INSPECTION DETAILS AND TIME LINES FOR DOING THE INSPECTIONS AND REPORTING TO THE CITY AND DEP.



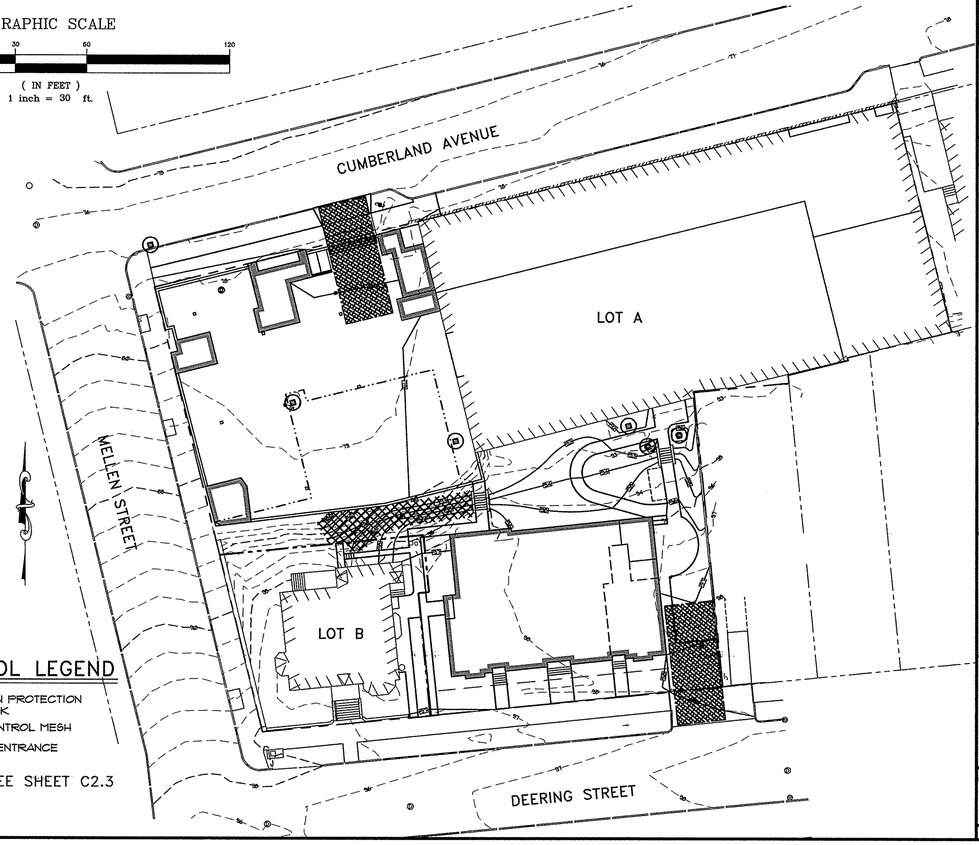
1 EROSION CONTROL MESH INSTALLATION DETAIL

NOT TO SCALE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



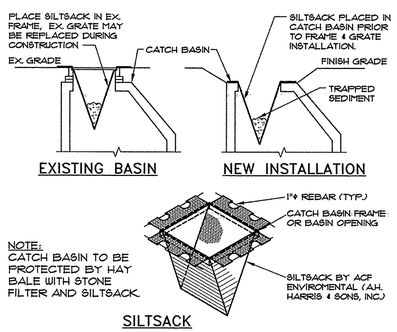
EROSION CONTROL LEGEND

CATCH BASIN PROTECTION WITH SILTSACK

EROSION CONTROL MESH

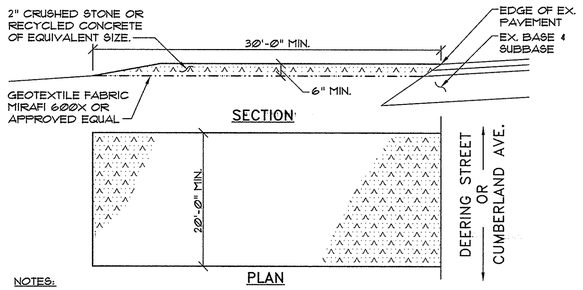
STABILIZED ENTRANCE

FOR PLAN LEGEND SEE SHEET C2.3



3 CATCH BASIN PROTECTION

NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE AFTER EXCAVATION OS COMPLETE.

2 STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 MARKET AVE. PORTLAND, ME. 04103
TEL. 207.775.5242 FAX. 207.797.4305

STATE OF MAINE — THOMAS GREER No. 4206 — REGISTERED PROFESSIONAL ENGINEER

11/17/17

REV	DATE	DESCRIPTION
2	11/17/17	REVD PER HISTORIC PRESERVATION & PWD REVIEWS
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN
DATE: OCTOBER 19, 2017
PROJECT: 17127
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

EROSION CONTROL
PLAN, NOTES AND DETAILS

C2.4

MAP/LOT 47/B/1, 2, 3 & 29

EROSION CONTROL NOTES

GENERAL:

1. DURING CONSTRUCTION THE CONTRACTOR IS REQUIRED TO HAVE A MAINTENANCE AND INSPECTION PLAN FOR STORMWATER CONTROL AND EROSION CONTROL DEVICES. INSPECT THE DISTURBED AREAS ONCE PER WEEK AND BEFORE AND AFTER RAIN STORMS. REPAIR OR CORRECT ANY AREAS THAT ARE DEFICIENT WITHIN 7 CALENDAR DAYS. KEEP A LOG OF THE INSPECTIONS AND NOTE ANY CORRECTIVE ACTION TAKEN. THE LOG MUST BE AVAILABLE FOR REVIEW BY THE TOWN AND DEP. KEEP RECORDS FOR 3 YEARS.

2. THE DRAWINGS DEPICT THE REQUIRED SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE IN SUCH A MANNER THAT:

   1. SOIL EROSION IS KEPT TO A MINIMUM.
   2. NO SEDIMENT LEAVES THE CONSTRUCTION SITE PROPER.
   3. ALL POSSIBLE MEASURES ARE EMPLOYED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE COURSES AND WETLANDS EVEN BEYOND THE DETAILS SHOWN ON THIS PLAN IF NECESSARY.

3. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2016.

4. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATERBODIES, OR WETLAND AS A RESULT OF THIS PROJECT.

5. LOAM AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE, BUT NO LONGER THAN 7 DAYS. LOAM AND SEED ANY DISTURBED AREA WITHIN 75' OF WETLANDS OR WATERBODEIS WITHIN 48 HOURS OR PRIOR TO AND STORM EVENT. USE WINTER SEED RATES AND SPECIFICATIONS IF APPROPRIATE.

6. INSPECT SOIL EROSION MEASURES WEEKLY AND AFTER SIGNIFICANT STORM EVENTS. MAKE ALL NECESSARY REPAIRS TO FACILITIES AS SOON AS POSSIBLE, BUT NO LONGER THAN 2 DAYS. CLEAN AND RESET SILT FENCES AND STONE CHECK DAMS WHICH ACCUMULATE SEDIMENT AND DEBRIS.

7. PROTECT AND STABILIZE ALL AREAS NOT SCHEDULED FOR EROSION PREVENTION OR STABILIZATION BUT THAT SHOW SIGNS OF EROSION. NOTIFY OWNER OF ANY SIGNIFICANT EROSION PROBLEM.

8. APPLY MULCH TO BARE SOILS WITHIN 7 DAYS OF INITIAL DISTURBANCE OF SOILS, WITHIN 48 HOURS IF WITHIN 75' OF WETLAND OR WATERBODY, PRIOR TO ANY RAIN EVENT, OR PRIOR TO ANY WORK SHUTDOWN LASTING MORE THAN ONE DAY.

9. TEMPORARILY SEED WITHIN 7 DAYS ANY AREA WHICH WILL BE LEFT DISTURBED AND UNWORKED FOR MORE THAN 14 DAYS WITH THE TEMPORARY SEED MIX LISTED BELOW. IF AREA IS WITHIN 75' OF A WETLAND OR WATERBODY, SEED WITHIN 48 HOURS. PERMANENTLY SEED ANY AREA WHICH CAN BE LOAMED AS SOON AS POSSIBLE WITH THE PERMANENT SEED MIX LISTED BELOW. DO NOT USE PERMANENT SEED MIX AFTER SEPTEMBER 15.

10. MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. DURING THE GROWING SEASON (APRIL 15 - SEPT. 30) USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
    - THE BASE OF GRASSED WATERWAYS
    - SLOPES STEEPER THAN 15%
    - WITHIN 100 FT. OF STREAMS AND WETLANDS

    BETWEEN OCT. 1 AND APRIL 14 USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
    - SIDE SLOPES OF GRASSED WATERWAYS
    - SLOPES STEEPER THAN 8%

11. INSTALL EROSION CONTROL MESH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. MESH TO BE EQUAL TO NORTH AMERICAN GREEN PRODUCT C125BN.

12. FOLLOW SILT FENCE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR INSTALLATION OF SILT FENCE. SECURE ENTIRE BOTTOM OF FENCE EITHER BY BURYING BOTTOM OF FENCE IN A TRENCH OR BERMING WITH SOIL OR CHIPPED GRUBBINGS. REFER TO SILT FENCE DETAILS.

13. PLACE AND GRADE LOAM IN A REASONABLY UNIFORM MANNER. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEED BED IS PREPARED. REMOVE FROM SURFACE ALL STONES LARGER THAN 2" AND ALL OTHER UNSUITABLE MATERIAL. LIME AND FERTILIZER SHOULD BE MIXED INTO SOIL PRIOR TO ROLLING EXCEPT IF INCLUDED IN HYDROSEED MIXTURE. PERMANENT STABILILIZATION OF REVEGETATED AREAS IS CONSIDERED AS 85% CATCH.

14. ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT SACKS DURING CONSTRUCTION.

15. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

TOPSOIL:

1. SUITABLE TOPSOIL SALVAGED FROM SITE OR SCREENED, LOOSE AND FRIABLE SANDY LOAM OR LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE CLASSIFICATION SYSTEM, FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS, ROOTS, WEEDS, RHIZOMES OR OTHER UNDESIREABLE FOREIGN MATTER AS DETERMINED BY THE INSPECTING AUTHORITY. CONTRACTOR SHALL SUBMIT REPORTS OF LOAM TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY FOR TOPSOIL FROM DIFFERENT SOURCES PRIOR TO PLACING. THE COST OF TESTING SHALL BE INCIDENTAL TO THE COST OF TOPSOIL. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:

2. MATERIAL

   SAND - 0.08 IN. TO 0.002 IN. DIAMETER (% BY VOLUME) ..... 45 - 75
   SILT - 0.002 IN. TO 0.000008 IN. DIAMETER (% BY VOLUME) ... 20 - 40
   CLAY - LESS THAN 0.000008 IN. DIAMETER (% BY VOLUME) .... 5 - 15

   ORGANICS (SHALL MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION 717.09 PEAT HUMUS) (% BY VOLUME) . 10 - 20

   NUTRIENTS:
   CALCIUM (CA) (% SATURATION) ..... 60 - 80
   MAGNESIUM (MG) (% SATURATION) ..... 10 - 25
   POTASSIUM (K) (% SATURATION) ..... 2.1 - 3.0
   PHOSPHORUS (P) (POUNDS/ACRE) ..... 10 - 40
   PH ..... 6.0 - 6.5

   PERMEABILITY (INCHES PER HOUR) ..... 3 - 10

   MAXIMUM STONE SIZE (INCHES) 3/4

SEEDING:

USE PERMANENT SEED MIXES AND RATES BETWEEN 5/15 AND 9/30. USE TEMPORARY SEED MIXES FOR PERIODS LESS THAN 12 MONTHS. IF USING TEMPORARY SEED MIXES AND RATES BETWEEN 10/1 AND 5/14, RE-SEED WITH PERMANENT SEED MIX AFTER 5/15.

PERMANENT SEED:

MDOT 717.03(a) METHOD NUMBER 3

TEMPORARY SEED:

OATS	80.00 LBS/ACRE	4/01 - 5/14
ANNUAL RYEGRASS	40.00 LBS/ACRE	
SUDANGRASS	40.00 LBS/ACRE	5/15 - 8/14
ANNUAL RYEGRASS	80.00 LBS/ACRE	5/15 - 9/14
WINTER RYE	112.00 LBS/ACRE	9/15 - 9/30
WINTER RYE (W/ MULCH COVER)	112.00 LBS/ACRE	10/01 - 3/31

LIME AND FERTILIZER:

APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 POUNDS PER 1000 SQUARE FEET). APPLY FERTILIZER (10-20-20) AT A RATE OF 800 POUNDS PER ACRE (18.4 POUNDS PER 1000 SQUARE FEET).

MULCH:

STRAW OR HAY (ANCHORED)	70 - 90 LBS	PROTECTED AREAS
STRAW OR HAY (ANCHORED)	185 - 275 LBS	WINDY AREAS
SHREDDED OR CHOPPED	185 - 275 LBS	
JUTE MESH	AS REQUIRED	MODERATE TO HIGH VELOCITY AREAS & STEEP SLOPES
EXCELSIOR MAT	AS REQUIRED	

MULCH ANCHORING

PEG AND TWINE	LIQUID ASPHALT
MULCH NETTING	WOOD CELLULOSE FIBER
ASPHALT EMULSION	CHEMICAL TACK

HOUSEKEEPING NOTES

THE DEVELOPER IS RESPONSIBLE FOR NOTIFYING THE CONTRACTOR AND OWNER OF THE HOUSEKEEPING STANDARDS.

1. SPILL PREVENTION: THE CONTRACTOR AND OWNERS NEED TO TAKE CARE WITH CONSTRUCTION AND WASTE MATERIALS SUCH THAT CONTAMINATES DO NOT ENTER THE STORMWATER. THE STORAGE OF MATERIALS SUCH AS PAINT, PETROLEUM PRODUCTS, CLEANING AGENTS AND THE LIKE ARE TO BE STORED IN WATERTIGHT CONTAINERS. THE USE OF THE PRODUCTS SHOULD BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. WHEN FUELING EQUIPMENT, INCLUDING SNOWBLOWERS AND LAWNMOWERS, HAVE OIL ABSORBENT PADS AVAILABLE BELOW THE FUELING.

   STAGING AREAS ARE NOTED ON THE CONSTRUCTION MANAGEMENT PLAN FOR THE CONTRACTOR'S USE. REFUELING OF SMALL ENGINES BY THE OWNER SHOULD OCCUR IN THE GARAGE OR ON A PAVED SURFACE.

   ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. GROUNDWATER PROTECTION: PROTECTION OF THE GROUNDWATER IS REQUIRED BY THE CONTRACTOR AND OWNER. PETROLEUM PRODUCTS SHOULD BE STORED IN MANUFACTURED CANS DESIGNED FOR THE PURPOSE. SPILL PREVENTIONS PROCEDURES SHOULD BE FOLLOWED.

3. FUGITIVE SEDIMENT AND DUST: THE CONTRACTOR IS REQUIRED TO MINIMIZE DUST FROM THE CONSTRUCTION OPERATION. THE ROAD SHOULD BE SWEPT REGULARLY (WEEKLY) AND PRIOR TO ANY RAIN EVENT. THE GRAVEL AREAS ARE TO BE WATERED REGULARLY TO MINIMIZE DUST. ANY MUD THAT IS TRACKED OFF SITE SHOULD BE CLEANED UP PRIOR TO IT DRYING AND BECOMING A DUST ISSUE. DO NOT USE OIL TO CONTROL DUST. DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

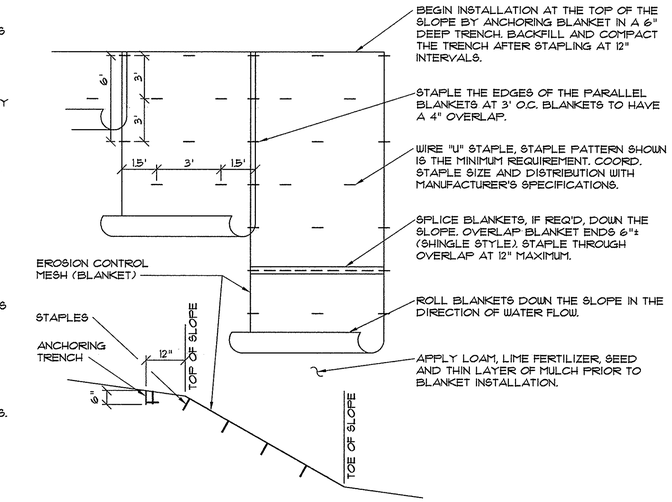
4. DEBRIS AND OTHER MATERIALS: CONSTRUCTION MATERIALS AND CONSTRUCTION DEBRIS SHOULD BE COVERED TO PREVENT RAINWATER FROM WASHING CONTAMINANTS OFF THE SITE. ANY FERTILIZERS, CLEANING PRODUCTS, HERBICIDES SHOULD BE PROTECTED FROM THE WEATHER AND USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

   NOTE ANY CONTAMINANTS THAT ARE WASHED OFF THE SITE BY RAINWATER IS A VIOLATION OF THE CLEAN WATERS ACT.

   STORAGE HANDLING AND DISPOSAL OF SOLID WASTE ITEMS MUST COMPLY WITH MAINE'S SOLID WASTE MANAGEMENT RULES. LACK OF APPROPRIATE POLLUTANT CONTROL MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARDS.

   THIS PROJECT HAS A WRITTEN EROSION CONTROL PLAN AND STORMWATER MAINTENANCE PLAN. MODIFICATIONS TO THE PLAN MUST BE APPROVED BY THE CITY.

   MAINTENANCE OF STORMWATER TREATMENT AND CONTROL SYSTEMS MUST OCCUR REGULARLY. THE STORMWATER MAINTENANCE REPORT PROVIDES INSPECTION DETAILS AND TIME LINES FOR DOING THE INSPECTIONS AND REPORTING TO THE CITY AND DEP.



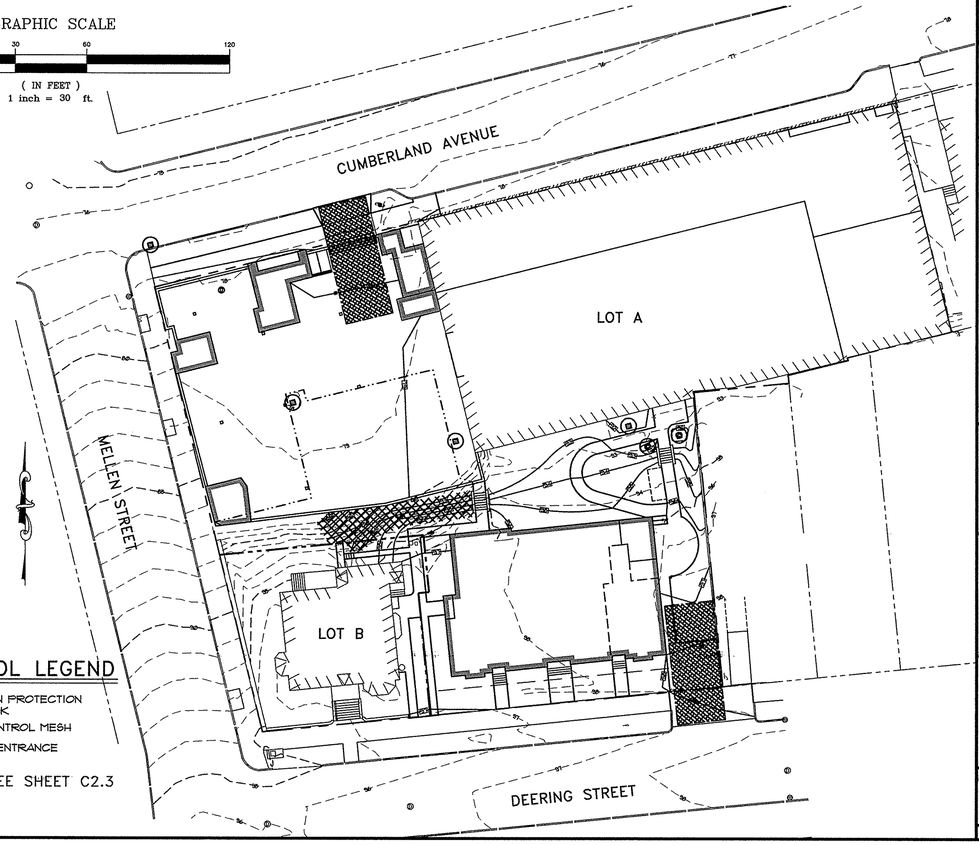
1 EROSION CONTROL MESH INSTALLATION DETAIL

NOT TO SCALE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



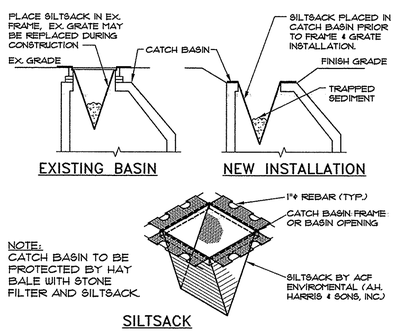
EROSION CONTROL LEGEND

CATCH BASIN PROTECTION WITH SILTSACK

EROSION CONTROL MESH

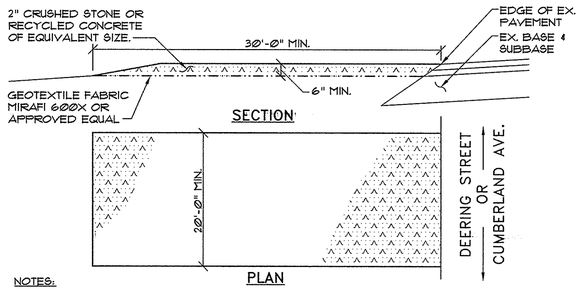
STABILIZED ENTRANCE

FOR PLAN LEGEND SEE SHEET C2.3



3 CATCH BASIN PROTECTION

NOT TO SCALE



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TEL. 207.775.5242 FAX. 207.797.4305

STATE OF MAINE — THOMAS GREER No. 4206 — REGISTERED PROFESSIONAL ENGINEER

11/17/17

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307 CUMBERLAND AVENUE
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DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

EROSION CONTROL
PLAN, NOTES AND DETAILS

C2.4

MAP/LOT 47/B/1, 2, 3 & 29

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

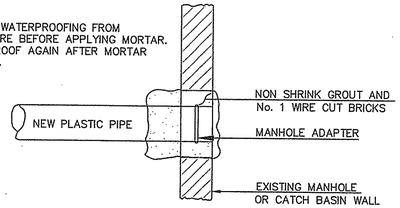
1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVED EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CASCO TRAP. SEE FIGURE II-09.

3 GENERAL NOTES FOR MANHOLES & CATCH BASINS (II-4)

NOT TO SCALE

NOTE: EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION. IF PIPE DIAMETER IS SO LARGE THAT CORE DRILLING IS PROHIBITED, THE CONTRACTOR MAY SAW CUT THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.

NOTE: REMOVE WATERPROOFING FROM STRUCTURE BEFORE APPLYING MORTAR. WATERPROOF AGAIN AFTER MORTAR HAS SET.



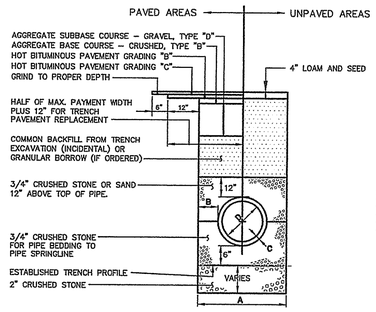
METHOD 3 – NEW PIPE INTO EXISTING STRUCTURE

2 TYPICAL PIPE TRENCH INSTALLATION METHOD 3 (II-14)

NOT TO SCALE

NOTES:
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..

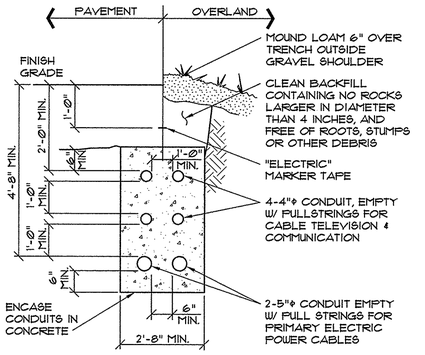


NOTES
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE, BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 9".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4 – – – –	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18 – – – –	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36 – – – –	6.0
42	7.0
48	7.0

1 TYPICAL PIPE TRENCH INSTALLATION (11-12)

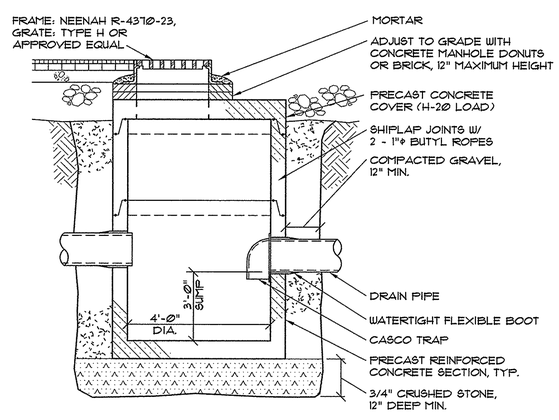
NOT TO SCALE



NOTES:
1. INSTALLATION SHALL NOT ALLOW INTER-TWINING OF CABLES.
2. PROVIDE SCH. 40 PVC CONDUIT FULL LENGTH OF INSTALLATION.

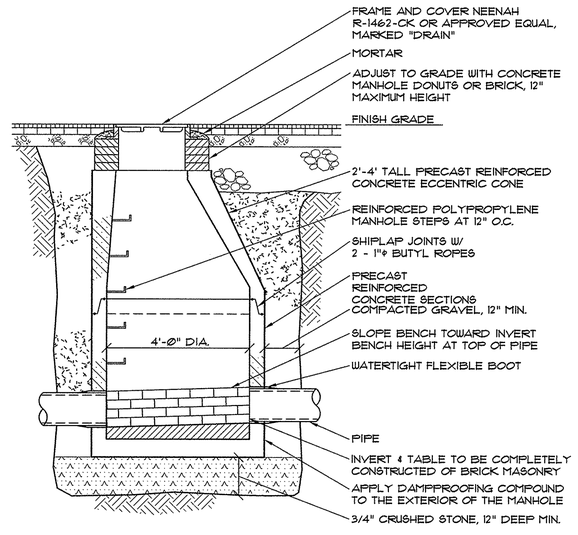
7 CABLE TRENCH SECTION

NOT TO SCALE



6 TYPICAL CATCH BASIN SECTION

NOT TO SCALE

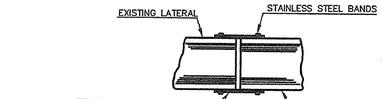


5 CONCRETE MANHOLE SECTION

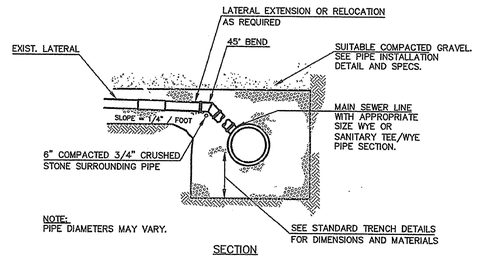
NOT TO SCALE

NOTE:
LOCATIONS AND ELEVATIONS OF STUBS SHOWN ON THE PLANS ARE TO BE CONSIDERED AS APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED TO SUIT FIELD CONDITIONS.

HOUSE CONNECTIONS AND CATCH BASINS CONNECTIONS TO THE MAIN LINE OF THE SEWER, SHALL CONSIST OF AN APPROPRIATE "Y" BRANCH CONNECTION AS SHOWN ON THE PLANS, OR AS DIRECTED. ACTUAL "Y" LOCATIONS FOR HOUSE CONNECTIONS AND CATCH BASIN CONNECTIONS SHALL BE DETERMINED DURING CONSTRUCTION. THE CONTRACTOR SHALL KEEP A COMPLETE RECORD OF "Y" LOCATIONS WHICH SHALL BE GIVEN TO THE CITY OF PORTLAND UPON COMPLETION OF THE CONTRACT.
ALL PVC TO PVC COUPLING SHALL BE "SOLID PVC COUPLINGS".



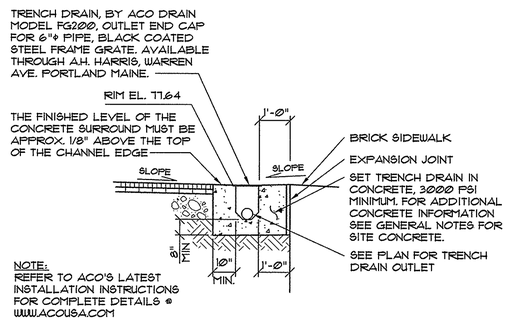
FERNCO COUPLING FOR REPAIR OR REPLACEMENT



SECTION

4 TYP EX. LATERAL CONNECTION (II-16)

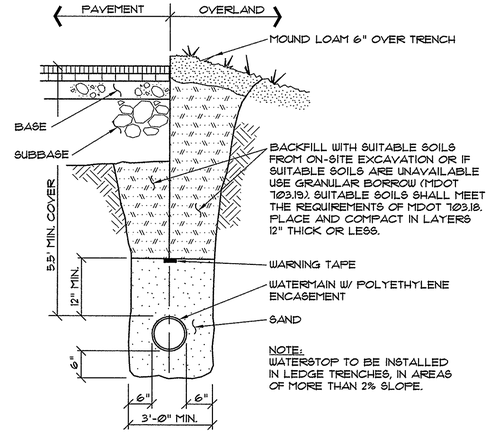
NOT TO SCALE



NOTE:
REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS @ WWW.ACOUSA.COM

10 TRENCH DRAIN SECTION

NOT TO SCALE



9 TYPICAL WATER MAIN SECTION

NOT TO SCALE

IDENTIFICATION TAPE TO BE INSTALLED ABOVE ALL NEW UNDERGROUND UTILITIES AND ABOVE ANY EXISTING UTILITIES THAT MAY BE EXPOSED BY THIS CONSTRUCTION.

DETECTABLE UNDERGROUND MARKING TAPE TO BE PERMANENT, BRIGHT COLORED, CONTINUOUS-PRINTED PLASTICIZED ALUMINUM TAPE, INTENDED FOR DIRECT-BURIAL SERVICE NOT LESS THAN 3" WIDE x 5 MILS THICK. PROVIDE TAPE WITH BLACK PRINTING IDENTIFYING THE UTILITY. DETECTABLE WARNING TAPE REQUIRED OVER ALL WATER, SEWER, DRAINAGE, OR GAS UTILITIES. TAPE TO BE TERRA TAPE BY REEF INDUSTRIES, INC., www.reefindustries.com, OR EQUAL.

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

8 UNDERGROUND UTILITIES WARNING TAPE

PINKHAM & GREER
CIVIL ENGINEERS
28 VAUGHAN AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE – THOMAS GREER No. 4206 – LICENSED PROFESSIONAL ENGINEER – 10/20/17

NO.	DATE	DESCRIPTION
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

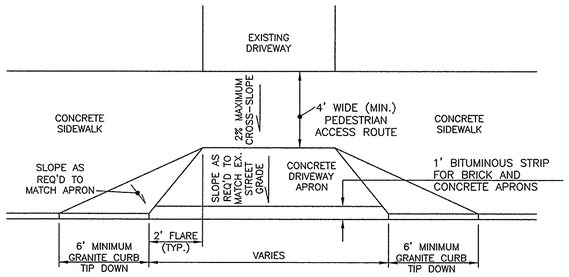
SCALE: AS SHOWN | DRN BY: JDC
DATE: OCTOBER 19, 2017 | DESG BY: TSG
PROJECT: 17127 | CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

DETAILS

C3.1

MAP/LOT 47/B/1, 2, 3 & 29



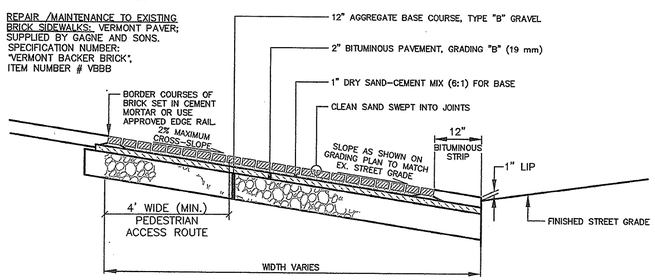
3 DRIVEWAY APRON LAYOUT (I-9)

NOT TO SCALE

BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



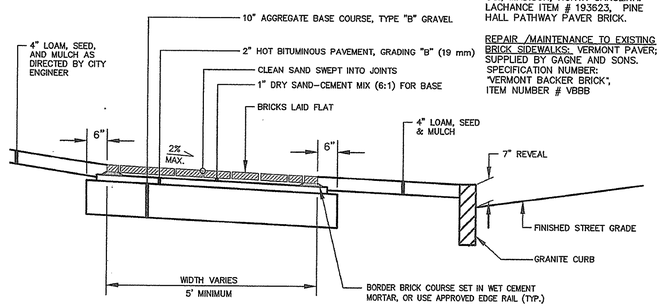
2 BRICK DRIVEWAY APRON WITH BITUMINOUS BASE (I-11)

NOT TO SCALE

BRICKS TO BE USED:

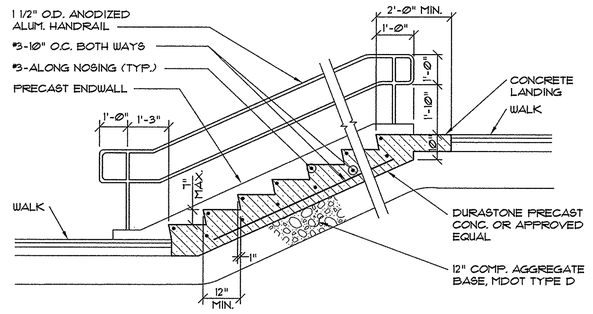
NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



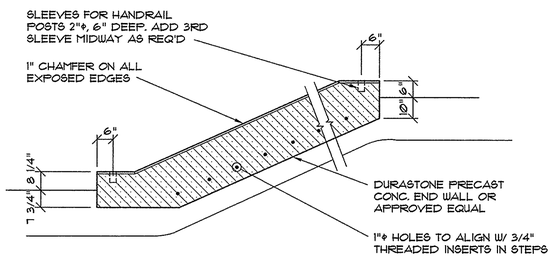
1 BRICK SIDEWALK WITH BITUMINOUS BASE (I-10)

NOT TO SCALE



NOTES:
1. CONSTRUCT STEPS IN COMPLIANCE WITH ANSI A117.1-1986 4.9.
2. CONCRETE- 5000 PSI/28 DAYS
   5-6% AIR INTRAINED
   NON-SKID, STIFF BRISTLE BROOM FINISH (STEPS ONLY)
3. SUBMIT SHOP DRAWINGS IN ACCORDANCE W/ SECTION 01300- SUBMITTALS.
4. BOLT ENDWALLS TO STEPS W/ 3/4" BOLT & FLAT WASHER.
5. CENTER HANDRAIL REQUIRED WHERE NOTED ON THE PLANS.

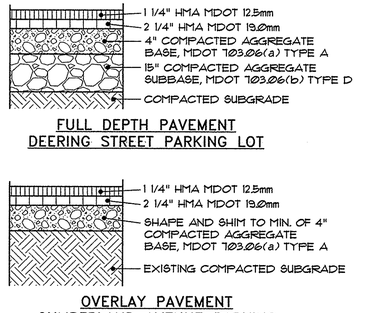
SECTION – HANDRAIL & STEPS



ENDWALL ELEVATION

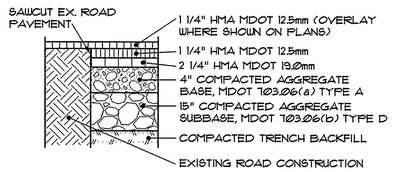
4 PRECAST CONCRETE STEPS DETAILS

NOT TO SCALE

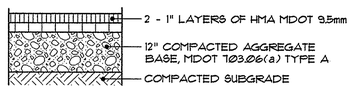


FULL DEPTH PAVEMENT
DEERING STREET PARKING LOT

OVERLAY PAVEMENT
CUMBERLAND AVENUE PARKING



PAVEMENT REPAIR AT TRENCHES
IN THE RIGHT-OF-WAYS

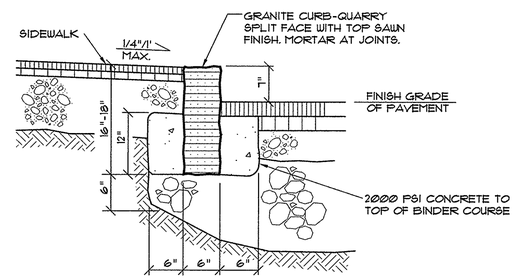


WALKWAY PAVEMENT

NOTES:
1. HMA = HOT MIX ASPHALT.
   MDOT = MAINE DEPARTMENT OF TRANSPORTATION.
2. ALL COURSE THICKNESS AFTER FINAL COMPACTION.

3 BITUMINOUS PAVEMENT SECTIONS

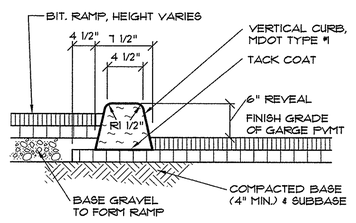
NOT TO SCALE



NOTES:
1. MINIMUM LENGTH OF THE CURB SECTIONS SHALL BE 3'-0".
2. FOR ALL CURBS WITH RADIUS LESS THAN 15' INSTALL STONES CUT TO THE RADIUS REQUIRED (NOT STRAIGHT SECTIONS).

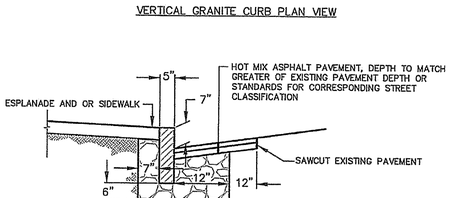
1 VERTICAL GRANITE CURB SECTION

NOT TO SCALE

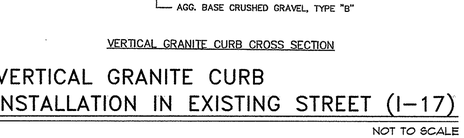


2 BITUMINOUS CURB DETAIL

NOT TO SCALE



TERMINAL CURB PROFILE

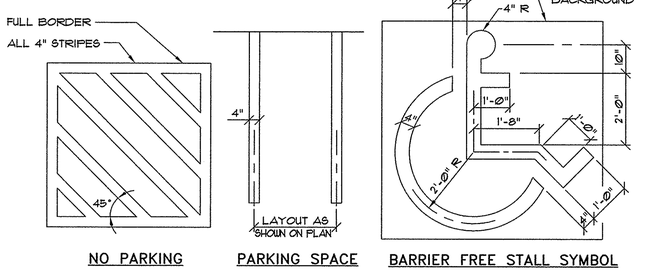


VERTICAL GRANITE CURB PLAN VIEW

VERTICAL GRANITE CURB CROSS SECTION

4 VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREET (I-17)

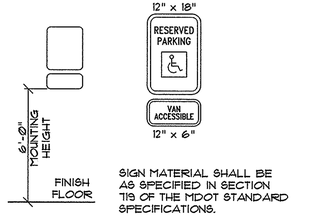
NOT TO SCALE



NO PARKING | PARKING SPACE | BARRIER FREE STALL SYMBOL

8 STRIPING DETAILS

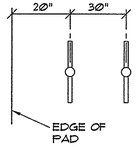
NOT TO SCALE



SIGN MATERIAL SHALL BE AS SPECIFIED IN SECTION 719 OF THE MDOT STANDARD SPECIFICATIONS.

7 ACCESSIBLE PARKING SPACE SIGN DETAILS

NOT TO SCALE

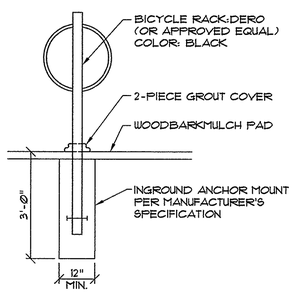


LAYOUT DETAIL

DISTANCE BETWEEN RACKS:
MINIMUM: 24"
RECOMMENDED: 36"

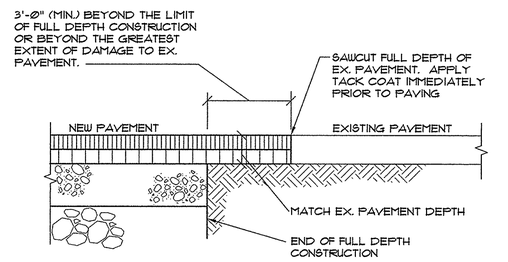
STREET SETBACKS:
MINIMUM: 36"

DERO BIKE HITCH AS MANUFACTURED BY DERO BIKE RACKS



6 EXTERIOR RACK DETAIL

NOT TO SCALE



5 PAVEMENT CUTTING & MATCHING SECTION

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 VAWAH AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE
THOMAS S GREER No. 4268 LICENSED PROFESSIONAL ENGINEER
10/24/17

REV.	DATE	DESCRIPTION
1	9/19/17	SUBMITTED FOR FINAL APPROVAL

AVESTA HOUSING DEVELOPMENT CORP.
307 CUMBERLAND AVENUE
PORTLAND, ME. 04101

SCALE: AS SHOWN | DRN BY: JDC
DATE: OCTOBER 19, 2017 | DESG BY: TSG
PROJECT: 17127 | CHK BY: TSG

DEERING PLACE
61 DEERING ST. & 510 CUMBERLAND AVE.
PORTLAND, MAINE

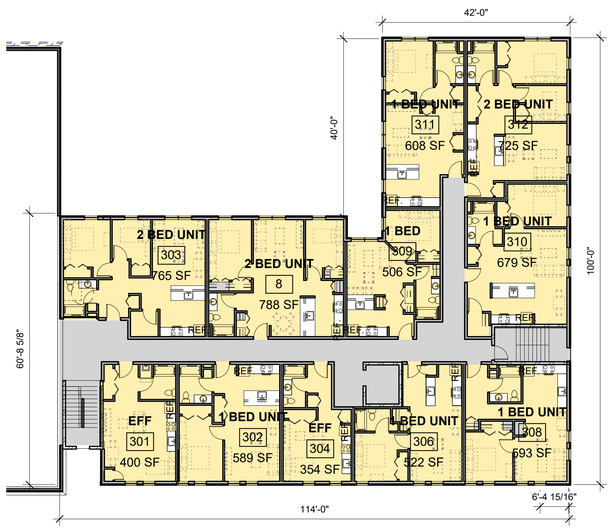
DETAILS

C3.2

MAP/LOT 47/B/1, 2, 3 & 29

61

61



3 | 3RD & 4TH FLOOR PLANS
1/16" = 1'-0"

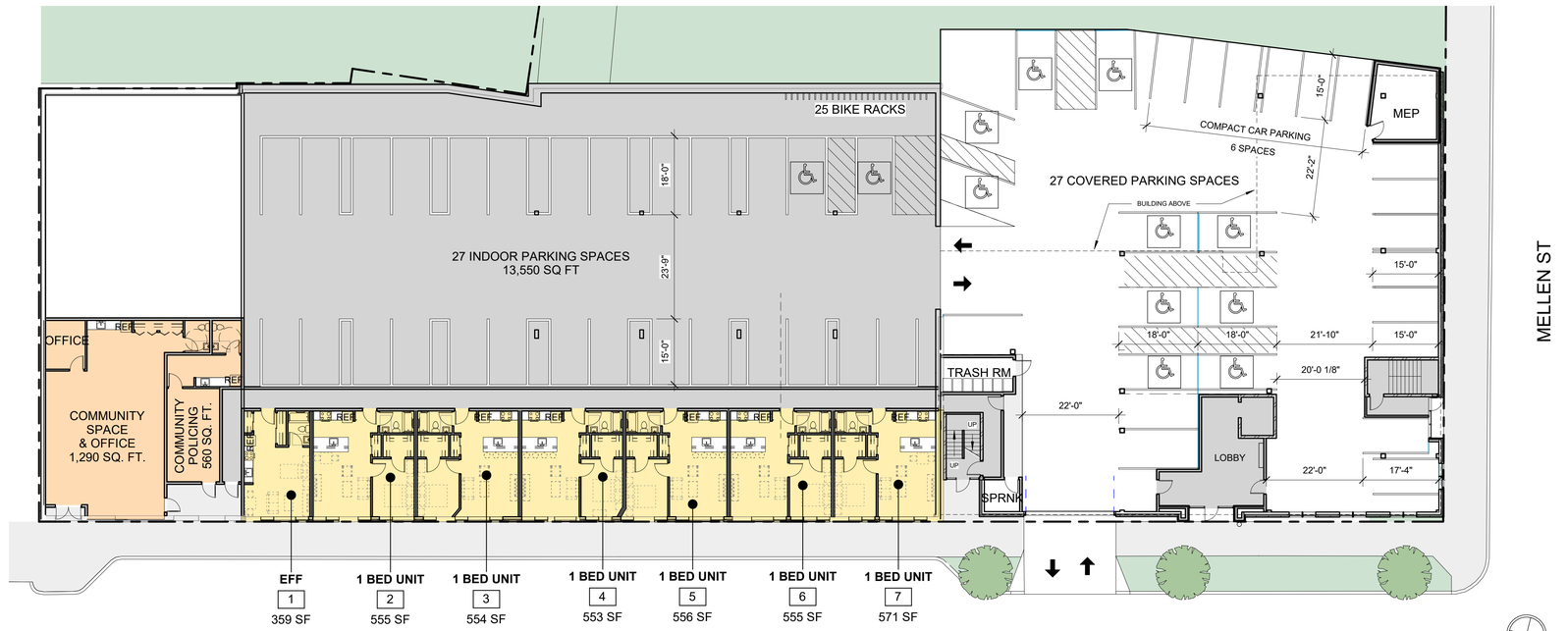
NEW CONSTRUCTION 8,584 SF

2 | 2ND FLOOR
1/16" = 1'-0"

NEW CONSTRUCTION - 8,584 SF

BUILDING A TOTALS
EXISTING UNITS -
13 - THREE BEDROOM UNITS
NEW UNITS -
7 - EFFICIENCY UNITS
25 - ONE BEDROOM UNITS
8 - TWO BEDROOM UNITS
53 TOTAL UNITS
54 TOTAL PARKING SPACES

34,870 SF - TOTAL NEW CONSTRUCTION
(INCL NEW UNITS & COMM RM.
IN EXIST BLDG)



1 | 1ST FLOOR
1/16" = 1'-0"

NEW CONSTRUCTION - 1,534 SF
NEW UNITS & COMMUNITY IN EXIST BLDG - 5,915 SF

Prepared For:
AVESTA HOUSING

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
DEERING PLACE
Portland, ME 04101

Revisions:

Scale:
1/16" = 1'-0"

Date:
17 NOV 2017

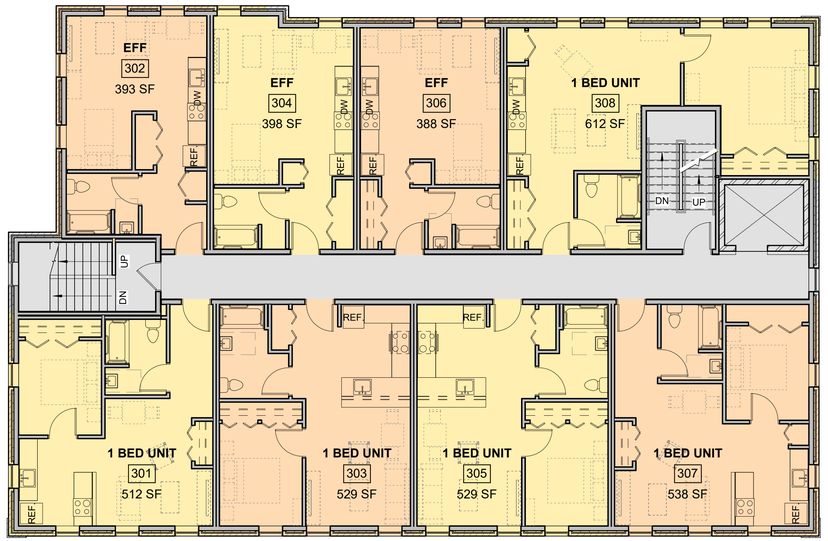
BUILDING A - FLOOR PLANS

A1.01

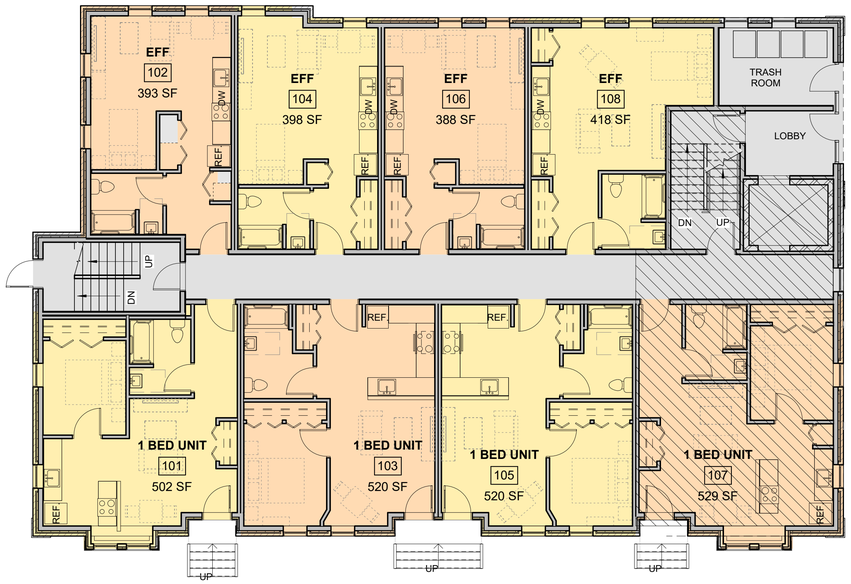
BUILDING B TOTALS

9 - EFFICIENCY UNITS	**23 UNITS TOTAL**
14 - 1 BEDROOM UNITS	15,495 TOTAL GROSS SF
	1 PARKING SPACES

2 | 2ND FLOOR 5,165 SF GROSS
1/8" = 1'-0"



3 | 3RD FLOOR 5,165 SF GROSS
1/8" = 1'-0"



1 | 1ST FLOOR 5,165 SF GROSS
1/8" = 1'-0"

INDICATES AREA WITH FULL BASEMENT BELOW

Prepared For:
AVESTA HOUSING

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
510 CUMBERLAND AVENUE HOUSING
510 Cumberland Ave; Portland, ME 04101

Revisions:

Scale: 1/8" = 1'-0"

Date: 17 NOV 2017

BUILDING B FLOOR PLANS

A1.02

PLANNING BOARD REPORT
PORTLAND, MAINE

Stroudwater Preserve
1700 Westbrook Street
Level III Site Plan and Subdivision
2017-193
Stroudwater Development Partners LLC, Applicant

Submitted to: Portland Planning Board Public Hearing Date: November 28, 2017	Prepared by: Shukria Wiar, Planner Date: November 22, 2017

I. INTRODUCTION

Stroudwater Development Partners LLC has requested a public hearing with the Planning Board to consider a proposed subdivision and site plan (for the planned residential unit development portion of the project) at 1700 Westbrook Street. The applicant is proposing a traditional single-family neighborhood with ninety-eight (98) house lots and a planned residential unit development (PRUD) with twenty-five (25) townhouses adjacent to the Maine Turnpike. Stroudwater Preserve includes one open space lot for a total of twenty-four acres of open space within the project limits.

The development is proposing to include a minimum of 10% workforce housing units in accordance with Division 30, Affordable Housing of the Land Use Ordinance. The Planning Board is being requested to review the application under Portland's Site Plan and Subdivision Ordinances, Conditional Use standards to Ensure Workforce Housing under the Affordable Housing Ordinance, and the Design Standard for PRUDs in the R-3 Residential Zone.

Property Owner:	Stroudwater Preserve
Applicant:	Michael Barton, Stroudwater Development Partners, LLC
Agent and Engineer:	William Savage, Acorn Engineering Inc.
Architect:	Ryan Senatore, Senatore Architecture
Surveyor:	David Titcomb, Titcomb Associates

II. PUBLIC COMMENT

Notices were sent to ninety-five (95) residents and the interested citizen list. The notice also appeared in the Portland Press Herald on November 20th and 21st, 2017, as well as being posted on the City's web page. E-mail notices were sent at the same time as the mailed notices as well as being posted on the City's web page and posted on the legal ad. Two public comments have been received by the Planning Office both from the same person.

The applicant held a neighborhood meeting, as required as part of this application, on September 19th meeting with the neighborhood with over thirty (30) attendees (Attachment ZK to ZN).

III. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
Sidewalk Waivers	*Section14-498 8a*
Review	***Applicable Standards***
Subdivision (creation of 3 or more lots)	*Section 14-497*

Workforce Housing Inclusionary Zoning	*14-484 (Applicant is required to have twelve, which is are being proposed to be located on site)*
Design Review of PRUD	*Planned Residential Unit Developments (PRUDs) in the R-3, R-5, And R5-A Residential Zones and Manufactured Housing Parks in Any Zone.* *Two-Family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, And Emergency Shelters*

IV. PROJECT DATA

Existing Zoning	Residential R-3		
Existing Use	Single-family home		
Proposed Use	Ninety-eight (98) single-family lots and 25 Townhouses PRUD		
Parcel Size	2,408,860 SF (55.3 acres)		
	Existing	*Proposed*	*Net Change*
Impervious Surface Area	34,715 SF	182,657 SF	147,942 SF
Building Footprint	8,928 SF	22,400 SF (Based on the PRUD only)	13,472 SF
Number of Residential Units	One Lot	100- 98 single family lots, one open space, and one PRUD lot	100
Number of Affordable Units	None	12	12
Proposed Bedroom Mix Three-bedroom Four-bedroom	 74 49		
Estimated Cost of Project	$2,054,400		

V. BACKGROUND

The Board reviewed the applicant's request for zoning map amendments to this site at a public hearing held on May 9th, 2017. The Board voted unanimously to recommend adoption of the map change to R-3 and Recreation and Open Space (ROS) for an area along outer Westbrook Street where the project is located. The City Council enacted the map change on July 24th, 2017 offically adopted the zone change to R-3 and Recreation and Open Space (ROS) on August 23rd, 2017. The order as passed by the Council is included as Attachment 4. In order to rezone a portion of the property to ROS, there were easements on the that portion of the site that were conveyed to Portland Trails for public access and others to the City of Portland to create public open space that are being held in escrow until the property closing, see Attachment 5.

Although the City understands that a lawsuit challenging the recent zoning decision may have been filed, that action does not in any way purport to stay the effectiveness of the Council's decision on the zoning this area. Therefore, the Planning Board can and should consider any application under the current zoning, including any recent amendment that is in effect and applicable to a particular application. A workshop was held with the Planning Board on October 4th, 2017. Since the workshop, the applicant and City staff have met approximately five times to discuss the issues and concerns of the project.

Figure 1: Proposed Site

VI. EXISTING CONDITIONS

The development parcel is approximately 55.3 acres comprised of five different parcels. The

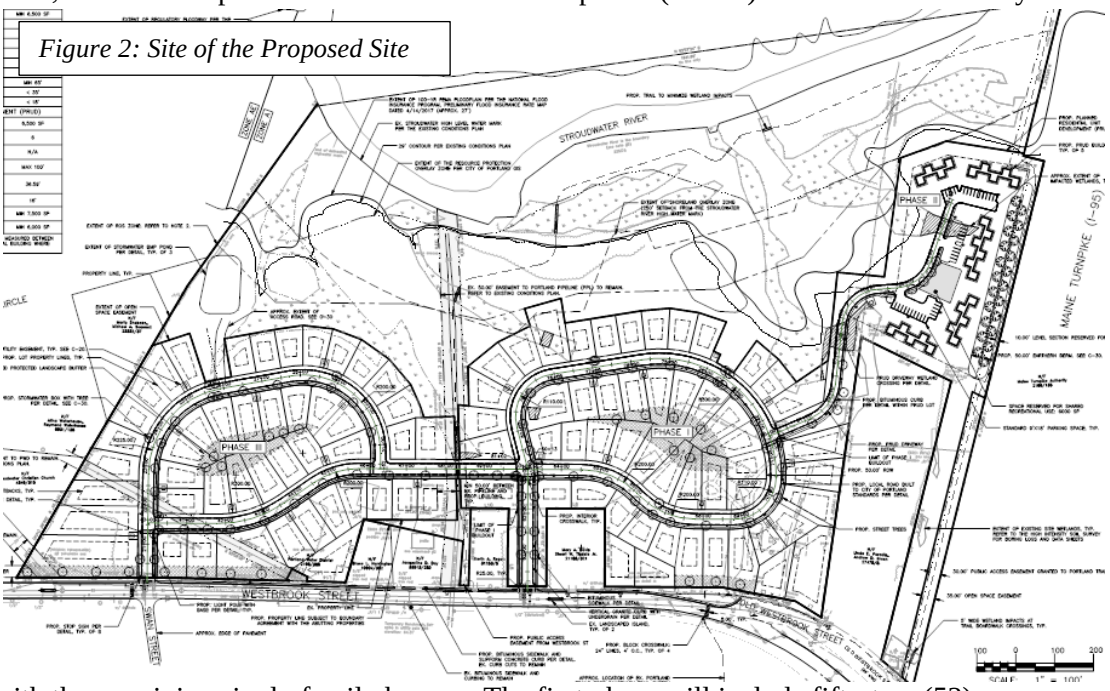
property has frontage along Westbrook Street and extends to the Maine Turnpike and Stroudwater River. Presently the parcel has a single-story ranch house and a small barn on it, built in 1961. The majority of the site is pervious with dense overgrowth and some mature tree growth. The average grade, closer to Westbrook Street, is relatively flat. The surface drops off closer to the Stroudwater River, with signs of erosion throughout the change in elevation. The property has a total of 1,500 feet of frontage along the Stroudwater River.

A portion of the site is zoned Resource Protection along the river and the Shoreland Overlay Zone extends 250 feet from the high-water line, which is subject to Shoreland Zone site development standards. The site has two existing utility easements for the Portland Water District and Portland Pipeline Company, which bisect the property. There are single-family homes along both sides of Westbrook Street and the surrounding neighborhoods.

VII. PROPOSED DEVELOPMENT

The project proposes to develop a traditional single-family development for the majority of the site and a planned residential unit development near the Turnpike. Ninety-eight (98) single family house lots are proposed, ranging in size between 6,500 sf to 20,000 SF. The planned residential unit development (PRUD) lot will include twenty-five (25) townhomes and is located along the westerly edge of the site. Two looped streets are proposed within the single-family subdivision and the roads are to be built to City standards. The road serving the PRUD development is to be a private road maintained by the PRUD.

Figure 2: Site of the Proposed Site



The applicant is proposing to phase the development into three phases; single family homes, followed by the townhouses, and ending with the remaining single-family homes. The first phase will include fifty-two (52) single family homes along the loop road on the westerly side of the property. The second phase consist of the PRUD development with twenty-five (25) townhouses and the private road that leads to it. The third and last phase will have a total of forty-six (46) single family homes and the second loop road on the easterly of the property. Section 14-495 (h) of the Subdivision Ordinance states:

> *Sectional recordings: Following subdivision plat approval, the Planning Board may permit the subdivision to be divided into two (2) or more sections for recording purposes subject to any conditions that the board deems necessary in order to insure the orderly development of the plan. The applicant may seek approval of and record a sectional recording plat with the county registry of deeds only if the section constitutes at least twenty (20) percent of the total number of lots contained in the approval plat and, in addition, shows the entire tract or parcel. In these circumstances, if the first section of the plat has been recorded within three (3) years after Planning Board approval, subdivision plat approval of the remaining sections of the plat shall remain in effect for five (5) years after Planning Board approval.*

Section 14-524 (3) (f) iii of the Site Plan Ordinance states the following about phased development:

A phased development plan may be proposed for a Level III site plan. The Planning Board may permit the Level III site plan to be divided into up to three (3) sections for phased development purposes and subject to any conditions that the board deems necessary in order to insure the orderly development of the plan. The applicant may seek approval of a phased development only if the section constitutes at least twenty (20) percent of the total development and in addition, shows the entire tract or parcel. Each phase of such project shall conform to all standards of this article in the event that subsequent phases do not go forward. The Planning Board may extend the site plan approval for all phases up to three years from the date of approval.

Each phase of the project is 20% of the project. As part of the project, thirty-foot-wide landscape buffers are proposed along portions of Westbrook Street and additional landscape buffers are proposed within the center of each of the loop roads, as a buffer between the lots.

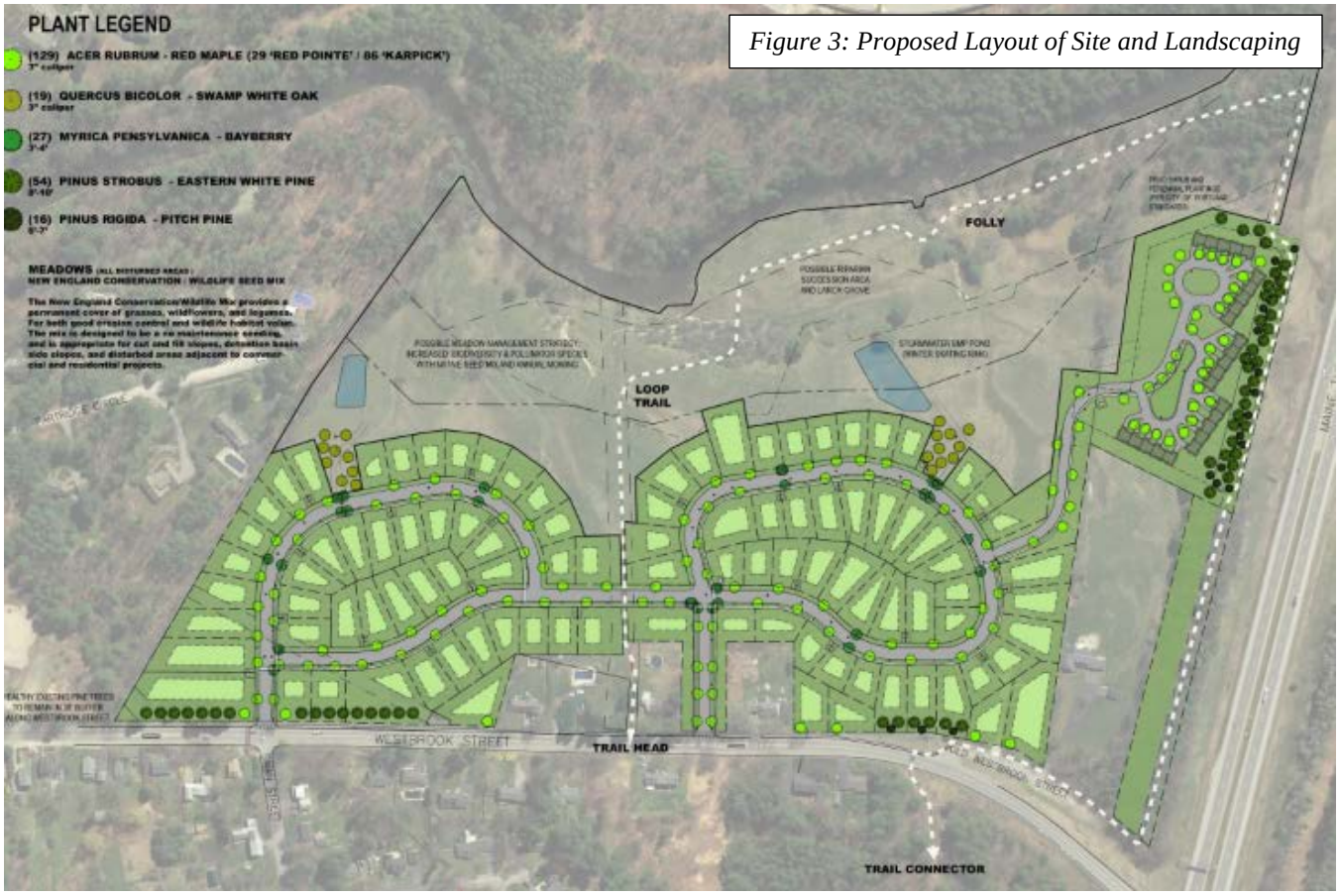


Figure 3: Proposed Layout of Site and Landscaping

The applicant is proposing a dense landscape buffer parallel to the Turnpike in order to mitigate noise from the highway. Easements have been prepared and are being held in escrow until the closing on the land. The easements convey public access and preserve open space primarily along the Stroudwater River. The intent is for the property to be used for passive recreation with connection into the neighborhood trail system and to offer other shared amenities. The open space area provides direct waterfront access to the river. The open space easement extends from the Stroudwater River high water line to the single-family subdivision.

Figure 4: Proposed Design of PRUD Townhouses

The property is subject to the Shoreland Overlay Zone, which requires that development be 75 feet from high watermark and additional development standards apply within 250 feet from the river. The Resource Protection Zone, does allow for some limited development, but does not permit residential structures and in general, is a conservation zone. The site does have steep slopes around the bank of the Stroudwater River; it is the intent of the applicant to keep most of the development away from these slopes develop on the more level portion of the site. The parcel also has flood plain areas identified on the FEMA maps which will further regulate construction of any proposed structures.

VIII. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

a. The owner of the property is Onex Company by deeds recorded at the Cumberland County Registry of Deeds (Book 14598 Page 346). The applicant has provided a copy of a purchase and sale agreement, which demonstrates their right, title and interest in the property.

b. The estimated cost of the development is $2,054,400. The applicant has submitted a letter from Bath Savings Institution, dated August 18, 2017, as demonstration of their financial and technical capacity to complete the proposed development.

IX. ZONING ANALYSIS

The proposed subdivision is within Residential R-3 zone. The proposal is to develop approximately thirty-one (31) acres of the 55.3 acres site into a traditional single-family housing development and planned residential development. The proposed development includes 100 lots of which 98 are single family house lots, one planned unit residential lot and one open space lot. A final review of the zoning for the site been conducted and both the proposed single-family lots and the PRUD development meets standards, minimum lot size, minimum street frontage, and lot width requirements, of the R-3 zoning; the following is the zoning assessment included on the proposed application.

	R-3 Zone	*Proposed*
Single Family House Lots		
Minimum Lot Size	6,500 SF	Min 6,500 SF
Minimum Street Frontage	50'	Min 50'
Front Yard	25'	25'
Rear Yard – Principal	25'	25'
Rear Yard – Accessory	5'	5'
Side Yard – 2 ½ Stories	16'	16'[1]
Side Yard – 2 Stories	14'	14'
Side Yard – 1 & 1 ½ Stories	8'	8'
Maximum Lot Coverage	35%	Max 35%
Minimum Lot Width[2]	65'	Min 65'
Maximum Building Height	35'	< 35'
Maximum Accessory Height	18'	< 18'
Planned Residential Unit Development (PRUD)		
Minimum Lot Area Per Dwelling Unit	6,500 SF	Min 6,500 SF
Maximum Number of Units Per Building (> 5 ac.)	6	6
Maximum Number of Units Per Building (< 2 ac.)	2	N/A
Maximum Length of Building without Garages	100'	100'
Maximum Length of Building with Integral Garages	140'	140'
Minimum Building Setback from External Property **Lines (> 4 Units Per Building)**	35'	36.59'
Minimum Distance Between Buildings	16'	16'
Minimum Recreational Open Space Per Dwelling Unit	300 SF	Min 300 SF
Minimum Contiguous Area of Recreational Use[3]	6,000 SF	Min 6,000 SF
Minimum Recreational Use Setback from Buildings	25'	25'

Included below is a summary of the unit area calculations for the PRUD lot per the definitions for gross and net land area provided in Section14-47 of the Land Use Ordinance.

	SF	AC
PRUD Lot Size	310,193	7.12
Lot Area within 1700 Westbrook Street	276,133	6.34
Areas of Special Flood Hazard	0	0
Gross Land Area	**276,133**	**6.34**
Existing Watercourses	0	0
Wetlands	20,073	0.46
Slopes of 25% or greater	0	0
Net Land Area	**256,060**	**5.88**

The allowable dwelling units per zoning for the PRUD portion of the project is 36 units. The applicant is proposing 25 units.

The southernmost edge of the property resides along the Stroudwater River and is located within the Shoreland Overlay Zone; the Shoreland Overlay Zone applies to areas within 250 feet (horizontal distance) of the normal high-water line of any river. Ann Machado, Zoning Administrator, has reviewed the plans and states that the development is meets the applicant standards. All development is outside the Shoreland zone; any trails connection or stormwater infrastructure will need to meet standards.

X. ENSURE WORKFORCE HOUSING CONDITIONAL USE (Victoria Volent, Housing Programs Manager, Attachment 7)

All developments of ten (10) units or more are conditional uses subject to Planning Board review on the condition that they comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.

Division 30, Section 14-487, Ensuring Workforce Housing, requires at least ten percent (10%) of the dwelling units in the development shall meet the definition of Workforce Housing units for sale or for rent. The ordinance under Section 14-487 e 3 also requires the number of bedrooms in the units shall be 10% of the total number of bedrooms in the development.

The development located at 1700 Westbrook Street proposes the creation of ninety-eight (98) single family house lots, and one planned unit residential development (PRUD) lot that will include twenty-five (25) townhouses. The project proposes being completed over three phases starting with fifty-two (52) single family units in Phase I,

twenty-five (25) townhouses in Phase II, and forty-six (46) single family units in Phase III. In accordance with Division 30, section 14-487, Phase I requires a minimum of five (5) workforce single family dwelling units of owner occupied housing consisting of two (2) three-bedroom units, and three (3) four-bedroom units. Phase II requires a minimum of two (2) workforce dwelling units of owner-occupied townhouses consisting of two (2) three-bedroom units. Phase III requires a minimum of five (5) workforce single family dwelling units of owner occupied housing consisting of three (3) three-bedroom units, and two (2) four-bedroom units. As dwelling units for sale, the designated Workforce Units will be restricted to households earning up to 120% of Area Median Income (AMI). Based on the requirements outlined in Section 14-487, the development is required to provide a minimum of twelve (12) workforce units with seven (7) three-bedroom units, and five (5) four-bedroom units. The Applicant has elected to provide twelve (12) Workforce Units, on-site, consisting of seven (7) three-bedroom units, and five (5) four-bedroom units to satisfy the ordinance's minimum requirements. As such, the project has met the minimum requirements set forth in Section 14-487.

Staff recommends the Board Approve this Conditional Use provided the Applicant and the City enter into an agreed upon Affordable Housing Agreement (AHA) before a Building Permit may be issued. The Affordable Housing Agreement will outline the details of the affordability restrictions placed on the Workforce Unit and will be filed as covenant to the property's deed with the Cumberland County Registry of Deeds before a Certificate of Occupancy may be issued.

The applicant has submitted a plan that shows that potential affordable lot and units in each phase, Attachment Plan 32.

XI. TRAFFIC MOVEMENT PERMIT

For any project that generates 100 or more passenger car equivalents at peak hour, the applicant is required to make adequate provision for traffic movement of all types into and out of the project area. Before issuing a permit, it determined if any traffic increase attributable to the proposed project will not result in unreasonable congestion or unsafe conditions on a road in the vicinity of the proposed project. The Traffic Study and Scoping Report (Attachment ZV) confirmed that a Traffic Movement Permit is required because the proposed trip generation reaches a high of 116 trip ends in the weekday PM peak. A Scoping meeting was held on October 10, 2017 and a further Traffic Impact Study was received to address the several issues raised at the Scoping meeting.

Tom Errico, Consultant Traffic Engineer with TY Lin, had reviewed the TMP application and states the following:

> Status: The applicant has submitted a traffic impact study and I find the methods and contents to be acceptable. The following should be noted:
>
> - We concur that the need for a dedicated left-turn lane on Westbrook Street shall be monitored by the applicant in the future. If it is determined that a lane is needed, the applicant shall be responsible for all cost for implementation and the design shall meet with the approval of DPW.
> - In conjunction with an approved Outer Congress Transportation and Streetscape Plan, the applicant shall make a $12,600 contribution. The contribution was based upon project trip generation and assignment added to Congress Street.
> - The applicant conducted a speed study on Westbrook Street and determined vehicle speeds exceed the posted speed limit. [Accordingly, a variable speed indicator is required to be installed on Westbrook Street at a location acceptable.] The City has been implementing traffic strategies along Westbrook Street and request that [an additional] speed study be conducted following construction of Phase 1 and implementation of the associated crosswalks and sidewalk on Westbrook Street. If the speed study indicates excessive vehicle speeds, the applicant shall implement traffic calming mitigation strategies acceptable to the City.

XII. SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS (Section 14-496)

The applicant has provided evidence of the trail easement that they have signed with Portland Trails, which is being held in escrow until the time of closing (Attachment 5). The easement gives Portland Trails permission to construct and maintain unpaved footpath or walking trails within the ROS portion of the site. A condition of approval will be suggested at the public hearing that requires evidence that the easement has been recorded at the Cumberland County Registry of Deeds. A final subdivision plat will need to be revised to reflect any waivers, conditions of approval, stormwater drainage easements, and open space easements that relate to the subdivision plan.

The draft Homeowners Association Documents has been submitted for review by Jennifer Thompson, Associate Corporation Counsel. The HOA will need to address stormwater drainage, individual lot's sewer line pumps, open space and trails, and stormwater maintenance.

XIII. SUBDIVISION REVIEW (14-497(a). Review Criteria; 14-198. Technical and Design Standards; & 14-499. Required Improvements)

1. *Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) 1), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)*
   Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the erosion and sediment control plan and determines that plans meet this standard.

2. *Sufficient Water Available (Section 14-497 (a) 2 and 3)*
   The development will be serviced by the existing 8" municipal water within Westbrook Street supplied by the Portland Water District. The Applicant has contacted the Portland Water District requesting ability to serve water and awaits response; confirmation of ability to serve should be forwarded to the Planning Authority upon receipt. Confirmation of ability to serve sewer from City Department of Public Services has been submitted.

3. *Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)*
   Currently there is an existing curb cut along Westbrook Street that provide access to the single-family home on the site. The applicant is proposing to have two access points from Westbrook Street to the site, one right across from Swan Street and the other is approximately 500 feet west of the entrance of Old Westbrook Street. The latter entrance has changed since the conceptual site plans that Board saw as part of the rezone application. According to the applicant, sight distance and driveway clearance are the reasons for the change. The two looped streets will have access at these points; the roads are to be built to City standards. The majority of the lots' driveways will have access off the new roads, except six lots will have driveways off Westbrook Street. The road accessing the PRUD project will be private. The City's Traffic Engineering Reviewer Tom Errico has reviewed the plans and offers preliminary comments below:

   Sidewalk Requirement
   The applicant is proposing to install a new sidewalk along their frontage on Westbrook Street, as well as sidewalk on one side of the street within the proposed development. Approximately the first 100 feet of the new streets will have sidewalks on both sides from the intersection with Westbrook Street. In the development, on the looped roads, the sidewalk is on one side. The reason for this is that stormwater management is being proposed on the other side of the street. The Subdivision Ordinance includes a number of provisions that the applicant will need to consider carefully as the final plans are being developed, Section14-498 8a:

   > *Sidewalks and curbs: Sidewalks shall be constructed on each side of each street in accordance with article III of chapter 25. Sidewalks to be used by pedestrians are to be so located as to minimize contacts with normal automotive traffic, with preference given to interior walks away from streets in common open space in block interiors.*

The applicant has request a waiver of sidewalks on both side of the new streets. Staff supports a sidewalk on one side of the street, but recommends that it be on the outer side of the street. This will accomplish a better connection to the trails without crossing the roads and there will be more on-street parking (applicant is proposing on-street parking on one side of the street). The road profile has been revised to show this change.

Tom Errico, Consultant Engineer with TY Lin, has reviewed this request and has offered the following:

- All proposed public roads shall meet City standards regarding cross-section details. The applicant has provided a waiver request for some roadways to have sidewalks on only one side. I will review the waiver analysis with City staff and provide direction in the future.

  Status: I support the request for a waiver for the provision of a sidewalk on only one side of the street based upon minimizing the amount of impervious surface area. Accordingly, I find the project to meet the City Waiver criteria and I have no further comment.
- The applicant is requesting a waiver from the City's Technical standard for intersection separation between the easterly Westbrook Street intersection and the nearby internal street intersection. Based upon low traffic volumes, I support a waiver for the proposed intersection spacing.
- The proposed sidewalks shall be designed such that a grass esplanade is provided along the entire length of sidewalk on both the internal streets and along Westbrook Street.

Crosswalks

As part of the application, crosswalks are proposed within the new streets in the development. Mr. Errico has reviewed this and is okay with proposed crosswalks. There will also be three crosswalks are proposed on Westbrook Street; one at the new intersection at Swan Street and two at the trails intersections. Mr. Errico has reviewed this and offers the following recommendation:

> The applicant should provide greater detail on the proposed crosswalks on Westbrook Street. Given traffic conditions, enhanced crosswalks – from a safety perspective - may be warranted. Additionally, the crosswalks shall be designed to be fully ADA compliant (the site plan does not provide ramp details).
> Status: It is recommended that the installation of the RRFB warning lights for the proposed crosswalks be reviewed in the field during construction to determine need at each of the proposed crosswalk. The applicant shall be responsible for the installation of the RRFB's following the field review. The City is requesting that the applicant evaluate and if necessary install lights for safe illumination of the proposed crosswalks.

4. *Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)*

The Applicant has applied for several state permits. The applicant will need to provide the City with evidence of approval upon receipt for the following permits per Sec 14-527. Content of Site Plan Applications (c) 5:

a. Maine DEP Construction General Permit
b. Maine DEP Tier 2 NRPA Permit
c. Maine DEP Chapter 305 – Permit by Rule for Section 2. Activities adjacent to protected natural resources and Section 7 - Outfall pipes.

The subdivision is subject to review under Maine's Site Location of Development Act. The City has submitted the required paperwork to DEP in order to conduct the delegated review of this subdivision; DEP has submitted a letter stating that the City could do the review. The project is also subject to review for a Stormwater Permit. Under Section 5 of the City of Portland Technical Manual, a subdivision development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. The MDEP Chapter 500 rules describe stormwater management requirements for new development projects.

Originally the Applicant was proposing Filterra units and a Vegetated Underdrained Soil Filter to provide stormwater treatment. At the time of the review, it was noted that the City of Portland is no longer allowing stormwater treatment systems to be installed within road right-of- ways. The applicant is now proposing FocalPoint as stormwater treatment. Staff has met with Will Savage, the applicant's engineer a number of time to this discuss this. Mr. Savage submitted a cover letter which explains the situation:

> Following the October 4th, 2017 Planning Board Workshop, the Applicant and Engineer held three additional coordination meetings with the Department of Public Works (DPW) to review the proposed Stormwater Best Management Practices (BMPs) within the development's future public Right-of-Way (ROW).
>
> As a result of these meetings DPW supported the use of water quality stormwater BMPs within the public ROW, with conditions and provided the respective party maintain the percentage of the contributing impervious area from the public ROW and Lot Area to the stormwater BMP. The Applicant was supportive of this compromise which results in the following:
>
> - The Homeowners Association (HOA) will maintain approximately 43% or 9 of the stormwater BMPs where the majority of the flow is from the single-family house lots. These BMPs may be FocalPoints or an approved equivalent. The lots tributary to the stormwater BMP will be eligible for the stormwater credit. DPW has also requested that the BMPs be designed a minimum 5 ft away from curb line.
>
> - DPW will maintain approximately 57% or 11 of the stormwater BMPs. DPW has requested that these BMPs be FocalPoints and be designed a minimum 5 ft away from the curb line.
>
> The Stormwater quality and quantity, as designed, will exceed the requirements set forth within the Maine Department of Environmental Projection Chapter 500 Rules. The stormwater runoff from new roadways and sidewalks will be treated by high-performance filtration systems before being redirected towards dry detention basins. Both the Filterra and FocalPoint are proprietary highperformance filtration systems that meet the following stringent MaineDEP requirements, "livetested for a variety of storm lengths and intensities. The system must remove at least 60% total phosphorus, with at least similar removals metals (zinc and copper), and hydrocarbons; it must provide temperature reduction and channel protection storage detention either independently or in combination with another measure; and it must also be maintainable."
>
> The detention basins will provide both channel protection and stormwater flood control with the center basin designed to provide the community with an ice skating pond. We believe the collaboration and comprise between the Applicant and DPW will result in a model project that fosters educational opportunities and public interaction with green infrastructure.

The City's Consultant Engineering Review (see Attachment 2 for complete list of recommendations) and offer the following comments:

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
    a) Basic Standard: The Applicant has provided a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
    b) General Standard: The project is required to include stormwater management features for stormwater quality control. See general stormwater comment below.

c) Flooding Standard: The project is required to control the rate or quantity of stormwater runoff from the site. See general stormwater comments below.

2) The Applicant has been actively working with Public Works to determine the acceptable approach to stormwater management, both in and out of the proposed City Right-of-Way. The Applicant is proposing to utilize FocalPoint treatment systems. Some of these systems will be maintained by the City of Portland and some will be maintained by the HOA for the development. In addition, tree box filters, underdrained soil filters, and detention basins are proposed on the site, all to be owned and maintained by the development. The Applicant has provided an updated report that addresses most stormwater management concerns, and we are in agreement that the proposed system will address the General and Flooding Standard. Since we are reviewing stormwater infrastructure that will be partly maintained by the City, and we are also reviewing the documents as part of the City's Delegated Review Authority with the Maine DEP, we request that that following additional information be provided:
   a) Sizing calculations for all stormwater treatment/storage systems. Some components of the sizing information have been provided (FocalPoint table, underdrain soil filter surface areas, pond water quality volumes), we ask that the complete design calculations for all of the proposed systems be provided for the record.
   b) A simple stormwater treatment plan should be provided that shows all of the treatment systems, and their tributary drainage areas.
   c) The Applicant has sized their stormwater piping based on the Hydraflow modeling software. A detailed check of rim inverts with peak flow elevations is required.
3) The Applicant may want to consider using underdrain in the central areas between lots where foundation drains are currently proposed to connect. This is not a requirement, but a suggestion on how to provide some stormwater relief between lots.

5. <u>*Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)*</u>
The site is not within an historic district. The proposed lots are located closer to Westbrook Street with open space preserved along the Stroudwater River. The applicant has submitted determinations from Department of Agriculture, Conservation and Forestry and Maine Historic Preservation Commission, and the proposal does not impact any rear botanical features or archaeological sites. The subdivision does not impact the natural beauty of the area, which is an open field, or adversely affect any significant wildlife habitat, rare or irreplaceable natural areas, or any public access to the shoreline.

The proposed subdivision includes approximately twenty-four (24) acres of open space, located along the Stroudwater River with the proposed stormwater management (two detention ponds) areas. The maintenance and management of this open space area needs to be clarified in the context of the Subdivision Ordinance (14-498):

(i) *Public open space:*
1. In all subdivisions open space may be provided for parks, recreational and other public areas. Where no public open space or recreational areas exist in close proximity to the subdivision, or where a lack of such areas in the subdivision would require its disapproval under section 14-497(a), general requirements, the Planning Board may require provision of land for park or recreational purposes. Such lands may be designated for public or private ownership in accordance with the conditions stated in this section, subject to the approval of the Planning Board.

If a tract or parcel is designed or intended to be owned and used in common for recreational or other public or semipublic purposes and such intent is so designated on the subdivision plat, appropriate documents in form approved by the corporation counsel shall be submitted to the Planning Board. Such documents shall clearly:

a. Set forth the nature of the permanent organization under which common ownership is to be established, including its purpose; how it shall be governed and administered; the provisions made for permanent care and maintenance of the common property for its share of the cost of administering and maintaining such common property;

b. Set forth the extent of common interest held by the owner of each individual parcel in the tract held in common with others.

A revised landscaping plan has been submitted for review. According the plan, the applicant is proposing two hundred and forty-four (245) street trees as part of the project. Per the technical standards, the single-family lots and the PRUD are required to have two street trees per lot and per unit:

4.6.1. Residential Development- Single-family residential subdivisions: Single-family residential subdivisions shall provide a minimum of two (2) trees per lot, planted in the City right of way unless otherwise approved and spaced thirty (30) to forty-five (45) feet on center.

4.6.2. Planned Residential Unit Developments (PRUDs): Where a manufactured housing park or subdivision is also a planned residential unit development (PRUD), the development shall provide a minimum of two (2) street trees per unit, planted within 8-10 ft of the City right of way and/or private roadway proposed as part of the development.

The total required street tress is 246 trees.

6. *Comprehensive Plan (Section 14-497 (a) 9)*

The applicant has submitted their analysis of the projects conformance with the Comprehensive Plan (refer to Attachment ZF). The staff has identified goals and policies which are relevant to the proposed housing development and finds the proposal in conformance with the adapted Comprehensive Plan.

Housing: A Livable City
State Goals: To encourage and promote affordable decent, housing opportunities for all Maine citizens
Local Goals:

- Increase, preserve, and modify the overall supply of housing City-wide to meet the needs, preferences and financial capabilities of all Portland households.
- Encourage additional contextually-appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neighborhoods.
- Pursue policies to enable people who work in Portland to have the option to live in Portland.
- Encourage quality, sustainable design in new housing development.

Goals from Future Strategies:
9. Adopt Affordable Housing

- Pursue new opportunities for increased energy efficiency, increased densities, mixed incomes, and greater connectivity to surrounding neighborhoods.

7. *Financial Capability (Section 14-497 (a) 10)*

As noted above, the applicant has submitted a letter from Bath Savings Institution, dated August 18, 2017 indicating the intent to finance the project.

8. *Wetland and Groundwater Impacts, Flood-Prone Area*

Portions of the site is located in the Shoreland Zone and in the FEMA Flood Zone A. The Zoning Administrator will be reviewing the project against the FEMA standards. There will be no groundwater use or underground wastewater disposal. Potable water will be provided by Portland Water District.

XIV. SITE PLAN REVIEW FOR PRUD PORTION

The site plan ordinance contains specific standards for PRUDs. These standards relate to design relationship to site, internal design character and relationship to surrounding neighborhoods, and recreation and open space. The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

a. Impact on Surrounding Street Systems and Access and Circulation- see Subdivision, Paragraph VIII (B) (3), above.

b. Construction Management Plan

A construction management plan has been submitted by the applicant for review. All the construction is proposed within the limits of the property lines. Keith Gray has reviewed the plan and fines the plan to be acceptable with the addition of the following recommendations:

- Contractor shall coordinate construction activities with all abutters.
- Contractor shall be responsible for the sweeping of Westbrook Street as required.
- At no time can construction activity, including delivery vehicles, close or block Westbrook Street.
- Primary construction access is intending to be off from the proposed street entrances. Construction access shall be limited on Old Westbrook Street.

c. Sidewalks

Sidewalks are proposed on both sides of the two streets connecting with Westbrook Street and then bituminous sidewalks are proposed on one side of the streets throughout the subdivision. In lieu of the second sidewalk, esplanades are proposed to be constructed to better manage stormwater runoff.

d. Public Transit Access

The project parcel is on a major urban collector roadway. Currently, Metro does not provide service along Westbrook Street. At the workshop, some members of the Board inquired about possibly extending the Metro bus line to this location and adding a bus shelter. Bruce Hyman, Transportation Director, has stated that there will be new bus line to the City of Westbrook, but the route is not on Westbrook Street. A discussion with the Metro System is ongoing. Space has been noted and designated as potential Metro bus stop, (Attachment Plan 5 to 8)).

e. Parking

The internal roadways will be built to the City standard width of twenty-eight (28) feet and allow for on-street parking on one side of the roadway. There will be four parking spaces at the end of Old Westbrook Street for trail users. Each PRUD unit will have an integral garage for parking. The individual single-family lots, as well as the townhouse will have a garage and an additional parking space which equals two parking spaces per dwelling unit. The PRUD townhouses will have first floor garages.

f. Bicycle Parking

The proposals include six bicycle parking spaces at the entrances of the townhouse buildings, as well as storage spaces in the building for bicycle. This meets the intent of ordinance standard of bicycle spaces.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

The development abuts the Stroudwater River. As part of the application, a total of 24 acres, along river, will be preserved and public access provided to the open spaces and trails. Please refer to Paragraph XIII (5), above.

b. Landscaping and Landscape Preservation

The landscaping plan calls for evergreens along Westbrook Street, street trees on the proposed roads, and a landscaped berm on the PRUD property. The street tree requirement for single family residential subdivisions and PRUDs is two trees per unit in or near the ROW. The applicant is proposing 245 trees on the entire site. Please refer to Paragraph XIII (5), above.

c. Water Quality, Storm Water Management and Erosion Control

Under Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. Lauran Swett, Consultant Engineer with Woodard and Curran Engineering, has reviewed the drainage plan and stormwater report, and offers her recommendations; please see Attachment 2 for the complete analysis.

3. Public Infrastructure and Community Safety Standards

a. Consistency with Master Plans

See Subdivision, Paragraph VIII (B)6 above.

b. Public Safety and Fire Prevention

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime.

The site has been designed to promote safe and inviting public access. Adequate emergency access will be provided. The turning radii of the driveway are large enough to allow for emergency vehicles to enter and exit the proposed street. Two fire hydrants are located along Westbrook Street. The hydrant within the PRUD lot is proposed to be private and maintained as such.

c. Availability and Adequate Capacity of Public Utilities

The development will be serviced by the existing 8" municipal water within Westbrook Street supplied by the Portland Water District. The Applicant has contacted the Portland Water District requesting ability to serve water and awaits a response; confirmation of ability to serve should be forwarded to the Planning Authority upon receipt and is prepared as a condition of approval. Confirmation of ability to serve sewer from City Department of Public Services has been submitted.

4. Site Design Standards

a. Snow and Ice Loading

The applicant is proposing on-site snow storage. Snow within the PRUD lot is to be stored along the side slopes of the driveway. It is anticipated that snow will be stored along the roadway within the esplanade or 11-foot buffer between the curb face and property lines.

b. View Corridors

This site is not within a Protected View Corridor as per the "View Corridor Protection Plan" approved by the Portland City Council in 2001.

c. Historic Resources

The site is just outside the Stroudwater historic district; therefore, the project does not have to be reviewed by Historic Preservation.

d. Exterior Lighting

A lighting and photometric plan has been submitted for review and meets the Technical Standards. According to the applicant, the any proposed street lighting will meet the City's standards. All exterior

site lighting including lighting of building entrances will have to be cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties or streets.

e. Noise and Vibration

All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will have to be shown on the plans and meet state and federal emissions requirements. These mechanical equipment should be located to the interior of the site, away from abutting residential properties and be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, fencing, masonry wall or a combination thereof.

f. Signage and Wayfinding

This standard does not apply to the proposal.

g. Zoning Related Design Standards

A design review according to the *City of Portland Design Manual* Standards was performed for the resubmission of the proposed new construction of the PRUD townhouses. The review was performed by Caitlin Cameron, Urban Designer, and Shukria Wiar, Planner, and Nell Donaldson, Senior Planner, within the Planning Division of the Department of Planning & Urban Development. The project was reviewed against the *Planned Residential Unit Developments (PRUDs) in the R-3, R-5, And R5-A Residential Zones and Manufactured Housing Parks in Any Zone* (Sections h) and meets design standards, see Attachment 8 for a complete analysis.

XV. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed development.

XVI. PROPOSED MOTIONS

A. CONDITIONAL USE

On the basis of the application, plans, reports and other information submitted by the applicant, findings to the Ensure Workforce Housing and recommendations contained in the Planning Board Report, relevant to Portland's Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing:

The Planning Board finds the proposed conditional use for workforce housing [**does** or **does not**] meet the standards of Section 14-484 with the following conditions:

1. That the Applicant and the City shall enter into an agreed upon Affordable Housing Agreement (AHA) prior to the issuance of a building permit. The Affordable Housing Agreement shall outline the details of the affordability restrictions placed on the Workforce Units; and

2. That the Affordable Housing Agreement shall be filed as covenant to the property's deed with the Cumberland County Registry of Deeds prior to the issuance of a Certificate of Occupancy.

B. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-193 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing:

1. *Sidewalks*

*The Planning Board finds that two criteria **do/do not** apply, and therefore **waives/does not waive** the requirement for a sidewalk along the north side of the new street within the new subdivision with the*

condition that final plan show the sidewalk relocated to the outer side of the street network, as depicted on the revised road profile.

C. **TRAFFIC MOVEMENT PERMIT**

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on November 28, 2017 for application 2017-193 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the proposed plan [**is/is not**] in conformance with 23 MRSA 704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits, with the following conditions of approval:

1. If it is determined that a dedicated left-turn lane on Westbrook Street is warranted, the applicant shall be responsible for all cost for implementation and the design shall meet with the approval of Department of Public Works.

2. In conjunction with an approved Outer Congress Transportation and Streetscape Plan, the applicant shall make a $12,600 contribution prior to the issuance of a building permit. The contribution was based upon project trip generation and assignment added to Congress Street.

3. A variable speed indicator shall be required to be installed on Westbrook Street at a location acceptable and the City request that an additional speed study shall be conducted upon completion of Phase 1 and implementation of the associated crosswalks and sidewalk on Westbrook Street. If the speed study indicates excessive vehicle speeds, the applicant shall implement traffic calming mitigation strategies acceptable to the City.

D. **SUBDIVISION**

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-193 relevant to the subdivision regulations; and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the subdivision standards of the land use code, subject to the following conditions of approval, which must be met prior to the signing of the plat:

1. The applicant shall submit Homeowner Association Documents for review and approval by Corporation Counsel that address:

    a. the Stormwater maintenance agreements for the development:
    b. Stromwater drainage easements; and
    c. easements for the open space lot; and
    d. final conditions of approval.

2. That the Subdivision Plat shall be finalized to the satisfaction of the Planning Authority, Department of Public Services and Corporation Counsel and to include references to stormwater drainage, stormwater management, and open space and public access and final conditions of approval; and

3. The applicant shall submit a final plan and specifications, for review and approval by the Planning Authority and the Department of Public Works, that are in conformance with the proposed LED fixture specifications for the street lights; and

4. The applicant shall be responsible for the installation of the RRFB's following the field review. The City is requesting that the applicant shall evaluate, and if necessary, shall install lights for safe illumination of the proposed crosswalks; and

5. The applicant shall submit the following for review and approval by the Planning Authority and Department of Public Services:
    a. sizing calculations for all stormwater treatment/storage systems; and
    b. A simple stormwater treatment plan shall be provided that shows all of the treatment systems, and their tributary drainage areas; and
    c. The stormwater piping has been sized based on the Hydraflow modeling software and a detailed check of rim inverts with peak flow elevations shall be submitted.

6. The developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. That the applicant shall provide a stormwater maintenance agreement for the stormwater drainage system, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Services; and

7. Confirmation of ability to serve water from PWD shall be submitted to the Planning Division prior to the issuance of a building permit; and

8. Confirmation letters from the Department of Environmental Protection shall be submitted to the Planning Division upon receipt.

E. **SITE PLAN**

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-193 relevant to the site plan regulations and the Site Location of Development Act, and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the subdivision standards of the land use code, subject to the following conditions of approval, which must be met prior to the issuance of the building permit:

1. Confirmation of ability to serve water from PWD shall be submitted to the Planning Division prior to the issuance of a building permit; and

2. Confirmation letters from the Department of Environmental Protection shall be submitted to the Planning Division upon receipt; and

3. The developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. That the applicant shall provide a stormwater maintenance agreement for the stormwater drainage system, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Services; and

4. The applicant shall submit a final plan and specifications, for review and approval by the Planning Authority and the Department of Public Works, that are in conformance with the proposed LED fixture specifications for the street lights.

XVII. ATTACHMENTS

PLANNING BOARD MEMO ATTACHMENT

1. Traffic Engineer review (memo from Thomas Errico, 11.22.2017)
2. Civil Engineer (memo from Lauren Swett, 11.22.2017)
3. Department of Public Services review (memo from Keith Gray, 11.22.2017)
4. Fire Department (memo from John Brennan, 09.28.2017)
5. Rezone Council Orders
6. Open Space and Trail Easements
7. Housing Planner review (memo from Victoria Volent, 11.17.2017)
8. Urban Designer review (memo from Caitlin Cameron, 11.15.2017)
9. Public Comments- Eugenia O'Brien 11-1-17
   9a. Eugenia O'Brien 11-20-17

APPLICANT'S SUBMITTAL

A. Cover Letter
B. Table of Contents
C. Level III Site Subdivision Plan Application
D. Site Location of Development Permit Application
E. Wastewater Capacity Application
G. Section 2 - Title, Right or Interest
H. Section 3 - Financial Capacity
I. Section 4 - Technical Ability
J. Section 5 – Noise
K. Section 6 - Visual Quality & Scenic Character
L. Section 7 - Wildlife and Fisheries
M. Section 8 - Historic Sites
N. Section 9 - Unusual Natural Areas
O. Section 10 – Buffers
P. Section 11 - Soils
Q. Section 12 - Stormwater Management
R. Section 13 - Urban Impaired Stream Submissions
S. Section 14 - Basic Standards Submissions
T. Section 15 – Groundwater
U. Section 16 - Water Supply
V. Section 17 - Wastewater Disposal
W. Section 18 - Solid Waste
X. Section 19 – Flooding
Y. Section 20 – Blasting
Z. Section 21 - Air Emissions
ZA. Section 22 – Odors
ZB. Section 23 - Water Vapor
ZC. Section 24 - Sunlight
ZD. Section 25 – Notices
ZE. Section 26 - Fire Department Letter
ZF Section 27 - Conformity with Applicable Zoning Standards
ZG. Section 28 - Utility Cover
ZH. Section 29 - Written Request for Waivers
ZI. Section 30 - Construction Management Narrative
ZJ. Section 31 - Conformity with Shoreland Standards
ZK. Neighborhood Meeting Letter
ZL. Neighborhood Meeting Certification

ZM. Neighborhood Meeting Minutes
ZN. Neighborhood Meeting Sign-In Sheet
ZO. Section 32 - Homeowners Association & Condo Documents
ZP. PRUD Design Narrative
ZQ. Section 33 - Conformity with Land Use Ordinance PRUD
ZR. Section 34 - Stormwater Maintenance Agreement
ZS. Section 35 - Traffic Impact Study
ZT. Design Review Response
ZU. NRPA Tier I Freshwater Wetland Alteration - Approved Permit
ZV. Traffic Movement Plan

PLANS

Plan 1. Cover Sheet
Plan 2. General Notes
Plan 3. Existing Conditions Plan
Plan 4. Construction Management Plan
Plan 5. Subdivision Plan
Plan 6. Subdivision Plat - Phase III
Plan 7. Subdivision Plat - Phase I
Plan 8. Subdivision Plat - Phase II
Plan 9. Landscape Plan
Plan 10. Road Profile – 1
Plan 11. Road Profile – 2
Plan 12. Road Profile – 3
Plan 13. Road Profile – 4
Plan 14. Grading & Drainage Plan - Phase III
Plan 15. Grading & Drainage Plan - Phase I
Plan 16. Grading & Drainage Plan - Phase II
Plan 17. Site Details – 1
Plan 18. Site Details – 2
Plan 19. Site Details – 3
Plan 20. Utility Details - 1
Plan 21. Utility Details – 2
Plan 22. Utility Details – 3
Plan 23. Drainage Details
Plan 24. Detention Basin Details
Plan 24. Photometric Plan
Plan 25. Vegetated Underdrained Soil Filter Details
Plan 26. Filterra BMP Details
Plan 26a. Filterra BMP Details
Plan 26b. Focalpoint BMP Details
Plan 27. Erosion & Sedimentation Control Notes
Plan 28. Erosion & Sedimentation Control Details
Plan 30. PRUD Rendering
Plan 31. PRUD Floor Plans & Elevations
Plan 32. Potential IZ units to be Identified

Att. 1

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

Stroudwater Preserve - Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Nov 22, 2017 at 11:20 AM
To: "Shukria Wiar (shukriaw@portlandmaine.gov)" <shukriaw@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>

Hi Shukria – I have reviewed the most current application materials and offer the following Final Traffic Comments.

- The applicant has submitted a Traffic Movement Permit Application and I have found the contents to be complete. A Scoping Meeting for the traffic impact study has been scheduled for October 10th.

  Status: The applicant has submitted a traffic impact study and I find the methods and contents to be acceptable. The following should be noted:

  - **We concur that the need for a dedicated left-turn lane on Westbrook Street shall be monitored by the applicant in the future. If it is determined that a lane is needed, the applicant shall be responsible for all cost for implementation and the design shall meet with the approval of DPW.**
  - **In conjunction with an approved Outer Congress Transportation and Streetscape Plan, the applicant shall make a $12,600 contribution. The contribution was based upon project trip generation and assignment added to Congress Street.**
  - **The applicant conducted a speed study on Westbrook Street and determined vehicle speeds exceed the posted speed limit. The City has been implementing traffic strategies along Westbrook Street and request that a speed study be conducted following construction of Phase 1 and implementation of the associated crosswalks and sidewalk on Westbrook Street. If the speed study indicates excessive vehicle speeds, the applicant shall implement traffic calming mitigation strategies acceptable to the City.**

- All proposed public roads shall meet City standards regarding cross-section details. The applicant has provided a waiver request for some roadways to have sidewalks on only one side. I will review the waiver analysis with City staff and provide direction in the future.

  Status: I support the request for a waiver for the provision of a sidewalk on only one side of the street based upon minimizing the amount of impervious surface area. Accordingly, I find the project to meet the City Waiver criteria and I have no further comment.

- The applicant has provided a construction management plan for the project. The applicant should provide greater detail for any work (sidewalk/utility construction) to be conducted in Westbrook Street that would impact traffic conditions.

  Status: It is my understanding that DPW will be providing comments.

- The applicant should provide greater detail on the proposed crosswalks on Westbrook Street. Given traffic conditions, enhanced crosswalks – from a safety perspective - may be warranted. Additionally, the crosswalks shall be designed to be fully ADA compliant (the site plan does not provide ramp details).

  Status: It is recommended that the installation of the RRFB warning lights for the proposed crosswalks be reviewed in the field during construction to determine need at each of the proposed crosswalk. The applicant shall be responsible for the installation of the RRFB's following the field review. The City is

requesting that the applicant evaluate and if necessary install lights for safe illumination of the proposed crosswalks.

- The proposed slip-form concrete curbing material on Westbrook Street is not permitted. The plans shall be revised to meet City standards.

  Status: The plans have been revised and I have no further comment.

- The applicant should confirm that no driveways are proposed on Westbrook Street.

  Status: New driveways are proposed and meet City standards. I have no further comment.

- Sight distance information should be provided at both roadway intersections.

  Status: The applicant has conducted a detailed sight distance evaluation and concludes the roadways will meet City standards. I have no further comment.

- All crosswalks located along the proposed public roads shall be block style design, not two parallel lines.

  Status: The plans have been revised and I have no further comment.

- The applicant should note if City corner clearance standards are met as it relates to the proposed Westbrook Street intersections and nearby driveways.

  Status: It is my understanding that corner clearance standards are met and I have no further comment.

- The applicant shall provide proposed driveway locations for each lot to ensure both driveway separation and corner clearance standards are met.

  Status: The requested information has been provided and I find the plan to be acceptable. I have no further comment.

Additional Comments

- **The applicant is requesting a waiver from the City's Technical standard for intersection separation between the easterly Westbrook Street intersection and the nearby internal street intersection. Based upon low traffic volumes, I support a waiver for the proposed intersection spacing.**

- **The proposed sidewalks shall be designed such that a grass esplanade is provided along the entire length of sidewalk on both the internal streets and along Westbrook Street.**

- **The applicant shall be required to install No Parking signs on one side of the internal streets. Parking shall be permitted along the curb where sidewalks are provided. Parking restrictions shall meet City standards.**

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Shukria Wiar, Planner
FROM: Lauren Swett, P.E.
DATE: November 22, 2017
RE: Stroudwater Preserve Subdivision Preliminary Site Plan Peer Review

---

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed subdivision development project located at 1700 Westbrook Street in Portland, Maine. The project involves the construction of a new subdivision for 98 single family house lots, one planned unit residential development (PRUD) lot for 25 townhomes, and one 24-acre open space lot.

Documents Reviewed by Woodard & Curran

- Level III & Subdivision Final Site Plan Application and Attachments, dated October 25, 2017, prepared by Acorn Engineering, Inc., on behalf of Stroudwater Development Partners, LLC.
- Updated Stormwater calculations, dated November 21, 2017, prepared by Acorn Engineering, Inc., on behalf of Stroudwater Development Partners, LLC.
- Updated Engineering Plans; dated November 21, 2017, prepared by Acorn Engineering, Inc., on behalf of Stroudwater Development Partners, LLC.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: The Applicant has provided a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standard: The project is required to include stormwater management features for stormwater quality control. See general stormwater comment below.
   c) Flooding Standard: The project is required to control the rate or quantity of stormwater runoff from the site. See general stormwater comments below.
2) The Applicant has been actively working with Public Works to determine the acceptable approach to stormwater management, both in and out of the proposed City Right-of-Way. The Applicant is proposing to utilize FocalPoint treatment systems. Some of these systems will be maintained by the City of Portland and some will be maintained by the HOA for the development. In addition, tree box filters, underdrained soil filters, and detention basins are proposed on the site, all to be owned and maintained by the development. The Applicant has provided an updated report that addresses most stormwater management concerns, and we are in agreement that the proposed system will address the General and Flooding Standard. Since we are reviewing stormwater infrastructure that will be partly maintained by the City, and we are also reviewing the documents as part of the City's Delegated Review Authority with the Maine DEP, we request that that following additional information be provided:
   a) Sizing calculations for all stormwater treatment/storage systems. Some components of the sizing information has been provided (FocalPoint table, underdrain soil filter surface areas, pond water quality volumes), we ask that the complete design calculations for all of the proposed systems be provided for the record.
   b) A simple stormwater treatment plan should be provided that shows all of the treatment systems, and their tributary drainage areas.
   c) The Applicant has sized their stormwater piping based on the Hydraflow modeling software. A detailed check of rim inverts with peak flow elevations is required.

3) The Applicant may want to consider using underdrain in the central areas between lots where foundation drains are currently proposed to connect. This is not a requirement, but a suggestion on how to provide some stormwater relief between lots.

Att. 3

Portland Maine | Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

Stroudwater Preserve

Keith Gray <kgray@portlandmaine.gov> Wed, Nov 22, 2017 at 3:03 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: "Swett, Lauren" <lswett@woodardcurran.com>, "Errico, Thomas" <thomas.errico@tylin.com>

Hello Shakira,

The following comments are in reference to the Construction Management Plan (CMPlan) and stormwater quality best management practices (BMP's) for the Stroudwater Preserve Subdivision.

Construction Management Plan:

In general, the provided CMPlan identifies the locations of soil stock piles, contractor parking and utility connections. The contractor is responsible for obtaining an excavation permit for utility connections within the ROW. The provided CMPlan is acceptable with the addition of the following notes.

- Contractor shall coordinate construction activities with all abutters.
- Contractor shall be responsible for the sweeping of Westbrook Street as required.
- At no time can construction activity, including delivery vehicles, close or block Westbrook Street.
- Primary construction access is intend to be off from the proposed street entrances. Construction access shall be limited on Old Westbrook Street.

Stormwater BMP's:

The applicant and design engineer has worked assiduously with DPW to provide the proposed stormwater treatment type, location and ownership obligation. The most recent plan set and the letter prepared by Acorn Engineering outlines the results of this coordination. We will continue to work with the applicant to finalize the location and ownership of each stormwater BMP with the intent to adhere to the course of action specified within Acorn Engineering's letter dated November 21, 2017.

--
Keith D. Gray, PE
Senior Engineer
Dept. of Public Works
City of Portland Maine

207.874.8834
kgray@portlandmaine.gov

MEMORANDUM

To: FILE

From: Shukria Wiar

Subject: Application ID: 2017-193

Date: 9/29/2017

Comments Submitted by: John Brennan/Fire on 9/28/2017

Construction Management Plan
Fire Hydrants shall not be blocked or enclosed by fencing. A 3' foot clearance must be kept at all times around the fire hydrant.
If gates are locked, a Portland Fire Department Knox padlock must be purchased by the applicant to allow access for the Fire Department.
The Construction Company' emergency contact information shall be posted on the property in case of an after hours emergency.

Comments Submitted by: John Brennan/Fire on 9/28/2017

Premises Identification
The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.
Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer.
If the building entry faces a different street, both the street name and number should be large enough to read from the street.
Address numbers must be a minimum of 6 inches high.
The number should be in Arabic numerals rather than spelled out (for example, "130" instead of "One Hundred and Thirty').
Color: Addresses should be in a color that contrasts with the background.
Whenever possible, should be illuminated.
Provide additional address signs at entrances to the property when the building address is not legible from the public street.
Buildings set back in groups that share common entrances can make quickly locating a specific building and the shortest route difficult. On such sites, additional signs with directional arrows and/or diagrams of the buildings and access layout should be posted.

Comments Submitted by: John Brennan/Fire on 9/28/2017

Per City Code, all new construction of residential occupancies shall be sprinkled in compliance of NFPA 13.

Comments Submitted by: John Brennan/Fire on 9/28/2017

Per City Technical Standards, a hydrant shall be placed within five hundred (500') feet of all structures.

Comments Submitted by: John Brennan/Fire on 9/28/2017

Street width per City Standards must be a minimum width of 28 feet.

Order 272-16/17
Postponed to July 24, 2017: 9-0 on June 19, 2017
Amended to exclude Planned Residential Unit Developments as defined in Portland City Code Section 14-87(a)2 in an overlay zone depicted in "Amendment to Order 272-16/17" attached: 7-2 (Thibodeau and Strimling) on 7/24/2017
Passage as amended: 5-4 (Brenerman, Batson, Costa and Strimling) on 7/24/2017
Effective 8/23/2017

ETHAN K. STRIMLING (MAYOR)
BELINDA S. RAY (1)
SPENCER R. THIBODEAU (2)
BRIAN E. BATSON (3)
JUSTIN COSTA (4)

CITY OF PORTLAND
IN THE CITY COUNCIL

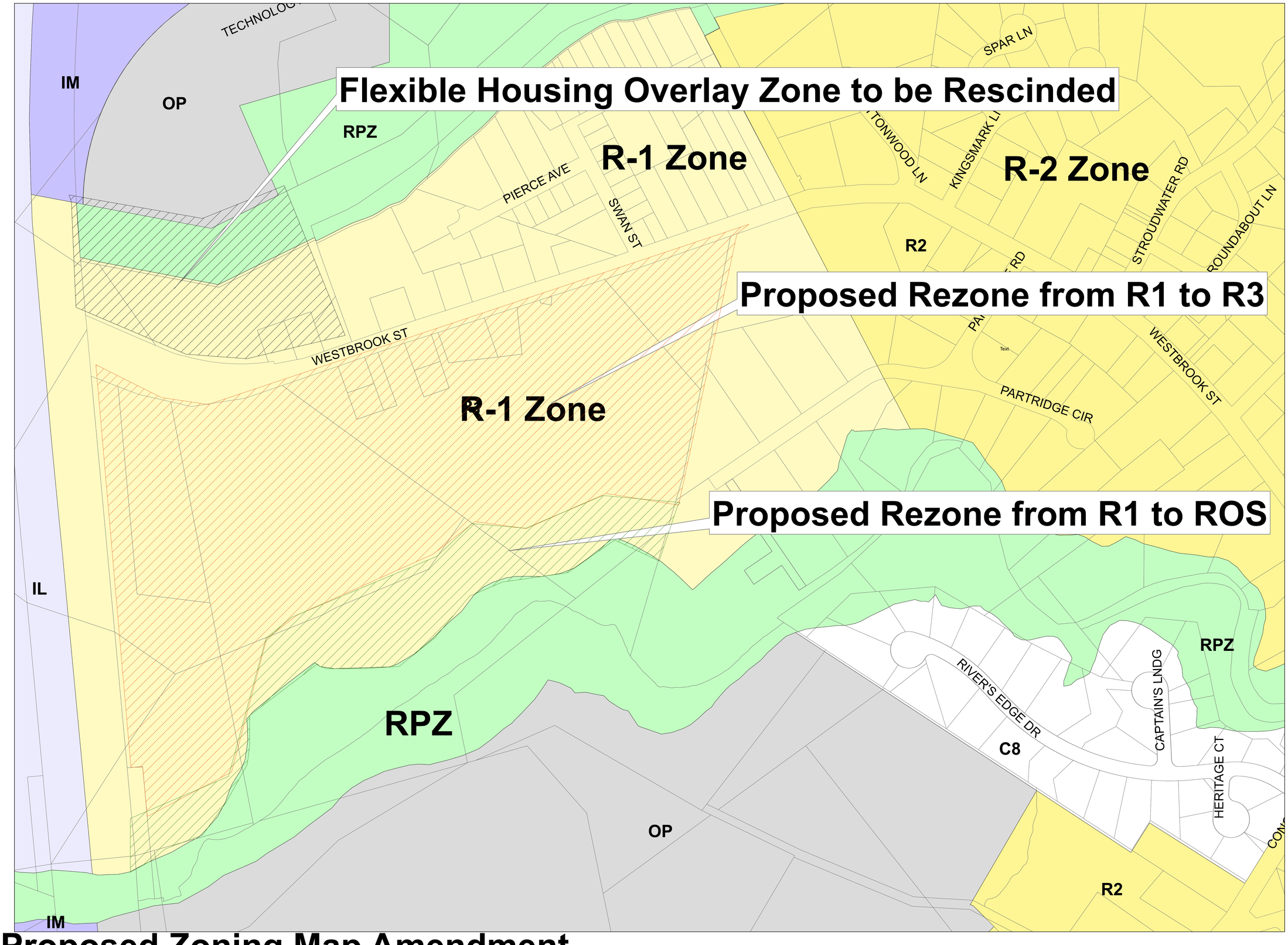
DAVID H. BRENERMAN (5)
JILL C. DUSON (A/L)
PIOUS ALI (A/L)
NICHOLAS M. MAVODONES, JR (A/L)

AMENDMENT TO ZONING MAP
RE: CAMELOT FARM

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PORTLAND, MAINE IN CITY COUNCIL ASSEMBLED AS FOLLOWS:

That the Zoning Map of the City of Portland, dated December 2000, as amended and on file in the Department of Planning and Urban Development, and incorporated by reference into the Zoning Ordinance by §14-49, be and hereby is amended by adopting the following map change amendment and specifically rezoning property known as Camelot Farm and four single family adjacent lots from R1 to R3 and rezoning land bordering Stroudwater River from R1 to ROS, as shown on Exhibit A, attached hereto.

Exhibit A

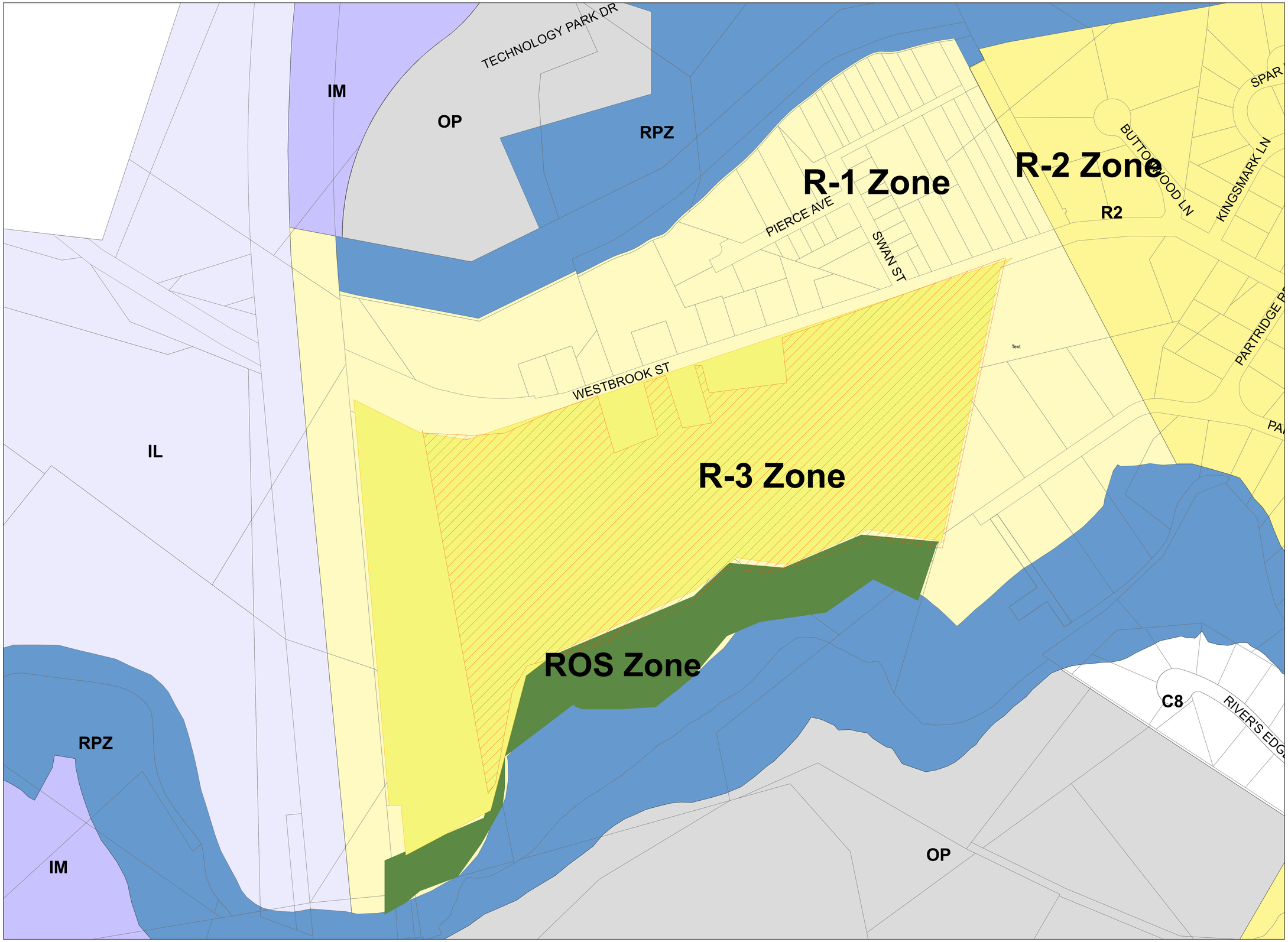


Proposed Zoning Map Amendment
Residential R1 to Residential R3 and Recreational Open Space (ROS)
May 2017

Map produced by the City of Portland Planning Division using GIS Work Group data

N

Amendment to Order 272-16/17 Sponsored by Councilor Ray



Proposed Zoning Map Amendment
Residential R1 to Residential R3 and Recreational Open Space (ROS)
July 2017

In Reference to Shaded Area- In this portion of the R-3 zone,
Planned Residential Unit Developments per 14-87 (a) 2 are not permitted.

N

Doc#: 42025 Bk:34257 Pg: 258

After recording return to:

_____

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Space Above This Line For Recording Data

EASEMENT DEED

(Open Space Easement – 1714 Westbrook Lot)

KNOW ALL PERSONS BY THESE PRESENTS, that **DIVERSACORP, LLC**, a Maine limited liability company with a place of business in Portland, Maine and mailing address of 5 Stone Pony Circle, Saco, Maine (the "Grantor"), FOR CONSIDERATION PAID, hereby GRANTS to the **CITY OF PORTLAND**, a Maine body corporate and politic, with a mailing address of City Hall, 389 Congress Street, Portland, Maine (the "Grantee" or the "City"), a non-exclusive open space easement for the purpose described below, over portions of Grantor's property at or about 1714 Westbrook Street, in Portland, Maine, said easement area being the greater of either: (a) the area shown falling within the bounds of the ROS zone as depicted on Exhibit A, or; (b) the Open Space as so defined on any subdivision plan recorded by Grantor or any affiliate or subsidiary thereof, or any successor in title thereto, for development of 1700 Westbrook Street (in the case of (a) or (b) the "Easement Area". For the avoidance of doubt, the Easement shall initially encumber the ROS zone in Exhibit A, and shall automatically extend to encumber the subdivision "Open Space" contemplated in (b) above immediately upon filing said subdivision plan. Grantee shall not be obligated to take any further action in order for this Easement to extend beyond the ROS zone.

The purpose of the open space easement granted herein is to provide public pedestrian access to meaningful areas of undeveloped open space along the Stroudwater River corridor. Land within the Easement area may be disturbed, graded, regraded, seeded, or otherwise managed by Grantor for all purposes necessary for development of the Camelot Farm lot located generally at 1700 Westbrook Street, Portland, Maine, or in any fashion otherwise permitted by land-use and zoning laws, but in all cases, the disturbance shall be in form and scope which is the least intrusive as commercially reasonable. This easement is not a conservation easement. Neither Grantor nor Grantee has any obligation to maintain the Easement Area, except as Grantor may be required to repair or replant areas disturbed during development. The Easement Area shall remain publicly accessible, free of permanent buildings, permanent fences, and other permanent structures. Grantor shall not permit any use, condition, or state of disrepair that would be contrary to or otherwise materially inhibit access to or use of the Easement Area. The parties agree that this Easement shall in no way impair any restrictions or requirements imposed by local ordinance, state statute, or federal law, as the same relate to activities within the Easement Area. Nothing in this easement shall prevent the pipeline company having prior rights through the Easement Area from exercising its rights to the pipeline. Nothing in this open space easement shall inhibit the public access easement granted prior hereto to Portland Trails for access to and from said Stroudwater River.

This easement is given for recreational use and the Grantor and Grantee claim to the maximum extent permitted by law, all the rights and protections against liability in accordance with the Maine Tort Claims Act, Title 14 MRS § 8101 *et seq*, Title 14 MRS §159-A, and other applicable law.

TO HAVE AND TO HOLD the aforegranted and bargained public access easement, with all privileges and appurtenances thereof, to the Grantee, its successors and assigns, to its and their use and behoof, forever.

(*Signature & Exhibit Appear Below*)

IN WITNESS WHEREOF, Diversacorp, LLC, the Grantor has caused this instrument to be executed by Michael Barton, its Manager, thereunto duly authorized, this 24th day of July, 2017.

Witness

Diversacorp, LLC

By: _____
Michal Barton, its Manager

STATE OF MAINE
Cumberland County, ss.

Date: 07/24/2017

Personally appeared the above-named Michael Barton, Manager of Diversacorp, LLC, and acknowledged the foregoing instrument to be his free act and deed duly authorized in said capacity, and thereby, the free act and deed of Diversacorp, LLC.

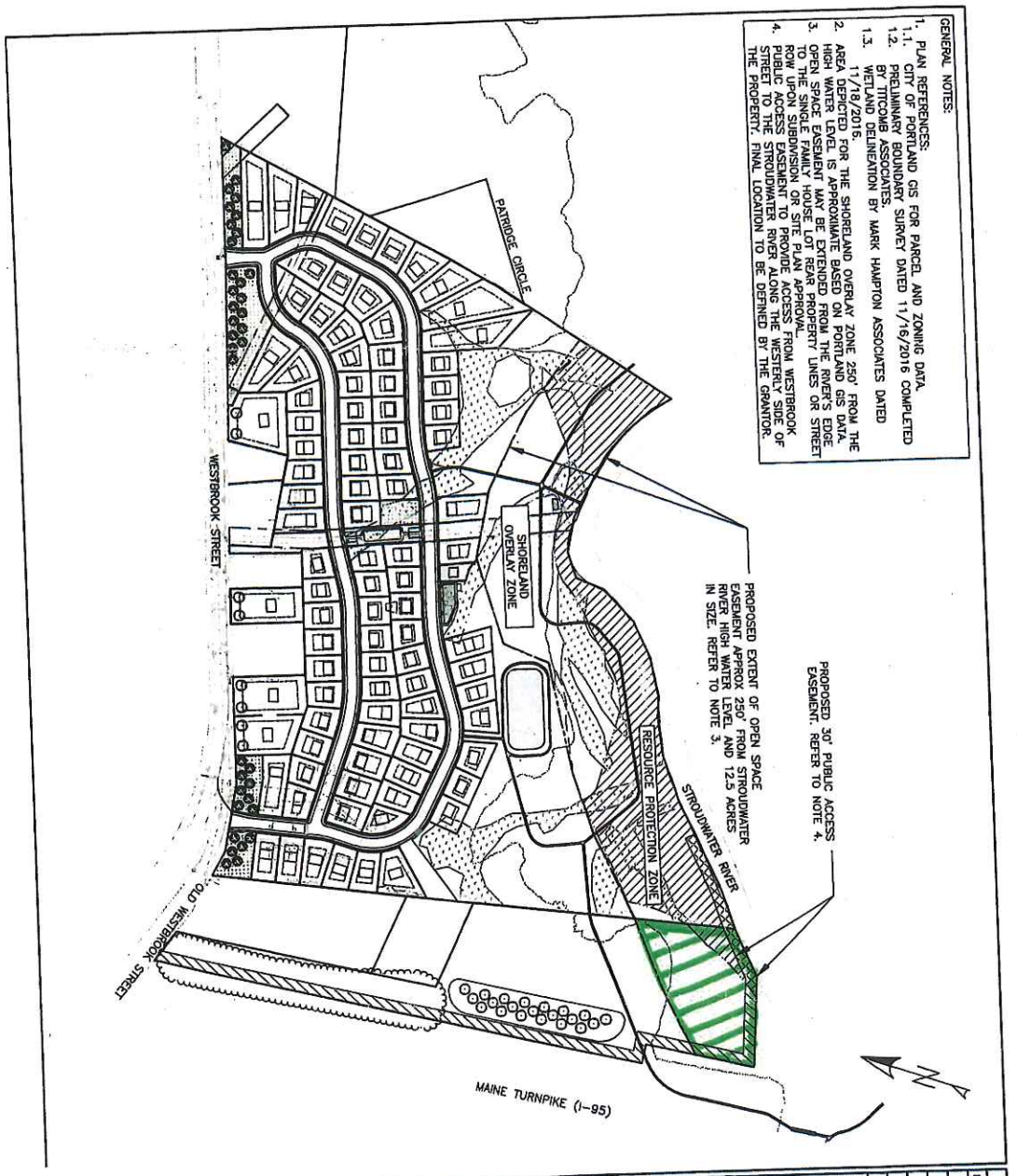
Before me,

_____
Attorney at Law / Notary Public
Print: Katherine L. Jones
[SEAL] My commission expires 12-28-2020

(*Exhibit A Appears Below*)

Doc#: 42025 Bk:34257 Pg: 260

EXHIBIT A



DRAWING NAME:	EXHIBIT A – CONCEPT EASEMENT
PROJECT NAME:	CAMELOT FARMS SUBDIVISION
CLIENT:	CAMELOT HOLDINGS, LLC

ISSUED FOR: DRAFT EASEMENT — BY: WHS — DATE: 7/25/17

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372 PORTLAND, MAINE 04104 (207) 775-2655

FILE: CIVIL 1079
JN: 1079
SCALE: 1"=50'
DESIGN BY: OJD
DRAWN BY: OJD
CHECKED BY: WHS

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO. EX-A

Received
Recorded Register of Deeds
Aug 23,2017 01:29:49P
Cumberland County
Nancy A. Lane

Recreation Trail Easement
On Land Of DiversaCorp, LLC
City of Portland, Cumberland County, Maine

Att. 6b

DIVERSACORP, LLC, a Maine limited liability company with a place of business in Portland, Maine and mailing address of 5 Stone Pony Circle, Saco, Maine (hereinafter referred to as the "Grantor" which word is intended to include jointly and severally, unless the context clearly indicates otherwise, the above-named Grantor, its successors and assigns),

GRANTS, with Quitclaim Covenant, as a gift, to **PORTLAND TRAILS,** a nonprofit corporation existing under the laws of the State of Maine, with a mailing address of 305 Commercial Street, Portland, Maine 04101, (hereinafter referred to as the "HOLDER," which word shall, unless the context clearly indicates otherwise, include the Holder's successors and assigns),

in perpetuity, a **RECREATION TRAIL EASEMENT** on a portion of real property situated in the City of Portland, Cumberland County, Maine (hereinafter referred to as the "Trail Corridor,"), being a 30-foot (30') wide corridor across the parcel(s) granted to Grantor by deed from Diversacorp, LLC, dated February 17, 2017 and recorded at the Cumberland County Registry of Deeds at Book 33834, Page 269; which Trail Corridor is more particularly described in Exhibit A, and depicted on Exhibit B, attached hereto and made a part hereof by reference.

1. RECREATION PURPOSE

This Recreation Trail Easement is made exclusively for the following recreational purpose (hereinafter the "Recreation Purpose"): To provide non-motorized recreational opportunities for the residents of and visitors to the City of Portland to the shore of the Stroudwater River within the Easement Area.

2. STRUCTURES, SURFACE ALTERATIONS, VEGETATION MANAGEMENT

A. On the date of this Recreation Trail Easement, there are no structures or man-made objects on the Trail Corridor except for: game fencing, as depicted on Exhibit B. Grantor shall not establish or maintain any structures or man-made objects on the Trail Corridor without the prior written consent of Holder.

3. HOLDER'S RIGHTS

A. Holder, its successors and assigns, and its authorized representatives, are hereby granted the right to enter the Trail Corridor at any reasonable time and in any reasonable manner that is consistent with the purposes hereof, including the right to enter over any rights-of-way pertaining to the Trail Corridor, to exercise its rights under this Recreation Trail Easement.

B. Holder is granted the exclusive right, but not the obligation, to establish, and maintain unpaved trails on the Trail Corridor. Holder is further granted the exclusive right to construct, install, and maintain without limitation: boardwalks, footbridges, and other low-impact outdoor recreational improvements on the Trail Corridor; such as steps; railings; paved or unpaved ramps; bollards; rip rap; benches; barriers to discourage use by motorized vehicles (except for motorized wheelchairs or other similar non-recreational vehicles).; cairns; small unlighted signs, and minor erosion control structures. Holder's construction and maintenance rights may be delegated or assigned to another entity.

C. Holder is granted the exclusive right to selectively cut, prune and remove trees, leaners and blowdowns on the Trail Corridor for safety purposes, and the exclusive right to alter vegetation on the Trail Corridor for scenic and trail work purposes.

D. Holder is granted the right to assign this Recreation Trail Easement, but only to an entity that as a condition of transfer agrees to uphold the Recreational Purpose of this grant, and satisfies the requirements of Section 1581(1) of Title 33 of the Maine Revised Statutes Annotated, as amended (or successor provisions thereof).

E. Holder is hereby granted the right to enforce this Recreation Trail Easement by proceedings at law and in equity, including the right to require the restoration of the Trail Corridor to a condition in compliance herewith. If a Court (or other decision maker chosen by mutual consent of the parties) determines that this Recreation Trail Easement has been breached by a party hereto or his/her/its assigns, agents, employees, contractors, invitees, licensees, permittees, tenants, guests, or lessees, the breaching party will reimburse the non-breaching party for any reasonable costs of enforcement, including court costs, reasonable attorney's fees, and any other payments ordered by such Court or decision maker. Grantor is not responsible for injury to or change in the Trail Corridor originating from outside of the Trail Corridor or Grantor's abutting reserved land, or from natural causes, such as, but not limited to, fire, flood, storm, earth movement, natural evolution of plant and animal communities, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Trail Corridor resulting from such causes.

4. PUBLIC USE

Holder has the right to permit, and the Grantor agrees to refrain from taking any action to prohibit or discourage or to exact a fee for, non-motorized access and low-impact outdoor recreational use by the general public on the Trail Corridor, including, without limitation, walking, picnicking, nature observation, bicycling, fishing, snowshoeing and cross country skiing.

This grant prohibits motorized vehicles of any nature on the Trail Corridor except in connection with trail work by Holder or its authorized representatives, or in emergency circumstances, or by motorized wheelchairs or other similar non-recreational vehicles.

Holder has the right to require that public use is conducted in a manner that does not unreasonably disturb plants, wildlife, or other lawful users of the Trail Corridor. Holder has the

right to temporarily limit, restrict or prohibit public use of all or any part of the Trail Corridor and to close and reroute trails to assure safety or for maintenance purposes; provided, however, this right does not grant Holder any rights to use other land of Grantor's not shown on Exhibits A or B. Nothing herein should be construed to prohibit Grantor from using the Trail Corridor in common with public recreational users, as a member of the general public, and in accordance with the rules and regulations for general public use, provided that such use shall not unreasonably interfere with the public uses contemplated hereunder.

5. GENERAL PROVISIONS

A. This Recreation Trail Easement shall only be extinguished or terminated by judicial order in a court of competent jurisdiction, upon an express finding that all of the purposes of this Recreation Trail Easement have been rendered impossible to accomplish due to events independent of the actions of the Grantor; except, however, if all or any interest in the Trail Corridor is threatened by the exercise of the power of eminent domain, Holder, in its sole discretion, may issue prior written consent, without a judicial order, to a partial or complete extinguishment or termination, upon payment of reasonable compensation for Holder's right herein. In the event that this Recreation Trail Easement is extinguished or terminated, Holder is entitled to a share of the proceeds of the next subsequent sale, exchange or involuntary conversion of the property encumbered or formerly encumbered by this Recreation Trail Easement, according to Holder's proportional interest in the Trail Corridor as determined by Treasury Regulations 1.170-A-14(g)(6)(ii). Holder's proportional interest is determined as of the date of this Grant but will not include value attributable to the improvements to the Trail Corridor Property made after the date of this Grant. In the event Holder acquires proceeds under any of the conditions of this paragraph, Holder will use such proceeds for its conservation and recreation purposes.]

B. This Recreation Trail Easement may be amended by written agreement of the Holder and Grantor, provided that Holder determines in its sole and exclusive judgment that the amendment furthers or is not inconsistent with the Recreation Purpose of this Easement, as stated hereinabove.

C. This Recreation Trail Easement is created pursuant to the Maine Trail Easement Act at Title 33, M.R.S.A. Sections 1581 through 1585, as amended This Recreation Trail Easement is <u>not</u> intended to be construed as a conservation easement pursuant to Title 33 M.R.S.A. Section 476 *et seq.*

D. The interpretation and performance of this Recreation Trail Easement shall be governed by the laws of the State of Maine. Any general rule of construction to the contrary notwithstanding, this Recreation Trail Easement shall be liberally construed in favor of the grant to effect the Recreational Purposes of this Easement. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the Recreational Purpose of this Recreation Trail Easement shall govern.

E. Notwithstanding any restriction or obligation contained in any provision of this Recreational Trail Easement, it is expressly understood by Grantor and Holder that Grantor will develop residential units in certain areas adjacent to, or in the general proximity of, the Trail

Corridor, and that doing so may at times require removing certain foliage, or moving earth, or the like. All provisions which may otherwise prevent the disturbance of land, earth, vegetation, and the like within or about the Trail Corridor shall not be applicable to Grantor for so long as Grantor is developing residential dwelling units on land commonly called 1700 & 1714 Westbrook Street, Portland, Maine (the "Development Exception"). Further, the Development Exception shall apply to Grantor post-development to the extent Grantor is required to conduct certain modifications, repairs, or the like, by either the City of Portland, or a court of law. Notwithstanding the Grantor Exception, the Grantor nonetheless covenants that Grantor shall, to the greatest extent commercially reasonable, avoid disturbing land, earth, vegetation, and the like within or about the Trail Corridor and all disturbances shall be repaired, restored, or replanted with vegetation consistent with the surroundings, at the Grantor's discretion.

IN WITNESS WHEREOF, Michael Barton, has caused these presents to be signed and sealed by Douglas Wilk, its Friday, this 19TH day of August, 2017.

Signed Sealed and Delivered
In the Presence of

Witness

DiversaCorp, LLC

By: Michael Barton
Its: Manager

STATE OF MAINE
COUNTY OF Cumberland

Date: 9/19/17

Personally appeared before me the above-named Michael Barton, Manager of DiversaCorp LLC, and acknowledged the foregoing to be his free act and deed in his said capacity and the free act and deed of said Trail Easement.

Before me,
Notary Public/Attorney

Douglas Wilcox
Please type or print name of notary
My commission expires:

DOUGLAS ALLEN WILCOX
Notary Public
Maine
My Commission Expires Feb 15, 2019

HOLDER ACCEPTANCE.

The above and foregoing Recreation Trail Easement was authorized to be accepted by Portland Trails, Holder as aforesaid, and the said Holder does hereby accept the foregoing Recreation Trail Easement, by and through Kara Wooldrik, its Executive Director hereunto duly authorized, this 10 day of August, 2017.

Portland Trails

Kara Wooldrik
, Its Executive Director

STATE OF MAINE
COUNTY OF Cumberland , 2008

Personally appeared Kara Wooldrik, Executive Director and authorized representative of the above-named Holder, Michael Burton, and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said corporation.

Before me, Douglas A Wilcox
Notary Public

Douglas Wilcox
(Please type or print name of notary)
My commission expires:

DOUGLAS ALLEN WILCOX
Notary Public
Maine
My Commission Expires Feb 15, 2019

Recreation Trail Easement
On Land Of DiversaCorp, LLC
City of Portland, Cumberland County, Maine

EXHIBIT A

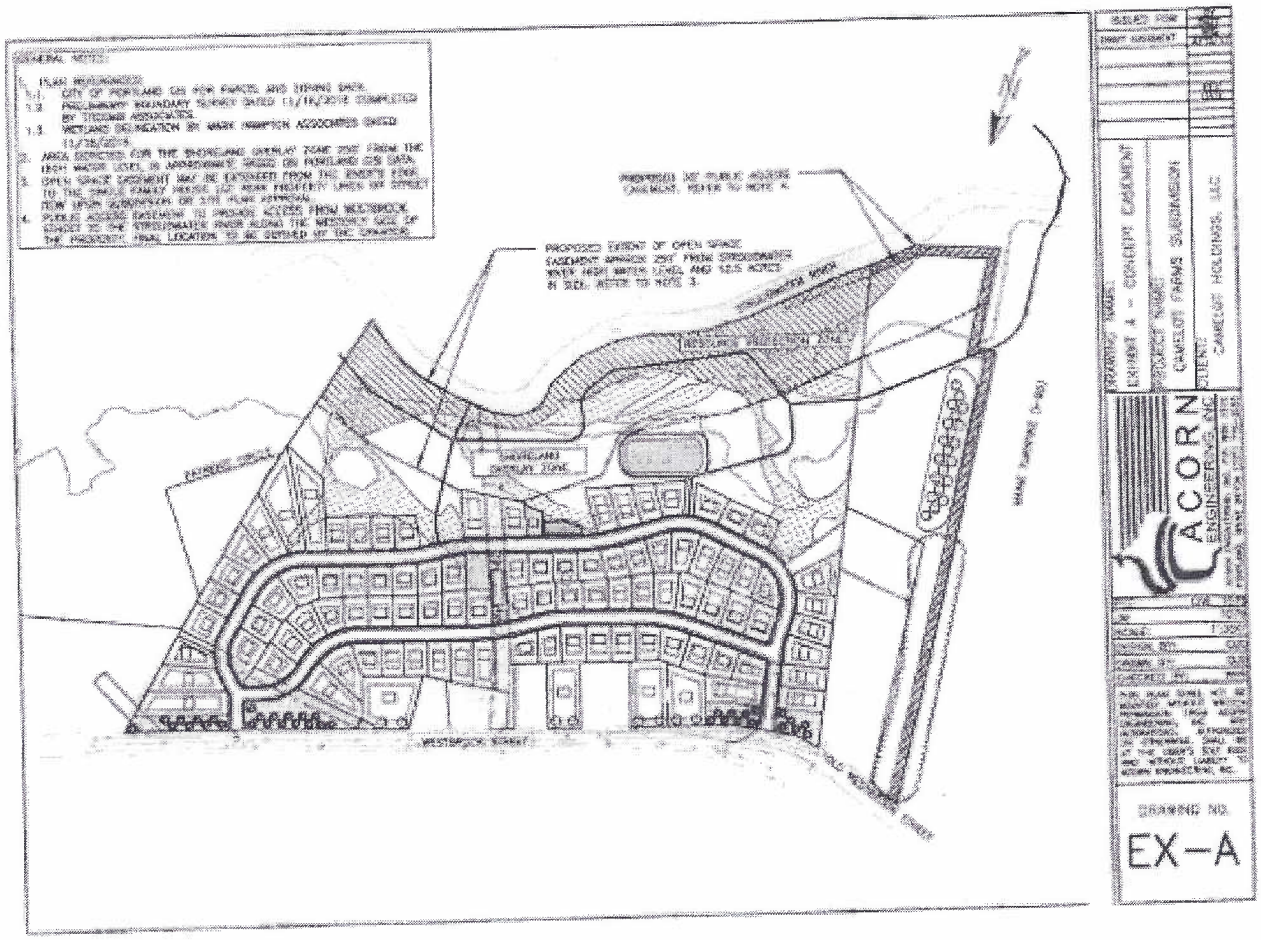
Legal Description of the Trail Corridor

"Proposed 30' Public Access Easement" in Exhibit A attached hereto ("Easement Area"), said actual traveled paths or surfaces to be determined by Portland Trails.

The proposed 30' Public Access Easement extends easterly 30' along the entire length of the westerly bound to the edge of the Stroudwater River and again northerly 30' along the entire length of Stroudwater River to the easterly bound

Recreation Trail Easement
On Land Of DiversaCorp, LLC
City of Portland, Cumberland County, Maine

EXHIBIT B



Att. 6c

Recreation Trail Easement
On Land Of CAMELOT HOLDINGS, LLC,
City of Portland, Cumberland County, Maine

CAMELOT HOLDINGS, LLC,, a Maine limited liability company with a place of business in Portland, Maine and mailing address of 5 Stone Pony Circle, Saco, Maine (hereinafter referred to as the "Grantor" which word is intended to include jointly and severally, unless the context clearly indicates otherwise, the above-named Grantor, its successors and assigns),

GRANTS, with Quitclaim Covenant, as a gift, to **PORTLAND TRAILS,** a nonprofit corporation existing under the laws of the State of Maine, with a mailing address of 305 Commercial Street, Portland, Maine 04101, (hereinafter referred to as the "HOLDER," which word shall, unless the context clearly indicates otherwise, include the Holder's successors and assigns),

in perpetuity, a **RECREATION TRAIL EASEMENT** on a portion of real property situated in the City of Portland, Cumberland County, Maine (hereinafter referred to as the "Trail Corridor,"), being a 30-foot (30') wide corridor across the parcel(s) granted to Grantor by deed from _____, dated _____ and recorded at the _____ County Registry of Deeds at Book _____, Page _____; which Trail Corridor is more particularly described in Exhibit A, and depicted on Exhibit B, attached hereto and made a part hereof by reference.

1. RECREATION PURPOSE

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2. STRUCTURES, SURFACE ALTERATIONS, VEGETATION MANAGEMENT

A. On the date of this Recreation Trail Easement, there are no structures or man-made objects on the Trail Corridor except for: game fencing, as depicted on Exhibit B. Grantor shall not establish or maintain any structures or man-made objects on the Trail Corridor without the prior written consent of Holder.

3. HOLDER'S RIGHTS

A. Holder, its successors and assigns, and its authorized representatives, are hereby granted the right to enter the Trail Corridor at any reasonable time and in any reasonable manner that is consistent with the purposes hereof, including the right to enter over any rights-of-way pertaining to the Trail Corridor, to exercise its rights under this Recreation Trail Easement.

B. Holder is granted the exclusive right, but not the obligation, to establish, and maintain unpaved trails on the Trail Corridor. Holder is further granted the exclusive right to construct, install, and maintain without limitation: boardwalks, footbridges, and other low-impact outdoor recreational improvements on the Trail Corridor; such as steps; railings; paved or unpaved ramps; bollards; rip rap; benches; barriers to discourage use by motorized vehicles (except for motorized wheelchairs or other similar non-recreational vehicles).; cairns; small unlighted signs, and minor erosion control structures. Holder's construction and maintenance rights may be delegated or assigned to another entity.

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D. Holder is granted the right to assign this Recreation Trail Easement, but only to an entity that as a condition of transfer agrees to uphold the Recreational Purpose of this grant, and satisfies the requirements of Section 1581(1) of Title 33 of the Maine Revised Statutes Annotated, as amended (or successor provisions thereof).

E. Holder is hereby granted the right to enforce this Recreation Trail Easement by proceedings at law and in equity, including the right to require the restoration of the Trail Corridor to a condition in compliance herewith. If a Court (or other decision maker chosen by mutual consent of the parties) determines that this Recreation Trail Easement has been breached by a party hereto or his/her/its assigns, agents, employees, contractors, invitees, licensees, permittees, tenants, guests, or lessees, the breaching party will reimburse the non-breaching party for any reasonable costs of enforcement, including court costs, reasonable attorney's fees, and any other payments ordered by such Court or decision maker. Grantor is not responsible for injury to or change in the Trail Corridor originating from outside of the Trail Corridor or Grantor's abutting reserved land, or from natural causes, such as, but not limited to, fire, flood, storm, earth movement, natural evolution of plant and animal communities, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Trail Corridor resulting from such causes.

4. PUBLIC USE

Holder has the right to permit, and the Grantor agrees to refrain from taking any action to prohibit or discourage or to exact a fee for, non-motorized access and low-impact outdoor recreational use by the general public on the Trail Corridor, including, without limitation, walking, picnicking, nature observation, bicycling, fishing, snowshoeing and cross country skiing.

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right to temporarily limit, restrict or prohibit public use of all or any part of the Trail Corridor and to close and reroute trails to assure safety or for maintenance purposes; provided, however, this right does not grant Holder any rights to use other land of Grantor's not shown on Exhibits A or B. Nothing herein should be construed to prohibit Grantor from using the Trail Corridor in common with public recreational users, as a member of the general public, and in accordance with the rules and regulations for general public use, provided that such use shall not unreasonably interfere with the public uses contemplated hereunder.

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A. This Recreation Trail Easement shall only be extinguished or terminated by judicial order in a court of competent jurisdiction, upon an express finding that all of the purposes of this Recreation Trail Easement have been rendered impossible to accomplish due to events independent of the actions of the Grantor; except, however, if all or any interest in the Trail Corridor is threatened by the exercise of the power of eminent domain, Holder, in its sole discretion, may issue prior written consent, without a judicial order, to a partial or complete extinguishment or termination, upon payment of reasonable compensation for Holder's right herein. In the event that this Recreation Trail Easement is extinguished or terminated, Holder is entitled to a share of the proceeds of the next subsequent sale, exchange or involuntary conversion of the property encumbered or formerly encumbered by this Recreation Trail Easement, according to Holder's proportional interest in the Trail Corridor as determined by Treasury Regulations 1.170-A-14(g)(6)(ii). Holder's proportional interest is determined as of the date of this Grant but will not include value attributable to the improvements to the Trail Corridor Property made after the date of this Grant. In the event Holder acquires proceeds under any of the conditions of this paragraph, Holder will use such proceeds for its conservation and recreation purposes.]

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E. Notwithstanding any restriction or obligation contained in any provision of this Recreational Trail Easement, it is expressly understood by Grantor and Holder that Grantor will develop residential units in certain areas adjacent to, or in the general proximity of, the Trail

Corridor, and that doing so may at times require removing certain foliage, or moving earth, or the like. All provisions which may otherwise prevent the disturbance of land, earth, vegetation, and the like within or about the Trail Corridor shall not be applicable to Grantor for so long as Grantor is developing residential dwelling units on land commonly called 1700 & 1714 Westbrook Street, Portland, Maine (the "Development Exception"). Further, the Development Exception shall apply to Grantor post-development to the extent Grantor is required to conduct certain modifications, repairs, or the like, by either the City of Portland, or a court of law. Notwithstanding the Grantor Exception, the Grantor nonetheless covenants that Grantor shall, to the greatest extent commercially reasonable, avoid disturbing land, earth, vegetation, and the like within or about the Trail Corridor and all disturbances shall be repaired, restored, or replanted with vegetation consistent with the surroundings, at the Grantor's discretion.

IN WITNESS WHEREOF, Michael Barton, has caused these presents to be signed and sealed by Douglas Wilcox, its Friday, this 19th day of August, 2017.

Signed Sealed and Delivered
In the Presence of

Witness

Camelot Holdings, LLC

By: Michael Barton
Its: Manager

STATE OF MAINE
COUNTY OF Cumberland

Date: 8/19/17

Personally appeared before me the above-named Michael Barton, Manager of Camelot Holdings LLC, and acknowledged the foregoing to be his free act and deed in his said capacity and the free act and deed of said Trail Easement.

Before me,

Notary Public/Attorney

Douglas Wilcox
Please type or print name of notary
My commission expires:

DOUGLAS ALLEN WILCOX
Notary Public
Maine
My Commission Expires Feb 15, 2019

HOLDER ACCEPTANCE.

The above and foregoing Recreation Trail Easement was authorized to be accepted by Portland Trails, Holder as aforesaid, and the said Holder does hereby accept the foregoing Recreation Trail Easement, by and through Kara Wooldrik, its Executive Director hereunto duly authorized, this 10 day of August, 2017.

Portland Trails

Kara Wooldrik

, Its Executive Director

STATE OF MAINE
COUNTY OF Cumberland

, 2008

Personally appeared Kara Woolbrik, Executive Director and authorized representative of the above-named Holder, Michael Burton, and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said corporation.

Before me, Douglas A Wilcox
Notary Public

Douglas A. Wilcox
(Please type or print name of notary)
My commission expires:

DOUGLAS ALLEN WILCOX
Notary Public
Maine
My Commission Expires Feb 15, 2019

Recreation Trail Easement
On Land Of CAMELOT HOLDINGS, LLC,
City of Portland, Cumberland County, Maine

EXHIBIT A

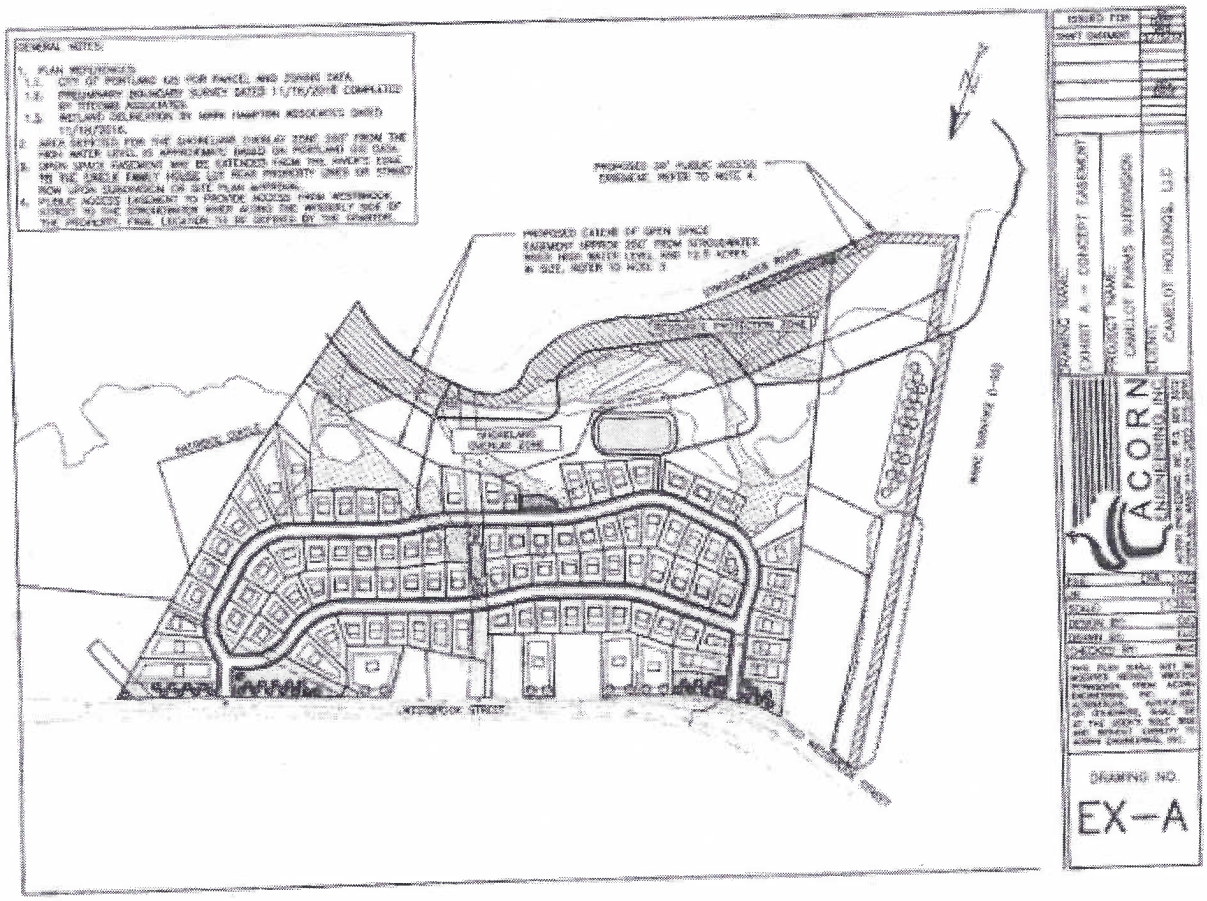
Legal Description of the Trail Corridor

"Proposed 30' Public Access Easement" in Exhibit A attached hereto ("Easement Area"), said actual traveled paths or surfaces to be determined by Portland Trails.

The proposed 30' Public Access Easement extends northerly 30' along the length of Stroudwater River to a point not greater than 300' from the westerly bound.

Recreation Trail Easement
On Land Of CAMELOT HOLDINGS, LLC,
City of Portland, Cumberland County, Maine

EXHIBIT B



August 17, 2017

Att. 6d

To Camelot Holdings, LLC:

Portland Trails agrees to hold the Recreation Trail Easement between Camelot Holdings, LLC and Portland Trails in escrow until after deed for the property at 1700 Westbrook Street is held by Camelot Holdings, LLC. At that time, we will take the easement to the Cumberland County Registry of Deeds to be recorded. If the sale of the property does not take place, the Recreation Trail Easement document will be destroyed.

Sincerely yours,

Kara Wooldrik

Kara Wooldrik
Executive Director

Officers
Wendy Suehrstedt, President
Kate O'Brien, Vice President
Matt Bahl, Treasurer
Rachael Alfond, Secretary
Rob Levin, President Emeritus

Trustees
Andy Abrams
Mark Arienti
Jennifer Cutshall
Nate Dyer
Matthew Forsyth
Laura Greenstein
Bill Hall
Alex Jaegerman
Yvonne Mumme
John Osborn
Stephen Wells

Advisory Trustees
Colin Baker
Ellen Belknap
Roger Berle
Michael Brennan
Heather Chandler
Jim Cohen
Elizabeth Ehrenfeld
Tom Farmer
Stephen Gaal
Bruce Hyman
Tom Jewell, Co-Founder
Susy Kist
Bob Krug
Bree LaCasse
Wendell Large
David Littell
Burnham Martin
J. Peter Monro
Phil Poirier
Eliza Cope Nolan
Aurelia C. Scott
Nathan Smith, Co-Founder
Richard Spencer, Co-Founder
Phil Thompson
Lois Winter

Executive Director
Kara Wooldrik

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

To: Shukria Wiar Planner, Planning & Urban Development Department

Att. 7

From: Victoria Volent, Housing Program Manager, Housing & Community Development Division

Date: November 17, 2017, 2017

Subject: 1700 Westbrook Street – Inclusionary Zoning Conditional Use

---

All developments of ten (10) units or more are conditional uses subject to Planning Board review on the condition that they comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.

Division 30, Section 14-487, Ensuring Workforce Housing, requires at least ten percent (10%) of the dwelling units in the development shall meet the definition of Workforce Housing units for sale or for rent. The ordinance under Section 14-487 e 3 also requires the number of bedrooms in the units shall be 10% of the total number of bedrooms in the development.

The development located at 1700 Westbrook Street proposes the creation of ninety-eight (98) single family house lots, and one planned unit residential development (PRUD) lot that will include twenty-five (25) townhouses. The project proposes being completed over three phases starting with fifty-two (52) single family units in Phase I, twenty-five (25) townhouses in Phase II, and forty-six (46) single family units in Phase III. In accordance with Division 30, section 14-487, Phase I requires a minimum of five (5) workforce single family dwelling units of owner occupied housing consisting of two (2) three-bedroom units, and three (3) four-bedroom units. Phase II requires a minimum of two (2) workforce dwelling units of owner-occupied townhouses consisting of two (2) three-bedroom units. Phase III requires a minimum of five (5) workforce single family dwelling units of owner occupied housing consisting of three (3) three-bedroom units, and two (2) four-bedroom units. As dwelling units for sale, the designated Workforce Units will be restricted to households earning up to 120% of Area Median Income (AMI). Based on the requirements outlined in Section 14-487, the development is required to provide a minimum of twelve (12) workforce units with seven (7) three-bedroom units, and five (5) four-bedroom units. The Applicant has elected to provide twelve (12) Workforce Units, on-site, consisting of seven (7) three-bedroom units, and five (5) four-bedroom units to satisfy the ordinance's minimum requirements. As such, the project has met the minimum requirements set forth in Section 14-487.

Staff recommends the Board Approve this Conditional Use provided the Applicant and the City enter into an agreed upon Affordable Housing Agreement (AHA) before a Building Permit may be issued. The Affordable Housing Agreement will outline the details of the affordability restrictions placed on the Workforce Unit and will be filed as covenant to the property's deed with the Cumberland County Registry of Deeds before a Certificate of Occupancy may be issued.

Sincerely,

Victoria Volent
Housing Programs Manager

Planning and Urban Development Department
Planning Division

Subject: R-3 PRUD Design Review – 1700 Westbrook Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, November 15 2017

The planned residential unit development project at 1700 Westbrook Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Nell Donaldson, Senior Planner against the standards of the *Planned Residential Unit Developments in the R3 Residential Zones* (Section (h) of the Design Manual).

Design Review Comments*:*
(h) Planned Residential Unit Development (PRUDs) in the R-3 Residential Zones

Standard (1) a. Design Relationship to the Site

Building placement is responsive to the site conditions of topography and wetlands/natural resource protection. Buildings are placed to consider solar orientation where possible. The overall layout, including building placement, roadway and drive location, creates a lot of pavement between the buildings and the natural areas and open space – applicant is encouraged to mitigate the visual impact of the drives and paving as much as possible with trees, shading, and landscape buffers.

Standard (1) b. Internal Design Character and Relationship to the Surrounding Neighborhood

Context – The surrounding neighborhood is a mix of farmhouse, bungalow, and ranch-style suburban residential architecture with a range of eras and styles but all pretty typical one or two-story forms. In most cases, the existing homes are set back from the street at least 20 feet if not more with substantial landscaping and trees and space between buildings. In the proposal, townhouses as a type are not typically found in this part of Portland but the basic forms of the townhouses are contextual in the use of a front-end gable roof, porches, and generally typical residential forms and façade composition.

Form – Each building is longer than 40' and therefore is required to provide variation in the roof and façade character. To meet the standard, each townhouse is distinguished by a front-end gable form with a porch and the buildings include plane/massing changes and the garage doors are recessed back from the principal façade of the living space above.

Materials – The materials are traditional and relate to the typical residential vernacular – clapboard, board and trim. Each unit is distinguished with a change in material color and top floor trim details.

Standard (1) c. Recreation and Open Space

1. External buffers: The project provides a berm and plantings as an external buffer/screening to the street.

2. Internal buffers: Because the project includes townhouses, it is a challenge to provide screening between each and every unit – the proposal does not include screening between individual units or between buildings except for trees. A street tree is provided in front of each unit between the building and the street.

3. Passive recreational open space: Trails are provided for the development to meet this standard.

4. Active recreational open space: A central communal open space is provided between the buildings and the road – this space will include garden plots. Staff recommend that seating be added to increase the comfort and likelihood of use.

5. Private open spaces: Each unit has a front porch and a rear patio space.

Google Groups

Att. 9

1700 Westbrook Street

Eugenia O'Brien <genieme@maine.rr.com> Nov 1, 2017 10:59 AM
Posted in group: **Planning Board**

November 1, 2017

Dear City Councilors,

I wish to thank you and the members of the Planning Board who took time to listen to neighborhood convictions.

Obviously, with signatures gathered for a Referendum question to make it on a city-wide ballot for November 7, this was NOT a NIMBY vote but proof that others agree that 51% of neighbors sounds more democratic than a pro-development Planning Board approval. Under tremendous influence from developers, their architects and contractors, the Planning Board is lobbied by experts while the voices of the people who bought and pay taxes (sometimes for decades) remain limited to 3 minutes to offer legitimate viewpoints with local knowledge - and with no rebuttal time provided. The neighbors are always on lesser footing in this process and feel penalized for it.

It is true that Stroudwater is not a typical neighborhood, yet the beauty of Portland is that none of her neighborhoods are! For Stroudwater, the nearest elementary and middle schools are over 3 miles away; no amenities are walkable so a saunter to a restaurant, store or library is out of the question; and there are no current bus routes to ease transportation congestion. The statements presented of low traffic impact from this new development are woefully understated, especially when one adds the traffic coming from the still growing outlying cities/towns already using Westbrook Street nor does not include impact of long term planning or growth. Obviously, this project will erase our cows along with the charm and open rural beauty in which we we chose to live. It is bait-and-switch through a zone change that doubles the size of the village. The open grasslands which remain due to the ROS are behind 4 rows of vertically built housing units on small parcels of land, so that density and visual blockade does not equate to preserved views for the neighborhood. That is why the request for more trees on Westbrook Street.

Then, there is Peaks Island which cannot find parking downtown, has swarms of summer folks directed to the island, and no apparent long term plan for how to deal with the problems the City has created for them (bathroom, anyone?). Now, we get the brouhaha over their horses, who are as much a part of their island identity as our cows were at Camelot Farm. This is NOT NIMBY thinking, this is merely preservation of a lifestyle. People are upset with your lack of thoughtful planning. There needs to be a better way to cope with grandfather clauses and compassion when such violent transitions force differing visions of the future. Horses and cows are not ready to be museum pieces as part of our culture.

And you do know we had a 501(c)3 plan for Camelot Farm, just not enough time to implement it. The Land Bank really should have stepped in to make foodie-city Portland a true self sufficient farm-to-table mecca. Do you know that Portland is home of the longest continually running 'Farmers Market' in the United States? And now, we will have no farms . . . Camelot had a future that could have been different than housing and still been beneficial to the city as a whole. That would have been innovative, but just not in your vision of 'progress'.

We become part of the problem and so rarely part of the solution. As Planning Board approval continues to exchange water-absorbing earth for more impervious surface downtown, we are also struck by a comparison to Houston, Texas: overbuilding and increasing flood potential. Portland is currently building everywhere and adds Danforth Street, Forest and Park Avenues to areas which flood (Portland Press Herald, October 27 Dispatches: "PORTLAND/Extensive street flooding from heavy rains reported/page B2). We already know Back Bay and Commercial Street are expected targets during high tides and significant rains. Increasing impervious surface area is not an astute choice during times of rising waters and severe weather predictions.

The problems are city-wide. Can we finish the Comprehensive Plan first so there is a map for the direction we are headed? This cannot be shrugged off and needs to be done right with voices from all over Portland. Out of

state developers should not have a voice at the table and there needs to be some truly innovative thinking. Maine is independently minded; we can do this in a commonsense way with broad support if given the chance.

The #2 Referendum Question of ‘Give Neighborhoods a Voice’ by voting YES preserves that neighborhoods be heard. This is not just one neighborhood's effort to get the city of Portland’s attention.

Again, thank you all for hearing the concerns of many Portland citizens,

Genie O’Brien
1376 Westbrook Street, Portland, ME 04102 (207) 773-5610

Att. 9a

Google Groups

1700 Westbrook Street - Stroudwater Preserve & Development

Eugenia O'Brien <genieme@maine.rr.com> Nov 20, 2017 2:30 PM
Posted in group: **Planning Board**

November 20, 2017 Re: Camelot / 1700 Westbrook Street

Dear City Council and Planning Board Members:

Presenting one's convictions with passion and knowledge remains important and, while the City of Portland chose not to endorse Question #2, it is evident that both the votes on election day (losing by approximately 1000 votes out of 19,000) and the signatures obtained to get it on the ballot initially prove the point that our neighborhoods feel they are being treated with indifference. This is keenly evident when one side spent close to $100,000 to obtain those votes while the grass roots group spent about $720. This should be a clarion call regarding the way zone changes are made by Portland's Planning Board.

Distinguishing the difference between progress and destruction can become difficult, yet the onslaught against green space does seem to make us all part of the problem and rarely part of the solution. Even with the ROS portion built into this Camelot Farm housing project, it still shuts down clear wildlife access into the Fore River Sanctuary and the freshwater source at Jewell Falls on the other side of Westbrook Street. Critters will now have to thread through housing 4-rows deep. Compounding that issue is that when folks occupy that same open land for 'their' housing, they decry sharing it with those inhabitants they displaced. Our natural pollinators and native plants offer animal shelter and breeding grounds which are being destroyed daily. This development represents an ecological loss that confounds the mind when we have a Portland Land Bank charged with a mission to preserve and purchase areas just like this.

Surely, something is wrong with our thinking when a draft Comprehensive Plan touts preserving our unique neighborhoods, yet City Hall takes action destroying qualities that keep character and integrity of those neighborhoods in tact? Attending
T-ball games on Peaks Island while horses graze in the outfield remains as uniquely Maine as watching sea gulls above a working lobster boat! We are not a city of one-look or one-size-fits-all, nor is Portland like every mall in the country offering the same stores/outlets. We have an independent nature and it attracts visitors for that reason.

The #2 Referendum Question of 'Give Neighborhoods a Voice' by voting YES sought to protect a democratic way for neighborhoods to be heard. We are not alone: Westbrook, Falmouth, and other cities are all grappling with this issue; taking time to get this right is not to be shrugged off. We need to truly assess what Portland wants to be and developing a Comprehensive Plan with neighborhood input should be in place BEFORE such large parcels of open land are destroyed forever. Yes, there could be an alternative plan for open space that does not result in 125 houses plus a PRUD development. Yes, the 'for sale' sign was up, but we were never led to guess a zone change that doubled the size of our neighborhood was part of the sale, for it was our soul. No one is immune from these housing needs, but the real need is to do it right.

Again, thank you all for hearing the concerns of so many Portland citizens,
Genie O'Brien 1376 Westbrook Street, Portland, ME 773-5610

ACORN ENGINEERING, INC.

Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

November 21, 2017

Subject: Response to City Comments - Stroudwater Preserve - Portland, Maine

Dear Planning Board & Staff,

Following the October 4th, 2017 Planning Board Workshop, the Applicant and Engineer held three additional coordination meetings with the Department of Public Works (DPW) to review the proposed Stormwater Best Management Practices (BMPs) within the development's future public Right-of-Way (ROW).

As a result of these meetings DPW supported the use of water quality stormwater BMPs within the public ROW, with conditions and provided the respective party maintain the percentage of the contributing impervious area from the public ROW and Lot Area to the stormwater BMP. The Applicant was supportive of this compromise which results in the following:

- The Homeowners Association (HOA) will maintain approximately 43% or 9 of the stormwater BMPs where the majority of the flow is from the single-family house lots. These BMPs may be FocalPoints or an approved equivalent. The lots tributary to the stormwater BMP will be eligible for the stormwater credit. DPW has also requested that the BMPs be designed a minimum 5 ft away from curb line.
- DPW will maintain approximately 57% or 11 of the stormwater BMPs. DPW has requested that these BMPs be FocalPoints and be designed a minimum 5 ft away from the curb line.

The Stormwater quality and quantity, as designed, will exceed the requirements set forth within the Maine Department of Environmental Projection Chapter 500 Rules. The stormwater runoff from new roadways and sidewalks will be treated by high-performance filtration systems before being redirected towards dry detention basins. Both the Filterra and FocalPoint are proprietary high-performance filtration systems that meet the following stringent MaineDEP requirements, "live-tested for a variety of storm lengths and intensities. The system must remove at least 60% total phosphorus, with at least similar removals metals (zinc and copper), and hydrocarbons; it must provide temperature reduction and channel protection storage detention either independently or in combination with another measure; and it must also be maintainable."

The detention basins will provide both channel protection and stormwater flood control with the center basin designed to provide the community with an ice skating pond. We believe the collaboration and comprise between the Applicant and DPW will result in a model project that fosters educational opportunities and public interaction with green infrastructure.

Sincerely,

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.

Table of Contents

Section 1: Development Description
Section 2: Title, Right or Interest
Section 3: Financial Capacity
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Section 5: Noise
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Section 7: Wildlife and Fisheries
Section 8: Historic Sites
Section 9: Unusual Natural Areas
Section 10: Buffers
Section 11: Soils
Section 12: Stormwater Management
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Section 15: Groundwater
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Section 18: Solid Waste
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Section 26: Fire Department Letter
Section 27: Conformity with Applicable Zoning Standards
Section 28: Utility Cover
Section 29: Request for Waivers
Section 30: Construction Management Plan
Section 31: Conformity with Applicable Shoreland Overlay Standards

Attachment A: Civil Site Plan Set
Attachment B: Photometric Plan – By Swaney Lighting 8/18/17
Attachment C: Preliminary Renderings – By Ryan Senatore Architecture 8/22/17

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Stroudwater Preserve
Proposed Development Address:	1700 Westbrook Street, Portland ME, 04102
Project Description:	See Project Description Attached
Chart/Block/Lot:	229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2 and 245-B-5
Preliminary Plan	Submitted with Preliminary Application
Final Plan	See Final Plans Attached

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	Michael Barton
Business Name:	Stroudwater Development Partners, LLC
Address:	62 Portland Road, Suite 25
City/State:	Kennebunk, ME
Zip Code:	04043
Work #:	N/A
Home #:	N/A
Cell #:	207-939-5432
Fax #:	N/A
E-mail:	michael.cobett.barton@gmail.com

OWNER

Name:	Stroudwater Preserve
Address:	62 Portland Road, Suite 25
City/State:	Kennebunk, ME
Zip Code:	04043
Work #:	N/A
Home #:	N/A
Cell #:	207-939-5432
Fax #:	N/A
E-mail:	michael.corbett.barton@gmail.com

AGENT/REPRESENTATIVE

Name:	Acorn Engineering, Inc
Address:	P.O. Box 3372
City/State:	Portland, ME
Zip Code:	04104
Work #:	207-775-2655
Home #:	N/A
Cell #:	207-317-1884
Fax #:	N/A
E-mail:	wsavage@acorn-engineering.com

BILLING (to whom invoices will be forwarded to)

Name:	Stroudwater Development Partners, LLC
Address:	62 Portland Road, Suite 25
City/State:	Kennebunk, ME
Zip Code:	04043
Work #:	N/A
Home #:	N/A
Cell #:	207-939-5432
Fax #:	N/A
E-mail:	michael.corbett.barton@gmail.com

ENGINEER

Name:	Acorn Engineering, Inc
Address:	P.O. Box 3372
City/State:	Portland, ME
Zip Code:	04104
Work #:	207-775-2655
Home #:	N/A
Cell #:	207-317-1884
Fax #:	N/A
E-mail:	wsavage@acorn-engineering.com

SURVEYOR

Name:	David Titcomb, PLS, Titcomb Associates
Address:	133 Gray Road
City/State:	Falmouth, ME
Zip Code:	04105
Work #:	207-797-9199
Home #:	N/A
Cell #:	N/A
Fax #:	207-878-3142
E-mail:	dtitcomb@titcombsurvey.com

ARCHITECT

Name:	Ryan Senatore (PRUD Design)
Address:	565 Congress Street #304
City/State:	Portland, ME
Zip Code:	04104
Work #:	207-747-5159
Home #:	N/A
Cell #:	207-650-6414
Fax #:	N/A
E-mail:	ryan@senatorearchitecture.com

ATTORNEY

Name:	Jason Howe
Address:	62 Portland Road, Suite 25
City/State:	Kennebunk, ME
Zip Code:	04043
Work #:	207-985-7000
Home #:	N/A
Cell #:	N/A
Fax #:	N/A
E-mail:	jhowe@bergenparkinson.com

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	Olivia Dawson
E-mail:	odawson@acorn-engineering.com
Name:	William Savage
E-mail:	wsavage@acorn-engineering.com
Name:	
E-mail:	

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☑	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☐	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☑	Traffic Movement	$1,500.00
☑	Stormwater Quality	$250.00
☑	Subdivision	$500.00 + applicable fee for lots/units below
	# of Subdivision Lots/Units [124] x $25.00 each	$ 3,100
☑	Site Location	$3,500.00 + applicable fee for lots/units below
	# of Site Location Lots/Units [124] x $200.00 each	$ 24,800
☐	Change of Use	
☑	Flood Plain	
☑	Shoreland	
☑	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$ 34,400

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($52.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	2,408,245	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	1,416,627	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	34,715	sq. ft.
Impervious Area (Total Proposed)	220,942	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	8,928	sq. ft.
Building Footprint (Total Proposed)	22,400 *	sq. ft.
Building Floor Area (Total Existing)	8,928	sq. ft.
Building Floor Area (Total Proposed)	44,800 *	sq. ft.
ZONING		
Existing	R3: Residential / ROS	
Proposed, if applicable		
LAND USE		
Existing	Residential	
Proposed	Residential / Open Space	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	1	
# of Residential Units (Total Proposed)	123	
# of Lots (Total Proposed)	99 + 1 open space	
# of Affordable Housing Units (Total Proposed)	12	
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	0	
# of One-Bedroom Units (Total Proposed)	0	
# of Two-Bedroom Units (Total Proposed)	0	
# of Three-Bedroom Units (Total Proposed)	74	
# of Four-Bedroom Units (Total Proposed)	49	
PARKING SPACES		
# of Parking Spaces (Total Existing)	0	
# of Parking Spaces (Total Proposed)	40	
# of Handicapped Spaces (Total Proposed)	0	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	0	
# of Bicycle Spaces (Total Proposed)	6	
ESTIMATED COST OF THE PROJECT	$ 2,054,400	

' * ' Numbers are based off PRUD only

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	
Date:	10/25/2017

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Completed Application form
✓		1	* Application fees
✓		1	* Written description of project
✓		1	* Evidence of right, title and interest
✓		1	* Evidence of state and/or federal permits
✓		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
✓		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
✓		1	* Evidence of financial and technical capacity
✓		1	Construction Management Plan
✓		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
✓		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
✓		1	Stormwater management plan and stormwater calculations
✓		1	Written summary of project's consistency with related city master plans
✓		1	Evidence of utility capacity to serve
✓		1	Written summary of solid waste generation and proposed management of solid waste
✓		1	A code summary referencing NFPA 1 and all Fire Department technical standards
✓		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
✓		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
✓		1	**Final Site Plans including the following:**
✓		Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);	
✓		Existing and proposed structures on parcels abutting site;	
✓		All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;	
✓		Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;	
✓		Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;	
✓		Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;	
✓		Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;	
✓		Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;	
✓		Location of all snow storage areas and/or a snow removal plan;	
✓		A traffic control plan as detailed in Section 1 of the Technical Manual;	
✓		Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);	
✓		Location and proposed alteration to any watercourse;	
✓		A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;	
✓		Proposed buffers and preservation measures for wetlands;	
✓		Existing soil conditions and location of test pits and test borings;	
✓		Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;	
✓		A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;	
✓		Grading plan;	
✓		Ground water protection measures;	
✓		Existing and proposed sewer mains and connections;	

- Continued on next page -

✓		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
✓		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
✓		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
✓		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
✓		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
✓		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
✓		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
✓		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
✓		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
✓		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
✓		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE **FORM A PAGE 1**
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☒ 20 acre development ☐ Planning Permit ☐ Metallic Mining	☐ Marine Oil Terminal ☐ Structure ☐ Subdivision	☐ Major Amendment ☐ Minor Amendment

1. Name of Applicant:	Stroudwater Preserve	**6. Name of Agent (if applicable):**	Acorn Engineering, Inc
2. Applicant's Mailing Address:	62 Portland Road, Suite 25, Kennebunk ME 04043	**7. Agent's Mailing Address:**	P.O. Box 3372 Portland ME 04104
3. Applicant's Daytime Phone #:	207-939-5432	**8. Agent's Daytime Phone # :**	207-775-2655
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	207-358-7979
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	michael.corbett.barton@gmail.com	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	wsavage@acorn-engineering.com

PROJECT INFORMATION

11. Name of Development:	Stroudwater Development Partners, LLC						
12. Map and Lot #'s:	**Map #:** *	**Lot #:** *	**13. Deed Reference #'s:**	**Book #:** 14598	**Page #:** 346		
14. Location of Project City/Town:	Portland	**15. County:**	Cumberland	**16. UTM Northing**	4834782	**17. UTM Easting**	393202
18. Brief Description of Project including total parcel size:	Redevelop the existing parcel into a traditional single-family development. The house lots will range in size between 6,500 sf to 20,000 sf. The parcel is 55.3 acres.						

19. Type of Direct Watershed: (Check all that apply)

☐ Lake not most at risk	☒ River, stream or brook	☐ Coastal wetland
☐ Lake most at risk	☐ Urban impaired stream	☐ Wellhead or public water
☐ Lake most at risk, severely blooming	☐ Freshwater wetland	

20. Name of Waterbody Project Site drains to:			
21. Amount of Developed Area:	Total acres: 32.5	Existing Developed area: * acres	New Developed area: * acres
22. Amount of Impervious Area:	Total acres: 4.6	Existing Impervious areas 0.8 acres	New Impervious area: * acres

23. Development started prior to obtaining a license?:	☐ Yes ☒ No		
24. .Development or any portion of the site subject to enforcement action?	☐ Yes ☒ No	**If yes**, name of enforcement staff involved?	
25. Common scheme of development?:	☐ Yes ☒ No	**26. Title, Right or Interest:**	☒ own ☐ lease ☒ purchase option ☐ written agreement
27. Natural Resources Protection Act permit required?:	☒ Yes ☐ No	**If yes:** ☒ PBR ☐ Tier 1 ☐ Full Permit ☒ Tier 2	
28. Existing DEP Permit number (if applicable):			
29. Names of DEP staff person(s) present at the pre-application meeting:			
30. Does agent have an interest in project? If yes, what is the interest?	☐ Yes ☒ No		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

*See Development Description (Section 1) for more information.

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)"..

Signed: _____ **Title** Manager **Date:** 10/25/2017

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed** _____ **Date:** 10/25/2017

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: _____

Name (print): _____

Date: _____

Re/Cert/Lic No.: _____

Engineer _____

Geologist _____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

Other _____

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division

Date: August 21, 2017

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 1700 Westbrook Street

Chart Block Lot Number:

Proposed Use: Residential
Previous Use: Farm
Existing Sanitary Flows: N/A GPD
Existing Process Flows: N/A GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Sewer on Westbrook Street.

Site Category		
	Commercial *(see part 4 below)*	
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	✓
	Other *(specify)*	

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Barbara Barhydt Phone: 207-874-8699
Owner/Developer Name: Stroudwater Development Partners, LLc
Owner/Developer Address: 62 Portland Road, Kennebunk ME, 04043
Phone: 207-939-5432 Fax: N/A E-mail: michael.corbett.barton@gmail.com
Engineering Consultant Name: Acorn Engineering, Inc
Engineering Consultant Address: P.O. Box 3372
Phone: 207-775-2655 Fax: N/A E-mail: wsavage@acorn-engineering.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 38,250 GPD
Peaking Factor/ Peak Times: Peaking Factor: 4 / Peak Times: 6:00AM - 8:00 AM
Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, Other (specify)* State of Maine Subsurface Wastewater Disposal Rules, Effective 8/13/15

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

* See derivation of design flows attached

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: N/A

Size of External Grease Interceptor: _____

Retention Time: _____

Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: N/A GPD

Do you currently hold Federal or State discharge permits? Yes ____ No ____

Is the process wastewater termed categorical under CFR 40? Yes ____ No ____

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

Calculation of Wastewater Flowrate for Stroudwater Preserve Subdivision

The proposed development will include up to 100 single-family housing lots along with a Planned Residential Unit Development (PRUD) area which would add another 25 units. Based upon the Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following design flows on a daily basis:

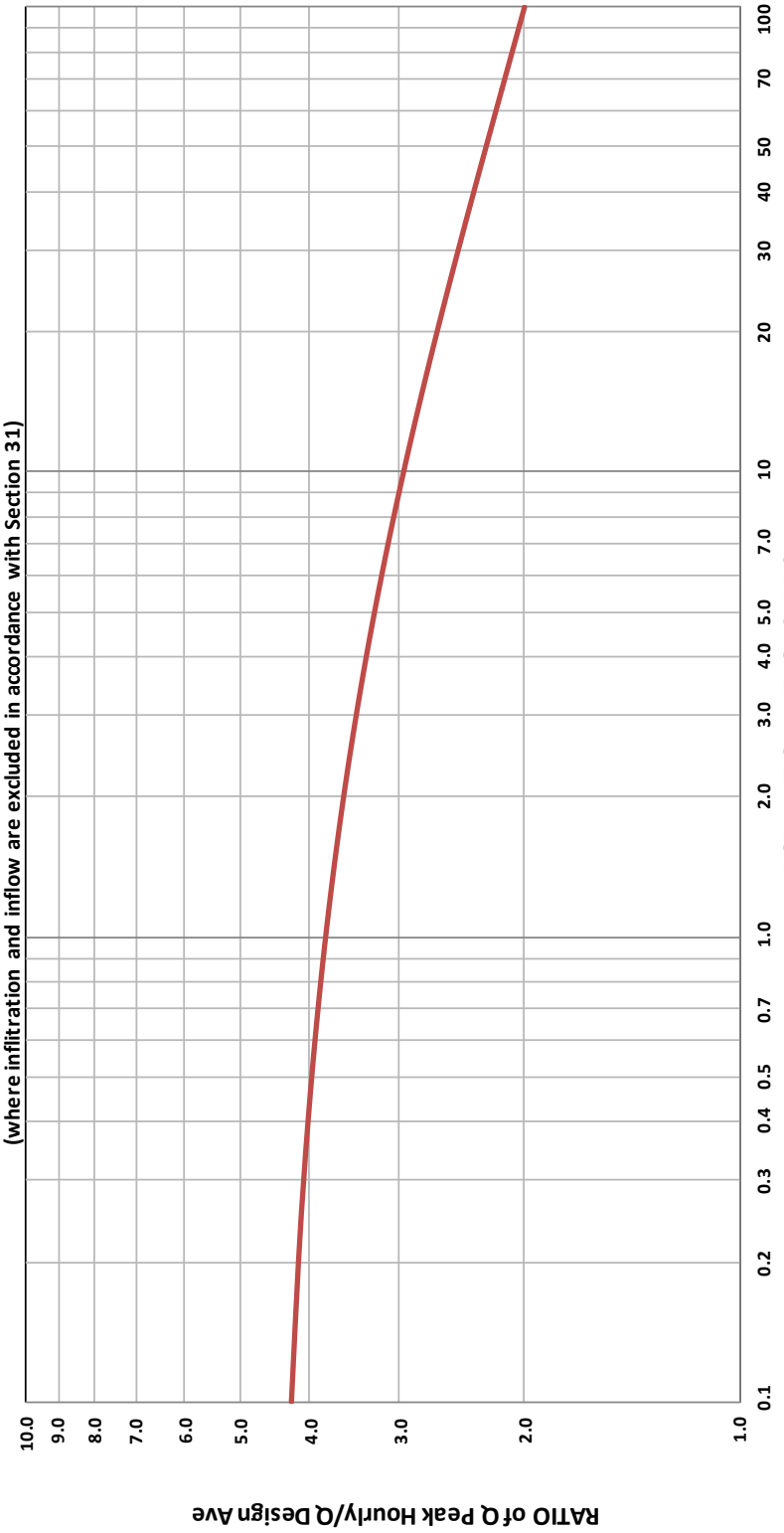
Estimate of Anticipated Daily Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing flow to be removed				
None		0		
Proposed flow				
PRUD	3-Bedroom	25	270	6,750
Residential Units	3-Bedroom	50	270	13,500
Residential Units	4-Bedroom	50	360	18,000
			Net Change	**+ 38,250**
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Sanitary wastewater from the development will be pumped to the existing 8-inch dimeter gravity sewer line along Westbrook Street. Acorn estimates a peak hourly flowrate of 6,375 gallons entering the city sewer based on use of a peaking factor of 4.0 applied to the average daily flow quantity. The 4.0 peaking factor comes from Figure 1 in the 2014 edition of, *Recommended Standards for Wastewater Facilities*, published by the Great Lakes - Upper Mississippi River Board Of State And Provincial Public Health And Environmental Managers. Figure 1 plots the ratio of peak hourly flow to design average flow vs. population served. For the estimated 425 residents of the proposed development the factor is 4.0.

FIGURE 1

RATIO OF PEAK HOURLY FLOW TO DESIGN AVERAGE FLOW

(where infiltration and inflow are excluded in accordance with Section 31)



Q peak hourly: Maximum Rate of Wastewater Flow (Peak Hourly Flow)

Q design ave: Design Average Daily Wastewater Flow

Source: $Q \text{ Peak Hourly/Q Design Ave} = \frac{18+\sqrt{P}}{4+\sqrt{P}}$ **(P= population in thousands)**

Fair, G. M. and Geyer, J. C., "Water Supply and Waste-water Disposal"
1 st Ed., John Wiley & Sons, Inc., New York (1954), p. 136

Section 2

Title, Right or Interest

2. Title, Right or Interest

The record owners of the parcels of interest are Onex Company by Deeds in Book 14598 and Page 346, Dated August 8, 2016, and Diversacorp by Deeds in Book 33834 and Page 269, Dated February 17, 2017. A copy of the Purchase And Sale Agreement for the Onex Company parcel and a copy of the Right To Information (RTI) for the Diversacorp parcel are included in this section.

ASSIGNMENT OF PURCHASE AND SALE AGREEMENT

CAMELOT HOLDINGS, LLC hereby assigns to **STROUDWATER DEVELOPMENT PARTNERS, LLC**. all of its right, title and interest in, to, and under a certain a Purchase & Sale Agreement, originally by and between seller Onex, Co. and buyer Diversacorp, LLC, all as amended by First Addendum to P&S (naming the undersigned as Buyer in place of Diversacorp) (all as amended the "P&S"), for real property located at 1700 Westbrook Street, Portland, Maine.

The undersigned Camelot Holdings, LLC, makes reference to the unilateral assignment provisions of the said P&S as the basis of assignability hereunder.

Dated at Kennebunk, Maine as of the 22rd day of August, 2017

CAMELOT HOLDINGS, LLC

By:_____

Michael Barton, its Manager
Thereunto duly authorized

PURCHASE AND SALE AGREEMENT
(Real Estate)

Agreement made and entered into this day by and between **ONEX CO.**, a/k/a Onex Company, a Maine business corporation having a mailing address of 399 Old Brunswick Rd., Bath, ME ("Seller") and **DIVERSACORP, LLC**, a Maine limited liability company having a mailing address of 5 Stone Pony Circle, Saco, ME, or its assigns ("Buyer"). In consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

1. **PURCHASE AND SALE OF PREMISES**. Seller agrees to sell and Buyer agrees to buy, on the terms and conditions hereinafter set forth, the land and buildings commonly known and designated as "Camelot Farm," located generally at 1700 Westbrook Street, Portland, Maine, and consisting of roughly 44.8 acres of real property, together with all improvements and fixtures thereon and all rights appurtenant thereto, being more particularly described in a Warranty Deed recorded in the Cumberland County Registry of Deeds in Book 14598, Page 346 (the "Deed") ("Premises" or "Property"). A copy of the deed is attached hereto as **EXHIBIT A** and made a part hereof. The description of the Premises in the Deed is understood to be general in nature and the description in the deed of conveyance contemplated herein shall be subject to approval by Buyer.

2. **PURCHASE PRICE**. Subject to any adjustments and prorations hereinafter described, Buyer agrees to pay for the Premises the sum of [redacted], payable as follows:

a. The sum of [redacted] as Deposit payable upon the signing of this Agreement by both parties ("Deposit"). This Deposit shall be held by ~~Stifel, The Hunter Company~~ Drummond Woodsum ("Escrow Agent") in a non-interest bearing account. It shall be applied as credit to the purchase price at closing or disposed of as set forth herein. In the event of a dispute over the return or forfeiture of any deposit held by the Escrow Agent, the Escrow Agent shall continue to hold the deposit until it has received a written release from the parties consenting to its disposition, or until a final order. Regardless of its representation of any party to this Agreement, Escrow Agent shall not, as Escrow Agent, have any responsibility or liability to any party beyond the proper disposition of the escrow funds actually paid over to it. All parties agree to indemnify and hold the Escrow Agent harmless from any and all costs, actions, failure to act, or payment or refusal to pay, so long as said actions are made in good faith and are not a result of willful misconduct, including any defense costs or attorney's fees. The Escrow Agent shall incur no liability in acting upon any signature, notice, request, waiver, consent or other document believed by the Escrow Agent to be genuine.

KD 8-15-16

AOL 8-18-16

b. The BALANCE of the purchase price, the sum of [redacted] by bank check, wire transfer or equivalent, at the time of closing subject to adjustment and as set forth in the Prorations.

Onex Initials _____ Diversacorp _____

3. **VESTING OF DEPOSIT**. The Deposit set forth in Section 3 above shall be refundable in full until the following occurrences, at which point, such portions of the deposit shall become non-refundable and shall vest in, and be released to, Seller: (a) [redacted] shall become non-refundable upon final approval of the subdivision plan by the City of Portland; (b) [redacted] shall become non-refundable upon satisfaction of the financing contingency set forth below.

4. **CLOSING**. The closing shall take place at the offices of Bergen & Parkinson, 62 Portland Road, Kennebunk, Maine within sixty (60) days after the later of: a) receipt of final subdivision approval from the City of Portland, or; b) satisfaction of any of the conditions precedent to buyers obligation to purchase set forth below. Notwithstanding the intended deadline set forth in the preceding sentence, Buyer and Seller agree that Buyer may extend the closing date up to sixty (60) additional days.

5. **TRANSFER OF TITLE**. Seller shall convey the Premises to Buyer at the closing in fee simple with good and marketable title, free and clear of liens and encumbrances, subject to the following:

a. Buyer shall have until thirty (30) days after the Effective Date to determine if title to the Premises is acceptable and notify Seller of the same. In the event that Buyer determines that Seller would be unable to convey title to the Premises as aforesaid and Buyer properly notifies Seller, then Seller shall have thirty (30) days notice from Buyer in which either to: notify Buyer that Seller via its own counsel shall remedy such title defects, to the satisfaction of Buyer's Counsel, at Sellers expense, or; notify Buyer that Seller shall reimburse Buyer at closing all Buyer's legal and other costs associated with remedying such title defects. If Seller fails to provide notice to Buyer within 30 days as set forth in the preceding sentence, then Seller hereby agrees that Buyer's costs of curing such title issues, including legal and other fees and costs, shall be offset against the purchase price at closing. Any period of time ninety (90) days after Seller received notice of a title defect, and the final recording or filing of any curative documents shall toll all deadlines and periods for any contingencies set forth anywhere in this agreement. In the event that said defects cannot be corrected or remedied within said time period to the satisfaction of Buyer's counsel, Buyer may terminate this Agreement by written notice to the parties and any non-vested portion of the Deposit shall be returned to Buyer. Buyer may, however, at its sole discretion elect to close notwithstanding such defects as may exist. Seller and Buyer understand and agree that any mortgages and liens on the Premises shall not be considered title defects provided that the same shall be discharged at or prior to the closing at Seller's expense. Seller may use purchase money proceeds for this purpose.

b. Seller agrees that it will not further encumber or permit to be encumbered the Premises by any liens, mortgages, attachments, covenants, restrictions or easements after the date of this Agreement.

c. At the closing, Seller shall execute and deliver to Buyer, against payment of the purchase price, a Quitclaim Deed with Covenants to the Premises, in accordance

with the Short Form Deeds Act, 33 M.R.S.A. § 761 et seq., (the "Deed") together with a Bill of Sale for personal or intangible property, and such other rights as may be associated with the Property, if any. If Seller fails to execute and deliver a separate Bill of Sale or Assignments, then this Agreement shall be deemed to convey the same and this Provision survives closing, and in such instance, Seller hereby grants and assigns to Buyer all such personal property as of the date of Closing.

d. Seller further agrees to execute and deliver to Buyer at the closing such Affidavits and Certificates as are reasonably necessary for Buyer's acquisition and financing of the Premises, including without limitation a Certificate of Non-Foreign Status (as required by Internal Revenue Service regulations), an affidavit regarding underground storage tanks (as required by Maine Laws), and a title insurance "Seller's Affidavit" regarding mechanics liens and persons in possession.

e. Seller is a corporation and Seller certifies that it is duly authorized and validly existing under the Laws of the State of Maine and agrees to provide evidence satisfactory to Buyer of due organization, authority, and good standing, including an opinion of counsel evidencing the same, which opinion may be required at Buyer's sole discretion.

6. **CONDITION OF IMPROVEMENTS**. Improvements at the Premises shall be delivered to Buyer at closing in "broom clean" condition. The improvements shall be sold and conveyed strictly on an "as is", "where is" and "with all defects" basis. Notwithstanding the foregoing, Seller covenants that it has no knowledge that the improvements violate any federal, state, municipal or local statutes, laws, rules, regulations or ordinances, including, without limitation, those pertaining to land use (or permits issued in connection therewith), zoning, lead paint, urea formaldehyde foam insulation, asbestos, hazardous or toxic wastes or substances, pollutants, contaminants or other environmental matters. The provisions of this paragraph shall survive the Closing and delivery of the Deed (as hereinafter defined) or any expiration or termination of this Agreement.

7. **RISK OF LOSS, DAMAGE AND INSURANCE**.

a. All risk of loss to the Premises prior to the closing shall be borne by Seller. Seller shall keep the Premises fully insured against fire and other extended coverage risks until the closing.

b. In the event that, prior to the closing, the improvements which are part of the Premises are destroyed or, in the opinion of Buyer, substantially damaged, Buyer may either (i) terminate this Agreement and receive back any non-vested earnest money deposit, or (ii) accept the insurance proceeds payable by reason of such damage, destruction or taking and close this transaction notwithstanding the same. Seller agrees and hereby assigns any proceeds payable pursuant hereto to Buyer, and shall name Buyer as an additional insured as Buyer's interest may appear.

8. **INSPECTION/DUE DILIGENCE.** So long as Buyer is accompanied by Seller's Broker or another authorized agent of the Broker and upon reasonable advance notice, Buyer

Onex Initials _____ Diversacorp _____

may enter into any part of the Premises at all reasonable times prior to the closing in order to inspect the Premises, conduct surveys, soil tests and engineering studies and to do such things as are reasonably necessary with respect to its acquisition, improvement or development of the Premises. Nothing in this paragraph shall limit the inspections necessary to complete due diligence and to meet any contingencies precedent to Buyer's obligation to close as set forth below. Except as otherwise set forth elsewhere in this Agreement, Buyer shall have one hundred twenty (120) days within which to complete general due diligence.

9. **POSSESSION OF THE PREMISES AND LEASES**. The Premises shall be delivered to the Buyer at the time of the closing free and clear of all tenancies or occupancies by any person or entity.

10. **REPRESENTATIONS AND WARRANTIES OF SELLER**. Seller represents and warrants to Buyer that the following are true as of the date of this Agreement and will be true as of the closing:

a. Seller has no knowledge, after reasonable investigation, that the Premises violates any applicable laws, ordinances, or regulations.

b. Seller has no knowledge, after reasonable investigation, that the Premises contains any special wastes, underground storage tanks urea-formaldehyde foam insulation, radon, asbestos containing materials, lead-based paint, waste oil, petroleum and any other hazardous, biomedical, radioactive or toxic, substances, materials or wastes. The terms used in the foregoing sentence shall include, without limitation, all substances, materials, etc., designated by such terms under any laws, ordinances or regulations, whether federal, state or local. Notwithstanding the foregoing, Seller believes there is or may have been an underground oil storage tank located in the front yard of the Premises, being further described in the Disclosure Form Delivered to Buyer.

c. There are no outstanding pending or threatened liens, claims, rights of first refusal, or encumbrances against the Premises.

d. All outstanding bills and/or accounts payable concerning the Premises are either paid or will be paid prior to or at the time of closing.

e. There are no outstanding claims, losses or demands against Seller by any tenant or other person respecting Seller's ownership, use and/or occupancy of the Premises.

f. There are no leases on the Premises.

g. No portion of the Premises is currently classified as Farm land or Tree Growth under applicable provisions of Title 36 M.R.S.A.

h. The Premises, is classified as Open Space the City of Portland and shall be withdrawn from such classification prior to or at closing at Seller's expense. Seller may use purchase money proceeds for this purpose.

Onex Initials _____ Diversacorp _____

i. To the best of Seller's knowledge, there are rights of ingress and egress in perpetuity from the Premises to public highways or roads for both vehicular and pedestrian traffic and utilities.

j. Seller has provided Buyer with a copy of a survey made by Nadeau & Lodge, Inc., dated Feb. 21, 2003 entitled "Plan Depicting the Results of a Standard Boundary Survey Made for Onex Company [sic], Southerly Sideline of Westbrook Street, Portland, Maine" (the "Onex Plan"). Other than encroachments listed on the Onex Plan, there are no known boundary disputes or other encroachments affecting the Premises. For the avoidance of doubt, Buyer's knowledge of encroachments on the Onex Plan is not a waiver of Buyer's right to require reasonable curative boundary work as a condition hereof.

k. Seller has transacted business under the name "Onex Co." as registered with the Maine Secretary of State, and also as "Onex Company," as identified in a certain deed by which it took title (CCRD Book 14598, Page 346), and Seller certifies that that "Onex Co." and "Onex Company" as listed on said deed are one and the same.

l. Seller shall obtain authorization from its shareholders to enter into this Agreement, and to take all actions required hereunder, and further, that any notices given in advance of such meeting for the approval of this agreement shall be timely and duly given in accordance with the Bylaws, and any other governing documents, of the Seller.

11. **DEFAULT AND REMEDIES**. Upon default by either party, the non-defaulting party shall have all rights and remedies available to it in equity or at law, including Buyer's right to specific performance under this Agreement.

12. **CONDITIONS PRECEDENT TO BUYER'S OBLIGATION TO CLOSE**. The obligation of Buyer to close is subject to the satisfaction at or before the closing of all of the following conditions:

a. All representations and warranties of Seller contained in this Agreement shall be true as of the closing.

b. Buyer may, at its sole option, order its own survey of the Property, and any boundary encroachments, whether on Buyer's survey, or the Onex Plan, or otherwise, shall have been cured.

c. Buyer shall have determined within the timeframe set forth in Section 5 above that Seller can convey title in form and substance satisfactory to Buyer and Buyer's counsel.

[redacted]ffective Date, Buyer shall have satisfactorily completed all inspections, testing, permit applications, or other requirements necessary to receive subdivision approval ("Necessary Investigations"), it being understood that each such Necessary Investigation constitutes its own condition precedent.

Onex Initials _____ Diversacorp _____

[redacted] Buyer shall have received final subdivision approval, granted in full and without any remaining contingencies to be fulfilled. In the event this condition is not met at the end [redacted] and provided further that Buyer has diligently pursued the same, then Buyer may extend this contingency deadline by [redacted] by giving Seller or its agents notice thereof, and paying to Seller an additional [redacted] which payment shall be in addition to the purchase price.

f. Within 60 days after final subdivision approval, Buyer shall have received financing for a mortgage loan in such amount and upon such terms and conditions as are satisfactory to Buyer.

g. Within the first 120 days after the Effective Date, Buyer shall have obtained an inspection of the Premises and determined them to be free of wetlands, endangered or threatened wildlife or plant habitats, coastal sand dunes, great ponds, rivers and streams and in compliance with all applicable laws, ordinances, and regulations. In the event the Premises or a portion thereof is determined to be in wetlands, etc. as described above, then so long as such condition does not materially or adversely impair the Buyer's development of the Premises then this condition shall be deemed satisfied.

h. Within 90 days after the Effective Date, Buyer shall have obtained a general building inspection of any structures on the Premises disclosing the Premises to be structurally sound (except for a leak in the roof, some rot in the exterior wood on the house, and some rotten wood in the stable, all as disclosed to the Buyer) and in good repair and all of the mechanical systems, including without limitation, plumbing, heating, electrical, drainage, water, sewer/septic to be in working order and repair and adequate to serve the premises, all to the satisfaction of the Buyer.

i. Within the first 90 days after the Effective Date, Buyer shall have obtained an environmental site assessment of the Premises disclosing the Premises to be free of urea-formaldehyde foam insulation, hazardous substances, underground storage tanks (other than as disclosed by the Buyer on Seller's Property Disclosure), asbestos containing materials, lead-based paint, radon and special wastes. The terms used in the foregoing sentence shall have those meanings ascribed to them under Federal, State and/or Local Law.

j. Within 60 days after final subdivision approval, Buyer shall have obtained an appraisal of the Premises with a valuation equal to or greater than the purchase price hereunder.

k. Prior to closing, any action by any officer, director, or shareholder of Seller, or any other party claiming via rights to, through, or associated with Seller challenging this Agreement or the proposed sale or subdivision development contemplated hereunder shall thereafter toll all deadlines set forth herein, which deadlines shall remain tolled until either final settlement, bonding off, or final adjudication of such matter, which, for the avoidance of doubt, includes the passage of any appeals period.

Onex Initials _____ Diversacorp _____

l. Prior to closing, Seller shall have conducted necessary tests to locate the buried tank referenced in its disclosure, and shall have removed such tank at its sole expense in compliance with any applicable laws, evidence of which compliance is a condition precedent to closing.

13. **BROKERAGE**. Seller is responsible for the payment of all fees and commissions due any real estate brokers with respect to this transaction. Seller agrees to indem- nify and hold Buyer harmless from any and all claims made by real estate brokers with respect to this transaction. This indemnity shall include all costs and expenses including attorney's fees incurred by Buyer in defense against any such claim, and shall include claims made post-closing.

14. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS**.

a. Real estate taxes, assessments, rentals and utilities shall be prorated as of the closing.

b. The Maine real estate transfer tax shall be paid by Seller and Buyer in accordance with 36 M.R.S.A.§ 4641-A.

c. The recording fee for the deed of conveyance will be paid by Buyer.

d. A portion of the purchase price shall be withheld at the closing by Buyer if required by 36 M.R.S.A. §5250-A.

e. Utilities shall be prorated as of the closing date and Buyer shall reimburse Seller for any unused fuel oil or gas.

f. Seller shall pay any penalties due to the City of Portland which relate to Seller's removal of the Premises from any Open Space, Tree Growth, Farmland, or other such tax program set forth under Title 36 of the Maine Revised Statutes.

15. **CONFIDENTIALITY**. Seller and Buyer covenant and agree to keep confidential the terms of the transaction contemplated hereby and not to disclose to any person either the fact that discussions or negotiations are taking place (other than Buyer's lender or attorney) concerning the acquisition of the Property or the substance or status thereof, except as is necessary to perform obligations pursuant hereto.

16. **MISCELLANEOUS**. The parties further agree as follows:

a. Binding Agreement / Assignment. This Agreement shall inure to the benefit of and shall be binding upon the parties hereto and their respective heirs, legal representatives, successors, and assigns. Buyer reserves the right to assign this Agreement to an entity to be formed.

b. Joint & Several. Seller shall refer to each selling party as their interests

Onex Initials

Diversacorp

appear but each Seller shall be responsible for all warranties and representation on a joint and several basis.

c. Amendment. This Agreement shall not be changed in any respect except by written instrument signed by the parties hereto.

d. Governing Law / Jurisdiction. This Agreement and all rights and obligations hereunder, including matters of construction, validity, and performance, shall be governed by the laws of the State of Maine and parties recognize Maine as the courts of Cumberland County having sole forum having jurisdiction hereover.

e. Severability. If any term, condition, or provision of this Agreement or the application thereof to any person or circumstance shall, to any extent, be held invalid or unenforceable according to the law, then the remaining terms, conditions, and provisions of his Agreement, or the application of any such invalid or unenforceable terms, condition or provision to persons or circumstances other than those to which it is held invalid or unenforceable shall not be affected thereby, and each term, condition, and provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

f. Headings. The descriptive headings of the sections of this Agreement have been inserted for the convenience and reference only and shall not control or affect the meaning or construction of any of the contents hereof.

g. Integration. This Agreement may be executed in multiple originals and embodies the entire understanding of the parties. All prior discussions and representations are merged herein.

h. Notice. Any demand or notice required or permitted hereunder, shall be effective if either: (i) hand-delivered to the addressee, or (ii) deposited in the mail, registered or certified, return receipt requested and postage prepaid, or delivered to a private express company addressed to the addressee: (A) at the address shown below, or (B) if such party has provided the other in writing with a change of address, at the last address so provided. Any notice or demand mailed as provided in this paragraph shall be deemed given and received on the earlier of: (i) the date received, or; (ii) the dated of delivery, refusal or non-delivery as indicated on the return receipt, if sent my mail or private express as provided above. All notices required to be given, or which may be given hereunder, shall be in writing and if mailed, shall be sent by mail to the party to be notified as follows:

Seller:	Onex Co. Attn: Kerrin Dorne. 68 Old Farm Road Newton, MA 02459
With a copy to:	Alexandra E. Caulfield Drummond Woodsum 84 Marginal Way, Suite 600 Portland, Maine 04101-2480
Buyer:	Diversacorp, LLC Attn: Nate Libby 5 Stone Pony Cir. Saco, ME 04072
With Mandatory Copy To:	Jason G. Howe, Esq. Bergen & Parkinson, LLC 62 Portland Road, Suite 25 Kennebunk, ME 04043

or to such other addresses as one party may from time to time hereafter designate by like notice to the other.

i. Gender and Number. All words denoting gender or number shall be construed to include any other gender or number as the context and facts require.

j. Survival / Merger. All representations of Seller survive closing unless extinguished in writing by agreement of the parties signed at closing. For the avoidance of doubt, acceptance of the Deed by Buyer does not merge the provisions of this Agreement or satisfies all obligations and representations of Seller.

k. Time. Time is of the essence in this Agreement.

l. Survey. Survey means a map of a staked survey of the Real Property and Improvements constituting the Property prepared by a surveyor who prepared one or both of the Existing Surveys (as defined herein), such Survey to comply with the ALTA/ACSM Survey Requirements 1999 for ALTA/ACSM land title surveys jointly established and adopted in 1999, by the American Land Title Association, American Congress on Surveying and Mapping, and the National Society of Professional Engineers, including optional items 1, 2, 3, 4, 6, 7, 8, 9, 19 and 11 of Table "A" thereof, which meets the accuracy standards (as adopted by ALTA and ACSM and in effect on the date of the Survey), or a state standard which is comparable to the foregoing ALTA/ACSM standard.

Onex Initials _____ Diversacorp _____

m. Professional Advice. Each party hereby acknowledges that they have read and understand this Agreement and have had an opportunity to obtain professional advice regarding the same.

n. Recording. Buyer reserves the right to record a memorandum of this agreement at the Cumberland County Registry of Deeds at its expense, and Seller agrees to sign a memorandum hereof.

o. Authority. Seller warrants and represents that it / they have full authority to execute this Agreement and perform all obligations contained herein. All such actions have been properly authorized by any required votes and the party signing on behalf of Seller is duly appointed to so act in said capacity to make this Agreement binding upon Seller.

p. Signatures/Counterparts. Facsimile or Electronic Signatures shall be deemed to be and treated as originals. This agreement may be signed in counterpart, the combination of which counterparts constitutes a binding final agreement.

q. Improvident Transfers. Seller warrants and represents that they have fully complied with the Improvident Transfer Act and that this Agreement is enforceable pursuant to the provisions thereof.

17. **AGREEMENT OF ESCROW AGENT**. In the event of any dispute regarding the disposition of the escrowed funds held by Escrow Agent, Escrow Agent shall have the right to deliver said funds to a court of competent jurisdiction and commence an interpleader action to determine the proper disposition of said funds. Seller and Buyer agree to reimburse Escrow Agent for all expenses incurred by Escrow Agent in the interpleader action, including, without limitation, attorney's fees. Seller and Buyer further agree to hold Escrow Agent harmless for any action taken in good faith pursuant to the terms of this Agreement.

(*Signatures Below*)

IN WITNESS WHEREOF, Seller and Buyer have executed this Agreement as of this day of August 2016 ("Effective Date").

ONEX CO.
("Seller")

Witness Kevin Capen

By: _____

Print Name: Kerrin Dorne.
Its: Secretary
Thereunto Duly Authorized

DIVERSACORP, LLC
("Buyer")

J. Collard
Witness

By: _____
Nate Libby, its Manager
Thereunto Duly Authorized

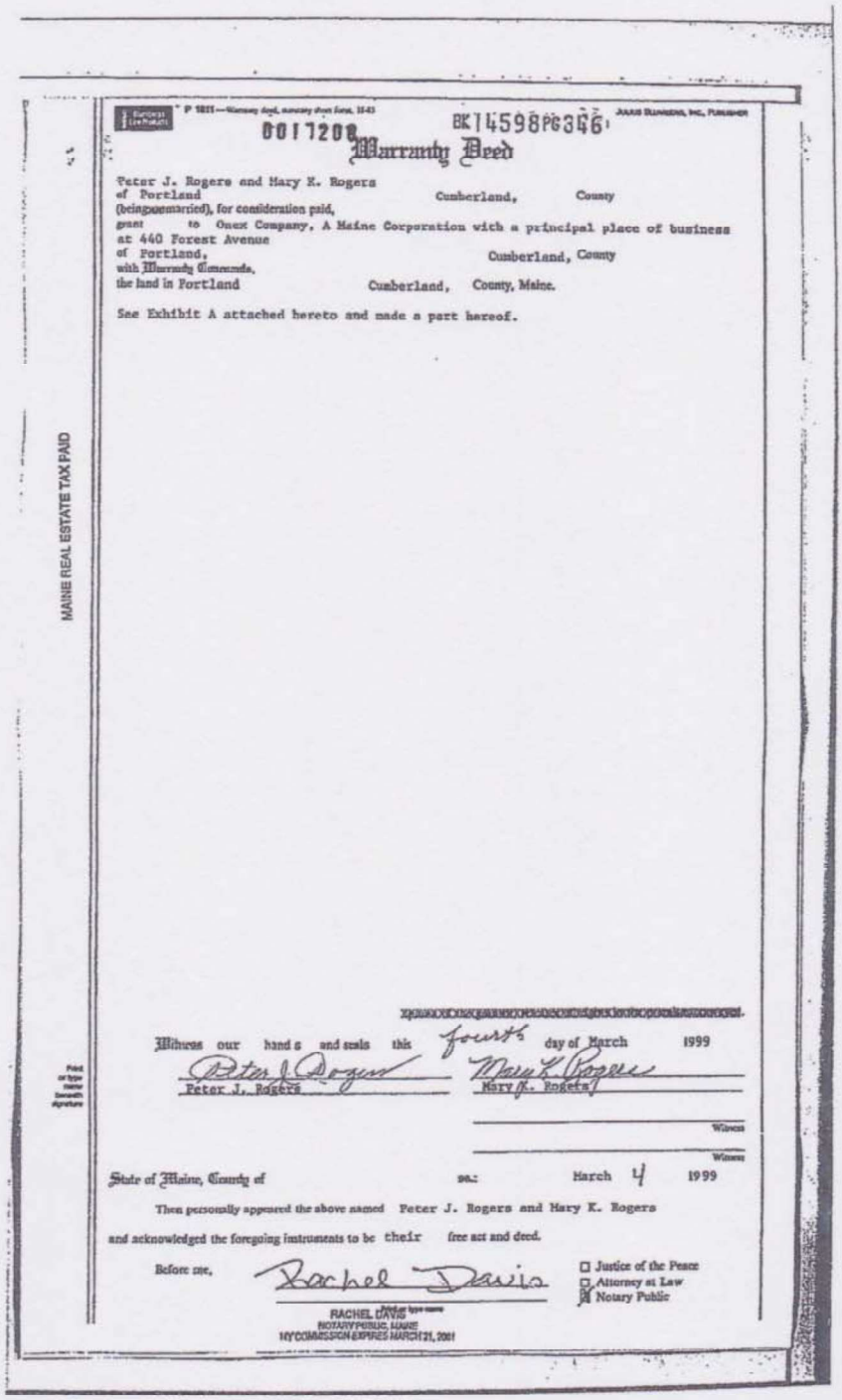
Nate Libby (President)

(Exhibit A Below)

Onex Initials _____

Diversacorp _____

EXHIBIT A



P 1811—Warranty deed, monetary short form, 11-83 JULIUS BLUMBERG, INC., PUBLISHER

0017208 BK14598PG346

Warranty Deed

Peter J. Rogers and Mary K. Rogers
of Portland Cumberland, County
(being unmarried), for consideration paid,
grant to Onex Company, A Maine Corporation with a principal place of business
at 440 Forest Avenue
of Portland, Cumberland, County
with Warranty Covenants,
the land in Portland Cumberland, County, Maine.

See Exhibit A attached hereto and made a part hereof.

MAINE REAL ESTATE TAX PAID

Witness our hands and seals this fourth day of March 1999

Peter J. Rogers — Mary K. Rogers

Peter J. Rogers — Mary K. Rogers

Witness

Witness

State of Maine, County of ss.: March 4 1999

Then personally appeared the above named Peter J. Rogers and Mary K. Rogers and acknowledged the foregoing instruments to be their free act and deed.

Before me, Rachel Davis

Print or type name

RACHEL DAVIS
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES MARCH 21, 2001

☐ Justice of the Peace
☐ Attorney at Law
☒ Notary Public

Onex Initials KD

Diversacorp NL

BK 14598 PG 347

EXHIBIT A

A certain lot or parcel of land, together with the buildings thereon, situated in Portland, in the County of Cumberland and State of Maine, in that part of Portland which was formerly Deering, on the southerly side of the road leading from Stroudwater Village, so-called, to Westbrook formerly called Saccarappa; being all and the same property which was conveyed to Allura S. Castner by Rufus T. Boothby and Frank P. Tibbetts, et als., by their deeds of warranty dated March 11, 1899, as recorded in Cumberland County Registry of Deeds in Book 671, Pages 424 and 425, said property being bounded and described in said deeds as follows:

Northerly by said road, easterly by land now or formerly of N.H. Dole and land of the heirs of M. Quimby, southerly by the Stroudwater River and westerly by land now or formerly of Royal Burnham, containing forty-eight (48) acres, more or less, reference being made to said deeds and the record thereof for a more particular description of the premises.

Excepting from the above described premises those parcels of land conveyed by the grantor by the following conveyances: On June 7, 1938 to Carroll E. Hackett, recorded in Cumberland County Registry of Deeds in Book 1548, Page 418; on April 25, 1949 to Granville F. Allen et al., recorded in said Registry of Deeds in Book 1952, Page 354; on May 28, 1954 to Portland Water District recorded in said Registry of Deeds in Book 2198, Page 386; on July 14, 1955 to Frederick A. Butts et al., recorded in said Registry of Deeds in Book 2236, Page 405; on November 4, 1956 to Rosamond J. Allen, recorded in said Registry of Deeds in Book 2325, Page 358; on November 14, 1957 to Rosamond J. Allen, recorded in said Registry of Deeds in Book 2386, Page 205.

This conveyance is made subject to a right of way over the above described land taken by the Portland Pipe Line Corporation by condemnation proceedings and recorded in Cumberland County Registry of Deeds in Book 1655, Page 294 to which reference is hereby made.

This conveyance is also subject to an easement granted to the Portland Water District recorded in the Cumberland County Registry of Deeds in Book 1399, Page 462 to which reference is hereby made.

This conveyance is also made subject to an easement for a sewer pipe granted to Frederick A. Butts et al. in deed recorded in Cumberland County Registry of Deeds in Book 2236, Page 405.

Also excepting and reserving from the above described premises another certain lot or parcel of land adjoining and to the south of land of Lillian E. Hackett, formerly of Carroll E. Hackett mentioned above. Said lot or parcel of land being bounded and described as follows: Beginning at the southwest corner of said Hackett land; thence southerly projecting the line marking the western boundary of the said Hackett land and which projection would form a 90 degree angle with said Westbrook Street, one hundred (100) feet to an iron stake; thence at an angle of 90 degrees 46' easterly ninety-seven and sixty-two hundredths (97.62) feet to an iron stake; thence northerly one hundred (100) feet to a stake at the southeasterly corner of said Hackett land; thence westerly ninety-seven and sixty-two hundredths (97.62) feet along southern boundary of said Hackett land to the point of beginning.

Meaning and intending to convey and hereby conveying the same premises conveyed to the Grantors by deed of Ruby H. Young dated October 27, 1960, recorded in the Cumberland County Registry of Deeds in Book 2574, Page 161.

RECEIVED
RECORDED REGISTRY OF DEEDS
1999 MAR -9 PM 3:27
CUMBERLAND COUNTY
John B O'Brien

M.K.R.
P.J.R.

Deed for Lots: 246-A-6, 247-A-2, 245-B-5
After recording return to:
Jason G. Howe, Esq.
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

Space Above This Line For Recording Data

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **JUDITH A. CAMINITI**, f/k/a Judith C. Green, having a mailing address of 67 Goose Cove Road, Trenton, ME 04605, FOR CONSIDERATION PAID, hereby grants to **DIVERSACORP, LLC**, a Maine limited liability company whose mailing address is 5 Stone Pony Circle, Saco, Maine, with Warranty Covenants, a certain lot or parcel of land, together with any improvements thereon and all rights appurtenant thereto, commonly know and designated as 1714 Westbrook Street, Portland, Maine; being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND
INCORPORATED HEREIN BY REFERENCE

IN WITNESS WHEREOF, Judith A. Caminiti, f/k/a Judith C. Green, has hereunder set her hand and seal as of this _____ day of February, 2017.

_____ _____
WITNESS Judith A. Caminiti

STATE OF MAINE
_____ County, ss. Date: _____

Personally appeared the above-named Judith A. Caminiti, being formerly known as Judith C. Green, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

_____
Attorney at Law / Notary Public
Print: _____
[SEAL]

(*Exhibit A Below*)

EXHIBIT A
(1714 Westbrook St., Portland)

A certain lot or parcel of land, situated in Portland, Cumberland County, Maine and bounded and described as follows:

BEGINNING on the southeasterly side of Westbrook Street at a fir stump marked at the corner of land now or formerly of one Leavitt;

THENCE southeasterly by said Westbrook Street, ten (10) chains and sixty-three (63) links to land formerly of Solomon Conant, et als;

THENCE southerly by said Conant land twenty (20) chains eighty-seven (87) links to the Stroudwater River, across said river to land formerly of James Trickey, et als;

THENCE westerly by said River by said Trickey land and land formerly of George B. Leavitt to a stake;

THENCE by Leavitt land North 12° East (subject to variations since established) twenty-seven (27) chains and ninety-two (92) links to the first mentioned bounds, containing thirty (30) acres, more or less.

Excepting from the above-described premises those portions conveyed to Maine Turnpike Authority by Maurice S. Tomlinson, et al, by deed dated February 11, 1954, and recorded in the Cumberland County Registry of Deeds in Book 2166, Page 135; and by deed dated September 2, 1954, and recorded in said Registry of Deeds in Book 2166, Page 135.

Excepting from the above-described premises the parcel with a house thereon conveyed to Andrew D. Green and Judith C. Green by deed dated March 4, 1994, and recorded in the Cumberland County Registry of Deeds in Book 11319, Page 55.

Excepting from the above-described premises the 1 acre parcel conveyed to Andrew D. Green by deed dated December 20, 2004, and recorded in the Cumberland County Registry of Deeds in Book 22163, Page 81. Regarding this exception, further reference is made to a certain Agreement Concerning Marital Property recorded in said Registry in Book 22163, Page 80, and a certain Abstract of Divorce recorded in said Registry in Book 22735, Page 32.

After recording return to:
Jason G. Howe, Esq.
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

Doc#: 8080 Bk:33834 Ps: 269

Space Above This Line For Recording Data

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **JUDITH A. CAMINITI**, f/k/a Judith C. Green, having a mailing address of 67 Goose Cove Road, Trenton, ME 04605, FOR CONSIDERATION PAID, hereby grants to **DIVERSACORP, LLC**, a Maine limited liability company whose mailing address is 5 Stone Pony Circle, Saco, Maine, with Warranty Covenants, a certain lot or parcel of land, together with any improvements thereon and all rights appurtenant thereto, commonly know and designated as 1714 Westbrook Street, Portland, Maine; being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND
INCORPORATED HEREIN BY REFERENCE

MAINE REAL ESTATE TAX PAID

IN WITNESS WHEREOF, Judith A. Caminiti, f/k/a Judith C. Green, has hereunder set her hand and seal as of this 17 day of February, 2017.

WITNESS

Judith A. Caminiti

STATE OF MAINE
York County, ss.

Date: 2/17/17

Personally appeared the above-named Judith A. Caminiti, being formerly known as Judith C. Green, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Attorney at Law / ~~Notary Public~~
Print: _____
[SEAL]

Jason G. Howe
ATTORNEY AT LAW

(Exhibit A Below)

EXHIBIT A
(1714 Westbrook St., Portland)

A certain lot or parcel of land, situated in Portland, Cumberland County, Maine and bounded and described as follows:

BEGINNING on the southeasterly side of Westbrook Street at a fir stump marked at the corner of land now or formerly of one Leavitt;

THENCE southeasterly by said Westbrook Street, ten (10) chains and sixty-three (63) links to land formerly of Solomon Conant, et als;

THENCE southerly by said Conant land twenty (20) chains eighty-seven (87) links to the Stroudwater River, across said river to land formerly of James Trickey, et als;

THENCE westerly by said River by said Trickey land and land formerly of George B. Leavitt to a stake;

THENCE by Leavitt land North 12° East (subject to variations since established) twenty-seven (27) chains and ninety-two (92) links to the first mentioned bounds, containing thirty (30) acres, more or less.

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Excepting from the above-described premises the 1 acre parcel conveyed to Andrew D. Green by deed dated December 20, 2004, and recorded in the Cumberland County Registry of Deeds in Book 22163, Page 81. Regarding this exception, further reference is made to a certain Agreement Concerning Marital Property recorded in said Registry in Book 22163, Page 80, and a certain Abstract of Divorce recorded in said Registry in Book 22735, Page 32.

Received
Recorded Register of Deeds
Feb 21,2017 09:42:37A
Cumberland County
Nancy A. Lane

Section 3

Financial Capacity

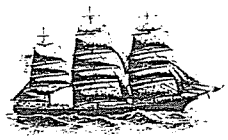
3. Financial Capacity

A. Estimated Costs

The anticipated cost of the proposed development is approximately $2,054,400. The cost does not include mobilization or permit fees. The cost includes roadways, sidewalks and infrastructure to serve the proposed residential development.

B. Financing

A letter from the Applicant's bank conforming financial capacity is attached to this section.



Benj. F. Packard

Bath Savings Institution

Since 1852

August 18, 2017

City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Stroudwater Development Partners, LLC

To Whom It May Concern:

JHR Development, LLC is an established customer of Bath Savings Institution through several LLC's which it controls. JHR Development, LLC will be the managing member of Stroudwater Development Partners, LLC. Based on our review of the proposed project Stroudwater Development Partners, LLC and its members provide the experience, knowledge and financial capacity to develop the proposed project located at 1700 Westbrook Street in Portland, Maine.

Should you need further information or clarification, please feel free to contact me at (207) 442-7711.

Sincerely,

Theresa B. Hodge
Senior Vice President, Commercial Lending

105 Front Street, PO Box 548, Bath, Maine 04530
Tel. 207-442-7711 Fax 207-442-9137
1-800-447-4559
MEMBER FDIC

Section 4

Technical Ability

4. Technical Ability

A. Prior Experience

Stroudwater Development Partners, LLC intends to hire qualified, experienced, and local contractors, consultants, and engineers to effectively deliver a quality product. All contractors will be properly insured and capitalized for the work required. Stroudwater Development Partners, LLC will be considering excavation contractors that have managed and effectively executed larger municipal utility projects, large commercial projects, and residential subdivisions to a high standard. The principals of Stroudwater Development Partners, LLC, Mike Barton, Hilary Rockett, and Nate Libby have overseen the construction of previous large scale residential projects including (Bath Riverwalk Residences, Brunswick Station Apartments, Orchard Estates & Rowley Housing Subdivision) in (Primarily Maine and Massachusetts). They have also overseen large commercial and mixed-use projects from start to completion.

Acorn Engineering, Inc. is a multi-discipline engineering firm established in 1988. Resumes for the following people have been included for reference:

Acorn Engineering has provided civil engineering services for numerous clients with diverse projects over the past decade. Acorn has proved engineering competency for projects including:

- Civil Engineering
- Environmental Engineering
- Site & Landscaping Design
- Permitting
- Stormwater Design & Retrofit
- Watershed Restoration
- Construction Administration
- Stormwater & Erosion Control Inspections

B. Personnel

Please see the attached resumes which outlines the following key personnel and their technical abilities.

Mike Barton, LEED AP - Stroudwater Development Partners, LLC

Hilary Rockett – Stroudwater Development Partners, LLC

Will Savage, PE – Acorn Engineering

Mark Arienti, PE – Acorn Engineering

Michael Barton, LEED AP

207-939-5432

78 Lincoln Street Portland, ME 04103 *michael.corbett.barton@gmail.com*

Professional Work History Profile

Successfully secured and/or managed more than $200 million in capital projects primarily in the greater Portland area. In addition to professional engagements, opportunities to serve as guest lecturer, adjunct faculty, and continuing education instructor fulfill a need to passionately engage others in the construction and real estate industries.

- Contract Negotiation
- Project Management
- Value Management
- LEED Process
- Preconstruction Management
- Constructability Review
- Cost Estimating
- Subcontractor Management
- Relationship Building
- Corporate Standards Compliance

Professional Accomplishments – Capital Projects Completed as Congress Group of Maine, LLC

Institutional Projects

- *Woodford's Family Services, Westbrook, ME – Training Facility Renovation/Addition – Cost Estimator*
- *Laura Foundation – Adaptive Education Center and Multi Purpose Barn, Madison, NH – Owner's Representative and volunteer framing carpenter – Completed March 2016*

Commercial Projects

- *MEMIC Office Renovations, Portland, ME – Ongoing – Master Scheduling Consultant*
- *CIEE Office Renovations, Portland, ME – Completed March 2016 – Value and Constructability Consultant*
- *Kepware Office Renovations, Portland, ME – Ongoing - Value and Constructability Consultant*

Hospitality Projects

- *Hotel & Tavern at Brunswick Station, Brunswick, ME – Capital Improvements – Owner's Representative*
- *Tomaso's Canteen, Portland, ME – 50 seat restaurant – Owner's Representative/General Contractor*
- *Tiqa Restaurant, Portland, ME – 300 seat restaurant fit out – Owner's Representative – Completed January 2015*

Multi-Family Housing Projects

- *Residences at Brunswick Station – Brunswick, ME – 24 market rate apartment units – Owner's Representative - Ongoing*
- *Lincoln Mill, Biddeford, ME - redevelopment of 250,000 square foot mill – Owner's Representative – Ongoing*
- *Riverwalk Residences, Bath, ME - 35 unit condominium development – Owner's Representative – Ongoing*
- *Harborside Condominiums, Portland, ME – 14 condominium customizations and kitchens – Owner's Representative – Completed December 2015*

Residential Projects

- *78 Lincoln Street, Portland ME – Single family home renovations – gut rehab - Ongoing*
- *184 Congress Street, Portland, ME – 3 unit apartment renovations into market rate product, Completed March 2013*
- *88 Sheridan Street, Portland, ME – 2 unit apartment renovations, Completed December 2013.*
- *15 Mackworth Street, Portand, ME – Kitchen and bathroom renovations – Completed March 2016*
- *31 Carriage Lane, Cumberland Foreside, ME – basement in law suite conversion – Completed December 2014*

*Projects completed as an employee of Wright-Ryan Construction, Inc. provided under separate cover.

Work History

Owner/Operator	*Congress Group of Maine, LLC*	*August 2014-Present*
Preconstruction Manager	Wright-Ryan Construction, Inc.	January 2009-June 2014
Project Manager	Wright-Ryan Construction, Inc.	April 2007-January 2009
Field Superintendent	Wright-Ryan Construction, Inc.	April 2005-April 2007
Assistant Field Superintendent	Wright-Ryan Construction, Inc	August 2004-April 2005

Education

B.S Construction Science & Management. Magna Cum Laude	Clemson University, Clemson, SC	May 2004

Affiliations

Maine Real Estate & Development Association, Member
Portland Society for Architecture, Member
US Green Building Council, Maine Chapter, Member
University of Southern Maine, Construction Management Advisory Committee & former Adjunct Professor
GPRO (Green Professional) Building Skills Training, Instructor
Efficiency Maine Construction Management Training, Instructor
Seeds of Independence, Volunteer

References

References are available upon request.

Project Listing for Michael Barton

207-939-5432
184 Congress Street Portland, ME 04101 michael.corbett.barton@gmail.com

Wright-Ryan Construction, Inc. Project Experience

Estimating/Preconstruction
2009-2014

- MidCoast Medical Office Building, Bath, ME. 22,000 sft Medical Office Building.
- Press Hotel, Portland, ME. Historic Hotel Converision.
- Munjoy Heights, Portland, ME. 29 unit market rate townhouse
- Pen Bay Hospice House, Rockport, ME. Seven suite hospice care center
- Mayo Mill, Dover-Foxcroft, ME. 24 apartments, 10 hotel rooms, offices, café, and data center,
- Falmouth Middle School, Roof & Window Replacement, Falmouth, ME.
- TruChoice Park Ave, Portland, ME. Phased, occupied bank renovation.
- Agren Appliance, Topsham, ME. 14,000 sft retail showroom.
- Group Main Stream, Portland, ME. Five bedroom overnight facility for special needs residents. Prototype development.
- Riverside Apartments, Brunswick, ME. Life Safety and exterior egress rehab for 48 unit apartment complex.
- Preble Street Soup Kitchen, Portland, ME. Occupied flooring replacement.
- Drummond Woodsum Offices, Portland, ME. 6,000 sft legal office renovations.
- Leblanc & Young Offices, Portland, ME. 9,000 sft legal office renovations.
- Sheraton Harborside 3rd floor PIP, Portsmouth, NH. 58 room upgrade and ADA conversions.
- 5 Guys Burgers & Fries. Multiple restaurant build outs in Maine.
- Mechanic Savings Bank, Brunswick, ME. 2,200 sft branch renovations.
- Dead River Offices, South Portland, ME. 4,000 sft office renovations.
- Preble Street Teen Shelter, Portland, ME. 14,000 sft overnight facility and offices.
- Diversified Communications, Portland, ME. 42,000 sft phased office renovations.
- Fresenius Medical, Portland, ME. 4,000 sft medical office/dialysis renovations.
- Sanford Mills, Sanford, ME. 60,000 sft, mixed use.
- Maine Nephrology Associates, Portland, ME. 10,000 sft medical office renovations.
- Cumberland County Federal Credit Union, Falmouth Maine. 3,200 sft addition/renovation.
- Maine College of Art, Portland, ME – Annual rolling renovations since 2008
- Colonial Inn, Ogunquit, ME. 52,000 sft, 57 room historic renovation.
- Agren Appliance, South Portland, ME. 7,000 sft showroom renovations.
- Elm Terrace, Portland, ME. 48,000 sft, 38 unit multifamily.
- Pearl Place II, Portland, ME. 71,000 sft, 54 unit multifamily.
- TruChoice Credit Union, Portland, ME. 8,000 sft operations center.
- 43 Baxter Blvd, Portland, ME. 24,000 sft Gut/Rehab and medical office renovations.
- One Monument Square, Portland, ME - Multiple projects within 10 story office tower
- Maine Street Station – Building 4, Brunswick, ME. 20,000 sft new construction medical office building.
- Portland House, Portland, ME – New entrance pavilion.
- Inn at Brunswick Station, Brunswick, ME. 55 room boutique hotel.
- Ocean Park Meadows, Old Orchard Beach, ME. 94 unit exterior retrofit.
- Maine Medical Center, Portland, ME. Multiple renovation projects totaling more than

- Hampton Inn, Exeter, NH. 111 room inn.
- Prudential Insurance Offices, Portland, ME. 8,000 sft office renovation.
- Hedge & Roger Williams Hall, Bates College, Lewiston, ME. Rehab/Conversion of (2) original campus buildings.
- 216-218 Main Street, Rockland, ME. 8,400 sft Retail/Office/Residential renovations.
- Robie-Andrews Hall Renovations, Gorham, ME. Art education classroom renovations.
- Southern Maine Community College, South Portland, ME. Multiple summer renovation projects.
- Bowdoin College Summer Projects, Brunswick, ME. Multiple summer renovation projects.
- Deering Pavilion, Portland, ME. 200,000 sft, 200 apartment deep energy retrofit
- Peabody Center, Portland, ME. 6,000 sft office renovations.
- Intermed Offices, Portland, ME. Exam and X-Ray room renovations.

Project Management
2007-2009

- LEED Gold Wishcamper Center, University of Southern Maine (USM), Portland, ME. 55,000 sft new construction featuring geothermal, a green roof, and complicated curtainwall system.
- LEED Silver Osher Map Library, University of Southern Maine (USM), Portland, ME. Oversaw the new construction and tie-in to the existing building while on an occupied campus. The new building has been proclaimed one of the premier map libraries in the world.
- Coastal Studies for Girls, Freeport, ME. Significant renovation to existing building to add sleeping quarters and classrooms. Managed more than $40,000 worth of supplies and services donated by vendors and community members. I also partnered with the school to host educational tours and community outreach programs.

Field Supervision
2005-2007

- Holocaust and Human Rights Education Center, University of Maine at Augusta. The prominent architect had won an international design competition, and the budget was extremely tight, with fundraising for the project continuing throughout construction. I worked with the team to develop and produce cost-effective construction details from the field such as scale mock-ups of parabolic wall sections.
- Tall Pines Assisted Living Facility, Belfast, ME. 34,000 sft. with a breakdown of 16 congregate and 14 assisted living units. The building contains a small rehabilitation center, beauty salon, full commercial kitchen and two dining rooms. The building also contains a library, crafts room and several informal sitting areas designed to bring a high level of social interaction to the residents. I went on to work with this client again to develop many hospitality and commercial projects.

Assistant Field Supervision
2004-2005

- Townhomes at Ocean East, Portland, ME. 88 unit, 18 building development.
- Watershed Center for the Arts, Damariscotta, ME. 6 cottage cohousing.

JHR

www.jhrdevelopment.com

2014
Business of the Year

JHR Development, LLC, with nearly 350,000 square feet of developed space in the state of Maine, was honored by the Southern Midcoast Maine Chamber of Commerce with their Business of the Year Award. The Chamber, which serves more than 600 area businesses in 16 communities, chose JHR based on rigorous criteria. Cathy Barter, Immediate Past Chairman, said, "As you can well imagine with the number of businesses in our region, and the number of communities we serve, we had quite a list to choose from. The award is based on business growth and improvement, good financial health, quality customer service, staying power, and overall excellence in the marketplace. It was also important that the business be a good community member. JHR's Brunswick Station, The Brunswick Hotel & Tavern, and its other projects locally, especially the amazing project with Mid Coast Hospital in Bath, are real assets to the communities in which they are located."

J. Hilary Rockett, Jr., owner of JHR Development, became part of the local business landscape in 2007 as Brunswick, Maine's "real estate developer of choice" for Brunswick Station. Soon after the completion of this mixed-use, multi-modal project, it saw the arrival of Amtrak, which cemented Brunswick Station as a true hub of Brunswick, Maine, located adjacent to Bowdoin College.

Rockett moved forward to develop the 52-room Brunswick Hotel & Tavern, a 200,000 square-foot property in Portland that is home to Paradigm Windows and AdvancePierre Foods, and a 36,000-square-foot renovation of a former naval commissary in Topsham recently sold to Wicked Joe Coffee. JHR's latest project is a medical center in Bath for Mid Coast Hospital.

In Massachusetts, JHR won an RFP bid to work with Northshore Education Consortium of Beverly to redevelop a 35,000-square-foot school for children and adolescents with special needs.

William H. Savage, PE, CPESC

A C O R N Engineering, Inc.

Engineering Experience:

President, **Acorn Engineering, Inc.,** October 2007 - Present

- Professional Engineer with technical and business development responsibilities at Acorn Engineering; providing urban redevelopment, civil/site design, construction administration and municipal consulting with a focus on the construction of marine and rail facilities, restoration of urban impaired watersheds, stormwater design & retrofits, low impact development (LID), and environmental stewardship.
- Review project drawings, permit applications, stormwater reports, erosion and sedimentation control reports, construction inspections for residential, commercial, municipal and industrial developments.
- Prepare proposals, interact with the client, state and local agencies, and engage with project stakeholders to deliver a successful project.

Projects – a partial list of representative projects include:

Intermodal Site & Stormwater Infrastructure Redevelopment - Eldredge Lumber & Hardware, Inc. – Portland, ME

- The project includes the $800,000 redevelopment and paving of approximately 7.5 acres of an existing gravel lumberyard. Work includes significant stormwater infrastructure retrofits and intermodal improvements to facilitate the future transfer of building products from rail for distribution throughout the State. Applied and successfully obtained an Industrial Rail Access Program (IRAP) grant to expand rail access on behalf of our client. The project was designed to be in accordance with the Maine DEP Chapter 500 Stormwater Management Standards, Maine Construction General Permit and City of Portland Site Plan Standards. Project responsibilities include management of the design team, development of permit and construction drawings, development and submission of permit applications, coordinating the bidding process, construction oversight and administration.

667 Congress St – Redfern Properties, LLC – Portland, ME

- The $28 million project includes the civil/site engineering design for the 8-story, first floor retail and 139-unit apartment building. Vehicle parking will be served by two levels with separate access from Vernon and Avon St. Services includes, but is not limited to, permitting with the City of Portland, layout and design of sanitary sewers, storm drains, water mains, pedestrian and vehicle entrances, building locations, parking lot design, and parking garage grading and drainage. Acorn provided significant coordination between the Architect, Structural Engineer, Geotechnical Engineer, Construction Management Company and Owner.

Munjoy Heights – Redfern Munjoy, LLC – Portland, ME

- The $22 Million project includes the civil/site engineering design of a 6-building, 29-unit development on steep slopes of Munjoy Hill in the City of Portland. This includes, but is not limited to, the layout design and permitting of sanitary sewers, storm drains, water mains, site driveway, retaining walls, building locations, and building drainage structures to be in accordance with the Maine DEP Chapter 500 Stormwater Management Standards, Maine Construction General Permit City of Portland Technical Standards.

2016 Portland International Marine Terminal Expansion – Portland, ME – MaineDOT

- Provide full construction administration services including Resident, Senior Inspectors and Inspectors for the $1 million pervious pavement installation. The project will include a total of 4.25 acres of pervious and traditional pavement installation. Work also includes a contract modification to install additional stormwater and drinking water infrastructure to serve the future Americold facility.
- Class III Chief Inspector for the $1 million International Marine Terminal environmental cleanup. Conducted construction inspection for a project in Portland to remove over 11,000 tons of soil contaminated with heavy metals, polynuclear aromatic hydrocarbons (PAHs) and petroleum. Class III Chief Inspector services included the inspection, measurement, and documentation of all work performed by the contractor and their subcontracts to document compliance with the project plans & specifications as well as Maine DOT standard details & specifications, Soil Management Plan, Health & Safety Plan (HASP), Temporary Soil Erosion and Water Pollution Control Plan (SEWPCP) and other appurtenant standards.

2015 Portland International Marine Terminal Expansion – Portland, ME – MaineDOT

- Class III Chief Inspector for the $8.6 million IMT Rail Corridor and Existing Laydown Yard Expansion. Work includes 5,000 oft of new track, 18 acre container storage area, 2600 CY of concrete loading slab, 1,650 ft. of Commercial St. roadway improvements and replacement of the fender system (WIN #22809.20).
- Class III Chief Inspector services included the inspection, measurement, and documentation of all work performed by the contractor and their subcontracts to document compliance with the project plans & specifications as well as Maine DOT standard details & specifications, Soil Management Plan, Health & Safety Plan (HASP), Temporary Soil Erosion and Water Pollution Control Plan (SEWPCP) and other appurtenant standards.

Rangeley Branch Rail Restoration – Poland/Auburn, ME - Lewiston Auburn Railroad Company

- Provide full construction administration services including Resident, Senior Inspectors and Inspectors for the $2.2 million restoration of 7,000 linear feet of mainline track and 2,000 linear feet of siding (WIN #17936.00). Work includes earthwork activities, stream relocation & restoration, surcharge & prefabricated vertical drains installation and track construction. Over 70% of the linear earthwork and track construction falls within a “limited design” section requiring a greater project reliance on the Resident.

Yarmouth Park & Ride - Stormwater BMP Specification Development - Maine Department of Transportation

- Development of Maine DOT stormwater BMP standard details and specifications for the $6 million Route 295 Interchange Improvements and Park and Ride Lot in Yarmouth. The stormwater BMP’s were designed to meet the specific needs of the Maine DOT. Provided Construction Administration; review of submittals, testing and construction.

Exit 45 - Maine Turnpike Approach Stormwater Design – Maine Department of Transportation

- The project involves investigating and designing stormwater treatment BMPs for the redevelopment of the existing Maine Turnpike Approach. This involved the development of details and written specifications for compost blankets and underdrained ditches.

Project Engineer, **Gorrill-Palmer Consulting Engineers, Inc.** August 2003 – Sept. 2007

- Assisted with the design and permitting for numerous private developments ranging in size from house lots to retail developments with over 500,000 sf of leasable area.

Field Office Engineer, **HNTB Corporation** Seasonal February 2002 – August 2003

- Field Office Engineer/Inspector for the Maine Turnpike Authority’s - $135 million modernization and widening.

Education:

Union College, Schenectady**,** NY **B.S. Civil Engineering**, December 2001
Czech Technical University, Prague, Czech Republic Fall 2001
Union College Water Resource Program, Sao Paulo, Brazil December 2000

License: Maine Professional Engineering License #11419

Member: American Council of Engineering Companies (ACEC)
American Railway Engineering and Maintenance-of-Way Association (AREMA)
Maine Rail Group/New England Railroad Club

Committees/Awards:

- Long Creek Watershed Restoration - Models & Outreach/Technical Advisory Committee, April 2008 – April 2009
- 2015 Maine Stormwater Conference – Planning Committee October 2014 – November 2015
- Long Creek Watershed Management District - Technical Advisory Committee – Sept. 2016 – Present
- *Contractor of the Year* - The Cumberland County Soil & Water Conservation District recognized Acorn Engineering, Inc. as Contractor of the Year for its involvement with the Long Creek Restoration Project. This is the first time the District has recognized an engineering firm as the recipient for this award.

Mark Arienti, P.E.

A C O R N Engineering, Inc.

ENGINEERING EXPERIENCE:

Senior Environmental Engineer, Acorn Engineering November 2015 - Present

Mark is a professional engineer with technical and business development responsibilities at Acorn Engineering for environmental engineering and compliance functions including environmental site assessment, contaminated site investigation and remediation, stormwater management and monitoring, oil and hazardous materials spill prevention, control and countermeasure (SPCC), flammable material storage facility design.

He reviews project drawings, prepare permit applications, Voluntary Response Action Program (VRAP) documents, stormwater reports, erosion and sedimentation control reports, construction inspections for residential, commercial, municipal and industrial developments. He prepares proposals, interact with the client, state and local agencies, and engage with project stakeholders to deliver a successful project.

Projects – A partial list of representative projects include:

- Class III Chief Inspector for the $1 million International Marine Terminal environmental cleanup. Conducted construction inspection for a project in Portland to remove over 11,000 tons of soil contaminated with heavy metals, polynuclear aromatic hydrocarbons (PAHs) and petroleum. Class III Chief Inspector services included the inspection, measurement, and documentation of all work performed by the contractor and their subcontracts to document compliance with the project plans & specifications as well as Maine DOT standard details & specifications, Soil Management Plan, Health & Safety Plan (HASP), Temporary Soil Erosion and Water Pollution Control Plan (SEWPCP) and other appurtenant standards.
- Conducted eight ASTM Phase I Environmental Site Assessments and one Phase II Environmental Site Assessment at commercial properties in southern Maine.
- Civil site design and City of Portland Level II Site Plan Development permitting for installation of a 650,000-gallon stormwater detention system and landscaping upgrades to mitigate significant flooding at a hotel in downtown Portland.
- Conducts quarterly comprehensive stormwater BMP inspections for two scrap metal recycling facilities in Southern Maine in accordance with Maine's Multisector General Permit (MSGP) for stormwater discharges from industrial facilities.
- Designed and permitted new vehicle fueling system for contractor's office/shop facility in Westbrook, ME. Prepared plans and specifications for a 2,000-gallon fueling system with a double-wall steel tank and gasoline dispensing capability in accordance with City of Westbrook, Maine State Fire Marshall, and NFPA 30 requirements.
- Oversaw the removal of underground piping for a petroleum storage tank system in Fryeburg Main in an area with a significant sand & gravel aquifer. Completed an assessment in accordance with MEDEP Ch. 691, and since the piping wasn't going to be replaced the assessment also followed the requirements of MEDEP standard operating procedure TS-004.
- Prepared SPCC plans for four local oil suppliers for their bulk storage facilities to comply with EPA regulations at 40 CFR 112.

Senior Environmental Engineer, Acadia Environmental Technology January 2007 – October 2015

Mark managed the environmental engineering, assessment and compliance services provided by Acadia including projects dealing with contaminated site investigation and remediation, multi-media environmental compliance, flammable material storage facility design, environmental due diligence, stormwater management and permitting, and oil and hazardous material spill prevention and control. Conducted Phase I and Phase II Environmental Site Assessments for commercial and industrial sites and developed and implemented remedial action plans for sites impacted by oil and hazardous materials and prepared Voluntary Response Action Program (VRAP) applications and Soil Management Plans for contaminated sites undergoing redevelopment.

Projects – A partial list of representative projects include:

Environmental Assessments:

- Conducted Phase I and Phase II Environmental Site Assessments at multiple commercial properties in Maine and New Hampshire including petroleum storage and distribution facilities, office buildings, retail establishments, manufacturing facilities, car dealerships and garages.

Remedial Investigation, Design & Construction Oversight

- Designed and oversaw installation of soil vapor extraction (SVE) system to remediate a large gasoline release from an underground storage tank (UST) at a convenience adjacent to Rte. 201 in Skowhegan. Most the release was remediated during soil excavation while removing the UST, but some of petroleum was migrating in the vadose zone toward the roadway. A pilot test was conducted and the system designed with three extraction wells connected to a regenerative blower. It operated 3 years and was shut down after levels met MEDEP approval requirements.
- Former Rail Yard Site Remediation and Redevelopment in Portland, ME. Prepared VRAP application to address ongoing liability associated with the impacts from the historical uses and obtained certificate of completion (COC). Installed test pits and conducted soil sampling to show that the levels of hazardous substances above RAGs was limited to lead-containing soils in one area. The implemented remedial action approved by MEDEP included capping impacted soils with asphalt pavement in one area and construction of a landscape berm in another.
- Designed and oversaw installation and operation of a groundwater extraction and treatment system in Acton, ME to prevent the migration of gasoline-contaminated groundwater into a lake during removal and replacement of a leaking underground storage tank. The groundwater treatment system consisted of extraction pumps, a gravity settling chamber, particulate filter, and dual granular activated carbon units to remove dissolved gasoline compounds. The system successfully treated the groundwater and allowed for replacement of the leaking tank with a new one.
- Conducted environmental investigation of former scrap storage and processing area at an Auburn, ME scrap metal recycling facility. Developed remedial action plan and oversaw the capping of over 10,000 cubic yards of heavy metal-impacted soils to help this facility comply with Maine solid waste processing facility requirements.
- Oversaw the closure of petroleum USTs and removal of contaminated soil at a closed gas station in South Portland, ME that included a Phase II Environmental Site Assessment including soil and groundwater monitoring and vapor intrusion evaluation. VRAP application and Soils Management Plan (SMP) prepared to address ongoing liability associated with the impacts from the historical uses and obtained certificate of completion (COC) that resulted in sale of the property.

Stormwater Management, Monitoring & Permitting

- Oversaw the construction of a new stormwater management system at a site in Auburn, ME that included 4 oil-water separators, a 100-ft long concrete settling basin and two underdrained wet ponds to detain and treat stormwater runoff and prevent flooding. Prepared an Erosion and Sediment Control Plan and conducted erosion control inspections for the duration of the project
- Prepared Stormwater Pollution Prevention plans (SWPPP) at 2 scrap metal facilities in Southern Maine to comply with the Maine's Multi-Sector General Permit (MSGP). Conducted quarterly stormwater monitoring and comprehensive compliance inspections.

SPCC Plans

- Conducted Phase I and Phase II Environmental Site Assessments at multiple commercial properties in Maine and New Hampshire including petroleum storage and distribution facilities, office buildings, retail establishments, manufacturing facilities, car dealerships and garages.

Petroleum Bulk Storage Facility Design

- Designed a new bulk petroleum storage facility with 120,000 gallons of storage capacity, a loading rack and spill containment system in compliance with SPCC rules. Permitted the facility in accordance with town site development rules and state fire marshal requirements and completed a NRPA permit by rule for the facility due to proximity to stream.

Environmental Manager, ecomaine, Portland, Maine, 1997-2006

Mark was responsible for multi-media environmental compliance for a regional waste management agency that provided waste management services for 28 communities. Responsibilities included maintenance of the Environmental Management System (EMS), environmental permitting, monitoring, and reporting for a 550 ton/day waste to energy (WTE) facility, a 30-acre ash landfill and 40 acres of closed municipal solid waste landfills.

- Led the effort to develop an Environmental Management System (EMS) at the WTE, landfill and recycling facilities. THE EMS all facilities were certified to the ISO 14001 standard.
- Directed ecomaine's environmental monitoring program at the landfill, which included triannual monitoring of approximately 20 groundwater wells and five surface water locations for organic and inorganic constituents.

- Oversaw the application for ecomaine's first Title V (Part 70) Air Emissions License and conducted negotiations with MEDEP's Bureau of Air Quality to obtain a workable permit including manageable conditions for startup/shutdown and malfunctions.
- Implemented the program for monitoring combustion and other sources at ecomaine's MWC and landfill facilities including continuous emission monitoring systems (CEMS) for opacity, NOx, SO2, and carbon monoxide and visible emissions monitoring for ash handling facilities; prepared MEDEP-required quarterly and annual reports; and implemented annual stack testing for heavy metals, dioxins and furans, NOx & SOx.

Environmental Engineer, Maine Metal Products Assoc., Portland, ME, 1994 - 1997
Under a contract with the Department of Energy on Environmentally Conscious Manufacturing, Mark provided training and assistance to small and large manufacturing firms in Maine's metal products industry on environmental compliance and pollution prevention.

Project Manager, ERM-New England, Boston, MA and Portland, ME, 1987 - 1994
His work with ERM was diverse and included providing environmental engineering services to a wide variety of industrial and commercial customers in New England and throughout the country on environmental due diligence audits, air permitting, remedial investigation/feasibility studies for contaminated site, and stormwater permitting and monitoring

Environmental Engineer, Alliance Technologies, Bedford, MA, 1984 - 1987
Mark was an environmental engineer that conducted remedial investigation/feasibility studies (RI/FS) and hazardous waste treatment technology evaluations under contracts with the Environmental Protection Agency.

EDUCATION:

Tufts University, M.S. Civil (Environmental) Engineering	May 1984
Union College, B.S. Civil Engineering	June 1982

LICENSES/CERTIFICATIONS:

- Maine Registered Professional Engineer, #6807
- New Hampshire Registered Professional Engineer, #12129
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #73
- Maine-certified Asbestos Site Inspector
- Locally Administered Project (LAP) - MaineDOT
- MaineDOT Construction Training – Certificate of Completion – 2016
- OSHA 40-Hour HAZWOPER Training & Refreshers

CIVIC INVOLVEMENT
- Portland Trails, Board Member and Trails Committee Chair
- Portland Nordic, Nordic Ski Coach and Board Member

Section 5

Noise

5. Noise

The proposed project is residential and is not anticipated to have a noise impact. Temporary noise may arise during construction as a result of construction equipment working on the site. This noise is not expected to be significant.

The development and construction activity will maintain compliance with Chapter 17, Section 17-18 of the Portland Land Use Ordinance.

Section 6

Visual Quality & Scenic Character

6. Visual Quality & Scenic Character

The proposed use of the site is consistent with surrounding residential properties and is subject to the Land Use Code requirements of the City Zoning Ordinance.

Visual quality within the project development area will be preserved through minimal tree clearing for roadway and lot development, as well as landscaping near the project's entrance of Westbrook Street. Refer to the Site Plan for further details. The proposed project is consistent with this section of City and will not impact the visual quality of the area.

Section 7

Wildlife and Fisheries

7. Wildlife and Fisheries

Acorn Engineering, Inc. sent a project description and copy of the development plans to Maine Natural Areas Program (MNAP), US Fish & Wildlife Service and Maine Inland Fisheries and Wildlife (IF&W), on November 10, 2016. A response letter was received from Don Cameron (MNAP) on November 10, 2016 and John Maclaine (IF&W) on December 2, 2016. The letter from Acorn and both response letters are included as parts of this Section.

MNAP did not find any rare botanical features within the project area.

IF&W did not map any Essential or Significant Wildlife Habitats that would be directly affected by the proposed project.

US Fish & Wildlife Service did not map any species would be directly affected by the proposed project.

Additionally, an Ecological Habitat Assessment was conducted by Gino Giumarro (Verdanterra, LLC) on March 13, 2017. The report was received on March 15, 2017 and is included as part of this Section.

ACORN ENGINEERING, INC.

Ms. Lisa St. Hilaire, Information Manager
Maine Natural Areas Program
17 Elkins Lane
93 State House Station
Augusta, Maine 04333

November 10, 2016

Mr. John Perry, Environmental Review Coordinator
Inland Fisheries & Wildlife
284 State Street
41 State House Station
Augusta, Maine 04333

Subject: Camelot Farms Subdivision
1700 Westbrook Street, Portland, Maine

Dear Ms. St. Hilaire and Mr. Perry,

Acorn Engineering, Inc. has been retained by Camelot Holdings, LLC to provide civil engineering services for the proposed subdivision project at 1700 Westbrook Street in Portland, Maine. The project proposes to redevelop the existing, small farm with a single-story home and accessory shed and barn structures into a traditional single-family neighborhood within the Stroudwater neighborhood; house lots will range in size between 6,500 sf to 20,000 sf. The property directly abuts the Stroudwater River and consists mostly of cleared farming pastures. The portion of the site adjacent to Westbrook Street is anticipated to be regraded to support a road network and the subdivided lots. Thus, there will be limited tree removal, stumping, and grubbing on-site due to the existing use. The proposed roads are to be paved and built to City standard. The project will require a Zoning Map/Text Amendment and Level III – Site Plan Application.

Per City Ordinance, a portion of the property resides within the Shoreland Overlay Zone in which construction and redevelopment activities are limited within 250 feet of the high-water line; it is proposed that all development associated with subdivision will remain greater than 250 feet from the river. The space is to be used recreationally with a passive, neighborhood trail system and other shared amenities; there is no proposed earthworking and grading to occur within this zone.

The project area is comprised of five separate parcels (Chart, Book, Lot 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3) with two existing utility easements for the Portland Water District and Portland Pipeline Company that bisect the property. The parcels have been previously subdivided so that there are four single-family sublots facing Westbrook Street.

Acorn Engineering appreciates your assistance with determining if there are any possible special or significant wildlife or fisheries habitats which might be impacted at the site. Please refer to the attached documents to facilitate your review.

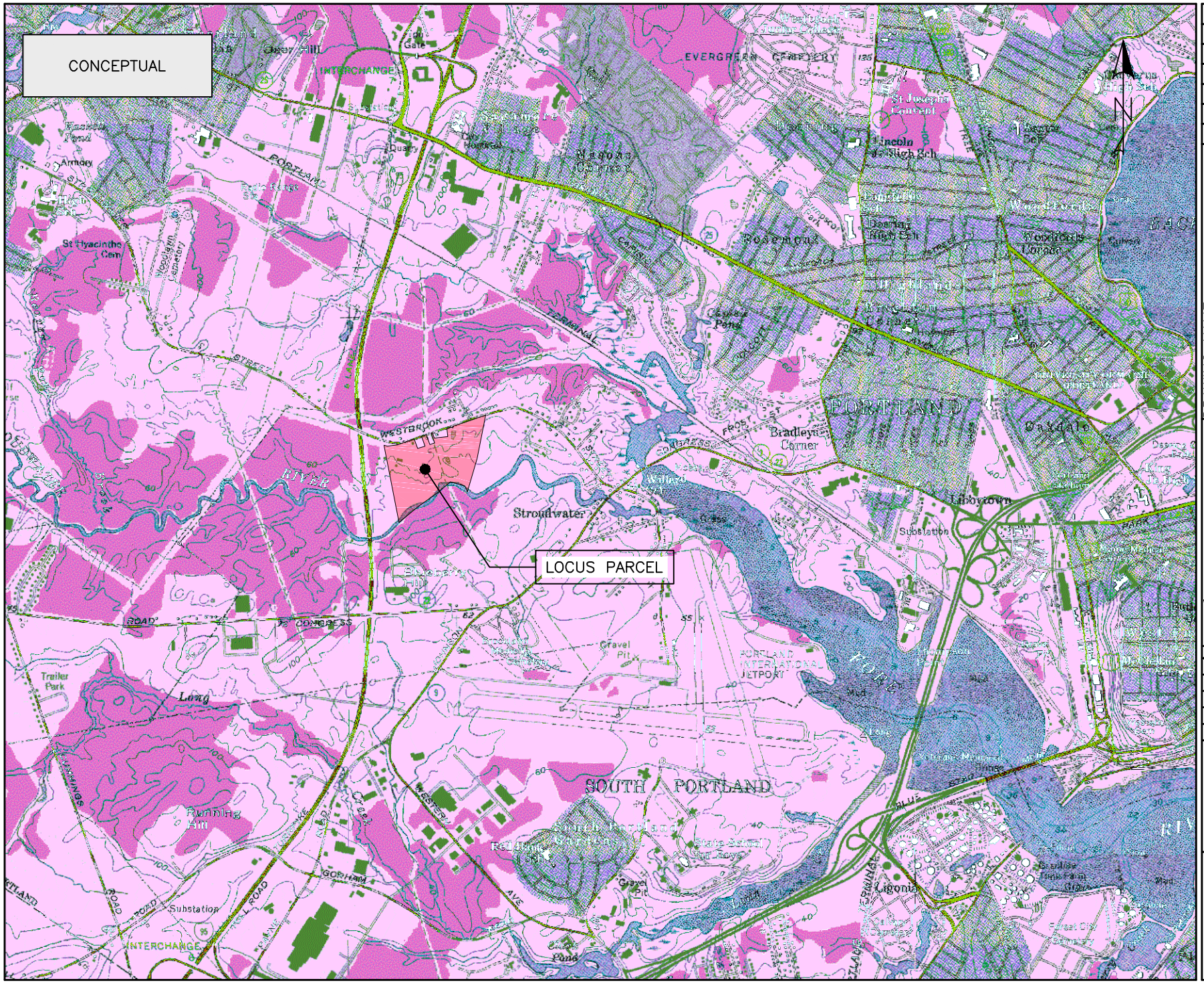
Any response and supporting documents may be mailed to the address below or as a PDF file to odawson@acorn-engineering.com.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102

Attached:

EX-1 Vicinity Map
EX-2 Concept Site Plan


CONCEPTUAL
LOCUS PARCEL
PORTLAND
SOUTH PORTLAND
Stroudwater
Bradley's Corner
Libbytown
Deering High Sch
Lincoln Jr High Sch
St Joseph's Convent
Evergreen Cemetery
Woodfords Corner
Riverton
Rosemont
Oakdale
Westbrook
Capisic Pond
Fore River
Long
Trailer Park
Running Hill
Substation
Gravel Pit
Portland International Jetport
Interchange
Congress
Westbrook
Frost
Forest
Main
Broadway
Ocean
Waterman
Cottage
Ligonia
Blue
Pine
Mill
Cliff
Ferry
Veterans Memorial Bridge
Portland Terminal
Portland Water District
Fore River Sanitary District
Maine Medical Center
Deering Oaks Park
Evergreen Cemetery
St Hyacinthe Cem
Woodlawn Cemetery
Armory
Quarry
Water Tank
Pump Sta
Culvert
Mud
Marsh
Cedar Hill
Clear Hill
Haskell Pond
Capisic Pond
Long Creek
Fall Brook
Cascade Brook
Stroudwater River
Fore River
Capisic Brook
Nasons Corner
Deering Center
Woodfords Corner
Riverton
Rosemont
Oakdale
Bradley's Corner
Libbytown
Stroudwater
Evergreen Cemetery
St Joseph's Convent
Lincoln Jr High Sch
Deering High Sch
Portland Terminal
Fore River
Capisic Pond
Long
Running Hill
Trailer Park

GENERAL NOTES:

1. PLAN REFERENCES:
   1.1. MAINE OFFICE OF GIS FOR AERIAL AND CONTOUR DATA
   1.2. CITY OF PORTLAND GIS FOR PARCEL AND ZONING DATA
   1.3. STANDARD BOUNDARY SURVEY DATED 2/21/2003 COMPLETED BY NADEAU & LODGE, INC.
2. AREA DEPICTED FOR THE SHORELAND OVERLAY ZONE IS APPROXIMATE BASED ON PORTLAND GIS DATA.

APPROXIMATE PROPERTY LINE PER CITY PARCEL MAPS, REFERENCE NOTE 1.2

APPROXIMATE STROUDWATER RIVER HIGH WATER LINE

STROUDWATER RIVER

APPROX. LOCATION OF EXISTING 50' ROW AND EASEMENT TO THE PORTLAND PIPE LINE COMPANY, PER REFERENCE NOTE 1.3

SHORELAND OVERLAY ZONE

STORMWATER BMP APPROX. AREA: 12,000 SF

STORMWATER BMP APPROX. AREA: 30,000 SF

PROPOSED 15' WIDE ROW FOR DRAINAGE AND ACCESS EASEMENTS

PATRIDGE CIRCLE

PROPOSED PUMP STATION LOCATION

NEIGHBORHOOD TRAIL SYSTEM IN COORDINATION WITH PORTLAND TRAILS

PROPOSED RECREATIONAL OPEN SPACE

APPROX. LOCATION OF EXISTING 30' ROW AND EASEMENT TO PWD, PER REFERENCE NOTE 1.3

PROPOSED 30' WIDE ROW FOR DRAINAGE AND ACCESS EASEMENTS

PROPOSED LOT LINES, TYP.

WESTBROOK STREET

LANDSCAPED BUFFER SPACE, TYP.

PROPOSED LOTS TO BE ACCESSED DIRECTLY FROM WESTBROOK STREET

OLD WESTBROOK ST

POSSIBLE CONNECTION TO EXISTING PORTLAND TRAILS FORE RIVER SANCTUARY TRAIL NETWORK

CONCEPTUAL

ISSUED FOR	BY DATE
SITE REVIEW	WHS 10/28/16
REVISION	REV. DATE

DRAWING NAME: CONCEPT SITE PLAN

PROJECT NAME: CAMELOT FARMS SUBDIVISION

CLIENT: CAMELOT HOLDINGS, LLC
PORTLAND, MAINE 04101

ACORN ENGINEERING, INC
158 DANFORTH ST
PORTLAND, MAINE 04104
(207) 775-2655

FILE:	CIVIL
JN:	1000
SCALE:	1"=200'
DESIGN BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.

EX-2

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

November 10, 2016

Olivia Dawson
Acorn Engineering
PO Box 3372
Portland, ME 04104

Via email: odawson@acorn-engineering.com

Re: Rare and exemplary botanical features in proximity to: Camelot Farms Subdivision, Portland, Maine

Dear Ms. Dawson:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received November 10, 2016 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Don Cameron | Ecologist | Maine Natural Areas Program
207-287-8041 | don.s.cameron@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Allegheny Vine						
	E	S1	G4	1860-10	9	Rocky summits and outcrops (non-forested, upland),Dry barrens (partly forested, upland)
American Sea-blite						
	T	S2	G5	1932-09-12	5	Tidal wetland (non-forested, wetland)
	T	S2	G5	2011-08-15	17	Tidal wetland (non-forested, wetland)
Beach Plum						
	E	S1	G4	1933-05-19	10	Rocky coastal (non-forested, upland)
Broad Beech Fern						
	SC	S2	G5	1872-08	15	Hardwood to mixed forest (forest, upland)
Creeping Spike-moss						
	E	S2	G5	1924-08-20	3	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
	E	S2	G5	1924-08-21	8	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Dioecious Sedge						
	SC	S3	G4	1936-07-14	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Ebony Spleenwort						
	SC	S2	G5	1910-06-06	10	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Engelmann's Spikerush						
	PE	SH	G4G5Q	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested, wetland)
Fern-leaved False Foxglove						
	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Great Blue Lobelia						

Rare and Exemplary Botanical Features within 4 miles of
Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	PE	SX	G5	1905-09	3	Forested wetland,Non-tidal rivershore (non-forested, seasonally wet)
Hollow Joe-pye Weed						
	SC	S2	G5?	2014-06-18	24	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
	SC	S2	G5?	2007-10-22	18	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Horned Pondweed						
	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
	SC	S2	G5	1972-06-13	3	Tidal wetland (non-forested, wetland)
Marsh Milkwort						
	PE	SH	G5T4	1903-08-18	1	Dry barrens (partly forested, upland),Open wetland, not coastal nor rivershore (non-forested, wetland)
Missouri Rockcress						
	T	S1	G5?Q	1905-06-11	5	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Mountain Honeysuckle						
	E	S2	G5	2015-07-16	16	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
	E	S2	G5	2015-07-07	17	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Parker's Pipewort						
	SC	S3	G3	1924-08-20	8	Tidal wetland (non-forested, wetland)
Pitch Pine Bog						
	<null>	S2	G3G5	2012-07-31	16	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
Tidal Marsh Estuary Ecosystem						
	<null>	S3	GNR	2011-08-25	8	Tidal wetland (non-forested, wetland)
Variable Sedge						

Rare and Exemplary Botanical Features within 4 miles of

Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	E	S1	G3	1911	8	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
	E	S1	G3	1911-06-29	9	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Vasey's Pondweed						
	SC	S2	G4	1901-08-04	7	Open water (non-forested, wetland)
Water-plantain Spearwort						
	PE	SH	G4	1862-08	3	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2006-05-10	19	Hardwood to mixed forest (forest, upland),Forested wetland

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

S4 Apparently secure in Maine.

S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.

G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

CHANDLER E. WOODCOCK
COMMISSIONER

December 2, 2016

Olivia Dawson
Acorn Engineering, Inc.
158 Danforth Street
Portland, ME 04102

RE: Information Request - Camelot Farms subdivision, Portland

Dear Olivia:

Per your request received November 10, 2016, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *Camelot Farms subdivision project* in Portland. For purposes of this review, we are assuming that the development will occur primarily within maintained fields and tree clearing will not be necessary. If tree clearing is ultimately proposed, please contact our Department for further guidance

Our information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be directly affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats that would be directly affected by your project.

Fisheries Habitat

Without details, it is difficult to know what impacts your project may have on the Stroudwater River. That being said, MDIFW makes the following general recommendations as they pertain to work around rivers and streams.

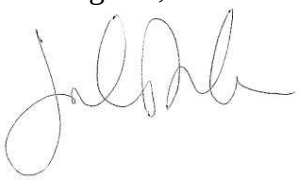
Maintaining buffers along coldwater fisheries is critical to the protection of water temperatures, water quality, and inputs of coarse woody debris necessary to support conditions required by brook trout. We generally recommend that a 100-foot undisturbed vegetated buffer be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and fisheries habitat. In addition, we recommend that any necessary instream work or work within 100 feet of streams occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and

Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



John Maclaine
Biologist

ACORN ENGINEERING, INC.

Dr. Mark McCollough, Ph.D.
Species Recovery & Project Review, Eagle Act
U.S. Fish and Wildlife Service
306 Hatchery Way
East Orland, ME 04431

November 10th, 2016

Subject: Camelot Farms Subdivision
1700 Westbrook Street, Portland, Maine

Dear Dr. McCollough:

Acorn Engineering, Inc. has been retained by Camelot Holdings, LLC to provide civil engineering services for the proposed subdivision project at 1700 Westbrook Street in Portland, Maine. The project proposes to redevelop the existing, small farm with a single-story home and accessory shed and barn structures into a traditional single-family development within the Stroudwater neighborhood; house lots will range in size between 6,500 sf to 20,000 sf. The property directly abuts the Stroudwater River and consists mostly of farming pastures. The portion of the site adjacent to Westbrook Street is proposed to be regraded to support a road network, subdivided lots, and ancillary infrastructure. Thus, there will be limited tree removal, stumping, and grubbing on-site due to the existing use. The proposed roads are to be paved and built to City standard. The project will require a Zoning Map/Text Amendment and Level III – Site Plan Application.

Per City Ordinance, a portion of the property resides within the Shoreland Overlay Zone in which construction and redevelopment activities are limited within 250 feet of the high-water line; it is proposed that all development associated with subdivision will remain greater than 250 feet from the river. The space is to be used recreationally with a passive, neighborhood trail system and other shared amenities; there is no significant earthwork to occur within this zone.

The project area is comprised of five separate parcels (Chart, Book, Lot 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3) with two existing utility easements for the Portland Water District and Portland Pipeline Company that bisect the property. The parcels have been previously subdivided so that there are four single-family sublots facing Westbrook Street.

Acorn Engineering appreciates your assistance with determining if there are any possible special or significant wildlife or fisheries habitats which might be impacted at the site. Please refer to the attached documents to facilitate your review.

Any response and supporting documents may be mailed to the address below or as a PDF file to odawson@acorn-engineering.com.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102

Attached:

EX-1 Vicinity Map
EX-2 Concept Site Plan

Olivia Dawson

From: Mahaney, Wende <wende_mahaney@fws.gov>
Sent: Monday, November 21, 2016 11:35 AM
To: Olivia Dawson
Cc: McCollough, Mark; William Savage
Subject: Re: Camelot Farms - FWS Preliminary Site Review

Follow Up Flag: Follow up
Flag Status: Completed

Hi Olivia: If this project will involve a Corps permit (or any other Federal agency action), please forward the IPaC species list and species summary table to those Federal agencies rather than our office, as outlined on our office's Web site. It is the Federal agency's responsibility to coordinate with our office when necessary regarding federally listed species. It works better and causes less confusion if the Federal agency gets the information from the consultant and then is in charge of consulting with the Service.

One note I did want to make regarding northern long-eared bats. The species summary table says there will not be "major" tree clearing. Not sure what you mean by that, but any cutting down of even one tree > 3 inches DBH could trigger the need for a Federal agency to consult with the Service under the Endangered Species Act. The Corps of Engineers and other Federal agencies in Maine are pretty well-versed in what triggers consultation for the bat. Just didn't want you to assume that because the project site is mostly fields and the project might only result in a few trees being cut down that there are no concerns regarding bats.

Thank you. Wende

Wende S. Mahaney, C.W.B.
U.S. Fish and Wildlife Service
Maine Fish and Wildlife Complex
P.O. Box A (mailing address)
306 Hatchery Road (physical address)
East Orland, Maine 04431
Telephone: (207) 902-1569 (direct line)
Fax: (207) 902-1588
Cellular Phone: 207-944-2991

On Thu, Nov 17, 2016 at 9:13 AM, Olivia Dawson <odawson@acorn-engineering.com> wrote:

Morning Mark,

Thanks for your feedback. I have completed the steps as outlined in Maine Field Office website and have generated the attached Species Summary Table. Based on the provided examples and the report generated by the IPaC system, I do not believe this project will require additional federal review but I wanted to touch base with you just to make sure.

The only federally listed species identified by the IPaC was the Northern Long-eared Bat but we are proposing to not disturb the existing mature wooded areas within the site and thus not impact potential roosting areas for the bats. The site is also not near any documented Bald Eagle nesting sites per the Bald Eagle Map Tool.

I have contacted John Perry at the Maine Dept. of Inland Fisheries & Wildlife for state input on this project and have already received feedback from Lisa St. Hilaire with the Maine Natural Areas Program. I will also reach out to the Army Corps as well considering the scale and proximity to the shoreline of the project.

Thanks again for your help and I hope to hear from you soon,

- Olivia

C: (585) 797-8780

From: McCollough, Mark [mailto:mark_mccollough@fws.gov]
Sent: Tuesday, November 15, 2016 6:00 PM
To: Olivia Dawson <odawson@acorn-engineering.com>; Wende Mahaney <wende_mahaney@fws.gov>
Subject: Re: Camelot Farms - FWS Preliminary Site Review

Dear Ms. Dawson:

Thank you for sharing your proposed development plans with the U. S. Fish and Wildlife Service. If your project requires Federal permits or uses Federal funds, our office may consult with Federal agencies such as the Army Corps of Engineers to ensure your project does not jeopardize the continued existence of Federally-listed species or critical habitat. You can determine what Federally-listed species may occur in your project area by going to the Species List and Project Reviews tab on our Maine Field Office website: https://www.fws.gov/mainefieldoffice/. Going through the steps outlined on our website, you can develop an official species list. It also may be possible that there are no Federally-listed species on the property.

You should also contact the Maine Department of Inland Fisheries and Wildlife. The old farm fields that you describe could be habitat for the New England cottontail rabbit, a state-listed species. MDIFW will provide further information on surveys that may be needed. New England cottontails have been documented in the vicinity of the Portland jetport.

Please let us know if you have further questions.

Sincerely, Mark McCollough

On Thu, Nov 10, 2016 at 12:33 PM, Olivia Dawson <odawson@acorn-engineering.com> wrote:

Good Afternoon Dr. McCollough,

On behalf of Camelot Farms, LLC, I am reaching out to you with a preliminary project plan and location to be reviewed for special or significant wildlife or fisheries habitats that could be impacted by the proposed development. Attached is a cover letter outlining the project as well as a vicinity map and preliminary site plan to aid in your review.

Please feel free to contact me or the office with any questions or clarifications on the proposed project and/or attached materials.

Thanks in advance for your help,

Olivia Dawson
Engineer

Licensed E.I. in Maine

Licensed E.I.T in New York

Acorn Engineering, Inc

PO Box 3372

Portland, Maine 04104

www.acorn-engineering.com

C: 585.797.8780

B. 207.775.2655

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PLEASE NOTE THAT OUR OFFICE ADDRESS AND PHONE HAVE CHANGED

Mark McCollough, Ph.D.

Endangered Species Specialist

US Fish and Wildlife Service

Maine Fish and Wildlife Service Complex

Ecological Services

Maine Field Office

P.O. Box A (mailing address)

306 Hatchery Road (physical address)

East Orland, Maine 04431

Telephone: (207) 902-1570

Fax: (207) 902-1588

Cell Phone: 207 944-5709

mark_mccollough@fws.gov

Ecological Habitat Assessment Report

1700 Westbrook Street, Portland Maine

Camelot Holdings, LLC

5 Stone Pony Circle
Saco, ME 04072

Prepared by:

Verdanterra, LLC
47 Richards Lane
Freeport, Maine 04032
www.verdanterra.com

March 15, 2017

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Figures

Figure 1. Camelot Farms - Project Location Map
Figure 2. Project Limits of Disturbance – Aerial Background
Figure 3. Project Limits of Disturbance – Topographic Background

Appendices

Appendix A. Verdanterra Resume
Appendix B. Site Visit Photodocumentation
Appendix C. Agency Correspondence

1. Introduction

On March 13, 2017, Verdanterra, LLC (Verdanterra) conducted an ecological assessment for the proposed Camelot Holdings, LLC (Camelot) residential development project at 1700 Westbrook Street, Portland, Maine (Project). On November 10, 2016, Maine Natural Areas Program (MNAP) provided a list of rare plants and natural communities that occur within the vicinity of the project area. MNAP has not documented rare plants or natural communities on the Project parcel. Wetland delineations were completed by Mark Hampton Associates, Inc. on November 21, 2016. Maine Department of Inland Fisheries and Wildlife (MDIFW) indicated that there are no Endangered, Threatened, or Special Concern species that occur on the property on December 2, 2016. This ecological assessment was prepared to evaluate Rare and Exemplary Botanical Features habitat and potential New England cottontail (*Sylvilagus transitionalis*) habitat in the Project Area.

This report describes the objectives, methodology, and results of the ecological assessment. The survey and subsequent report were completed by Gino Giumarro, a Wildlife Biologist Certified by the Wildlife Society. Gino has a Bachelor of Science degree in Wildlife Biology from the University of Massachusetts at Amherst and a Master of Science degree in Natural Resources Planning from the University of Vermont. Mr. Giumarro has been conducting wildlife habitat assessments professionally since 1996. A resume is included in Appendix A.

1.1. Regulatory Context

Endangered and threatened inland fish and wildlife species in Maine are listed either under Maine's Endangered Species Act (MESA; Title 12 M.R.S.A. Sections 7751 to 7759), the U.S. Endangered Species Act (ESA; Title 16 U.S. Code Sections 1531 to 1544), or both. Species listed under MESA receive state protection; species listed under ESA receive federal protection; and species listed under both receive state and federal protection. The presence of endangered or threatened species can have implications on defining other resources status protected under different legislation (e.g. Significant Wildlife Habitat or Wetlands of Special Significance).

The MDIFW holds management responsibility for inland fish and wildlife listed under MESA, and shares responsibility with the U.S. Fish and Wildlife Service (USFWS) for inland fish and wildlife listed under ESA. MDIFW indicated in their December 2, 2016 correspondence (Appendix C) that there are no known locations of Endangered, Threatened, or Special Concern species within the Project area that would be directly affected by your project. Additionally, MDIFW has not mapped any Essential or Significant Wildlife Habitats that would be affected directly by the Project. MDIFW further suggested maintaining buffers along sensitive fisheries. As planned (shown on the Site Plan Drawing Number C-10 – Acorn Engineering – 2/14/2017; Attachment C), the project maintains more than the suggested 100-foot vegetative buffer along the Stoudwater River.

On March 20, 2017, Verdanterra conducted an unofficial Information for Planning and Conservation (IPaC; part of the Environmental Conservation Online System[1]) analysis for the Project to obtain a draft list of potentially occurring federally protected threatened or endangered species and critical habitats managed by the USFWS. The USFWS also implements the regulations of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. A formal request can be made to the USFWS should further endangered species coordination be required. For instance, Section 7 of the ESA requires Federal agencies (such as the U.S. Army Corps of Engineers for wetland permitting) request from the USFWS information on whether any species which is listed or proposed to be listed may be present

[1] The Environmental Conservation Online System (ECOS) is a gateway web site that provides access to data systems in the U.S. Fish and Wildlife Service (Service) and other government data sources. This central point of access assists Service personnel in managing data and information, and it provides public access to information from numerous Service databases. Available https://ecos.fws.gov/ipac/. Accessed March 20, 2017.

in the area of such proposed action (e.g. filing an application for a Section 404 of the Clean Water Act wetland fill permit).

The report indicated that northern long-eared bat (*Myotis septentrionalis*; threatened) has the potential to occur in the Project Area. There are no critical habitats for protected species in the Project Area, however there are a number of migratory birds of conservation concern protected under the Migratory Bird Treaty Act with the potential to occur in the Project Area. USFWS stresses the importance to avoid and minimize impacts to birds of conservation concern.

A wetland or waterbody permit is considered a federal action by the U.S. Army Corps of Engineers. As a threatened species, impacts to the northern long-eared bat would require a Section 7 Consultation between the U.S. Army Corps of Engineers and the USFWS. Under the Section 4(d) of the Endangered Species Act, the USFWS can issue regulations deemed "necessary and advisable to provide for the conservation of threatened species." It allows the USFWS to promulgate special rules for species listed as threatened (not endangered) that provide flexibility in implementing the Endangered Species Act. Federal actions that cause incidental take that is **not** prohibited under the 4(d) rule may still affect individual northern long-eared bats. Under Section 7 of the Endangered Species Act, a federal agency must consult with the Service if their action may affect a listed species, which includes effects to individuals. However, for the northern long-eared bat 4(d) rule, the USFWS has provided a framework to streamline Section 7 consultations when federal actions may affect the northern long-eared bat, but not cause prohibited take. The incidental take prohibition for known occupied maternity roosts trees applies only during the during the pup season (June 1 through July 31). Including the streamlined 4(d) rule compliance form with any necessary federal permitting is helpful to the permitting agency. This compliance includes the following determinations (among others).

- Does the Project occur within the White-Nosed Syndrome (WNS) zone?
- Is the USFWS aware of hibernacula or maternity roost trees within 0.25 miles of the Project?
- Would the Project cut trees within 150 feet of a known maternity roost tree?

Federal agencies may fulfill their project-specific Section 7 responsibilities by using the USFWS's framework. The notification would include a determination that the action would not cause prohibited incidental take. USFWS concurrence is not required, but the USFWS may advise the agency whether additional information indicates that project-level consultation is required. If the USFWS does not respond within 30 days, the action agency may consider its Section 7 responsibilities fulfilled with respect to the northern long-eared bat.

MNAP searched the Biological and Conservation Data System files and provided a response on November 10, 2016 for information on the presence of rare or unique botanical features documented from the vicinity of the Project. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. According to the information currently in MNAP's Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. There are, however, several of species of plants that are known to occur within 4 miles of the Project. Many of the plant species on this list are known to occur in very particular ecological communities.

1.2. New England Cottontail Habitat Requirements

The New England cottontail was listed as state endangered species in Maine in 2007. In 2010, Maine's New England cottontail population was estimated to be less than 200 rabbits. MDIFW determined the number of New England cottontail in Maine by conducting intensive winter surveys to locate occupied patches of habitat and estimating the number of rabbits per acre based on the size of the habitat patch.

The region-wide decline of New England cottontail has been attributed to habitat loss, and in particular, the loss of old field and shrubby habitat. New England cottontails need dense shrubby habitat to protect them from avian and terrestrial predators. Ideally, this dense cover should be interspersed with some grassy areas when the rabbits can find adequate food. Habitat blocks of at least 25 acres in size (ideally much larger) and close to additional patches of habitat are necessary for the species to survive[2].

New England cottontail depend more upon the structure of the vegetation (its form, height, and density) rather than specific species. In old fields, New England cottontail are commonly associated with juniper (*Juniperus spp.*), blackberry (*Rubus spp.*), spirea (*Spiraea spp*), dogwoods (*Cornus spp*), and a variety of young deciduous tree species (red maple [*Acer rubraum*], birch [*Betula spp.*], and aspen [*Populus spp.*])[2]. Old fields are also where New England cottontail are sometimes associated with exotics such as honeysuckle (*Lonicera spp.*), autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), and Japanese barberry (*Berberis thunbergii*)[2]. On wetter sites, alder (*Alnus spp.*), and willow (*Salix spp.*) are frequent dominants. Barbour and Litvaitis (1993) investigated selection of microhabitats in winter among New England cottontail preferred to use sites with >50,000 stem-cover units/ha (20,234 stem-cover units/acre)[3].

2. Methods

A Certified Wildlife Biologist[4] conducted a flora and fauna ecological assessment at the Project site. Prior to conducting the field survey, Verdanterra ecologists conducted a remote landscape analysis to better understand the ecological and regional context of the Project area. This landscape analysis approach to habitat evaluation considered a wide range of published literature, multi-year aerial photography, and wildlife biologist experience. Ecologists remotely characterized the ecological communities present on and adjacent to the Project area to guide a determination of landscape connectivity, with particular focus on identifying large habitat blocks or connecting corridors of habitat suitable for New England cottontail. The ecological community characterization was conducted in a GIS and considered landforms and land use as determined from aerial photographs, topography, wetlands and waterbodies, soil types, rare natural communities, and proximity of other habitats.

Verdanterra developed a list of habitats required for the rare and unique botanical features reported by MNAP to occur within 4 miles of the Project as well as for the New England cottontail. Remote sensing was used to preliminarily characterize the ecological habitat present in the Project Area. A field survey was conducted to verify these communities and to determine if the microhabitat requirements for individual plants occurs. This information was used to determine the likelihood of occurrence for these species at the Project. While many of the species could not be identified at this time of the year, it was feasible to identify potential habitat for these species. Should suitable habitat be identified for any of the species that were provided by MNAP, targeted species surveys would be recommended for the appropriate growing season phase (flowering or fruiting). Growing season surveys were not conducted. If identified in the field, the location of groups of rare plants identified will be recorded using a GPS (i.e. a GPS location of each individual plant will not be collected) with sub-meter accuracy and a MNAP rare species form will be completed.

Verdanterra ecologists conducted a field survey to support the remote landscape analysis. The on-site habitat assessment was based on a pre-determined list of habitat features developed for the site that are required for the

[2] Litvaitis, J.A., and W.J. Jakubas. 2004. New England Cottontail (Sylvilagus transitionalis) Assessment 2004. Unpublished report. 59pp.
[3] Barbour, M.S., and J.A. Litvaitis. 1993. Niche dimensions of New England cottontails in relation to habitat patch size. Oecologia 95:321-327.
[4] As certified by the Wildlife Society, Bethesda Maryland

species to occur. Ecologists also searched the area for signs of cottontail tracks, browse, or pellets. This list of habitat requirements is based on biologist knowledge, published papers and reports, and comparisons to reference habitats familiar to the ecologist. The quality of habitats was evaluated based on strength of species associations with particular natural communities, landscape position and connectivity, and other ecological metrics (e.g. canopy cover, ground cover, water depth, soils, plant species composition, distance from potential feeding and/or breeding locations, etc.). Natural community delineation and habitat assessment is not intended to determine presence/absence, but rather allow informed decisions to be made during the permitting process.

The wildlife biologist evaluated the overall habitat quality and position in the landscape to develop suggested conservation management strategies that could be implemented to avoid or minimize impacts to listed species. Photographs were taken to aid in the discussion of various habitat attributes or conditions that illustrate the findings of this assessment (Appendix B).

3. Results

A landscape analysis finds that the parcel is predominantly an active cattle pasture bordered to the west by Interstate 95, the south by the Stroudwater River, and mixed residential / forested land use to the north and east. The limits of disturbance of the Project are predominantly active cattle pasture with a south facing aspect that slopes down to the Stroudwater River. An east-west running electric transmission corridor occurs north of the site and an oil pipeline bisects the parcel north to south. Neither of these transmission corridors are significant wildlife pathways considering the barriers provided by Interstate 95, Stroudwater River, and the dense mixed residential / commercial development of Deering, Deer Hill, and Nasons Corners neighborhoods.

The field survey was conducted on March 13, 2017 and confirmed that land use was consistent with current aerial photography. The weather during the survey was sunny, 15° F and a light dusting of snow covered the ground early in the morning. There are several small groves of white pine (*Pinus strobus*) and various maple and oak trees that are part of the landscaping of the existing residential structure, however the majority of the area within the limits of disturbance is herbaceous in nature. There is a forested fence line on the western part of the parcel and several palustrine emergent wetland drainages. The wooded fence line is composed of several white pine, northern red oak (*Quercus rubra*), and black cherry (*Prunus serotina*). The pasture has been maintained through cattle grazing and occasional mowing. Cropped grasses observed include Kentucky bluegrass (*Poa pratensis*), timothy (*Phleum pratense*), and smooth bromegrass (*Bromus inermis*); intermixed with hawksweed (*Hieracium* spp.), Queen Anne's lace (*Daucus carota*), milkweed (*Asclepias syriaca*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and goldendrod (*Solidago spp*). Shrub sprouts in the meadow include raspberry, quaking aspen, and multiflora rose (*Rosa multiflora*). Wetland areas are comprised of cattail (*Typha spp.*), rushes, sedges, common reed (*Phragmites australis*), steeplebush (*Spirea tomentosa*), speckled alder (*Alnus incana*), and American pussy willow (*Salix discolor*). There was evidence of past earth disturbance on site including the pipeline right of way, access roads, and old structure foundations throughout much of the site.

A steep slope occurs at the southern limit of disturbance that has several white pine and black cherry interspersed with shrubs such as multiflora rose, red maple, and hawthorn (*Crataegus spp.*). The shrubs remain in small clusters with little to no vegetation underneath due to cattle grazing. Much of this sideslope will not be within the limits of disturbance.

3.1. Rare or Unique Botanical Features Evaluation

MNAP indicated that there are 22 rare or unique botanical features that occur within 4 miles of the Project. Most of the species on this list (Table 1) are only found in ecological communities not present in the Project Area (e.g. rocky summits, tidal wetlands, dry barrens, forested wetlands, etc.). Habitat requirements for two of these species generally includes open wetland communities. Creeping spike-moss (*Selaginella apoda*; state endangered) and hollow Joe-pye weed (*Eutrochium fistulosum*; state special concern) generally occur in open herbaceous wetlands, roadside ditches, and old fields.

State endangered species creeping spike-moss is at the northern extent of its range and has been historically identified (1924) within 4 miles of the Project and in 10 other southern Maine towns. This plant is unlikely to occur in the Project Area due to the disturbances associated with cattle grazing and occasional vegetation management. State special concern species hollow Joe-pye weed can tolerate occasional disturbances caused by mowing, but generally is not found in highly grazed pastures. The vegetative cover was thin throughout the site and plants from the last growing season can often be found standing or laying over during the winter. No dead stalks were identified that resembled hollow Joe-pye weed.

Areas within the Project Area that are unmaintained (e.g. steep slopes, around trees, fence lines) are dominated by small dense patches of invasive shrubs. While this assessment was conducted outside of the growing season, it is unlikely that rare or unique botanical features occur within the Project Area.

Table 1. Rare and Exemplary Botanical Features within 4 Miles of 1700 Westbrook Street

Common Name	State Status	State Rank	Global Rank	Last Observed	Occurrence Number	Habitat Requirement	Habitat in Project Area?
Allegheny vine	E	S1	G4	10/1860	9	Rocky summits and outcrops (non-forested, upland), Dry barrens (partly forested, upland)	No
American sea-blite	T	S2	G5	9/12/1932	5	Tidal wetland (non-forested, wetland)	No
	T	S2	G5	8/15/2011	17		
beach plum	E	S1	G4	5/19/1933	10	Rocky coastal (non-forested, upland)	No
broad beech fern	SC	S2	G5	8/1872	15	Hardwood to mixed forest (forest, upland)	No
creeping spike-moss	E	S2	G5	8/20/1924	3	Open wetland, not coastal nor rivershore (non-forested, wetland), Old field/roadside (non-forested, wetland or upland)	Potential
	E	S2	G5	8/21/1924	8		
dioecious sedge	SC	S3	G4	7/14/1936	7	Non-tidal rivershore (non-forested, seasonally wet), open wetland, not coastal nor rivershore (non-forested, wetland)	No
ebony spleenwort	SC	S2	G5	6/6/1910	10	Rocky summits and outcrops (non-forested, upland), Hardwood to mixed forest (forest, upland)	No
Engelmann's spikerush	PE	SH	G4G5Q	8/31/1916	2	Open wetland, not coastal nor rivershore (non-forested, wetland); wet sand, peat, mud	No
fern-leaved false foxglove	SC	S3	G5	9/2/1902	13	Dry barrens (partly forested, upland), Hardwood to mixed forest (forest, upland)	No
great blue lobelia	PE	SX	G5	9/1/1905	3	Forested wetland, Non-tidal rivershore (non-forested, seasonally wet)	No
hollow joe-pye weed	SC	S2	G5?	6/18/2014	24	Open wetland, not coastal nor rivershore (non-forested, wetland), old field/roadside (non-forested, wetland or upland)	Potential
	SC	S2	G5?	10/22/2007	18		
horned pondweed	SC	S2	G5	9/13/1913	9	Tidal wetland (non-forested, wetland)	No
	SC	S2	G5	6/13/1972	3		
marsh milkwort	PE	SH	G5T4	8/18/1903	1	Dry barrens (partly forested, upland), Open wetland, not coastal nor rivershore (non-forested, wetland)	No
Missouri rockcress	T	S1	G5?Q	6/11/1905	5	Rocky summits and outcrops (non-forested, upland), Hardwood to mixed forest (forest, upland)	No
mountain honeysuckle	E	S2	G5	7/16/2015	16	Dry barrens (partly forested, upland), Hardwood to mixed forest (forest, upland)	No
	E	S2	G5	7/7/2015	17		
Parker's pipewort	SC	S3	G3	8/20/1924	8	Tidal wetland (non-forested, wetland)	No
pitch pine bog	<null>	S2	G3G5	7/31/2012	16	Forested wetland, coastal non-tidal wetland (non-forested, wetland)	No
tidal marsh estuary ecosystem	<null>	S3	GNR	8/25/2011	8	Tidal wetland (non-forested, wetland)	No
variable sedge	E	S1	G3	3/25/1905	8	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)	No
	E	S1	G3	6/29/1911	9		
Vasey's pondweed	SC	S2	G4	8/4/1901	7	Open water (non-forested, wetland)	No
water-plantain spearwort	PE	SH	G4	8/1862	3	Open water (non-forested, wetland)	No
wild leek	SC	S3	G5	5/10/2006	19	Hardwood to mixed forest (forest, upland), Forested wetland	No

Table 1 Notes

STATE RARITY RANKS

S1	Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
S2	Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
S3	Rare in Maine (20-100 occurrences).
S4	Apparently secure in Maine.
S5	Demonstrably secure in Maine.
SU	Under consideration for assigning rarity status; more information needed on threats or distribution.
SNR	Not yet ranked.
SNA	Rank not applicable.
S#?	Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).
NOTE:	State Rarity Ranks are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1	Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
G2	Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
G3	Globally rare (20-100 occurrences).
G4	Apparently secure globally.
G5	Demonstrably secure globally.
GNR	Not yet ranked.
NOTE:	Global Ranks are determined by NatureServe.

STATE LEGAL STATUS

NOTE:	State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's Endangered and Threatened plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.
E	ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
T	THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC	SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
PE	Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

3.2. Wildlife Habitat Evaluation

A number of wildlife were observed during the field visit (Table 2) typical for the season in this habitat. The light snow provided some opportunity to track on the otherwise frozen ground, but it was not so deep that scat, burrows, trails, or other wildlife signs were not visible. Several regular paths used by coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and striped skunk (*Mephitis mephitis*) were observed. Scat, tracks, and venting frost from a red fox den were observed on the site. A variety of winter resident and early spring migrant birds were observed in the Project Area.

Table 2. Wildlife Observed at 1700 Westbrook Street (3/13/2017)

Common Name	Scientific name
Birds	
downy woodpecker	*Picoides pubescens*
northern cardinal	*Cardinalis cardinalis*
pileated woodpecker	*Dryocopus pileatus*
black-capped chickadee	*Poecile atricapillus*
red-winged blackbird	*Agelaius phoeniceus*
American crow	*Corvus brachyrhynchos*
blue jay	*Cyanocitta cristata*
herring gull	*Larus argentatus*
red-tailed hawk	*Buteo jamaicensis*
American crow	*Corvus brachyrhynchos*
Mammals	
red fox	*Vulpes vulpes*
Eastern coyote	*Canis latrans*
striped skunk	*Mephitis mephitis*

A thorough evaluation of the sideslope dominated by invasive shrubs did not show signs of cottontail use such as scat, tracks, or sign of browse. The multiflora rose, hawthorn, and other shrubs are separated by cattle paths, thereby separating most of the shrubs from each other. The areas under shrubs were free of vegetation due to heavy browse and foot traffic by cattle. The cattle use the area as shelter from the sun, making this area unsuitable for New England cottontail. The patch of shrubby habitat is too small, lacks the proper vegetative structure, lacks the preferred stem density, and is largely unconnected to other areas of suitable New England cottontail habitat.

It is unlikely that the USFWS has hibernacula or maternity roost records for northern long-eared bat (*Myotis septentrionalis*) in the vicinity of the Project based on other work conducted by Verdanterra in the area. There was nothing observed in the field visit to suggest otherwise. Therefore, we believe the 4(d) rule for the northern long-eared bat could be applied.

If there is a federal nexus for the project (e.g., federal permits required to construct), no tree clearing should occur on any portion of the Project Area until consultation under Section 7 of the Endangered Species Act, between the USFWS and the federal action agency, is completed. The applicant can prepare the 4(d) notification form and submit it with their wetland permit for use by the U.S. Army Corps during the Section 7 consultation.

4. Conclusions and Recommendations

The results of the landscape analysis and subsequent field assessment found that rare or unique botanical features previously documented in the area by MNAP are unlikely to occur within the limits of disturbance of the Project. Many of the habitats required do not occur on the Project site. The herbaceous wetlands present on site are impacted by decades (at least since 1984) of cattle grazing and occasional vegetation management, making them unsuitable for any of these rare or unique botanical features. No further evaluation of plant or protected natural communities are recommended at the Project.

Several species of wildlife or their signs were observed within the Project area. While several areas of dense shrubs exist on the edges of the limits of disturbance, none of these areas are suitable to support populations of New England cottontail. The islands of invasive shrubs lack the density, aerial coverage, or connectivity to support a population of New England cottontail.

There are trees of size and quality to act as potential northern long-eared bat at the Project, however, any tree cutting required would qualify under the 4(d) rules as incidental take. While there are no specific cutting restrictions for northern long-eared bats, providing this information along with any required federal permits will hopefully speed up the consultation between the U.S. Army Corps of Engineers and the USFWS. Additionally, there are not likely to be significant adverse impacts to birds of conservation concern listed as occurring within Cumberland County, Maine.

Figures

Figure 1. Camelot Farms - Project Location Map

Figure 2. Project Limits of Disturbance – Aerial Background

Figure 3. Project Limits of Disturbance – Topographic Background

VERDANTERRA

Map Details

Location

Cumberland County, Maine

Last Modified: March 17, 2017

REVISION	00
CREATOR	AS 03/16/2017
REVIEWED	GG 03/16/2017

Page 01 of 01

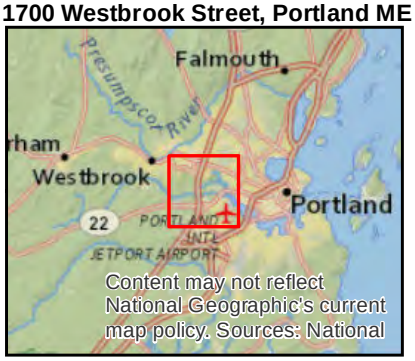
Legend

- Project Location

0 1,000 2,000 Feet

Data Sources include: USGS, VT
Orthophotography: USGS Topographic Quad

Figure 1.
Project Location
Camelot Farms
1700 Westbrook Street, Portland ME



Map Location in Red

The information on this map has been compiled by staff from a variety of sources and is subject to change without notice. Verdanterra makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information.

VERDANTERRA

Map Details

Location

Cumberland County, Maine

Last Modified: March 17, 2017

REVISION	00
CREATOR	AS 03/17/2017
REVIEWED	GG 03/17/2017

Page 01 of 01

Legend

- Limit of Disturbance
- Shoreland Protection Zone
- Wetland Areas

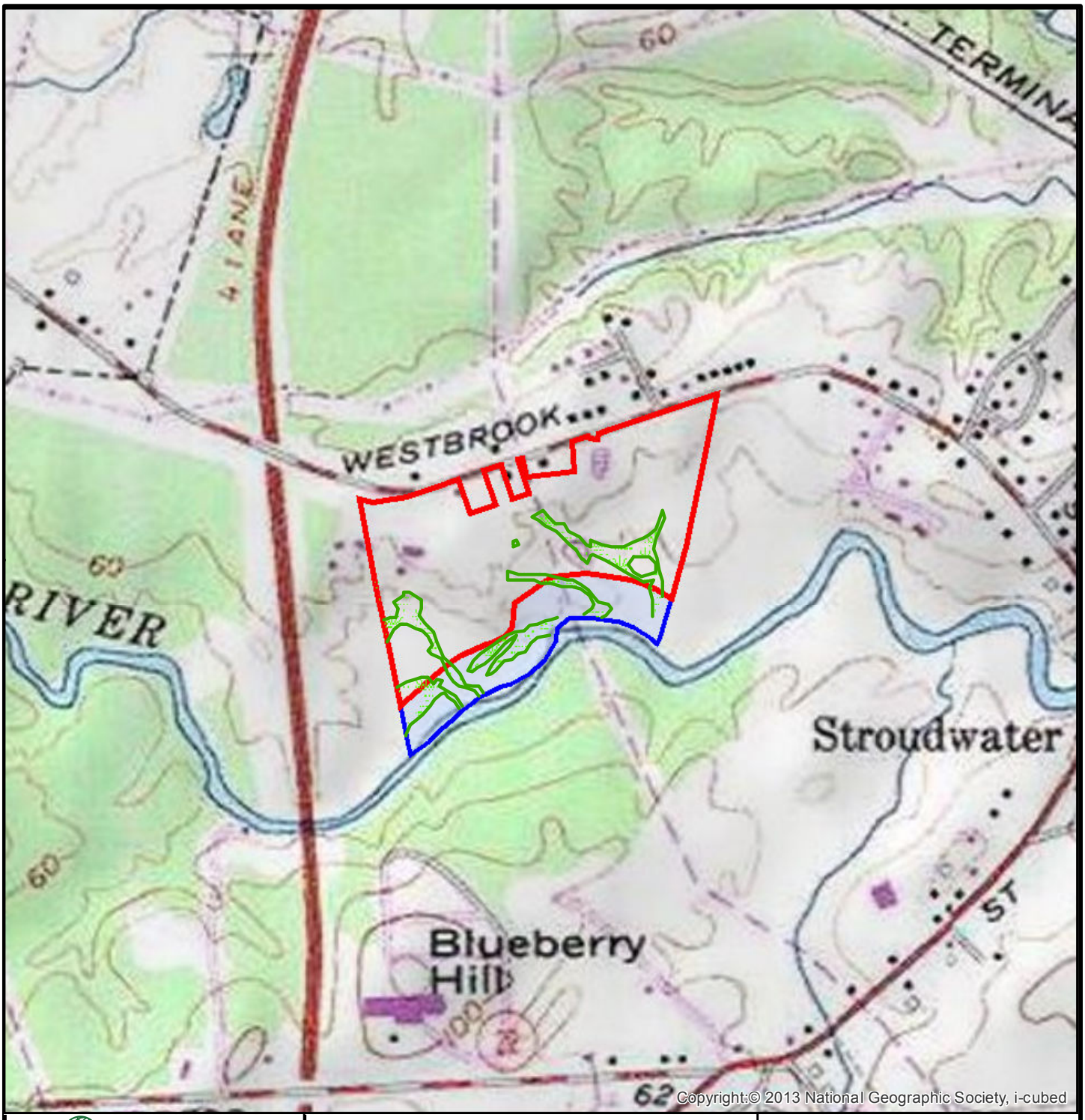
0 150 300 Feet

Data Sources include: USGS, VT
Orthophotography: USGS Topographic Quad

Figure 2.
Project Limits of Disturbance (Aerial)
Camelot Farms
1700 Westbrook Street, Portland ME

Map Location in Red

The information on this map has been compiled by staff from a variety of sources and is subject to change without notice. Verdanterra makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information.



VERDANTERRA

Map Details

Location

Cumberland County, Maine

Last Modified: March 27, 2017

REVISION	00
CREATOR	AS 03/17/2017
REVIEWED	GG 03/17/2017

Page 01 of 01

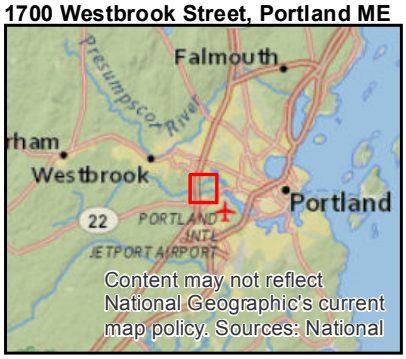
Legend

- Limit of Disturbance
- Shoreland Protection Zone
- Wetland Areas

0 300 600 Feet

Data Sources include: USGS, VT
Orthophotography: USGS Topographic Quad

Figure 3.
Project Limits of Disturbance (Topo)
Camelot Farms
1700 Westbrook Street, Portland ME



Map Location in Red

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Appendix A. Verdanterra Resume

Gino Giumarro

Director of Ecological Services

Gino is a Certified Wildlife Biologist and Director of Ecological Services that leads our team of biologists who complete natural resources assessment and permitting, pipeline/transmission line assessment and permitting, wind power assessments, regional natural resources planning, wildlife management planning, and permitting. He has specialty expertise with bird and bat surveys, with a focus on rare species surveys and consultations under the Endangered Species Act.

Gino oversees FERC license applications, RTE surveys, ecological community characterizations, biological assessments, Section 7 consultations, Clean Water Act permitting, and document preparation in accordance with the NEPA.

Gino's client experience includes a wide array of federal, state, local, and private clients. He is certified by the US Army Center for Health Promotion and Preventative Medicine in the Evaluation of Environmental Noise and is a Qualified Airport Biologist as recognized by the FAA.

REPRESENTATIVE PROJECT EXPERIENCE

RANGER SOLAR INDUSTRIAL SCALE SOLAR FACILITIES
Project Manager and Lead Ecologist

Gino is the Project Manager and Lead Ecologist for Ranger Solar's development of five utility scale solar facilities throughout New England. Each of the sites were surveyed for vernal pools, wetlands and waterbodies, and rare vernal pool dependent species. Resources were characterized according to applicable state and federal standards and definitions.

NORWOTTUCK RAILTRAIL REHABILITATION PROJECT, MA
Senior Ecologist

Provided oversight natural community, general wildlife, and rare species habitat assessments within the 11- mile rail trail corridor. Evaluated habitat conditions for 19 state-listed rare wildlife and plant species documented by the NHESP and provided impact minimization recommendations to the engineer to comply with MESA. Evaluated current beaver damage to the rail trail corridor and reviewed beaver management planning in accordance with MWPA and MESA performance standards.

EDUCATION

MS, Natural Resources Planning, University of Vermont, Burlington, Vermont

BS, Wildlife Biology, University of Massachusetts, Amherst, Massachusetts

TRAINING

Airport Wildlife Hazard Management Workshop (meets requirements of 14 CFR 139 and FAA Circ 150/5200-36), Embry-Riddle Aeronautical University, Daytona Beach, Florida, 2010

Qualified Airport Wildlife Biologist, Federal Aviation Administration

Certified Wildlife Biologist, The Wildlife Society

Gino Giumarro

Director of Ecological Services

SPOTTED TURTLE HABITAT ASSESSMENT AND SURVEYS, MA
Senior Ecologist

Conducted an assessment of suitable habitat conditions and visual surveys for spotted turtles at the site of a proposed major commercial and residential development. Assisted with the development of wildlife crossing structure and exclusion barrier design and placement. Coordinated project planning and mitigation design with local and state agencies in compliance with MESA.

REGIONAL BLANDING'S TURTLE RAPID HABITAT ASSESSMENT, NH
Senior Ecologist

Conducted and managed landscape analysis, habitat assessment, and field survey of Blanding's turtle habitat modeling results in southern and central New Hampshire. Developed regional study plan in coordination with the New Hampshire Fish and Game Department to assess modeling results of 15 sites (>1500 acres). Results evaluated suitable habitat conditions, new observations of Blanding's turtles, and conservation planning and management recommendations.

KINDER MORGAN PARKWAY PIPELINE PROJECT
Principal Scientist

The Parkway Pipeline Project (PWP) proposes to construct a new 136-mile, 16-inch diameter liquid products pipeline originating at Valero Energy Corporation's St. Charles Refinery in Norco, Louisiana and terminating at Kinder Morgan's pipeline terminal in Collins, Mississippi. The purpose of the project is to transport refined petroleum products from Norco to Collins, where these products can be further distributed to the southeastern United States. Mr. Giumarro assisted with permitting and routing studies for this project.

NEXUS GAS TRANSMISSION PROJECT
Project Manager

Gino managed wetland and waterbody surveys and delineations on an approximate 250 mile proposed pipeline corridor crossing portions of Ohio and Michigan. Daily data collection and reporting included USACE wetland data forms, Ohio Rapid Assessment Method (ORAM), stream assessments (HHEI/QHEI), and GPS survey within the proposed pipeline right-of-way.

NATURAL RESOURCE SERVICES
Senior Ecologist and Project Manager

Conducted assessment and surveys of numerous project sites throughout New England to identify suitable habitat conditions for a variety of rare, threatened, and endangered species; or rare communities; wetlands; and vernal pools. Determinations were provided to assist with project planning and permit applications in compliance with applicable local, state, and federal natural resource regulations.

OTHER REPRESENTATVE PROJECTS

Sandpiper Pipeline Project (Minnesota)

Downeast LNG Export Terminal (Maine)

TransCanada Pipeline Groundbed Anode Replacement (Michigan)

Blue Racer Midstream Natrium Residue Pipeline (Ohio/West Virginia)

Blue Racer Midstream Carlisle Dos Looping Project (Ohio)

Access Midstream Rare Bat Surveys (Ohio)

National Park Service Cape Cod NS Hunting EIS (Massachusetts)

Wind Farm Development Surveys and Risk Assessments (New York, New Hampshire, Vermont, Maine, Virginia, West Virginia, and Pennsylvania)

Mount Rushmore National Memorial Air Tour Management Plan Environmental Assessment (South Dakota)

NASA Wallops Island Flight Facility Bat Evaluation, Wallops Island (Virginia)

Appendix B. Site Visit Photodocumentation

Photo 1 – Property access off 1700 Westbrook Street, Portland, Maine

Photo 2 – Wet ditch paralleling Westbrook Street

Photo 3 – Shrub and treeline at the western edge of the limits of disturbance; north to south

Photo 4 – Narrow treeline surrounded by pasture does not connect other dense shrub habitat

Photo 5 – Narrow treeline on the western edge of the limits of distrurbance

Photo 6 – The meadow has thin grass, herb, and raspberry cover; many signs of grazing

Photo 7 – Forested edge near Stroudwater River is free of dense shrub cover

Photo 8 – Open floodplain forest adjacent to Stroudwater River

Photo 9 – Numerous fox tracks were observed

Photo 10 – Small patches of multiflora rose occur in areas that cannot be mowed

Photo 11 – Black cherry, multiflora rose and speckled alder occur along wetland / toe of slope

Photo 12 – Shrubby areas are kept open by cattle grazing

Photo 13 – Cattle paths occur under the canopy and within shrub areas

Photo 14 – Cattle path on sideslope south of Stroudwater River

Photo 15 – Numerous signs of past land uses such as this access road and an oil pipeline

Photo 16 – Fox den

Photo 17 – Thin cover of goldenrod, grasses, thistle, hawksweed; raspberry

Photo 18 – No understory in the small grove of white pine adjacent to Westbrook Street

Photo 19 – Vegetative cover is typical of cattle pastures in southern Maine

Photo 20 – Emergent wetland seep adjacent to a slope has allowed multiflora rose to grow in isolated places in the pasture

Appendix C. Agency Correspondence

1. Site Plan Drawing Number C-10 – Acorn Engineering – 2/14/2017
2. Maine Natural Areas Program Letter – 11/10/2016
3. Maine Division of Inland Fisheries and Wildlife Letter – 12/2/2016
4. United States Fish and Wildlife Service IPaC Analysis – 3/20/2017
5. Maine Historic Preservation Commission Letter – 12/9/2016

R-3
ZONE CHANGE CONCEPT PLAN

GENERAL NOTES:

1. PLAN REFERENCES:
   1.1. MAINE OFFICE OF GIS FOR AERIAL AND CONTOUR DATA
   1.2. CITY OF PORTLAND GIS FOR PARCEL AND ZONING DATA
   1.3. PRELIMINARY BOUNDARY SURVEY DATED 11/16/2016 COMPLETED BY TITCOMB ASSOCIATES.
   1.4. WETLAND DELINEATION BY MARK HAMPTON ASSOCIATES DATED 11/18/2016
2. AREA DEPICTED FOR THE SHORELAND OVERLAY ZONE IS APPROXIMATE BASED ON PORTLAND GIS DATA.
3. IN ANTICIPATION OF BEING BUILT INTO PHASES, TURNAROUND CAPABILITIES WILL BE MAINTAINED IN THE CENTER OF THE DEVELOPMENT. THE TURNAROUND WILL BE A MINIMUM 30' LONG AS MEASURED FROM THE PROPOSED ROW PER TECHNICAL STANDARD AND WILL BE REMOVED AT PROJECT COMPLETION.

SPACE AND BULK STANDARDS		
ZONE:	R-1 (EX.)	R-3 (PROP.)
MINIMUM LOT SIZE	15,000 SF	6,500 SF
MINIMUM STREET FRONTAGE	75'	50'
FRONT YARD	25'	25'
REAR YARD – PRINCIPAL	25'	25'
REAR YARD – ACCESSORY	5'	5'
SIDE YARD	16'	16'
STRUCTURE STEPBACKS (REAR YARD ABOVE 35')	–	15'
MAXIMUM LOT COVERAGE	20%	35%
MINIMUM LOT WIDTH*	100'	65'
MAXIMUM BUILDING HEIGHT	35'	35'
MAXIMUM ACCESSORY HEIGHT	18'	18'

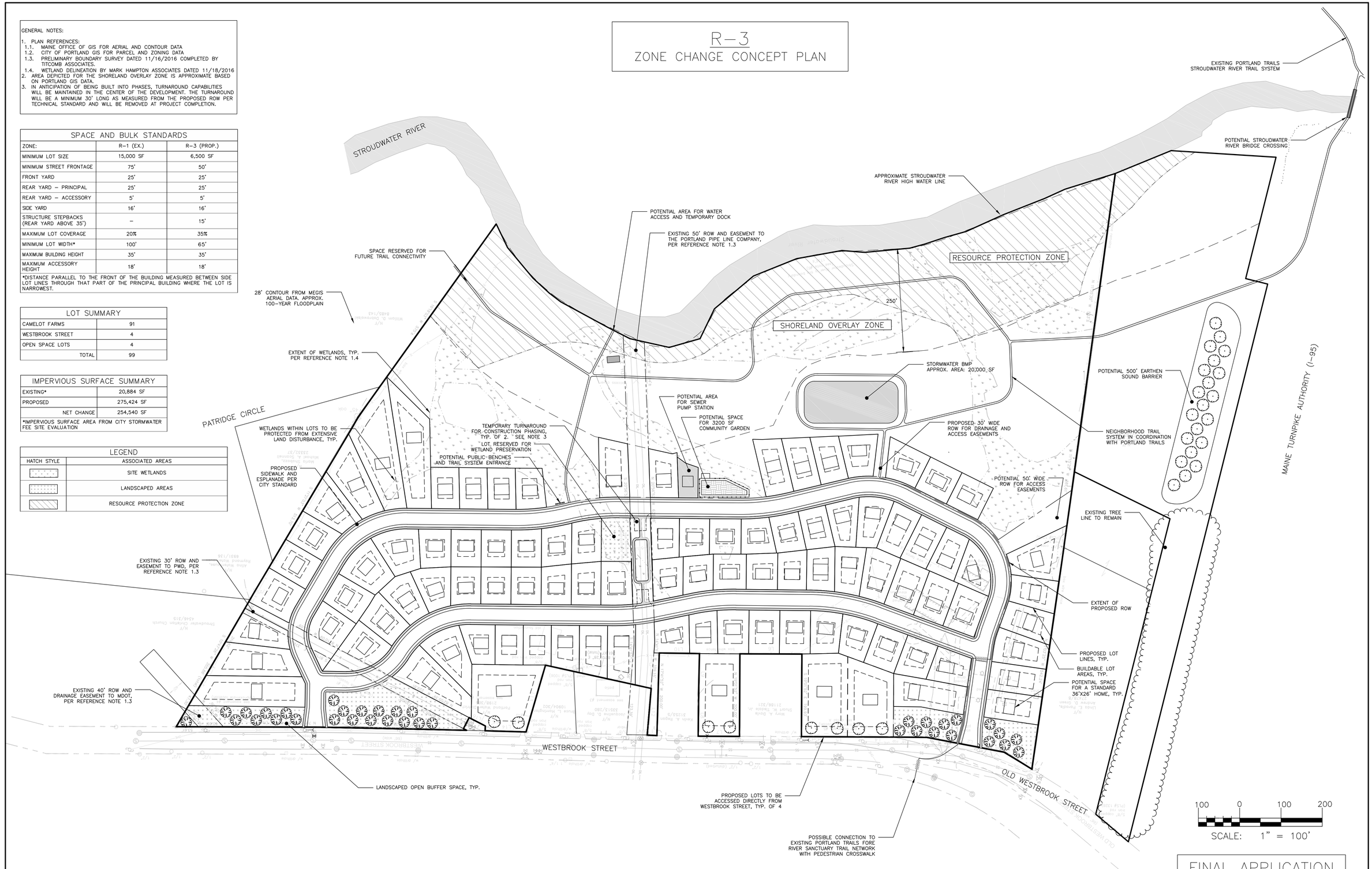
*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.

LOT SUMMARY	
CAMELOT FARMS	91
WESTBROOK STREET	4
OPEN SPACE LOTS	4
TOTAL	99

IMPERVIOUS SURFACE SUMMARY	
EXISTING*	20,884 SF
PROPOSED	275,424 SF
NET CHANGE	254,540 SF

*IMPERVIOUS SURFACE AREA FROM CITY STORMWATER FEE SITE EVALUATION

LEGEND	
HATCH STYLE	ASSOCIATED AREAS
	SITE WETLANDS
	LANDSCAPED AREAS
	RESOURCE PROTECTION ZONE



FINAL APPLICATION
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRE-APP	WHS	10/27/16
PRELIM APP	WHS	12/9/16
FINAL APP	WHS	2/14/17

DRAWING NAME: SITE PLAN – R-3 CONCEPT
PROJECT NAME: CAMELOT VILLAGE
CLIENT: CAMELOT HOLDINGS, LLC
KENNEBUNK, MAINE 04043

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN WITHOUT THE WRITTEN PERMISSION OF ACORN ENGINEERING, INC. OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=100'
DESIGNED BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11416
2-14-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

November 10, 2016

Olivia Dawson
Acorn Engineering
PO Box 3372
Portland, ME 04104

Via email: odawson@acorn-engineering.com

Re: Rare and exemplary botanical features in proximity to: Camelot Farms Subdivision, Portland, Maine

Dear Ms. Dawson:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received November 10, 2016 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM

DEPARTMENT OF maine Agriculture Conservation & Forestry

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Don Cameron | Ecologist | Maine Natural Areas Program
207-287-8041 | don.s.cameron@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Allegheny Vine						
	E	S1	G4	1860-10	9	Rocky summits and outcrops (non-forested, upland),Dry barrens (partly forested, upland)
American Sea-blite						
	T	S2	G5	1932-09-12	5	Tidal wetland (non-forested, wetland)
	T	S2	G5	2011-08-15	17	Tidal wetland (non-forested, wetland)
Beach Plum						
	E	S1	G4	1933-05-19	10	Rocky coastal (non-forested, upland)
Broad Beech Fern						
	SC	S2	G5	1872-08	15	Hardwood to mixed forest (forest, upland)
Creeping Spike-moss						
	E	S2	G5	1924-08-20	3	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
	E	S2	G5	1924-08-21	8	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Dioecious Sedge						
	SC	S3	G4	1936-07-14	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Ebony Spleenwort						
	SC	S2	G5	1910-06-06	10	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Engelmann's Spikerush						
	PE	SH	G4G5Q	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested, wetland)
Fern-leaved False Foxglove						
	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Great Blue Lobelia						

Rare and Exemplary Botanical Features within 4 miles of
Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	PE	SX	G5	1905-09	3	Forested wetland,Non-tidal rivershore (non-forested, seasonally wet)
Hollow Joe-pye Weed						
	SC	S2	G5?	2014-06-18	24	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
	SC	S2	G5?	2007-10-22	18	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Horned Pondweed						
	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
	SC	S2	G5	1972-06-13	3	Tidal wetland (non-forested, wetland)
Marsh Milkwort						
	PE	SH	G5T4	1903-08-18	1	Dry barrens (partly forested, upland),Open wetland, not coastal nor rivershore (non-forested, wetland)
Missouri Rockcress						
	T	S1	G5?Q	1905-06-11	5	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Mountain Honeysuckle						
	E	S2	G5	2015-07-16	16	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
	E	S2	G5	2015-07-07	17	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Parker's Pipewort						
	SC	S3	G3	1924-08-20	8	Tidal wetland (non-forested, wetland)
Pitch Pine Bog						
	<null>	S2	G3G5	2012-07-31	16	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
Tidal Marsh Estuary Ecosystem						
	<null>	S3	GNR	2011-08-25	8	Tidal wetland (non-forested, wetland)
Variable Sedge						

Rare and Exemplary Botanical Features within 4 miles of

Project: Camelot Farms Subdivision, Portland, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	E	S1	G3	1911	8	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
	E	S1	G3	1911-06-29	9	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Vasey's Pondweed						
	SC	S2	G4	1901-08-04	7	Open water (non-forested, wetland)
Water-plantain Spearwort						
	PE	SH	G4	1862-08	3	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2006-05-10	19	Hardwood to mixed forest (forest, upland),Forested wetland

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

S4 Apparently secure in Maine.

S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.

G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

CHANDLER E. WOODCOCK
COMMISSIONER

December 2, 2016

Olivia Dawson
Acorn Engineering, Inc.
158 Danforth Street
Portland, ME 04102

RE: Information Request - Camelot Farms subdivision, Portland

Dear Olivia:

Per your request received November 10, 2016, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *Camelot Farms subdivision project* in Portland. For purposes of this review, we are assuming that the development will occur primarily within maintained fields and tree clearing will not be necessary. If tree clearing is ultimately proposed, please contact our Department for further guidance

Our information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be directly affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats that would be directly affected by your project.

Fisheries Habitat

Without details, it is difficult to know what impacts your project may have on the Stroudwater River. That being said, MDIFW makes the following general recommendations as they pertain to work around rivers and streams.

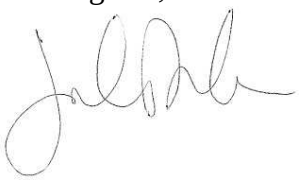
Maintaining buffers along coldwater fisheries is critical to the protection of water temperatures, water quality, and inputs of coarse woody debris necessary to support conditions required by brook trout. We generally recommend that a 100-foot undisturbed vegetated buffer be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and fisheries habitat. In addition, we recommend that any necessary instream work or work within 100 feet of streams occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and

Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



John Maclaine
Biologist

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

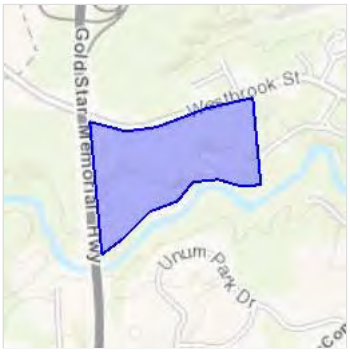
Project information

NAME

Camelot Farms

LOCATION

Cumberland County, Maine



DESCRIPTION

Residential development

Not for consultation

Local office

Maine Ecological Services Field Office

(207) 469-7300
(207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS

306 Hatchery Road
East Orland, ME 04431

http://www.fws.gov/mainefieldoffice/index.html

Endangered species

This resource list is for informational purposes only and should not be used for planning or analyzing project level impacts.

Section 7 of the Endangered Species Act **requires** Federal agencies to *"request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action"* for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Review section in IPaC or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by creating a project and making a request from the Regulatory Review section.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis **No critical habitat** has been designated for this species. http://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Not for consultation

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location, not a list of every bird species you may find in this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources.

NAME	SEASON(S)
American Bittern Botaurus lentiginosus http://ecos.fws.gov/ecp/species/6582	On Land: Breeding
American Oystercatcher Haematopus palliatus http://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle Haliaeetus leucocephalus http://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Bay-breasted Warbler Dendroica castanea	On Land: Breeding
Black-billed Cuckoo Coccyzus erythropthalmus http://ecos.fws.gov/ecp/species/9399	On Land: Breeding

Blue-winged Warbler Vermivora pinus	On Land: Breeding
Canada Warbler Wilsonia canadensis	On Land: Breeding
Great Cormorant Phalacrocorax carbo	On Land: Wintering
Hudsonian Godwit Limosa haemastica	At Sea: Migrating
Least Bittern Ixobrychus exilis http://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Nelson's Sparrow Ammodramus nelsoni	On Land: Breeding
Olive-sided Flycatcher Contopus cooperi http://ecos.fws.gov/ecp/species/3914	On Land: Breeding
Peregrine Falcon Falco peregrinus http://ecos.fws.gov/ecp/species/8831	On Land: Breeding
Pied-billed Grebe Podilymbus podiceps	On Land: Breeding
Prairie Warbler Dendroica discolor	On Land: Breeding
Purple Sandpiper Calidris maritima	On Land: Wintering
Saltmarsh Sparrow Ammodramus caudacutus	On Land: Breeding
Short-eared Owl Asio flammeus http://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret Egretta thula	On Land: Breeding
Upland Sandpiper Bartramia longicauda http://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Willow Flycatcher Empidonax traillii http://ecos.fws.gov/ecp/species/3482	On Land: Breeding
Wood Thrush Hylocichla mustelina	On Land: Breeding

Not for consultation

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details

about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Not for consultation

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Not for consultation

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

PAUL R. LEPAGE
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 9, 2016

Olivia Dawson, E.I.
Acorn Engineering, Inc.
P.O. Box 3372
Portland, ME 04104

Project: MHPC# 1678-16 - Camelot Holdings, Inc., 1700 Westbrook Street; redevelop existing farm with single family homes

Town: Portland, ME

Dear Ms. Dawson:

In response to your recent request, I have reviewed the information received November 16, 2016 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

In order to complete our review, we are requesting the following information:

1. Submit photos (keyed to a topographic map) of any buildings that are fifty years or older that are on or adjacent to the project site. If no such buildings exist, please indicate this in writing.

2. An archeological Phase I survey for prehistoric archaeological sites is necessary for all land on this project area below the 40 foot contour or within 100 yards of the Stroudwater River. A list of approved archaeologists is enclosed. Please note that we must review the proposal/scope of work for this survey that you choose. Please contact Dr. Arthur Spiess, Senior Archaeologist arthur.spiess@maine.gov with any questions.

Once this information is received, we will forward a response regarding the results of our evaluation.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

Enc.

PHONE: (207) 287-2132 FAX: (207) 287-2335

AGENCY INFORMATION

- About Us
- National Register of Historic Places
- Project Review
  - Architectural & Archaeological Consultants
    - Architectural Consultants
    - Historic Archaeologists
    - Pre-Historic Archaeologists
  - Architectural Survey Guidelines
  - Architectural Survey Forms
  - Archaeological Survey Guidelines
  - Required Materials
  - Topographic Quad Maps
  - Map/Photo Examples
- Tax Incentives
- Grants
- Restoration Resources
- Archaeology
- Architectural Survey
- Certified Local Government (CLG) Program
- Preservation Planning
- Laws & Regulations
- Historic Preservation Easements
- Office of the State Historian
- Biographical Dictionary of Architects in Maine

Home > Project Review > Architectural & Archaeological Consultants > Prehistoric Archaeologists

Prehistoric Archaeologists

Prehistoric Archeologists Approved List: Review and Compliance Consulting/Contracting (Active)

LEVEL I

Mr. Michael Brigham
P.O. Box 274
New Vineyard, ME 04956-0274
Email: brigham@nearchaeology.com

James A Clark
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
Phone: 207-667-4055
Email: clark.ja@gmail.com

Ms Edna Feighner
5 Thomas Street, Apt 3
Concord, NH 03301
Phone: 603-228-8091
Email: Edna.Feighner@dcr.nh.gov

Ms. Sarah Haugh
Tetra Tech
451 Presumpscot Street
Portland, ME 04103
Phone: 207-879-9496 x238
Email: sarah.haugh@tetratech.com

Mark Penney
The Louis Berger Group Inc.
20 Corporate Woods Blvd.
Albany, NY 12211-2370
Phone: 518-432-9545
Email: mpenney@louisberger.com

Mary Lynne Rainey
RGA Cultural Resource Consultants
1376 Kingstown Road
Wakefield, RI 02879
Phone: 401-487-1636
Email: marylynne.rainey@verizon.net

Jacob Tumelaire
Independent Archaeological Consulting
801 Islington Street
Suite 31
Portsmouth, NH 03801
Phone: 603-430-2970
Email: jtumelaire@iac-llc.net

Mr. Brian Valimont
New England Archaeology Co. LLC
128R Main Street
Plaistow, NH 03865
Phone: 603-560-8720
Email: Newarch1@comcast.net

LEVEL II

Geraldine Baldwin
4 Dickson Lane
Bedford Corners, NY 10549
Phone: 914-271-0897
Email: GeraldineBaldwin@aol.com

Robert N. Bartone
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
Phone: 207-860-4032
Fax: 207-860-4031
Email: bartone@nearchaeology.com

Dr. William R. Belcher
U.S. Army CILHI
310 Worchester Avenue, Bldg 45
Hickam AFB, HI 96853-5530
Email: wbelcher@msn.com

Dr. Bruce J. Bourque
Maine State Museum
83 State House Station
Augusta, ME 04333-0083
Phone: 207-287-3909
Email: bbourque@abacus.bates.edu

Dr. Victoria Bunker
P.O. Box 16
New Durham, NH 03809-0016
Phone: 603-776-4306
Email: vbi@worldpath.net

Dr. Ellen Cowie
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
Phone: 207-860-4032
Fax: 207-860-4031
Email: cowie@nearchaeology.com

Dr. Christopher Donta
HRA Gray and Pape, LLC
60 Valley Street., Suite 103
Providence, RI 02909
Phone: 401-279-990
Email: cdonta@graypape.com

Dr. Dianna Doucette
Public Archaeology Laboratory
26 Main Street
Pawtucket, RI 02860
Phone: 401-728-8780
Email: ddoucette@palinc.com

Dr. Stuart A. Eldridge
Power Engineers, Inc.
303 US Route 1, Suite 2A
Freeport, ME 04032
Phone: 207-869-1261
Email: Stuart.Eldridge@powereng.com
Website: http://www.powereng.com

Jacob Freedman
SEARCH, Inc.
55 Melville Avenue
Boston, MA 02124
Phone: 207-266-7709
Email: jacob@searchinc.com

Website: www.searchinc.com

Dr. Robert Goodby
Monadnock Archaeological Consulting
16 Fox Hill Road
Stoddard, NH 03464
Phone: 603-446-2366
Email: rgoodby@monadarch.com
Website: http://www.monadarch.com

Dr. Nathan Hamilton
Department of Geography & Anthropology
University of Southern Maine
Gorham, ME 04038
Phone: 207-780-5324
Email: casco@usm.maine.edu

Karen Mack
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth, ME 04605
Phone: 207-667-4055
Fax: 207-667-0485
Email: kemack@trcsolutions.com

Edward Moore
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
Fax: 207-667-0485

David Putnam
47 Hilltop Road
Chapman, ME 04757
Phone: 207-762-6078
Email: putnamd@umpi.edu

Dr. Richard Will
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth, ME 04605
Phone: 207-667-4055
Fax: 207-667-0485
Email: rwill@trcsolutions.com

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Section 8

Historic Sites

8. Historic Sites

Acorn Engineering, Inc. sent a project description and copy of the development plans to Maine Historic Preservation Commission (MHPC) on November 10, 2016. A response letter was received from Kirk F. Mohney (MHPC) on December 9, 2016 and is included as part of this Section.

A Phase I Prehistoric Archaeological Survey Report, by Sarah Haugh – Tetra Tech dated, August 2017 was completed for the project area. The results of the Phase I Prehistoric Archaeological Investigation, determined there are no prehistoric archeological sited recorded within the project area. Please refer to the attached report for additional information.

A Historic Structures photographic record was also completed by Sarah Haugh – Tetra Tech, dated August 31st, 2017 for buildings fifty years or older located on or adjacent to the project site.

The Phase I Prehistoric Archaeological Survey and Historic Structures Photographs will be forwarded along to Kirk F. Mohney along with a topographic photo map per his attached response. Future correspondence with Mr. Mohney will be submitted once received.

ACORN ENGINEERING, INC.

Mr. Kirk F. Mohney
Director - Maine Historic Preservation Commission
55 Capitol Street
State House Station 65
Augusta, Maine 04333

November 10th, 2016

Subject: Camelot Farms Subdivision
1700 Westbrook Street, Portland, Maine

Dear Mr. Mohney:

Acorn Engineering, Inc. has been retained by Camelot Holdings, LLC to provide civil engineering services for the proposed subdivision project at 1700 Westbrook Street in Portland, Maine. The project proposes to redevelop the existing, small farm with a single-story home and accessory shed and barn structures into a traditional single-family development within the Stroudwater neighborhood; house lots will range in size between 6,500 sf to 20,000 sf. The property directly abuts the Stroudwater River and consists mostly of farming pastures. The portion of the site adjacent to Westbrook Street is proposed to be regraded to support a road network, subdivided lots, and ancillary infrastructure. Thus, there will be limited tree removal, stumping, and grubbing on-site due to the existing use. The proposed roads are to be paved and built to City standard. The project will require a Zoning Map/Text Amendment and Level III – Site Plan Application.

Per City Ordinance, a portion of the property resides within the Shoreland Overlay Zone in which construction and redevelopment activities are limited within 250 feet of the high-water line; it is proposed that all development associated with subdivision will remain greater than 250 feet from the river. The space is to be used recreationally with a passive, neighborhood trail system and other shared amenities; there is no significant earthwork to occur within this zone.

The project area is comprised of five separate parcels (Chart, Book, Lot 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3) with two existing utility easements for the Portland Water District and Portland Pipeline Company that bisect the property. The parcels have been previously subdivided so that there are four single-family sublots facing Westbrook Street. The site is approximately 1,200 feet the Stroudwater Historic District, but, based on preliminary research, is not included in the district or the National Register of Historic Places.

Acorn Engineering appreciates your assistance with determining if there are any areas within the site of historical, architectural, or archeological significance. Please refer to the attached documents to facilitate your review.

Any response and supporting documents may be mailed to the address below or as a PDF file to odawson@acorn-engineering.com.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102

Attached:

EX-1 Vicinity Map
EX-2 Concept Site Plan

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

PAUL R. LEPAGE
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 9, 2016

Olivia Dawson, E.I.
Acorn Engineering, Inc.
P.O. Box 3372
Portland, ME 04104

Project: MHPC# 1678-16 - Camelot Holdings, Inc., 1700 Westbrook Street; redevelop existing farm with single family homes

Town: Portland, ME

Dear Ms. Dawson:

In response to your recent request, I have reviewed the information received November 16, 2016 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

In order to complete our review, we are requesting the following information:

1. Submit photos (keyed to a topographic map) of any buildings that are fifty years or older that are on or adjacent to the project site. If no such buildings exist, please indicate this in writing.

2. An archeological Phase I survey for prehistoric archaeological sites is necessary for all land on this project area below the 40 foot contour or within 100 yards of the Stroudwater River. A list of approved archaeologists is enclosed. Please note that we must review the proposal/scope of work for this survey that you choose. Please contact Dr. Arthur Spiess, Senior Archaeologist arthur.spiess@maine.gov with any questions.

Once this information is received, we will forward a response regarding the results of our evaluation.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

Enc.

PHONE: (207) 287-2132 FAX: (207) 287-2335

AGENCY INFORMATION

- About Us
- National Register of Historic Places
- Project Review
  - Architectural & Archaeological Consultants
    - Architectural Consultants
    - Historic Archaeologists
    - Pre-Historic Archaeologists
  - Architectural Survey Guidelines
  - Architectural Survey Forms
  - Archaeological Survey Guidelines
  - Required Materials
  - Topographic Quad Maps
  - Map/Photo Examples
- Tax Incentives
- Grants
- Restoration Resources
- Archaeology
- Architectural Survey
- Certified Local Government (CLG) Program
- Preservation Planning
- Laws & Regulations
- Historic Preservation Easements
- Office of the State Historian
- Biographical Dictionary of Architects in Maine

Home > Project Review > Architectural & Archaeological Consultants > Prehistoric Archaeologists

Prehistoric Archaeologists

Prehistoric Archeologists Approved List: Review and Compliance Consulting/Contracting (Active)

LEVEL I

Mr. Michael Brigham
P.O. Box 274
New Vineyard, ME 04956-0274
Email: brigham@nearchaeology.com

James A Clark
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
Phone: 207-667-4055
Email: clark.ja@gmail.com

Ms Edna Feighner
5 Thomas Street, Apt 3
Concord, NH 03301
Phone: 603-228-8091
Email: Edna.Feighner@dcr.nh.gov

Ms. Sarah Haugh
Tetra Tech
451 Presumpscot Street
Portland, ME 04103
Phone: 207-879-9496 x238
Email: sarah.haugh@tetratech.com

Mark Penney
The Louis Berger Group Inc.
20 Corporate Woods Blvd.
Albany, NY 12211-2370
Phone: 518-432-9545
Email: mpenney@louisberger.com

Mary Lynne Rainey
RGA Cultural Resource Consultants
1376 Kingstown Road
Wakefield, RI 02879
Phone: 401-487-1636
Email: marylynne.rainey@verizon.net

Jacob Tumelaire
Independent Archaeological Consulting
801 Islington Street
Suite 31
Portsmouth, NH 03801
Phone: 603-430-2970
Email: jtumelaire@iac-llc.net

Mr. Brian Valimont
New England Archaeology Co. LLC
128R Main Street
Plaistow, NH 03865
Phone: 603-560-8720
Email: Newarch1@comcast.net

LEVEL II

Geraldine Baldwin
4 Dickson Lane
Bedford Corners, NY 10549
Phone: 914-271-0897
Email: GeraldineBaldwin@aol.com

Robert N. Bartone
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
Phone: 207-860-4032
Fax: 207-860-4031
Email: bartone@nearchaeology.com

Dr. William R. Belcher
U.S. Army CILHI
310 Worchester Avenue, Bldg 45
Hickam AFB, HI 96853-5530
Email: wbelcher@msn.com

Dr. Bruce J. Bourque
Maine State Museum
83 State House Station
Augusta, ME 04333-0083
Phone: 207-287-3909
Email: bbourque@abacus.bates.edu

Dr. Victoria Bunker
P.O. Box 16
New Durham, NH 03809-0016
Phone: 603-776-4306
Email: vbi@worldpath.net

Dr. Ellen Cowie
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
Phone: 207-860-4032
Fax: 207-860-4031
Email: cowie@nearchaeology.com

Dr. Christopher Donta
HRA Gray and Pape, LLC
60 Valley Street., Suite 103
Providence, RI 02909
Phone: 401-279-990
Email: cdonta@graypape.com

Dr. Dianna Doucette
Public Archaeology Laboratory
26 Main Street
Pawtucket, RI 02860
Phone: 401-728-8780
Email: ddoucette@palinc.com

Dr. Stuart A. Eldridge
Power Engineers, Inc.
303 US Route 1, Suite 2A
Freeport, ME 04032
Phone: 207-869-1261
Email: Stuart.Eldridge@powereng.com
Website: http://www.powereng.com

Jacob Freedman
SEARCH, Inc.
55 Melville Avenue
Boston, MA 02124
Phone: 207-266-7709
Email: jacob@searchinc.com

Website: www.searchinc.com

Dr. Robert Goodby
Monadnock Archaeological Consulting
16 Fox Hill Road
Stoddard, NH 03464
Phone: 603-446-2366
Email: rgoodby@monadarch.com
Website: http://www.monadarch.com

Dr. Nathan Hamilton
Department of Geography & Anthropology
University of Southern Maine
Gorham, ME 04038
Phone: 207-780-5324
Email: casco@usm.maine.edu

Karen Mack
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth, ME 04605
Phone: 207-667-4055
Fax: 207-667-0485
Email: kemack@trcsolutions.com

Edward Moore
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
Fax: 207-667-0485

David Putnam
47 Hilltop Road
Chapman, ME 04757
Phone: 207-762-6078
Email: putnamd@umpi.edu

Dr. Richard Will
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth, ME 04605
Phone: 207-667-4055
Fax: 207-667-0485
Email: rwill@trcsolutions.com

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PHASE I PREHISTORIC ARCHAEOLOGICAL INVESTIGATION REPORT

CAMELOT FARMS SUBDIVISION PROJECT CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE

MHPC# 1678-16

Prepared for:

Camelot Holdings, L.L.C.
78 Lincoln St
Portland, ME 04103

Prepared by:

Sarah M. Haugh
Tetra Tech, Inc.
451 Presumpscot Street
Portland, Maine 04103

August 2017

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1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) conducted a Phase I prehistoric archaeological investigation of the proposed Camelot Farms Subdivision Project (Project), located in the City of Portland, Cumberland County, Maine. Field work was performed in July on behalf of Camelot Holdings L.L.C. (Camelot). The cultural resource investigation was conducted in accordance with the National Historic Preservation Act of 1966, as amended, and the Maine State Historic Preservation Officer's Standards and Guidelines (27 MRSA §509).

As requested by the Maine Historic Preservation Commission (MHPC), the Phase I prehistoric archaeological investigation involved field survey of portions of the Project below the 40 foot contour. The purpose of the survey was to characterize the cultural resource sensitivity and identify potentially significant prehistoric archaeological sites within the survey area. A Phase IB subsurface testing regimen was established and conducted in areas of potential archaeological sensitivity. A total of 28 shovel tests (STs) and four test units (TUs) were excavated within the Project area. No prehistoric cultural materials or features were identified in the STs or TUs; historic period artifacts were recovered from both STs, TUs and through surface collection. None of the historic materials present particular significance either individually or collectively, and are likely the result of continued use of the Project area as a farm pasture.

This report summarizes the background research, describes the environment and cultural history of the Project area, presents the field methods employed in the survey, and describes the results of the Phase I archaeological field investigation for the Project. Ms. Sarah M. Haugh, B.A., Certified Level I Prehistoric Archaeologist in Maine, served as the Principal Investigator for the archaeological investigation.

1.1 Project Description

The Project area is situated on the Camelot Farm property, south of Westbrook Street between the Maine Turnpike and Route 9 in the City of Portland, Maine (Figure 1). The proposed Project consists of the construction of an approximately 50 acre residential subdivision (Appendix A).

Camelot initiated consultation with the MHPC to determine if significant cultural resources may exist within and/or adjacent to the Project area. The MHPC response indicated that the Project is sensitive for the presence of prehistoric archaeological sites, and a Phase I prehistoric archaeological survey for areas below the 40 foot contour and within 100 yards of the Stroudwater River is necessary to determine whether there are any significant archaeological sites present. Additionally, the MHPC requested a historic structures survey to identify any buildings on or adjacent to the Project area that are 50 years of age or older.

1.2 Environmental Setting

The Project area is located between 0 to 60 feet above mean sea level and contains upland terrain, interspersed by large wetland drainages, which descends to the south towards the Stroudwater River. The area was previously used as a farm pasture, former livestock trails and compressed soils are visible in areas.

The surficial geology of the Project area is composed of fine grained glaciomarine deposits formed at the end of the Pleistocene epoch during the late-glacial marine submergence of lowland areas in southern Maine (Maine Geological Survey 2017, Bourque 2001, Hildreth et al. 2002). The marine submergence occurred between 13,000 and 12, 800 years ago as glacial ice

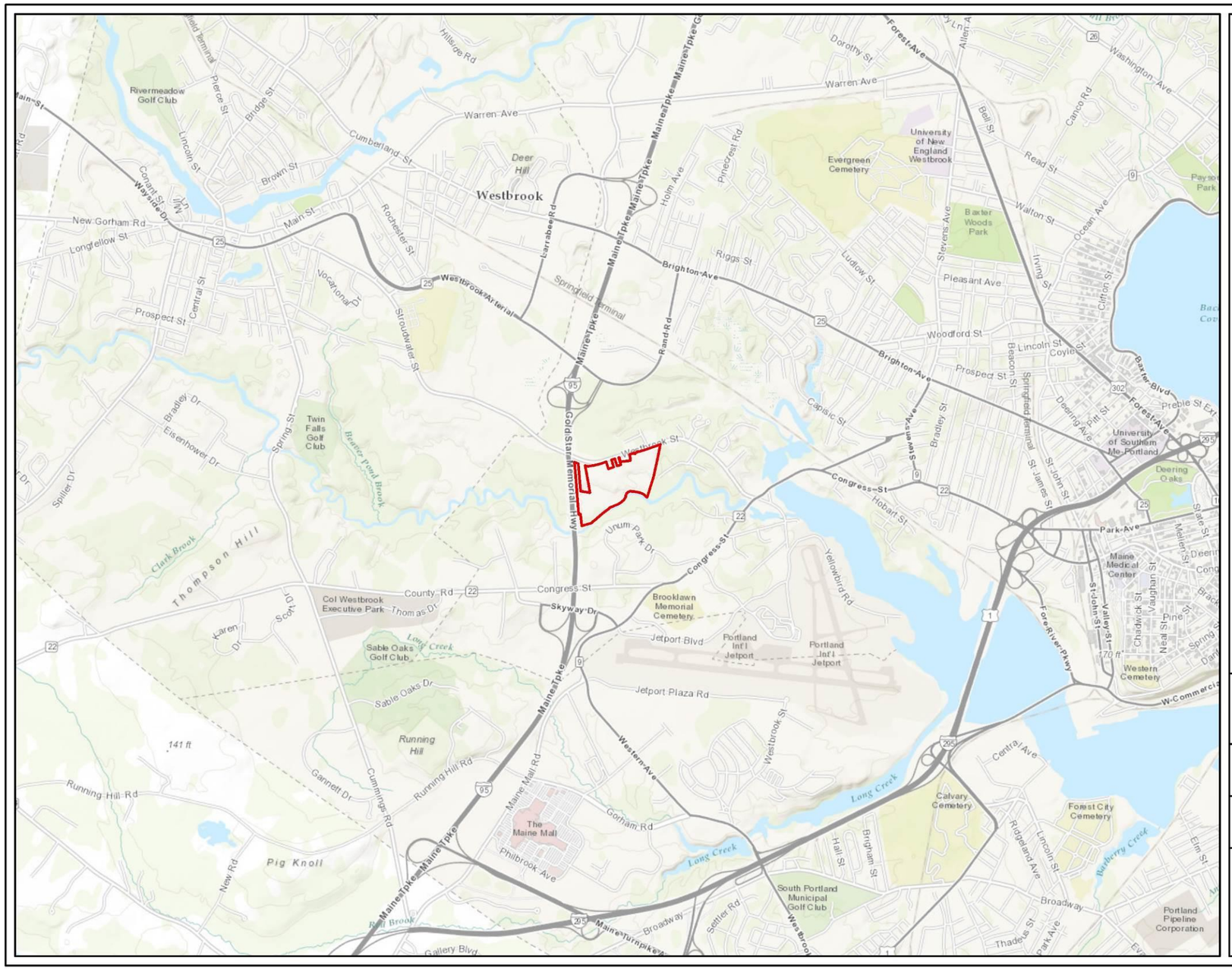


Figure 1. Project Location
Camelot Farms Subdivision Project
Portland, Maine

Prepared For:
Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date:
08/2017

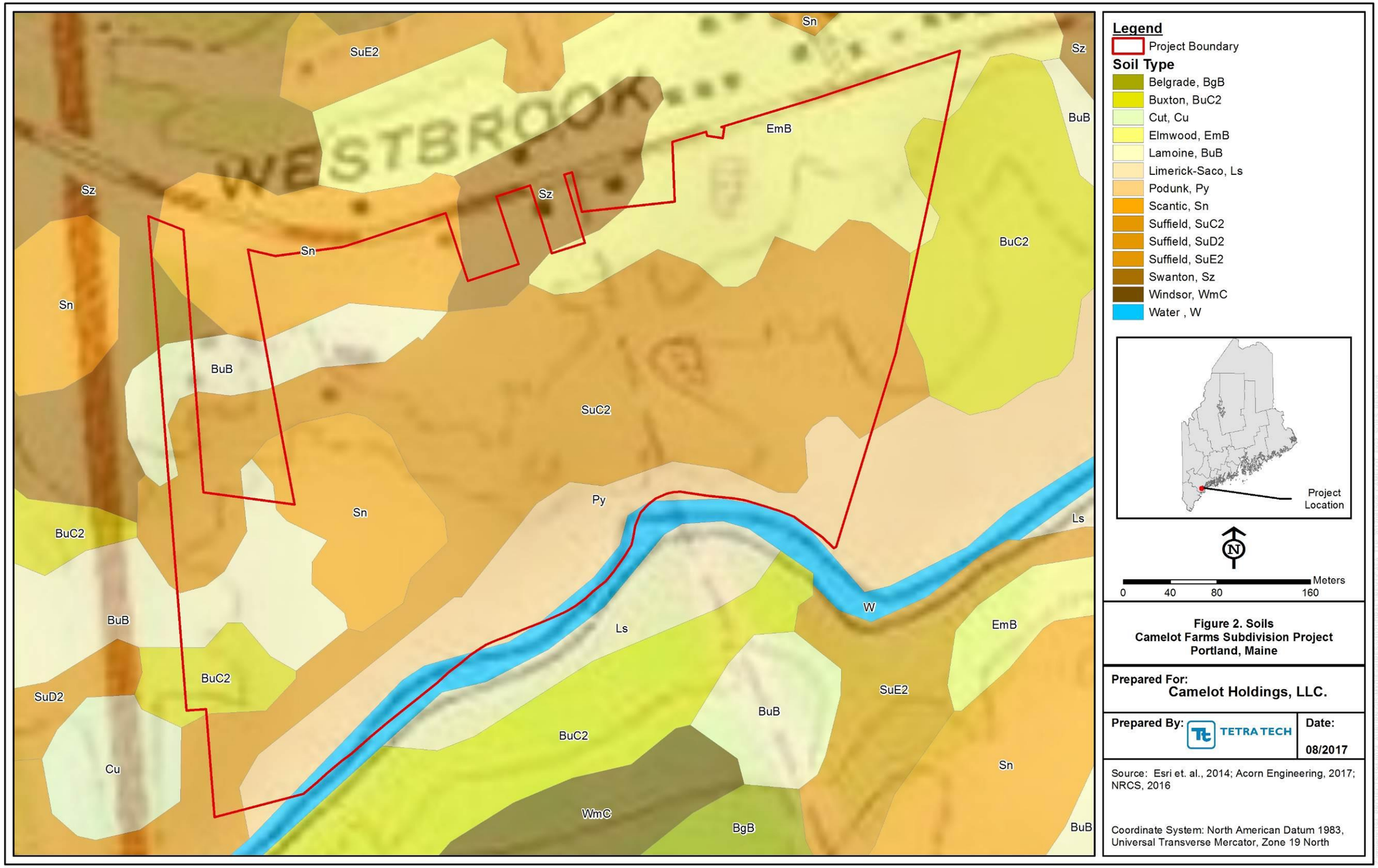
Source: Esri et. al., 2014; Acorn Engineering, 2017

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

melted and retreated inland, causing lowland areas to become inundated with sea water, and glacial melt water sediments to accumulate on the ocean floor (Spiess and Wilson 1987). As glacial ice continued to melt lowland areas experienced isostatic rebound as the weight of the glacial ice reduced allowing lowland areas to rise above sea level. The rising of lowland areas resulted in the further deposition of glaciomarine deposits by both fluvial and nearshore processes. The glaciomarine deposit present within the Project area (classification m) consists of silt, clay, sand, and minor amounts of gravel often overlying marine mud of the Presumpscot Formation. Deposited during the late-glacial period, the marine regressive surficial deposits consist of reworked marine delta and outwash materials graded by streams to the falling sea level.

The majority of the Project area is dominated by Suffield Series soil (ScC2) consisting of moderately well drained silt loam, associated with coastal plans and located on 8 to 15 percent slopes (California Soil Resource Lab 2017) (Figure 2). Additional Series present within the Project area also consist of silt loam or sandy loams. Within the southern portion of the Project area, where the majority of subsurface testing took place, soils consist of the Podunk Series (Py) sandy loams associated with flood plains and situated on 0 to 3 percent slopes. Floodplains environments can cause archaeological sites to become deeply buried over time as multiple flooding and sedimentation events occur, as such subsurface testing in floodplain areas often require deep testing.

Forested portions of the Project area are presently undergoing various stages of woodland succession. The forested areas consist primarily of pine (*Pinus* spp.), spruce (*Picea* spp.), maple (*Acer* spp.), and oak (*Fagus* spp.). This type of forest cover falls within the Transition Hardwoods category vegetation zone (Zone 3) for southern Maine, featuring oaks, white pine, birch, poplar, and red pine on sandy terraces (Westveld et al. 1956). This locality falls within the Central and Southwestern Interior Climatic area of Maine, a zone marked by warmer temperatures and less snowfall than other regions of the state (NOAA ESRL 2017).



Legend

Project Boundary

Soil Type

- Belgrade, BgB
- Buxton, BuC2
- Cut, Cu
- Elmwood, EmB
- Lamoine, BuB
- Limerick-Saco, Ls
- Podunk, Py
- Scantic, Sn
- Suffield, SuC2
- Suffield, SuD2
- Suffield, SuE2
- Swanton, Sz
- Windsor, WmC
- Water , W

N

0 40 80 160 Meters

Figure 2. Soils
Camelot Farms Subdivision Project
Portland, Maine

Prepared For:
Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date:
08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017; NRCS, 2016

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

1.3 Prehistoric Context

Maine's record of human land use dates back more than 10,000 years. Archaeological evidence from Maine suggests that populations moved into the area soon after the retreat of the glacier and the reversal of the marine transgression, a period of dramatic environmental change. The pollen record shows a progression of dominant species that began to replace the glacial environment between ca. 12,000 Before Present (BP) to ca. 10,000 BP. In the broadest terms, changes in biotic communities occurred as herb pollen, representing open tundra-like conditions, gave way to spruce (*Picea* spp.) (parkland), then to pine (coniferous forest), and recently to a combination of hemlock, birch, and beech in northwestern Maine and pine and oak in southwestern Maine (deciduous forest) (Eldridge et al. 1997). The environment had undergone a transformation from the initial mixed tundra/woodland to predominantly deciduous forest in the late Holocene.

Archaeologists have divided the prehistoric cultural history of the state into three major periods that are further divided into cultural units that share similarities in artifact form and cultural adaptations across large portions of the region (Table 1). The cultural units also are defined as "study units" in the *State Plan for Prehistoric Archaeology* (Spiess 1989, 1991a, 1991b, 1991c, 1992a, 1992b). The following sections briefly present a broad summary of each of the major prehistoric cultural periods: Paleoindian, Archaic, Ceramic, and Contact.

Table 1. Maine Cultural Chronology Study Units[1].

Cultural Periods	Time Period (Years Before Present)	Study Unit
Paleoindian	11,500 to 10,200	Fluted Point Paleoindian Tradition
	10,200 to 9500	Late Paleoindian Tradition
Archaic	9500 to 6000	Early and Middle Archaic Traditions
	6000 to 2000	Late Archaic: Small-Stemmed Point
	4500 to 3700	Late Archaic: Moorehead Phase
	3900 to 2800	Late Archaic: Susquehanna Tradition
Ceramic (Woodland)	2800 to 500	Ceramic Period
Historic	less than 500	Contact Period and Modern History

1 – Table adapted from MacPherson et al. 1997

Paleoindian Period. Maine's earliest inhabitants are archaeologically referred to as Paleoindians. The Fluted Point and Late Paleoindian phases have been identified based on the presence of diagnostic projectile points in assemblages recovered from significant sites in the region. Paleoindian tool kits are characteristically manufactured from high-quality lithic materials often derived from quarry sources located great distances from habitation sites. Researchers suggest long-distance movement of Paleoindian groups and extensive trade networks as mechanisms that account for the presence of tools made from distant raw materials (Eldridge et al. 1997). Classic stone tool forms include the bifacially flaked projectile points with fluted bases and steep-edged endscrapers.

There is little direct evidence for subsistence practices in Maine during this period, but a model of broad exploitation of a variety of animal and plant remains has replaced the customary view of Paleoindian as specialized big-game hunters (Wilson et al. 1995). Researchers in Maine have refined perceptions of early, middle, and late Holocene paleoenvironments, suggesting diverse regional settings that would have provided a wide range of resources to Native American populations during any period (Petersen and Putman 1992).

Generally speaking when compared to Archaic and Woodland Period sites, Paleoindian sites tend to be smaller in area and fewer known sites have been identified to date. Although research of the Paleoindian culture is limited due to the small number of known sites, a suite of environmental attributes that is unique to these sites can be used to help identify potential Paleoindian site locations. The primary indicator of Paleoindian site location is sandy, well-drained soil deposits, often formed during the final period of deglaciation in Maine that occurred at the end of the Pleistocene epoch, approximately 15,000 years ago (Bourque 2001). During the period of deglaciation eolian movement of sand often created dune formations as the glacier melted, retreating inland. Secondary indicators of potential Paleoindian sensitivity are the presence of promontories often paired with a nearby water resource such as wetland or bog complexes (Spiess and Wilson 1987). These type of vantage points paired with proximity to fresh water resources provided ideal locations for Paleoindian habitation and resource procurement. Although Paleoindian culture adapted to the changing environment through time, these three attributes are known to indicate environments in which Paleoindian habitation is likely to occur in the Northeast.

Archaic Periods. Recent research has demonstrated that Early and Middle Archaic Period components do exist in regions of the Northeast and that they exhibit distinctive lithic technologies (MacPherson et al. 1997). The inferred settlement and subsistence pattern for the Early Archaic suggests that small groups of hunter-gatherers continued to live in Maine and possessed a much more diversified economy than their predecessors. Tool assemblages consisting of groundstone tools are fairly diagnostic and particular to Maine. Middle Archaic Period sites have been identified on the coast as well as in the interior of Maine. The first cemetery sites identified in Maine are dated to this time period.

The Late Archaic Period is divided into several traditions and phases and is well documented in Maine. It is during this period, from 6,000 years ago to 2,800 years ago, that the environment experienced many changes in forest composition that affected the types of plant and animal resources available for subsistence practices. Habitation sites are recorded from a variety of locations, including coastal shell middens, lake margins, and large and small waterways. Numerous cemetery sites are known from this period and there is considerable evidence for marine resource exploitation.

At the close of the Late Archaic Period the archaeological assemblage suggests a different lifestyle than that practiced during earlier traditions. The deceased were cremated rather than interred; diagnostic tool forms include large, broad spearpoints rather than groundstone tools; and subsistence appears to have been more focused on inland or terrestrial resources rather than marine resources.

Ceramic Period. The introduction of pottery making into Maine's Native American culture signifies the beginning of the Ceramic Period. Ceramics first appear in the archaeological record of Maine about 2,800 years ago and persist until after contact with the Europeans. Ceramic Period sites depict cultural adaptations to the diversified use of local resources. While ceramics were adopted and there is archaeological evidence for limited corn-bean-squash horticulture in extreme southwestern Maine, a hunter-gatherer lifestyle persisted. Ceramic Period sites are abundant, with the highest frequency identified in shell middens found along the coast in estuary and island environments; however sites also are common in interior sections along waterways, ponds, and lakes (MacPherson et al. 1997).

Contact Period. The Contact Period was a period of tremendous and rapid change for Maine's Native Americans. Subsequent additions of European materials to Native material culture were followed by expansions and strains in pre-existing intertribal trade networks, warfare, and social structure. One of the most profound and lasting results of early visits by Europeans to the coast was European-introduced disease.

The Early Contact Period has been considered to start arbitrarily at 1500 Anno Domini (A.D.), with European voyages to Newfoundland and the Gulf of St. Lawrence. The period arbitrarily ends at 1676, corresponding with the outbreak of King Phillip's War, the abandonment of trading posts and towns, and intensified movement by Native American refugee groups and other drastic changes in Native American ethnic groupings and lifestyles. The long prehistoric occupation of Maine had come to an end with the arrival of the European traders, fishermen, and settlers.

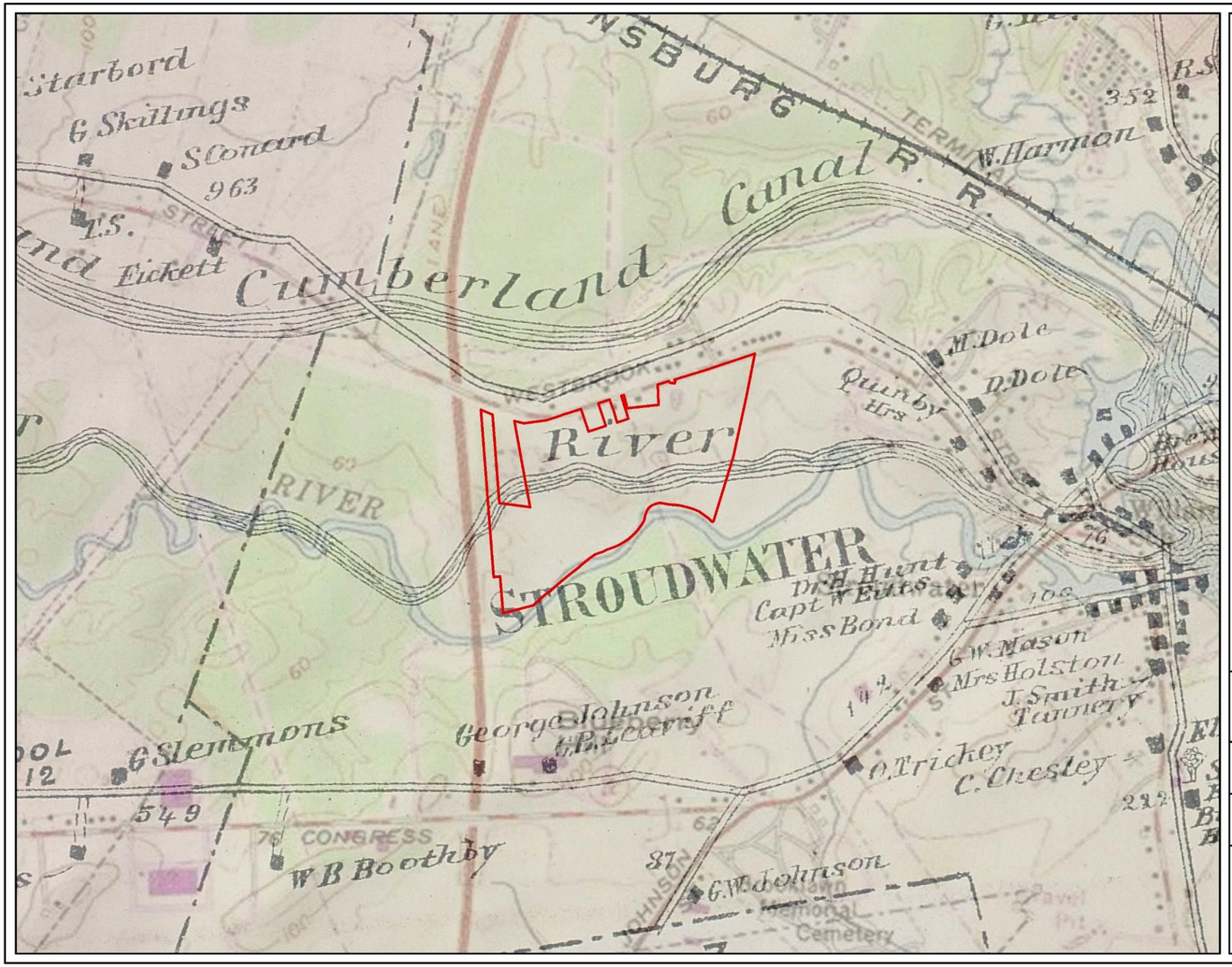
1.4 Previous Archaeological Research

A site file search at the MHPC determined no previously recorded prehistoric sites are located within the Project area. The closest documented site, ME 8.16, is situated approximately a quarter mile northeast of the Project within the Fore River Sanctuary (MHPC 1993). The site was identified in 1992 by Richard Doyle and consisted of prehistoric lithic materials identified on a tributary bank.

Follow up to the original finding of ME 8.16 was conducted by the MHPC in 1992 as part of the Phase I Archaeological Survey for the Proposed Westbrook Interchange. The survey determined the site did not meet minimum eligibility requirements for listing in the National Register of Historic Places (NRHP). Additionally, the Westbrook Interchange survey did not identify any other prehistoric materials or sites. Recovered historic materials were determined likely the result of 19th and early 20th century composting of household garbage and not significant. The historic Cumberland and Oxford Canal intersects a portion of the Westbrook Interchange Project area, the Canal was determined as eligible for listing on the NRHP (Cranmer and Burgess 1999).

A survey of the UNUM property to south of the Project area across the Stroudwater River was undertaken in 1992. No prehistoric artifacts or features were recovered. Several historic period artifacts dating to the 20th century were recovered and determined insignificant (Wilson 1992).

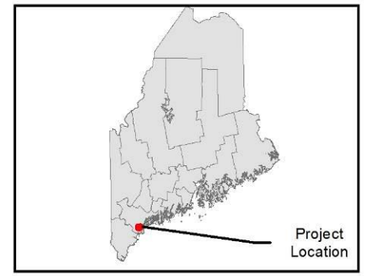
Lastly, a comparison of historic maps of the area was undertaken as part of the background research. The review of historic maps determined little change to the Project area in terms of recorded structures and outbuildings. A series of georeferenced maps were created to aid in the comparison (Figures 3 – 6).



Legend

Project Boundary

Note: Georeferenced historic maps are for visualization purposes only. Features are not to scale in all areas.



N

0 150 300 600 Meters

Figure 3. 1871 Map
Camelot Farms Subdivision Project
Portland, Maine

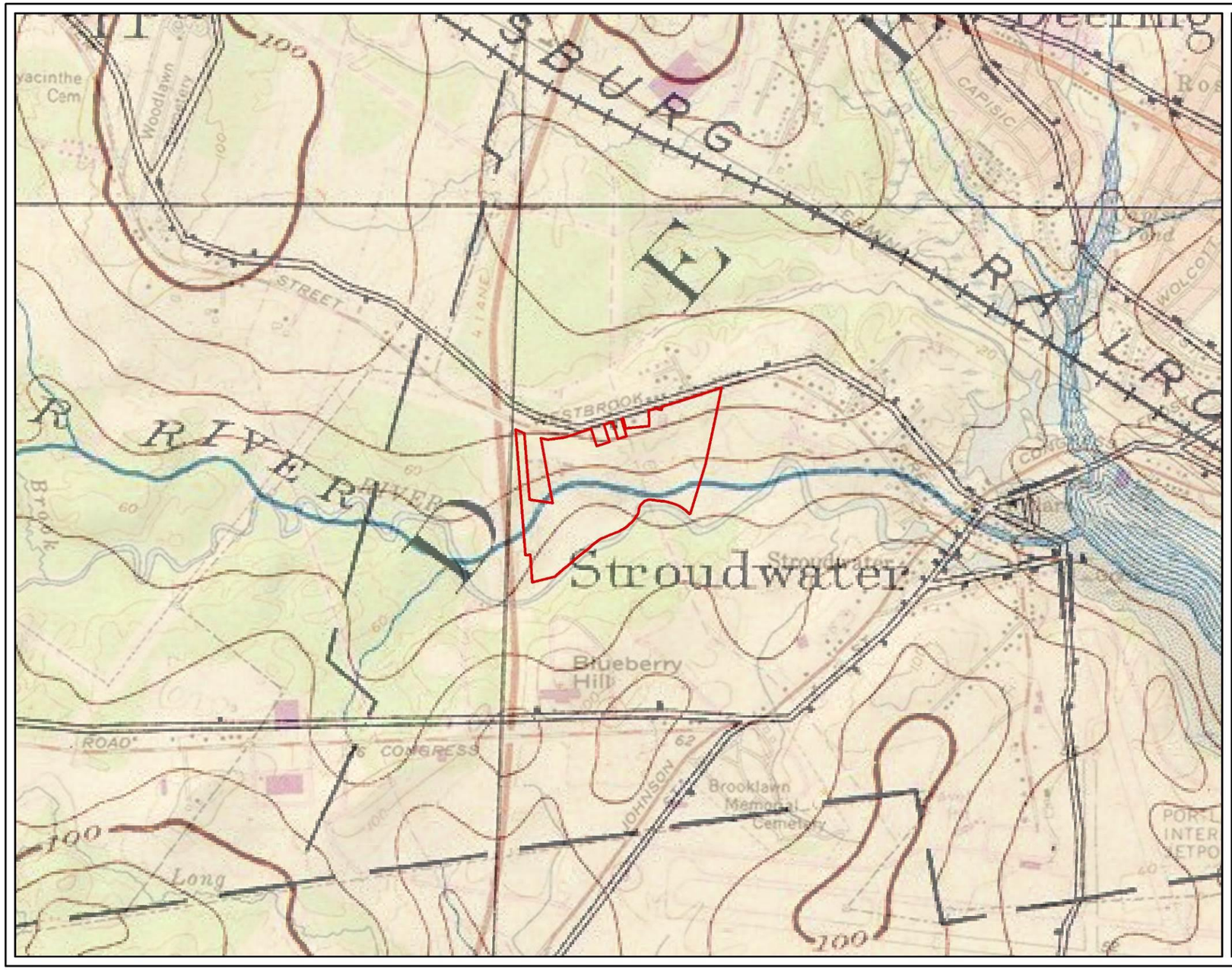
Prepared For:
Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date:
08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017, F.W. Beers & Co. 1871.

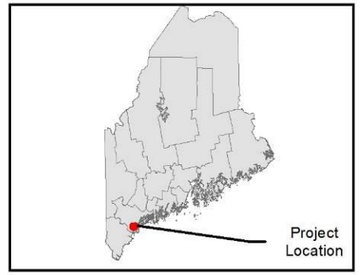
Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North



Legend

Project Boundary

Note: Georeferenced historic maps are for visualization purposes only. Features are not to scale in all areas.



N

Meters

0 200 400 800

Figure 4. 1891 Map
Camelot Farms subdivision Project
Portland, Maine

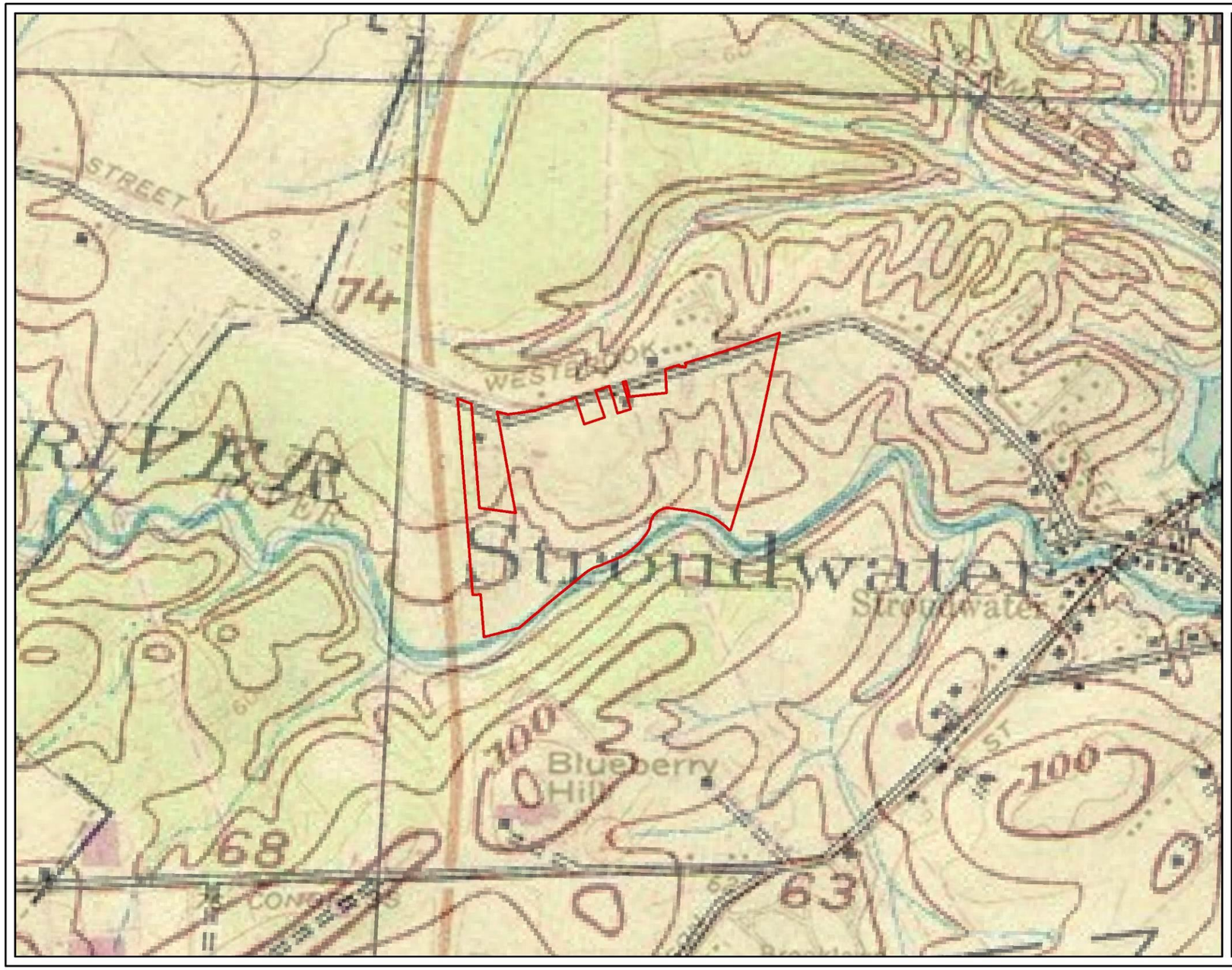
Prepared For:
Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date:
08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017; UNH Dimond Library Historic USGS Maps 2017

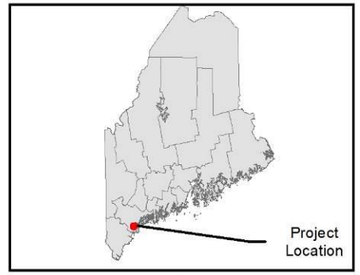
Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North



Legend

Project Boundary

Note: Georeferenced historic maps are for visualization purposes only. Features are not to scale in all areas.



0 125 250 500 Meters

Figure 5. 1916 Map
Camelot Farms Subdivision Project
Portland, Maine

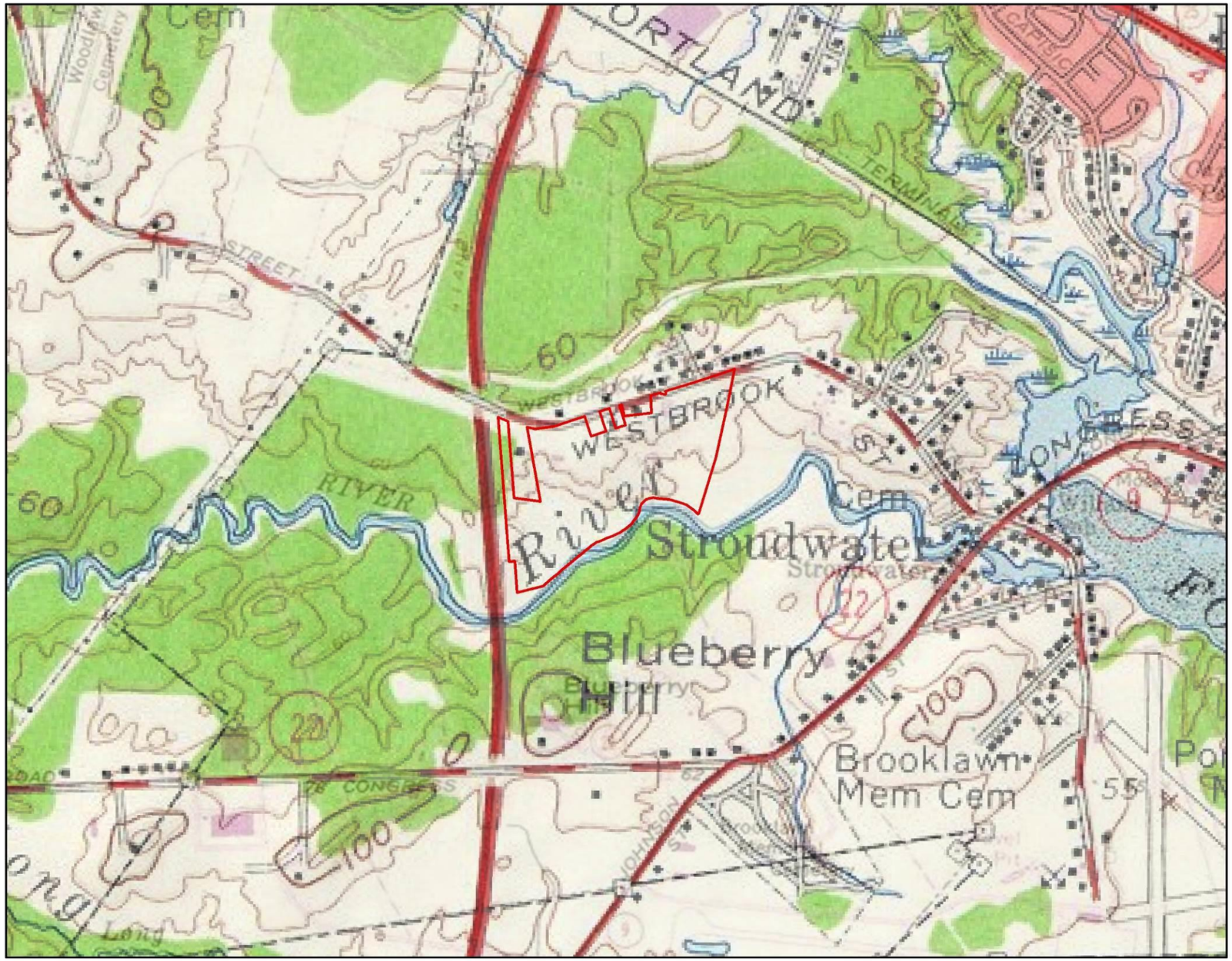
Prepared For: Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date: 08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017, UNH Dimond Library Historic USGS Maps 2017.

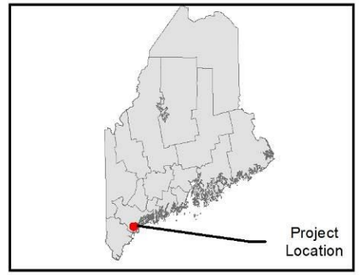
Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North



Legend

Project Boundary

Note: Georeferenced historic maps are for visualization purposes only. Features are not to scale in all areas.



Meters
0 150 300 600

Figure 6. 1957 Map
Camelot Farms Subdivision Project
Portland, Maine

Prepared For: Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date: 08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017, UNH Dimond Library Historic USGS Maps 2017.

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

2.0 METHODS AND RESULTS

2.1 Archaeological Sensitivity and Methodology

Researchers suggest three environmental factors, which are key to the development of a prehistoric archaeological sensitivity model and testing strategy: the presence of level terrain, presence of well-drained soils, and relative proximity to a potable fresh water source. The importance of these factors varied over time, resulting in differing settlement patterns as human populations adapted to the changing environment. The assessment for prehistoric archaeological sensitivity of the Project was based on site characteristics (landform, soil characteristics, and proximity to water), and on recommendations from the MHPC.

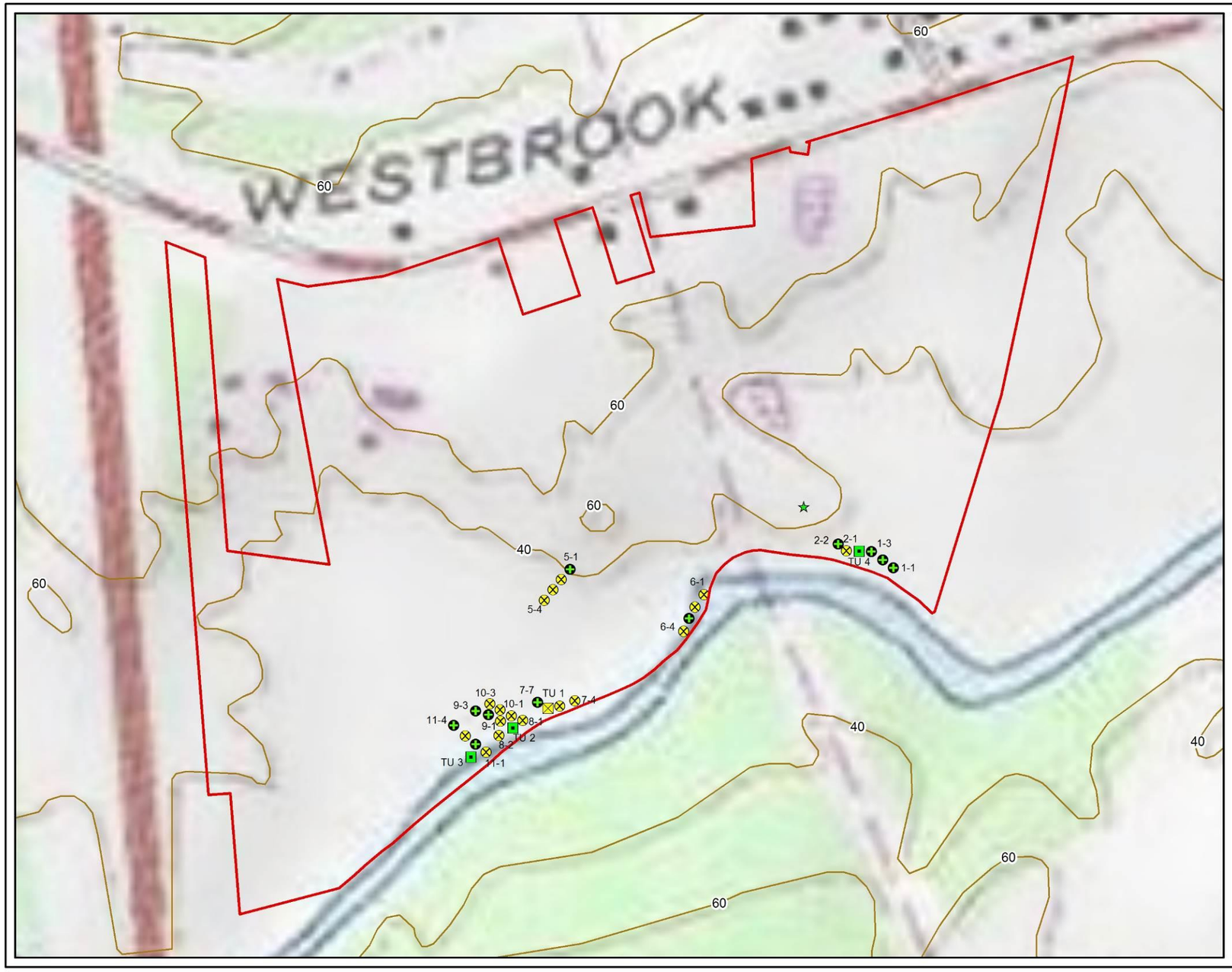
2.2 Field Investigations and Results

Phase IA prehistoric archaeological investigations, which typically include visual assessments, site walk-over, and hand auguring to verify soil integrity, are performed to establish the current physical conditions and status of a project site and to assess the possibility that intact prehistoric or historic cultural features or deposits are recoverable.

On July 11, 2017, S. Haugh conducted a pedestrian survey of the Project. This survey revealed that the Project exhibits surficial modification due to past agricultural activities (i.e. historic clearing, livestock grazing). However, a history of agricultural pursuits does not preclude the possibility or potential for locating prehistoric cultural resources, given a positive combination of the environmental variables commonly associated with the presence of prehistoric archaeological sites and a tendency for prehistoric cultural remnants to often lie in deeper strata or buried former surfaces below the plow zone. The pedestrian survey determined testing of sensitive areas below the 40 foot contour would be divided between 12 transects with a total of 45 STs. However, upon excavation adjacent to the Stroudwater River and further consultation with Art Spiess of the MHPC it was determined deep testing in the form of one meter by one meter test units (TUs) would be appropriate for the floodplain area adjacent to the Stroudwater. The original set up was modified to include 9 transects with a total of 28 STs, and 4 TUs within sensitive portions of the Project area (Figures 7 and 8, Appendix B). Much of the original layout was maintained, and the original ST numbering was utilized with certain Transects and STs removed.

Phase IB Archaeological Investigation (systematic subsurface testing) is used to locate and identify buried deposits of cultural materials (historic or prehistoric) and to initially assess the potential significance of a site location. On July 13 – 15 and 18 - 21, 2017 S. Haugh and N. Johnson proceeded to excavate the 28 STs and 4 TUs plotted within the Project. Soils were generally characteristic of forested conditions and appeared relatively undisturbed. The root mat from each shovel test was removed in squares and set aside for replacement when the shovel test was completed and backfilled. The soil was removed and screened through ¼-inch wirecloth mesh by natural soil levels, where such levels were visible, and by 10-centimeter increments where visible stratigraphy could not be visually discerned.

The excavator was alert to the possible presence of features, such as hearths, postholes, or foundations. The excavations continued in depth until a sterile stratum was reached (for example, Presumpscot Formation clays or glacial till) or a natural obstacle presented itself. A data log of soil stratigraphy for each ST and TU excavated was recorded prior to backfilling and re-sodding (Appendix C).

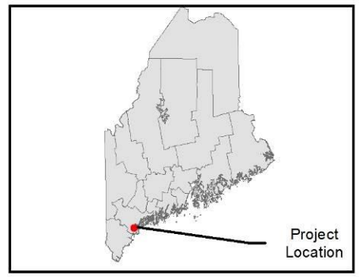


Legend

- Project Boundary
- Contour (ft)

Excavation Units

- Shovel Test, Negative
- Shovel Test, Postivie - Historic
- Test Unit, Negative
- Test Unit, Postivie - Historic
- Surface Find



N

Meters
0 40 80 160

Figure 7. Subsurface Testing
Topographic View
Camelot Farms Subdivision Project
Portland, Maine

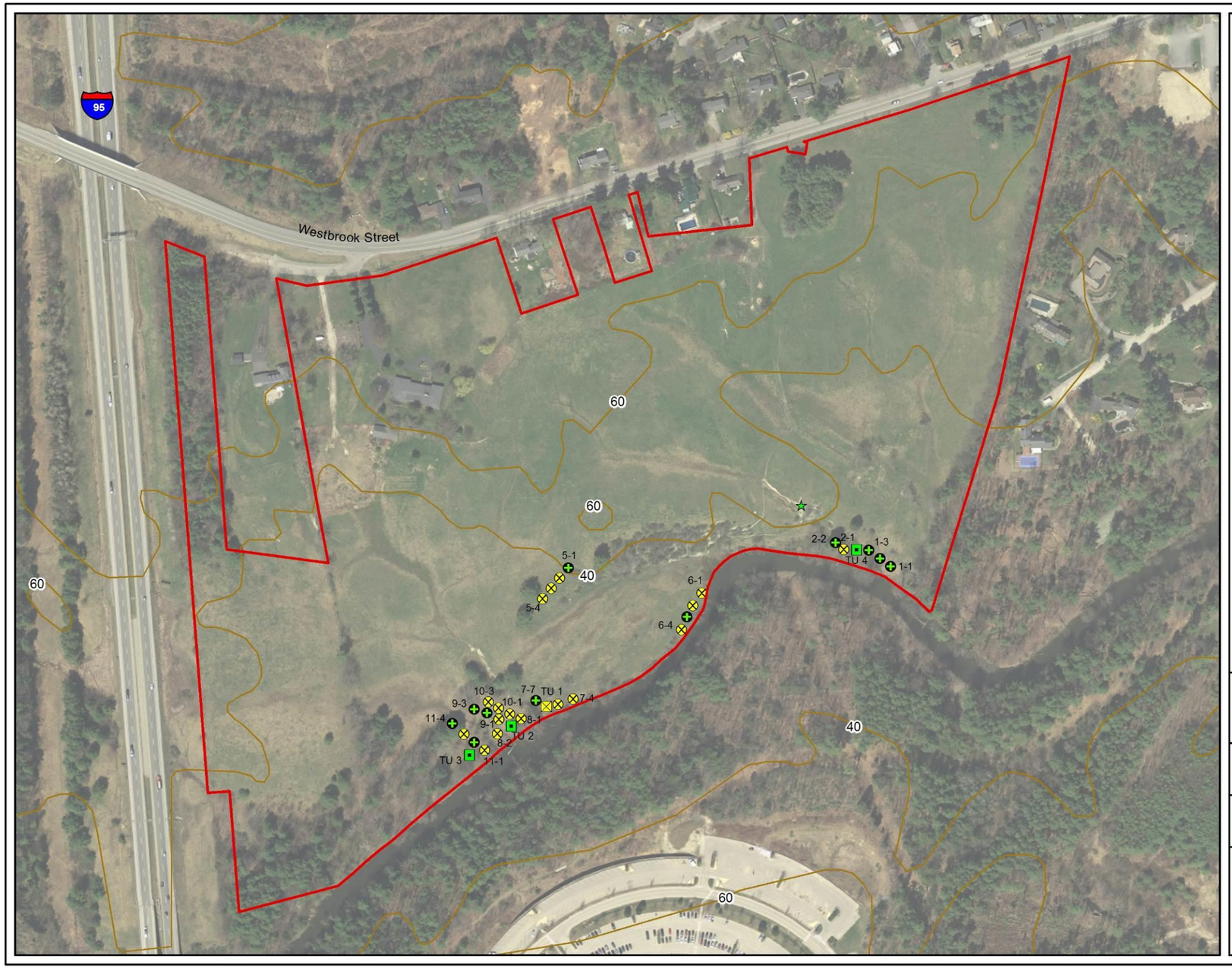
Prepared For: Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date: 08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

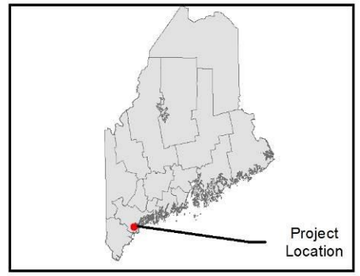


Legend

- Project Boundary
- Contour (ft)

Excavation Units

- Shovel Test, Negative
- Shovel Test, Postivie - Historic
- Test Unit, Negative
- Test Unit, Postivie - Historic
- Surface Find



N

0 40 80 160 Meters

Figure 8. Subsurface Testing
Aerial View
Camelot Farms Subdivision Project
Portland, Maine

Prepared For: Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date: 08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

Transects 1 and 2, Test Unit 4

Transects 1 and 2, and Test Unit 4 were plotted within the south east corner of the Project area adjacent to the Stroudwater River. All units, with the exception of ST 2-1 were positive for historic materials. Many of the recovered artifacts were burned, and ST 1-2 contained a burn layer in the upper profile with an abundance of slag. This portion of the Project area produced the most historic artifacts, and within the area TU 4 was most productive excavation unit. The artifacts recovered were dominated by eroded nails and minor amounts of glass, indicative of a former outbuilding structure. Many of the nails could not be identified due to corrosion, however the majority of identifiable nails were round head wire cut. Recovered ceramics included whiteware and terracotta. Additionally a molded brick fragment and a fragment of a rough form of concrete were recovered. The majority of materials date to the 20th century and collectively and individually do not represent particular significance. For a full inventory of the artifacts refer to Appendix C.

The five STs achieved an average depth of 63 centimeters below ground surface, and the TU was excavated to 100 centimeters. Soil profiles were fairly consistent with a root mat overlying a stratum containing brown sandy loam in the uppermost profile, followed by a stratum of light olive brown fine sandy loam, followed at the base by a sterile substratum of light olive brown fine silty sand. The STs contained moderate amounts of subangluar pebbles and gravel.

Transect 5

Transect 5 was plotted just below the 40 foot contour in the south-central portion of the Project area. The transect is situated on a small knoll overlooking the floodplain adjacent to the Stroudwater River. ST 5-1 produced two clear glass bottle fragments, no other artifacts were recovered from the remaining STs (Appendix C).

The four STs achieved an average depth of 44 centimeters below ground surface and consisted of a root mat overlying a stratum containing olive brown to light olive brown silty loam in the uppermost profile, followed by a stratum of light olive brown silty loam with subangular gravel, followed at the base of each ST by a sterile substratum of light yellowish brown silty loam.

Transect 6

Transect 6 was plotted on the bank of the Stroudwater River adjacent to a small inlet area. ST 6-3 produced one corroded unidentifiable nail fragment, no other artifacts were recovered from the remaining STs (Appendix C).

The four STs achieved an average depth of 66 centimeters below ground surface and consisted of a root mat overlying a stratum containing olive brown to dark olive brown silty loam in the uppermost profile, followed by a stratum of light olive brown silty sand, followed at the base of each ST by a sterile substratum of light olive brown silty sand.

Transect 7 and Test Unit 1

Transect 7 and Test Unit 1 were plotted along to the Stroudwater River and the eastern bank of a wetland drainage that outlets in the River. ST 7-7 produced one corroded unidentifiable nail fragment, the remaining two STs and TU 1 did not produce any cultural materials (Appendix C).

The three STs achieved an average depth of 73 centimeters below ground surface, and the TU was excavated to 100 centimeters. Soil profiles were fairly consistent with a root mat overlying a stratum containing brown sandy silt in the uppermost profile, followed by a stratum of light olive brown sandy silt, followed at the base by a sterile substratum of light olive brown silty sand.

Transects 8 – 10 and Test Unit 2

Transects 8, 9, 10 and Test Unit 2 were plotted along to the Stroudwater River on a small landform bounded on the east and west by wetland drainages that outlet into the River. STs 9-2, 9-3, and TU-2 produced historic artifacts: three window glass fragments, one corroded unidentifiable nail fragment, and one piece of slag (Appendix C).

The eight STs plotted on the landform achieved an average depth of 64 centimeters below ground surface, and the TU was excavated to 105 centimeters. Soil profiles consisted of a a root mat overlying a stratum containing brown silty loam in the uppermost profile, followed by a stratum of light olive brown sandy silt, followed at the base by a sterile substratum of light olive brown fine silty sand.

Transect 11 and Test Unit 3

Transect 11 and Test Unit 3 were plotted along to the Stroudwater River and the eastern bank of a wetland drainage that outlets in the River. STs 11-2, 11-4 and TU 3 produced 18 historic period artifacts; the recovered materials were dominated by slag and glass fragments with the majority being produced by TU 3 (Appendix C).

The four STs achieved an average depth of 63 centimeters below ground surface, and the TU was excavated to 100 centimeters. Soil profiles were fairly consistent with a root mat overlying a stratum containing brown silty loam in the uppermost profile, followed by a stratum of light olive brown sandy silt, followed at the base by a sterile substratum of light olive brown fine silty sand.

Surface Find

Two whiteware fragments were located on the ground surface of an eroding former livestock trail northwest of ST 2-2. The find location was situated just east of a large drainage running north-south to the Stroudwater River and adjacent to three large apple trees on the west. The area, including the southern portion of the drainage was subject to intensive pedestrian survey, no additional cultural materials were identified.

3.0 SUMMARY AND RECOMMENDATIONS

A Phase I prehistoric archaeological survey of the proposed Project, was performed in July 2017. Background research and an archaeological site file search were conducted with the MHPC in Augusta, Maine. This research determined there are no prehistoric archaeological sites recorded within the Project area; however both a prehistoric site and a historic site are located nearby and associated with the Stroudwater River are located within a half mile of the Project area.

A subsurface testing regimen was established and conducted in areas of potential archaeological sensitivity. A total of 28 STs and 4 TUs were excavated within the Project area. No prehistoric cultural materials or features were identified. Numerous historic artifacts dating to the 20th century were identified throughout the Project area, with a particularly dense deposit located in TU 4. The materials recovered from TU 4 likely represent the remnants of a dilapidated historic outbuilding. The other historic artifacts recovered throughout the Project area were minor in quantity and likely represent typical historic farm scatter. The recovered historic artifacts collectively and individually do not represent particular significance.

Based on the results of this Phase I prehistoric archaeological investigation, no further archaeological investigations are recommended in conjunction with the proposed Project.

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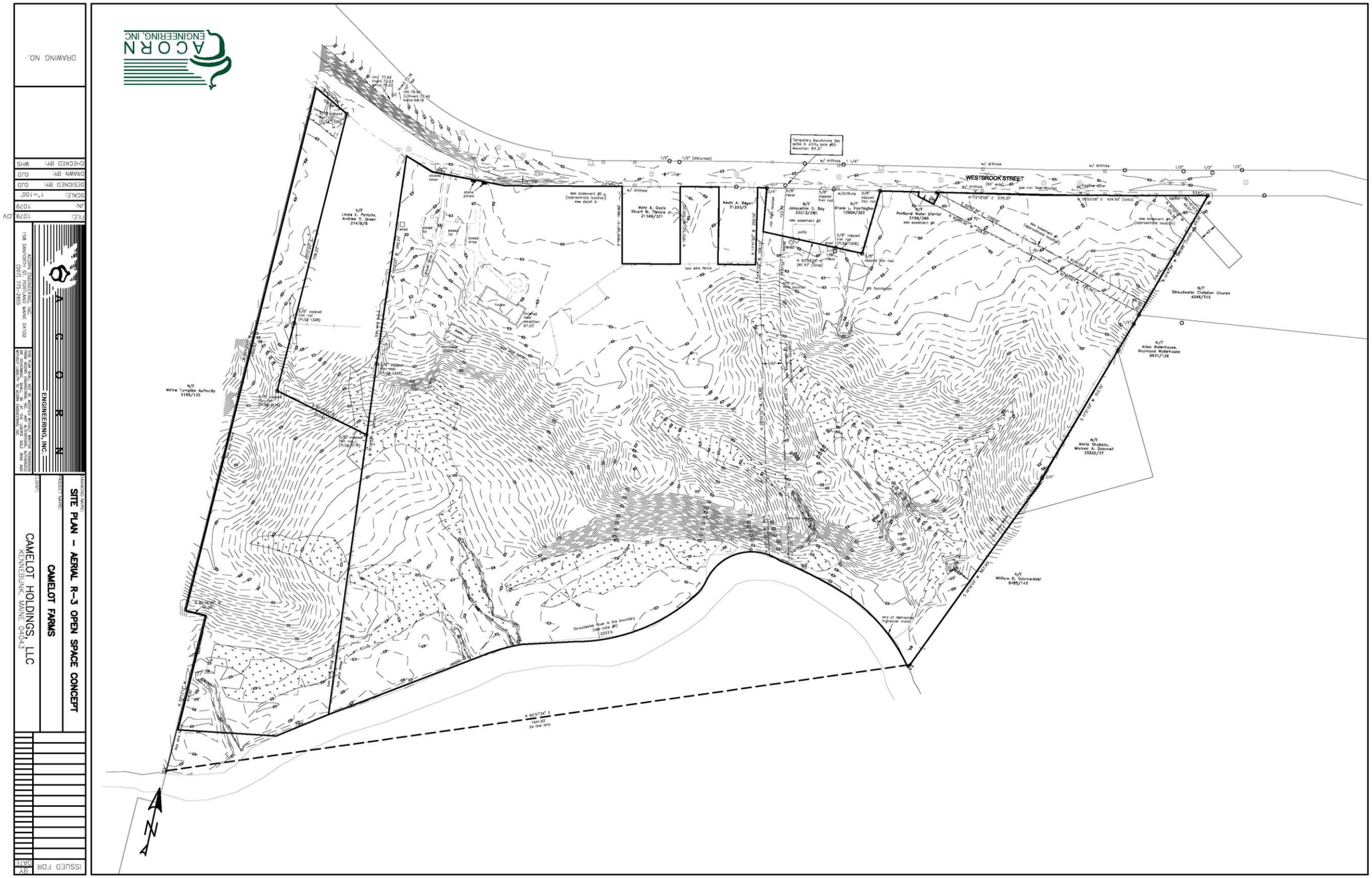
APPENDIX A

Camelot Farms Subdivision Project, City of Portland, Cumberland County, Maine

Camelot Farms Site Plan


ACORN ENGINEERING, INC.
WESTBROOK STREET
SITE PLAN – AERIAL R-3 OPEN SPACE CONCEPT
CAMELOT FARMS
CAMELOT HOLDINGS, LLC
KENNEBUNK, MAINE 04043
ACORN ENGINEERING, INC.
158 DANFORTH ST, PORTLAND, MAINE 04102
(207) 775-2655
DRAWING NO.
ISSUED FOR
BY
DATE
FILE: 1079.CIV
JN: 1079
SCALE: 1"=100'
DESIGNED BY: OJD
DRAWN BY: OJD
CHECKED BY: WHS

APPENDIX B

Camelot Farms Subdivision Project,
City of Portland, Cumberland County, Maine

Photographic Record

Photo No. 1. Southeast view of the Transect 1 – 2 and TU 4 test area. The Stroudwater River is located in the center distance of the photo. (Haugh, 7/11/2017)

Photo No. 2. West/southwest view from Transect 5 towards a low-lying wetland area. The existing house located on the property is visible in the distance of the photo. (Haugh, 7/11/2017)

Photo 3. Northeast view of Transect 6 from ST 6-4. The Stroudwater River is visible in the right of the photo. (Haugh, 7/122017)

Photo 4. Northeast view of the inlet adjacent to Transect. (Haugh, 7/12/2017)

Photo 5. West view of the majority of the Project area located below the 40 foot contour. The photographer is positioned adjacent to Transect 6, looking towards I-95. (Haugh, 7/12/2017)

Photo 6. South view of the wetland drainage outlet to the Stroudwater River, located between Transects 7 and Transects 8 - 10. (Haugh, 7/12/2017)

Photo 7. South view of TU 1, the Stroudwater River is visible in the background. (Haugh, 7/14/2017)

Photo 8. North view of the landform containing Transects 8 – 10 and TU 2. The landform is

bounded on the east and west by wetland drainages that outlet in to the Stroudwater River. (Haugh, 7/12/2017).

Photo 9. South view of TU 3. (Haugh, 7/20/2017)

Photo 10. West view of TU 4. (Haugh, 7/22/2017)

APPENDIX C

Camelot Farms Subdivision Project, City of Portland, Cumberland County, Maine

Excavation Characteristics and Artifact Inventory

ST/TU	Start Depth (cm)	End Depth (cm)	Munsell	Soil Composition	Inclusions	Soil Compaction	Artifacts	Period and Description	Date
** Munsell colors are from sheet 10YR unless noted.*									
1-1	0	39	4/3	fine sandy loam	subangular gravel	moderate	positive	Historic: slag, burned rock (not saved)	7/20/2017
	39	48	5/8	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
	48	71	2.5Y 5/4	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
1-2	0	32	4/3	fine sandy loam	subangular gravel	high	positive	Historic: dense slag, corroded unidentifiable nails, burned whiteware. Burn area/pile. Saved representative sample.	7/20/2017
	32	46	2.5Y 5/6	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
	46	65	2.5Y 5/4	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
1-3	0	27	4/3	fine sandy loam	subangular gravel	moderate	positive	Historic: 2 slag, 3 brick fragments, 2 clear window glass fragments, 1 whiteware fragment, 2 corroded unidentifiable nails.	7/20/2017
	27	40	2.5Y 5/6	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
	40	68	2.5Y 5/4	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
TU-4	0	40	3/3	fine sandy loam	subangular gravel	moderate	positive	Historic: 0-10 cm: 3 slag, 9 clear window glass fragments, 3 clear bottle glass fragments, 1 round head spike, 2 unidentifiable spikes, 1 unidentifiable screw, 8 round head wire nails, 17 unidentifiable nails. 10-20 cm: 1 molded brick fragment, 1 rough concrete fragment, 2 slag, 3 unidentifiable ferrous objects (possible latch, buckle, and button fragments), 10 unidentifiable ferrous objects (likely highly eroded nail fragments), 4 square head-body spikes, 3 round head-body spikes, 2 unidentifiable head-square body spikes, 1 square head-unidentifiable body nail fragment, 9 round head-body nail fragments, 4 terracotta fragments, 4 whiteware fragments, 34 clear window glass fragments, 7 clear bottle glass fragments. 20-30 cm: 1 slag, 1 flat unidentifiable metal object, 2 unidentifiable head-square body spikes, 19 unidentifiable ferrous objects (likely highly eroded nail fragments), 7 round head-body nails, 20 unidentifiable nails, 10 clear window glass fragments, 10 clear bottle glass fragments, 1 burned glass fragment, 6 whiteware fragments (1 burned),	7/21/2017
	40	52	3/3 mottled w/ 5/6	fine silty sand	minor subangular gravel	moderate	positive		7/21/2017
	52	79	2.5Y 5/3	fine silty sand	-	moderate	negative	-	7/21/2017

ST/TU	Start Depth (cm)	End Depth (cm)	Munsell	Soil Composition	Inclusions	Soil Compaction	Artifacts	Period and Description	Date
	79	100	2.5Y 4/4	fine sandy silt	-	moderate/high	negative	-	7/21/2017
2-1	0	35	4/3	fine sandy loam	subangular gravel	moderate	negative	-	7/20/2017
	35	47	2.5Y 5/6	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
	47	72	2.5Y 5/4	fine silty sand	subangular gravel	moderate	negative	-	7/20/2017
2-2	0	40	4/3	fine sandy loam	roots, subangular gravel	moderate	positive	Historic: 15 brick fragments (1 burned)	7/20/2017
	Partial excavation, densely root bound.					moderate	negative	-	7/20/2017
Transect Nos. 3 and 4 removed from revised set up.									
5-1	0	34	2.5Y 4/4	silty loam	-	high	positive	Historic: 2 clear glass bottle fragments (not saved)	7/13/2017
	34	42	2.5Y 5/6	silty loam	minor subangular gravel	high	negative	-	7/13/2017
	42	53	5/6	silty loam	minor subangular gravel	high	negative	-	7/13/2017
5-2	0	24	4/4	silty loam	-	high	negative	-	7/13/2017
	24	48	2.5Y 6/4	silty loam	minor subangular gravel	very high	negative	-	7/13/2017
5-3	0	18	3/4	silty loam	-	high	negative	-	7/13/2017
	18	26	2.5Y5/4	silty loam	-	high	negative	-	7/13/2017
	26	43	2.5Y 6/3	silty loam	minor subangular gravel	very high	negative	-	7/13/2017
5-4	0	14	2.5Y 4/4	silty loam	-	high	negative	-	7/13/2017
	14	30	2.5Y 6/3	silty loam	dense subangular gravel	very high	negative	-	7/13/2017
6-1	0	34	2.5Y 4/3	silty loam	-	moderate	negative	-	7/13/2017
	34	43	2.5Y 4/2	clayey silt	-	moderate	negative	-	7/13/2017
	43	58	2.5Y 5/3	clayey silt	-	moderate	negative	-	7/13/2017
6-2	0	32	2.5Y 3/3	silty loam	-	moderate	negative	-	7/13/2017
	32	38	2.5Y 5/4	silty sand	-	moderate	negative	-	7/13/2017
	38	45	2.5Y 3/3 mottled w/ 7.5YR 4/6	silty clay	-	moderate	negative	-	7/13/2017
	45	58	2.5Y 5/3	clayey silt	-	moderate	negative	-	7/13/2017
6-3	0	28	4/3	sandy silt	-	moderate	positive	Historic: 1 nail fragment	7/14/2017
	28	34	2.5Y 5/3	silty sand	-	moderate	negative	-	7/14/2017
	34	73	2.5Y 5/4	silty sand	-	moderate	negative	-	7/14/2017
6-4	0	30	4/3	sandy silt	-	moderate	negative	-	7/14/2017
	30	36	2.5Y 5/3	silty sand	-	moderate	negative	-	7/14/2017
	36	75	2.5Y 5/4	silty sand	-	moderate	negative	-	7/14/2017
TU-1	0	17	4/4	fine sandy loam	-	moderate	negative	-	7/14/2017

ST/TU	Start Depth (cm)	End Depth (cm)	Munsell	Soil Composition	Inclusions	Soil Compaction	Artifacts	Period and Description	Date
	17	23	6/6	fine sandy loam	-	moderate	negative	-	7/14/2017
	23	45	3/6	fine sandy loam	-	moderate	negative	-	7/14/2017
	45	77	2.5Y 5/4	sandy silt	-	moderate	negative	-	7/14/2017
	77	100	2.5Y 5/3	sandy silt	-	moderate	negative	-	7/14/2017
7-4	0	54	4/3	sandy silt	-	moderate	negative	-	7/15/2017
	54	62	2.5Y 4/3	sandy silt	-	moderate	negative	-	7/15/2017
	62	75	2.5Y 5/4	silty sand	-	moderate	negative	-	7/15/2017
7-5	0	50	4/3	sandy silt	-	moderate	negative	-	7/15/2017
	50	57	2.5Y 4/3	sandy silt	-	moderate	negative	-	7/15/2017
	57	70	2.5Y 5/4	silty sand	-	moderate	negative	-	7/15/2017
7-7	0	45	4/3	sandy silt	-	moderate	positive	Historic: 1 nail fragment (`40cm)	7/15/2017
	45	73	2.5Y 5/4	silty sand	-	moderate	negative	-	7/15/2017
8-1	0	30	4/3	sandy silt	-	moderate	negative	-	7/15/2017
	Partial excavation, densely root bound.							-	7/15/2017
TU-2	0	33	4/3	silty loam	roots	moderate	positive	Historic: slag (15 cm, not saved), 1 nail fragment (26 cm)	7/19/2017
	33	83	2.5Y 5/6 mottled w/ 2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
	83	86	3/2	silty loam	-	moderate	negative	-	7/19/2017
	86	105	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
8-3	0	32	4/3	silty loam	roots, minor subangular gravel	moderate	negative	-	7/15/2017
	32	50	2.5Y 4/4	sandy silt	roots, minor subangular gravel	moderate	negative	-	7/15/2017
	50	70	2.5Y 5/4	sandy silt	-	moderate	negative	-	7/15/2017
9-1	0	19	3/2	sandy silt	roots	moderate	negative	-	7/15/2017
	19	23	2/1	sandy silt	-	moderate	negative	-	7/15/2017
	23	37	2.5 Y 4/4 mottled w/ 2.5Y 5/4	fine silty sand	-	moderate	negative	-	7/15/2017
	37	50	2.5Y 5/4	fine silty sand	-	moderate	negative	-	7/15/2017
9-2	0	28	4/3	silty loam	-	moderate	positive	Historic: 1 window glass fragment	7/18/2017
	28	64	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/18/2017
	64	80	2.5Y 5/4	fine silty sand	-	moderate	negative	-	7/18/2017
9-3	0	30	4/3	silty loam	-	moderate	positive	Historic: 1 window glass fragment	7/18/2017
	30	57	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/18/2017
	57	78	2.5Y 5/4	fine silty sand	-	moderate	negative	-	7/18/2017
10-1	0	26	4/3	silty loam	-	moderate	negative	-	7/19/2017
	26	45	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/19/2017

ST/TU	Start Depth (cm)	End Depth (cm)	Munsell	Soil Composition	Inclusions	Soil Compaction	Artifacts	Period and Description	Date
	45	70	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
10-2	0	23	4/3	silty loam	-	moderate	negative	-	7/19/2017
	23	30	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/19/2017
	30	64	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
10-3	0	20	4/3	silty loam	-	moderate	negative	-	7/19/2017
	20	67	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
11-1	0	24	4/3	silty loam	roots	moderate	negative	-	7/19/2017
	24	67	2.5Y 5/6	silty sand	-	moderate	negative	-	7/19/2017
11-2	0	27	4/3	silty loam	roots	moderate	positive	Historic: 1 slag, 1 unidentifiable nail fragment, 1 clear window glass fragment	7/19/2017
	27	36	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/19/2017
	36	72	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
11-3	0	30	4/3	silty loam	-	moderate	negative	-	7/19/2017
	30	38	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/19/2017
	38	69	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
11-4	0	26	4/3	silty loam	roots	moderate	positive	Historic: 1 slag	7/19/2017
	26	44	2.5Y 5/4	silty sand	-	moderate	negative	-	7/19/2017
	Partial excavation, densely root bound.					moderate	negative	-	7/19/2017
TU-3	0	33	4/3	silty loam	-	moderate	positive	Historic: 0-10cm: 4 slag, 2 clear bottle glass fragments. 10-20cm: 4 slag, 1 clear window glass fragments, 1 unidentifiable glass fragment, 1 burned whiteware fragment, 1 unidentifiable nail.	7/20/2017
	33	40	2.5Y 5/6	sandy silt	-	moderate	negative	-	7/20/2017
	40	60	2.5Y 5/4 mottled with 2.5Y 5/3	fine silty sand	-	moderate	negative	-	7/20/2017
	60	84	2.5Y 5/6 mottled with 2.5Y 6/2	fine silty sand	-	moderate	negative	-	7/20/2017
	84	100	2.5Y 6/2	fine silty sand	-	moderate	negative	-	7/20/2017
					Total Artifact Count (less ST 1-2 representative sample):			**257**	

August 31, 2017

Michael Barton
Camelot Holdings, L.L.C.
78 Lincoln St
Portland, ME 04103

Re: Historic Structures Photographs, Camelot Farms Subdivision Project, Portland, Maine; MHPC# 1678-16

Dear Mike,

As requested by the Maine Historic Preservation Commission, Tetra Tech, Inc. (Tetra Tech) is pleased to provide you with photographs keyed to a topographic map of buildings that are fifty years or older located on or adjacent to the Project site.

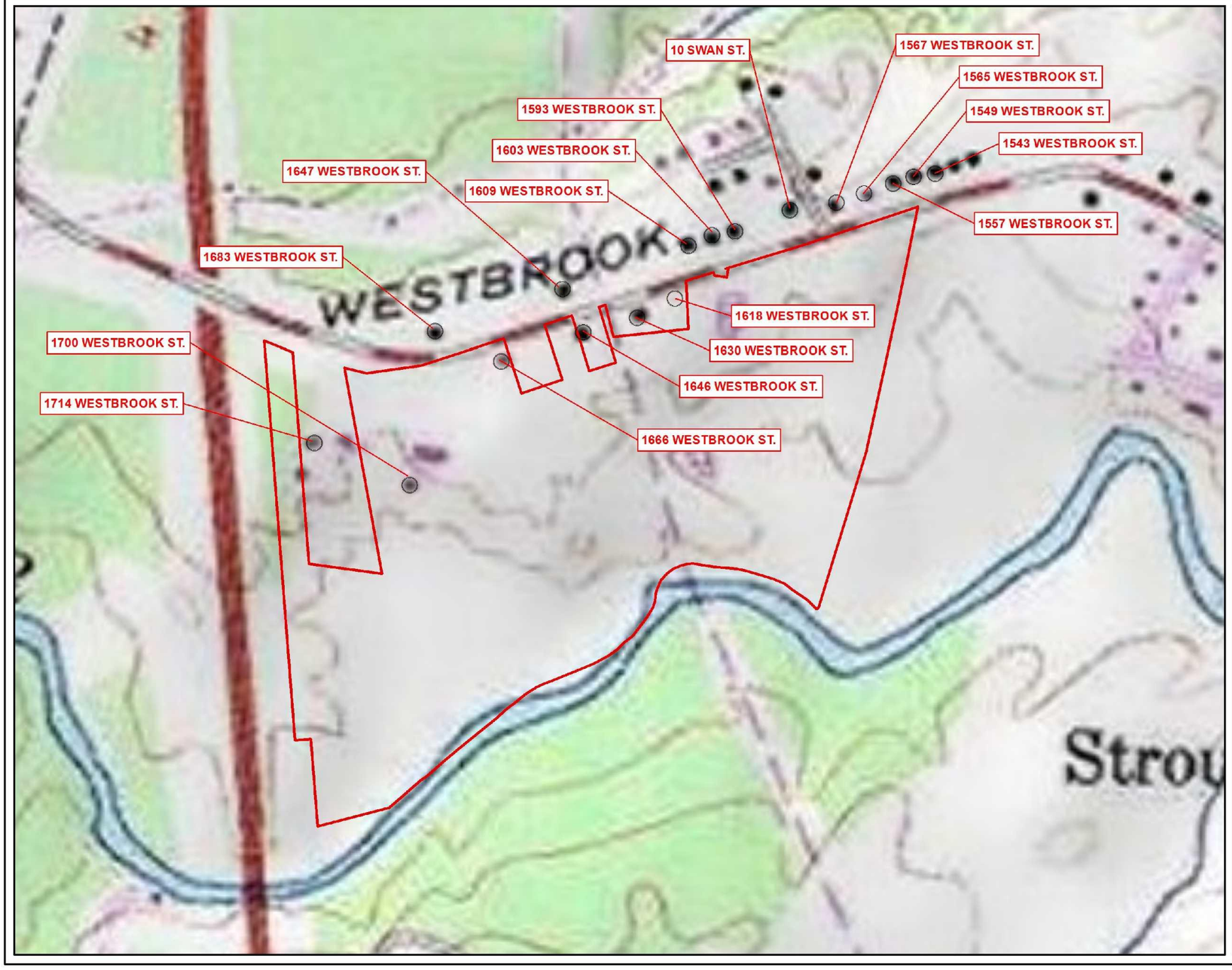
If you have any questions regarding this submittal, please do not hesitate to contact me via email at sarah.haugh@tetratech.com or phone at (207) 358-2395.

Sincerely,
Tetra Tech, Inc.

Sarah M. Haugh
Archaeologist
451 Presumpscot Street
Portland, ME 04103

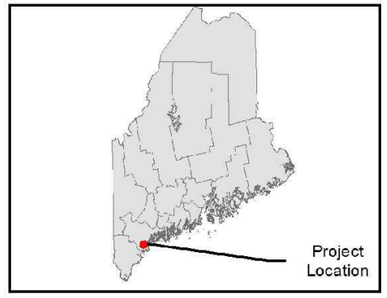
Att. Topographic Map
Photographs

cc: TT file: I:\Projects\Camelot Holdings\04 Tasks



Legend

- Project Boundary
- Historic Structure



N

0 50 100 200 Meters

Historic Structures
Camelot Farms Subdivision Project
Portland, Maine

Prepared For:
Camelot Holdings, LLC.

Prepared By: TETRA TECH

Date:
08/2017

Source: Esri et. al., 2014; Acorn Engineering, 2017; City of Portland, 2017

Coordinate System: North American Datum 1983, Universal Transverse Mercator, Zone 19 North

1700 Westbrook Street

1714 Westbrook Street

1666 Westbrook Street

1683 Westbrook Street

1647 Westbrook Street

1646 Westbrook Street

1630 Westbrook Street

1618 Westbrook Street

1609 Westbrook Street

1603 Westbrook Street

1596 Westbrook Street

10 Swan Street

1567 Westbrook Street

1563/1565 Westbrook Street

1557 Westbrook Street

1549 Westbrook Street (1)

1549 Westbrook Street (2)

1543 Westbrook Street

Section 9

Unusual Natural Areas

9. Unusual Natural Areas

The site was surveyed independently by Gino Giumarro (Verdanterra, LLC), on March 13, 2017, and by Mark Hampton (Mark Hampton Associates, Inc.), on multiple days. Gino Giumarro's findings can be found in Section 7. Mark Hampton provided Acorn Engineering with response letters regarding wetlands on November 21, 2016 and May 20, 2017. Additionally, he provided a response letter regarding vernal pools on June 12, 2017.

As part of the due diligence, several agencies were contacted including the Maine Natural Areas Program. No unusual natural areas were discovered on the site.

Please refer to section 7 and section 11 for more information regarding the surveys.

Section 10

Buffers

10. Buffers

Per the survey received from Titcomb Associates, the project parcel has the following existing easements:

1. Subject to a 30' – wide utility easement for a 42" concrete water pipe granted to Portland Water District further described in Book 1382, Page 144 and Book 1399, Page 462.
2. Subject to a 50' – wide utility easement for three pipelines further described in instruments recorded in Book 1655, Page 294 and Book 2954, Page 772.
3. Subject to an easement for a sewer pipe granted by Ruby H. Young to Frederick A. Butts and Marie Butts in a deed recorded in Book 2236, Page 405. (Location unknown)
4. Subject to an easement for drainage granted to Maine Department of Transportation and further described in an instrument recorded in Book 4146, Page 333. Location is approximate.
5. Subject to a slope easement granted to Maine Department of Transportation and further described in an instrument recorded in Book 4146, Page 333. Location is approximate.
6. Benefiting from an easement for access reserved in a deed recorded in Book 2198, Page 386.

The proposed project will be subject to stormwater and utility easements. The locations of these easements are forthcoming. A 30' wide pedestrian (Stroudwater Trail) easements was recently granted to Portland Trails and is depicted on the Site Plan.

The site will feature existing and proposed vegetated buffers between the development and the abutting properties. Existing trees and shrubs will be maintained where feasible. Landscaping and visual buffering throughout the site is provided in general conformance with the City of Portland Ordinance requirements. Sound buffering will be provided through the creation of a sound berm with landscaping adjacent to the Maine Turnpike. The residential development will incorporate an approximate 300-foot average buffer from the Stroudwater River.

See plans for stormwater buffer locations (Sheet C-10)

Furthermore, all of the required setbacks required by the City have been met or exceeded.

August 17, 2017

To Camelot Holdings, LLC:

Portland Trails agrees to hold the Recreation Trail Easement between Camelot Holdings, LLC and Portland Trails in escrow until after deed for the property at 1700 Westbrook Street is held by Camelot Holdings, LLC. At that time, we will take the easement to the Cumberland County Registry of Deeds to be recorded. If the sale of the property does not take place, the Recreation Trail Easement document will be destroyed.

Sincerely yours,

Kara Wooldrik
Executive Director

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Kate O'Brien, Vice President
Matt Bahl, Treasurer
Rachael Alfond, Secretary
Rob Levin, President Emeritus

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Lois Winter

Executive Director
Kara Wooldrik

Section 11

Soils

11. Soils

A. Soil Survey Map and Report

The soil survey is from a Class B-High Intensity Soil Survey published by Mark Hampton Associates, Inc.

The site is comprised of primarily Lamoine and Buxton soils which are classified as types C and D hydrologic soils, respectively. The areas where Lamoine has been identified, have been classified as somewhat poorly drained. The areas where Buxton has been identified, have been classified as moderately well drained.

Small parts of the site are comprised of Podunk soils which is characterized by moderately well drained soils. Permeability is moderately rapid to rapid.

Lastly, eight wetlands with Scantic soils exist on site which are poorly drained.

A copy of the Soil Narrative Report, provided by Mark Hampton Associates, Inc, on May 20, 2017, is included as part of this section. Test pit locations are depicted on the Predevelopment Watershed Map attached to the Stormwater Report.

B. Soil Survey Intensity Level by Development Type

The project consists of redeveloping a 55.3-acre lot into a traditional single-family housing neighborhood and townhouse development. The subject site is mostly meadowland. Runoff from the proposed surfaces will be treated using tree filters and retention ponds. Mark Hampton, a certified soil scientist and licensed sit evaluator, performed test pit evaluations at locations specified by a registered land surveyor.

C. Geotechnical Investigation

A geotechnical investigation will be completed if deemed necessary for the detention basin construction.

D. Hydric Soils Mapping

Mark Hampton Associates, Inc. identified all wetland areas within the subject parcel area. The wetland delineation is incorporated in the plans. Mark Hampton also confirmed that there are no vernal pools located within the property.

The existing wetlands are shown on the Existing Conditions Plan and the Civil Plan set.

A copy of the Wetland Report and Vernal Pool Assessment, provided by Mark Hampton Associates, Inc. dated November 21, 2016, May 20, 2017, and June 21, 2017 respectively, are as attached.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

4702
November 21, 2016

Mr. Mike Barton
Diversified LLC
5 Stone Pony Circle
Saco, ME 04072

Re: Wetland Delineation, 45+ acre parcel Westbrook Street Portland, ME

Dear Mike,

Today, I completed a wetland delineation on an 45+ acre parcel located on Westbrook Street Portland, ME. The wetland delineation was completed in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Northcentral and Northeast Regions dated January 2012. These manuals require the presence of three parameters for a wetland to be present, wetland hydrology, hydrophytic vegetation, and hydric soils.

The wetlands I found on the parcel were flagged with yellow flagging. The flagging was labeled in an alphanumeric sequence. The wetland flags were located by gps equipment capable of locating a point to within three feet. The wetland data has been forwarded to Acorn Engineering. The wetlands found onsite are wet meadow wetlands. The wetlands on the parcel are related to drainage moving across the site from north to south. The wetlands on the parcel located adjacent to the Stroudwater River will meet the definition of wetlands of special significance as defined by Maine Department of Environmental Protection.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

4 of 2

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/10/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: A-1

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex

Slope (%): 6 Lat: 43-39-23.6 N Long: 70-19-46 W Datum: NAD 27

Soil Map Unit Name: Buxton silt loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____	
Water Table Present?	Yes ____	No X	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	20		FACU
2. Pinus strobus	30	X	FACU
3. Malus domestica	20		FACU
4. Betula papyrifera	10		FACU
5.			
6.			
7.			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: 5)			
1. Pteridium aquilinum	20		FACU
2. Trientalis borealis	20		FAC
3. Maianthemum canadense	20		FAC
4. various grasses	40		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	2	x 3 =	6
FACU species	4	x 4 =	16
UPL species		x 5 =	
Column Totals:	6 (A)		22 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

SOIL

4702

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Sampling Point: A1

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3						Silt loam	
4-16	10YR 4/4		5YR 5/2		D		Silt loam	
16+	5Y 4/2		5Y 2/2		C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: hardpan

Depth (inches): 16+

Remarks:

Hydric Soil Present? Yes ___ No X

A7.2

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/10/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: A-2

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): none

Slope (%): 2 Lat: 43-39-24.7N Long: 70-19-44W Datum: NAD27

Soil Map Unit Name: 3Canton NWI classification: P meadow

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 6 inches

Saturation Present? Yes X No ____ Depth (inches): 0 inches

(includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Wetland Hydrology Present? Yes X No ____

Remarks:

A-2

VEGETATION – Use scientific names of plants.

Sampling Point: A-2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula populifolia			FAC
2. acer rubrum			FAC
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Alnus rugosa			FACW
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: 5)			
1. onoclea sensibilis		C	FACW
2. various sedges/rushes			FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (Plot size: 30)			
.			
.			
.			
		= Total Cover	

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	3	x 2 =	6
FAC species	2	x 3 =	6
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	5 (A)		12 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

SOIL

4702

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Sampling Point: A-2

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2		10YR 4/6				Silt loam	
4-15	2.5Y 4/2		2.5Y 6/2		RM	M	Silt loam	
15+	5Y 5/2		2.5Y 5/6		RM	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: hard pan

Depth (inches): 4 inches

Remarks:

Hydric Soil Present? Yes X No ___

4762

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/10/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: B1

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Convex

Slope (%): 4 Lat: 43-39-31.4N Long: 70-19-38.8W Datum: NAD 83

Soil Map Unit Name: Lamoine NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No Y	**Is the Sampled Area within a Wetland?** Yes ____ No N
Hydric Soil Present?	Yes ____ No N	
Wetland Hydrology Present?	Yes ____ No N	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A702

VEGETATION – Use scientific names of plants.

Sampling Point: B1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Taraxacum			FACU
2. Trifolium Red			NR
3. Phleum pratense		X	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	2 (A)		8 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3						Silt loam	
6-14	2.5Y 5/4		10YR 5/6				Silt Loam	
14+	5Y 4/3		5YR 5/8		D	M	Silt/Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: hard pan

Depth (inches): 14 inches

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/2/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: B-2

Investigator(s): M. Haupt Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave

Slope (%): 2 Lat: 43-39-31.4 N Long: 70-19-36.4 W Datum: NAD27

Soil Map Unit Name: Scantic NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation no, Soil No, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2 inches
Water Table Present?	Yes X	No ____	Depth (inches): surface
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): surface

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: B-2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Iris versicolor			obl
2. Onoclea Sensibilis			FACW
3. Osmunda Cinnamomea			FACW
4. various rushes/sedges			FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	3	x 2 =	6
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	4 (A)		7 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2		10YR 4/2				Silt Loam	
3-12	2.5Y 4/2		2.5Y 6/2		RM	M	Silt Loam	
12+	5Y 5/2		2.5Y 5/6		RM	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Hard pan

Depth (inches): 4 inches

Hydric Soil Present? Yes X No ___

Remarks:

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

4702
May 20, 2017

Mr. Mike Barton
Diversified LLC
5 Stone Pony Circle
Saco, ME 04072

Re: Wetland Delineation, 6+ acre parcel Westbrook Street Portland, ME

Dear Mike,

Today, I completed a wetland delineation on an 6+ acre parcel located on Westbrook Street Portland, ME. The wetland delineation was completed in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Northcentral and Northeast Regions dated January 2012. These manuals require the presence of three parameters for a wetland to be present, wetland hydrology, hydrophytic vegetation, and hydric soils.

The wetlands I found on the parcel were flagged with yellow flagging. The flagging was labeled in an alphanumeric sequence. The wetland flags were located by gps equipment capable of locating a point to within three feet. The wetland data has been forwarded to Acorn Engineering. The wetlands found onsite are wet meadow wetlands and forested wetlands. The wetlands on the parcel are related to drainage moving across the site from north to south. The wetlands on the parcel located adjacent to the Stroudwater River will meet the definition of wetlands of special significance as defined by Maine Department of Environmental Protection.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

4762

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/10/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: S1

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Convex

Slope (%): 4 Lat: 43-39-31.4N Long: 70-19-38.8W Datum: NAD 27

Soil Map Unit Name: Lamoine NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A7c2

VEGETATION – Use scientific names of plants.

Sampling Point: B1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Taraxacum			FACU
2. Trifolium Rep			NR
3. Phleum pratense		X	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	2 (A)		8 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3						Silt loam	
6-14	2.5Y 5/4		10YR 5/6				Silt Loam	
14+	5Y 4/3		5Y 7/1		D	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: hard pan

Depth (inches): 14 inches

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/2/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: B-2

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave

Slope (%): 2 Lat: 43-39-31.4 N Long: 70-19-36.4 W Datum: NAD27

Soil Map Unit Name: Scantic NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2 inches
Water Table Present?	Yes X	No ____	Depth (inches): surface
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): surface

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: B-2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size: 5)			
1. Iris versicolor			obl
2. onoclea sensibilis			FACW
3. Osmunda Cinnamomea			FACW
4. various rushes/sedges			FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size: 30)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	3	x 2 =	6
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	4 (A)		7 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- ___ Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2		10YR 4/2				Silt Loam	
3-12	2.5Y 4/2		2.5Y 4/2		RM	M	Silt Loam	
12+	5Y 5/2		2.5Y 5/6		RM	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Weathered Rock

Depth (inches): 4 inches

Hydric Soil Present? Yes X No ___

Remarks:

4 of 2

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village City/County: Portland Cumberland Sampling Date: 5/10/17

Applicant/Owner: Camelot Holdings LLC State: ME Sampling Point: A-1

Investigator(s): M. Hampton Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex

Slope (%): 6 Lat: 43-39-23.6 N Long: 70-19-46 W Datum: NAD 27

Soil Map Unit Name: Buxton Silt Loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	20		FACU
2. Pinus strobus	30	X	FACU
3. Malus domestica	20		Planted
4. Betula papyrifera	10		FACU
5.			
6.			
7.			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: 5)			
1. Pteridium aquilinum	20		FACU
2. Trientalis borealis	20		FAC
3. Maianthemum canadensis	20		FAC
4. various grasses	40		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	2	x 3 =	6
FACU species	4	x 4 =	16
UPL species		x 5 =	
Column Totals:	6 (A)		22 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

SOIL

4702

Sampling Point: A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3						silt loam	
4-16	10YR 4/4		5YR 5/2		D		silt loam	
16+	5Y 4/2		5Y 2/2		C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Hard pan

Depth (inches): 16 inches

Remarks:

Hydric Soil Present? Yes ___ No X

4702

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Camelot Village

Applicant/Owner: Camelot Holdings LLC

City/County: Portland Cumberland

Sampling Date: 5/10/17

Investigator(s): M. Hampton

State: ME

Sampling Point: A-2

Landform (hillslope, terrace, etc.): Flood plain

Section, Township, Range:

Slope (%): 2

Lat: 43-39-24.7N

Local relief (concave, convex, none): none

Soil Map Unit Name: 3 Canisto

Long: 70-19-44W

Datum: NAD 27

NWI classification: P meadow

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed?

Are Vegetation no, Soil no, or Hydrology no naturally problematic?

Are "Normal Circumstances" present? Yes X No ___ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X	No ___	If yes, optional Wetland Site ID: ___
Wetland Hydrology Present?	Yes X	No ___	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 6 inches
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0 inches

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

4 of 2

VEGETATION – Use scientific names of plants.

Sampling Point: A-2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula populifolia			FAC
2. acer rubrum			FAC
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. Alnus rugosa			FACW
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size: 5)			
1. onoclea sensibilis		C	FACW
2. various sedges/rushes			FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size: 30)			
.			
.			
.			
	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	3	x 2 =	6
FAC species	2	x 3 =	6
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	5 (A)		12 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

SOIL

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Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Sampling Point: A-2

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2		10YR 4/2				SiLoam	
4-15	2.5Y 4/2		2.5Y 6/2		RM	M	SiL Loam	
15+	5Y 5/2		2.5Y 5/6		RM	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: hard pan

Depth (inches): 4 inches

Remarks:

Hydric Soil Present? Yes X No ___

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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Camelot Village
Camelot Holdings LLC
Portland, ME

Soil Narrative Report

DATE:	Soil Profiles observed on May 10, 2017
BASE MAP:	Base plan provided by Acorn Engineering, Inc. scale 1 inch equals 100 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or larger.
Scale of 1"= 100 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located accurately under direction of registered land surveyor
Base Map –2 foot contour intervals

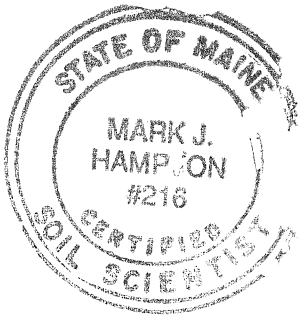
Provided:

Mapping units of 1/2 acre or larger
Base map scale of 1"= 100 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by Mark Hampton Associates, Inc.
Ground topographic survey with one foot contours and ground control provided.

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

C.S.S. #216, L.S.E. #263 May 20, 2017

Mark J. Hampton — Date



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SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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Camelot Village
Camelot Holdings, LLC
Portland, ME

Buxton
(Aquic Dystric Eutrochrepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

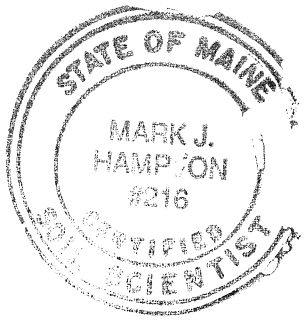
COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.5 to 3.0 feet below the surface at some time from November to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Olive brown, silt loam, 8-15"
Subsoil Layer:	Olive gray silty clay loam, 15-32"
Substratum:	Gray silty clay loam +32"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 60 inches
HAZARD TO FLOODING:	None



INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Scantic, Lamoine, Lyman-Tunbridge

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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Camelot Village
Camelot Holdings, LLC
Portland, ME

Lamoine
(Aeric Haplaquepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(B) 3-8%, (C) 8-15%, (D) 15-25%

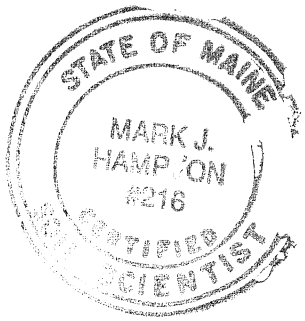
COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 0.5 to 2.0 feet below the surface at some time from November to June or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Lt. Olive brown silt loam, 7-14"
Subsoil Layer:	Olive silty clay loam, 14-21"
Substratum:	Olive, silty clay loam, 21-65"

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None



INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Buxton, Scantic, Podunk

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

4702

Camelot Village
Camelot Holdings LLC
Portland, ME

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

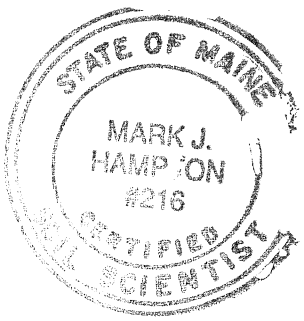
COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark grayish brown, silt loam 0-9"
Subsurface Layer:	Olive gray silt loam, 9-16"
Subsoil Layer:	Olive silty clay loam, 16-29"
Substratum:	Olive gray clay loam, 29-65"

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None



INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Buxton, Lamoine, Podunk

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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Camelot Village
Camelot Holdings, LLC
Portland, ME

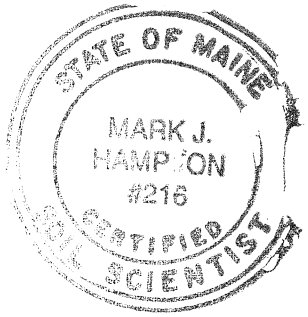
Podunk
(Fluvaquentic Dystrudepts)

SETTING

PARENT MATERIAL:	Derived from recent alluvium on floodplain
LANDFORM:	Floodplain
POSITION IN LANDSCAPE:	Low depressions and plains
SLOPE GRADIENT RANGES:	(A) 0-3%,

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS:	Moderately well drained	
TYPICAL PROFILE:	Surface Layer:	Dark brown fine sandy loam, 0-12"
	Subsurface Layer:	Light olive brown 12-30"
	Substratum:	Olive gray, loamy fine sand, 30-65"
HYDROLOGIC GROUP:	Group D	
SURFACE RUNOFF:	Slow to very slow	
PERMEABILITY:	Moderately Rapid to Rapid	
DEPTH TO BEDROCK:	Greater than 65 inches	
HAZARD TO FLOODING:	Frequent	



INCLUSIONS
(Within Mapping Unit)

CONTRASTING:	Lamoine, Buxton, Scantic

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Camelot Village

Applicant Name: Camelot Holdings LLC

Project Location (municipality): Pittsfield

Exploration Symbol # SS1

☑ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	Olive Gray	Common & Distinct
30				
40				
50				
60				

Soil Details by ▸▸ S.E. ▸▸ S.S.

Soil Classification	Slope	Limiting Factor	
E (Profile) / C (Condition)	2 (Percent)	16" (Depth)	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MUD ☐ Hydric ☑ Non-hydric

Hydrologic Soil Group:

Exploration Symbol # SS2

☑ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	Olive Gray	Common & Distinct
30				
40				
50				
60				

Soil Details by ▸▸ S.E. ▸▸ S.S.

Soil Classification	Slope	Limiting Factor	
B (Profile) / C (Condition)	2 (Percent)	16" (Depth)	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MUD ☐ Hydric ☐ Non-hydric

Hydrologic Soil Group:

Exploration Symbol # SS3

☑ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable		
20	Silty Clay loam	Firm	Gray	Common & Distinct
30				
40				
50				
60				

Soil Details by ▸▸ S.E. ▸▸ S.S.

Soil Classification	Slope	Limiting Factor	
E (Profile) / D (Condition)	16 (Percent)	16" (Depth)	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☑ Non-hydric

Hydrologic Soil Group:

Exploration Symbol # SS4

☑ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	Olive Gray	Common & Distinct
30				
40				
50				
60				

Soil Details by ▸▸ S.E. ▸▸ S.S.

Soil Classification	Slope	Limiting Factor	
E (Profile) / D (Condition)	8 (Percent)	12" (Depth)	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☑ Hydric ☐ Non-hydric

Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton Date: 5/22/17

Name Printed: Mark J. Hampton Cert/Lic/Reg. #: 263/216

Title: ☑ Licensed Site Evaluator ☑ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Camelot Village | Applicant Name: Camelot Hydro LLC | Project Location (municipality): Portland

Exploration Symbol # SS5

☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Black	
10	Silty Clay loam	Firm	Gray	Common & Distinct
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock	Hydrologic
Profile: E / Condition: E	Percent: 2	Depth: 6 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock	Soil Group

Soil Series/Phase Name: Scantic PD ☐ Hydric ☐ Non-hydric

Exploration Symbol # SS6

☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	olive Silty	Common & Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock	Hydrologic
Profile: B / Condition: D	Percent: 6	Depth: 10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Exploration Symbol # SS7

☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	Gray	Common & Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock	Hydrologic
Profile: B / Condition: D	Percent: 10	Depth: 16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Exploration Symbol # SS8

☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	olive Silty	Common & Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock	Hydrologic
Profile: B / Condition: D	Percent: 10	Depth: 12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton	Date: 5/12/17
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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PAGE ____ OF ____

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Camelot Village

Applicant Name: Camelot Holdings LLC

Project Location (municipality): Portland

Exploration Symbol # SS9 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt loam	Friable	Dark Brown	
Silt loam	Friable	Brown	
Silty Clay loam	Firm	Olive Gray	Common & Distinct

Soil Details by S.E. / S.S.

Soil Classification	Slope	Limiting Factor	
8 (Profile) D (Condition)	12 (Percent)	12 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS10 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt loam	Friable	Dark Brown	
Silt loam	Friable	Brown	
Silty Clay loam	Firm	Olive Gray	Common & Distinct

Soil Details by S.E. / S.S.

Soil Classification	Slope	Limiting Factor	
8 (Profile) D (Condition)	10 (Percent)	12 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS11 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt loam	Friable	Dark Brown	
Silt loam	Friable	Brown	
Silty Clay loam	Firm	Olive Gray	Common & Distinct

Soil Details by S.E. / S.S.

Soil Classification	Slope	Limiting Factor	
8 (Profile) D (Condition)	2 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS12 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt loam	Friable	Black	
Silty Clay loam	Firm	Gray	Common & Distinct

Soil Details by S.E. / S.S.

Soil Classification	Slope	Limiting Factor	
8 (Profile) E (Condition)	2 (Percent)	(Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Scantic PD ☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

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INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton

Date: 5/20/17

Name Printed: MARK J Hampton

Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Camelot Village

Applicant Name: Camelot Holdings LLC

Project Location (municipality): Portland

Exploration Symbol # SS13

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Sandy loam	friable	Dark Brown	
10	Loamy Sand	Friable	Brown	
20	Sandy loam	Friable	Light olive brown	Common distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
Profile / Condition	Percent	Depth	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock
	2	15 "	

Soil Series/Phase Name: Paduke MWD

☐ Hydric ☑ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS14

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Black	
10	Silty Clay loam	Firm	Gray	Common distinct
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
Profile / Condition	Percent	Depth	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock
E / E	2	6 "	

Soil Series/Phase Name: Scantic PD

☑ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS15

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark Brown	
10	Silt loam	Friable	Brown	
20	Silty Clay loam	Firm	Olive	Common
30			Gray	Distinct
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
Profile / Condition	Percent	Depth	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock
B / D	2	12 "	

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☑ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS16

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Black	
10	Silty Clay loam	Firm	Gray	Common distinct
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
Profile / Condition	Percent	Depth	☑ Groundwater ☑ Restrictive Layer ☐ Bedrock
E / E	0		

Soil Series/Phase Name: Scantic PD

☑ Hydric ☐ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton

Date: 5/20/17

Name Printed: Mark J Hampton

Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMP ON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

PAGE ___ OF ___

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Camelot Village | Applicant Name: Camelot Holdings LLC | Project Location (municipality): Portland

Exploration Symbol # SS17 ☒ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt loam	Friable	Dark brown	
10	Silt loam	Friable	Brown	
20	Silty clay loam	Firm	Grey	Common distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)	Groundwater / Restrictive Layer / Bedrock	Soil Series/Phase Name	Hydrologic Soil Group
S / C	2	16"	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Buxton Mod.	☐ Hydric ☒ Non-hydric

Exploration Symbol # ___ ☐ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)	Groundwater / Restrictive Layer / Bedrock	Soil Series/Phase Name	Hydrologic Soil Group
/		"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric

Exploration Symbol # ___ ☐ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)	Groundwater / Restrictive Layer / Bedrock	Soil Series/Phase Name	Hydrologic Soil Group
/		"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric

Exploration Symbol # ___ ☐ Test Pit ☐ Boring ☐ Probe

___" Organic horizon thickness Ground surface elev. ___

___" Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)	Groundwater / Restrictive Layer / Bedrock	Soil Series/Phase Name	Hydrologic Soil Group
/		"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton | Date: 5/2/17

Name Printed: Mark J. Hampton | Cert/Lic/Reg. #: 503/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

4702

June 12, 2017

Mr. Mike Barton
Camelot Holdings LLC
5 Stone Pony Circle
Saco, ME 04072

Re: Vernal Pool Assessment, 50+ acre parcel Camelot Village Westbrook Street Portland, ME

Dear Mike,

I have completed a vernal pool assessment during this breeding season, on the 50+- acre parcel of land located off Westbrook Street Portland, ME. The vernal pool assessment was conducted in accordance with Chapter 335 Significant Wildlife Habitat, Section 9 Significant Vernal Pools for the Maine Department of Environmental Protection. This section outlines the definition of a vernal pool as well as the requirements of a vernal pool to meet the definition of significance as related to the number of amphibian egg masses counted during the breeding season.

I made 6 site visits to the property over the course of six weeks beginning the third week in April. During each of these site visits I would evaluate each potential site of a possible vernal pool. I was looking for any amphibian egg masses. I did not find any wood frog or salamander egg masses on the property. As such, based on the observations made this spring, there are no vernal pools on the property. Vernal pools are described as shallow depressions that usually only contain water for part of the year. Vernal pools are also mostly likely to occur in forested or heavily vegetated areas for protection. There was only one area on the property which met this criteria and that is located in the northwest corner of the property up against the turnpike and Westbrook Street. And this pocket did not have any egg masses during the evaluation period.

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

I have included a completed Maine State Vernal Pool Assessment Form and a copy of a photograph of the assessment site. At your authorization I will submit the form and photograph to Maine Department of Inland Fisheries and Wildlife for processing.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

Maine State Vernal Pool Assessment Form

INSTRUCTIONS:

- **Complete all 3 pages of form thoroughly. Most fields are required for pool registration.**
- **Clear photographs of a) the pool AND b) the indicators (one example of each species egg mass) are required for all observers.**

Observer's Pool ID: Camelot Holding A1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Mark Hampton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ⊙ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ⊙ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ⊙ Yes

c. Project Name: Camelot Village

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ⊙ No If no, was landowner permission obtained for survey? ⊙ Yes ○ No

b. Landowner's contact information (required)

Name: Camelot Holdings LLC Phone: 286-6210

Street Address: 5 Stone Pony Circle City: Saco State: ME Zip: 072

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: Portland

Brief site directions to the pool (using mapped landmarks):

Near the intersection of Westbrook Street and the Maine Turnpike

b. Mapping Requirements

i. USGS topographic map OR aerial photograph with pool clearly marked.

ii. GPS location of vernal pool (use Datum NAD83 / WGS84)

Longitude/Easting: -70-19-51W Latitude/Northing: 43-39-36N

Coordinate system: NAD27

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (Best)

○ The pool perimeter is delineated by multiple GPS points. (Excellent)
- Include map or spreadsheet with coordinates.

⊙ The above GPS point is at the center of the pool. (Good)

○ The center of the pool is approximately _____ m ○ ft ○ in the compass direction of _____ degrees from the above GPS point. (Acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): _____

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ⊙ Isolated depression
- ○ Floodplain depression
- ○ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake or pond cove
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain
- ☑ Mostly unvegetated pool
- ☐ ATV or skidder rut
- ☐ Dug pond or borrow pit
- ☐ Roadside ditch
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ⊙ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (**required**):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale in box (**required**):

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ⊙ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ⊙ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 30 ○ m ⊙ ft Length: 100 ○ m ⊙ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ⊙ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☐ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☑ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ○ No inlet or outlet
- ⊙ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/25, 5/3, 5/11, 5/17, 5/25, 6/3

b. Indicator abundance criteria and pool survey effort

- Is pool depression bisected by 2 ownerships (straddler pool)? ◉ Yes ○ No
- Was the entire pool surveyed for egg masses? ◉ Yes ○ No; what % of entire pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae[4]					
	Visit #1	Visit #2	Visit #3	Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0	0	1	1	1									
Spotted Salamander	0	0	0	1	1	1									
Blue-spotted Salamander	0	0	0	1	1	1									
Fairy Shrimp[3]	0	0	0	1	1	1									

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (loose matrix, curved embryos), H= Hatched or Hatching

3-Fairy shrimp: X = present

4-Tadpoles/larvae: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Observations should be accompanied by photographs.

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

☐ SVP ☐ Potential SVP ☐ Non Significant VP ☐ Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ○ does not meet biological criteria. ○ does not meet MDEP vernal pool criteria.

Comments:

Section 12

Stormwater Management Report

A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

ACORN ENGINEERING, INC.

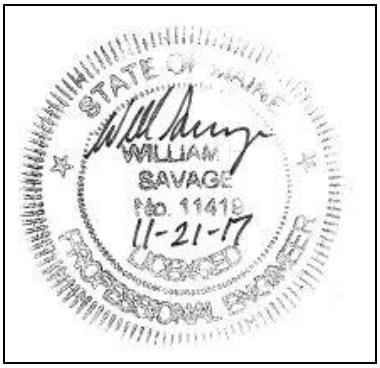
12. STORMWATER MANAGEMENT REPORT

Prepared For:

Stroudwater Development Partners, LLC
Kennebunk, Maine 04043

Prepared By:

Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104



Rev. November 2017
Rev. October 2017
August 2017

INTRODUCTION

The changes to the Stormwater Report include updating the subcatchment areas to reflect relocating the sidewalk to opposite site of the roadway for both outer loop roads and replacing the proposed Filterras with FocalPoint Stormwater BMPs within the public Right-Of-Way.

Acorn Engineering, Inc. has been retained by Stroudwater Development Partners, LLC to provide civil engineering services for the proposed single-family and townhouse development. The project is at 1700 Westbrook Street.

A stormwater analysis was prepared to demonstrate that the project will meet the following requirements of the City of Portland (the City):

- City of Portland Land Use Ordinance Chapter 14, Article V. Site Plan Section 14-523. Required Approvals and Applicability (E) Level III Site Plan Review.
- City of Portland City Code Chapter 32 Stormwater
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards, Section 12 – Site Location of Development Review, and Maine DEP Chapter 500 Stormwater Management Amended January 11, 2015.

The property consists of approximately 55.3 acres of land in Portland, Maine. A new roadway and sidewalk meeting the City of Portland Technical requirements will be developed to provide frontage for all new lots. Stroudwater Development Partners, LLC will construct the roadway, stormwater best management practices (BMPs) and associated utility infrastructure. Development of the roadway will result in approximately 32.5 acres of developed land, including 5.05 acres of impervious surfaces. Stroudwater Development Partners, LLC will sell lots upon completion of the roadway.

A Maine DEP Site Location of Development (Site Law) permit application was submitted to the City on August 24th, 2017 because the project will involve the creation of 15 or more lots on a parcel of land greater than 30 acres. A Tier 1 Natural Resources Protection Act Permit (NRPA) was submitted to the MaineDEP on September 15th, 2017 for the alteration of less than 15,000 sf of wetlands. The NPRA – Tier 1 permit was received on November 20th, 2017. Additionally, the project qualifies for a Chapter 305 - Permit by Rule application (PBR) for Section 2 - Activities adjacent to protected natural resources and Section 7 - Outfall pipes. The Permit by Rule Applications and Maine Construction General Permit will be submitted immediately following local approvals.

The City of Portland Technical Standards Section 5 Stormwater Standards for new development requires compliance with the Maine DEP Chapter 500 Rules. According to the Maine DEP, ground cover changes associated with the development of single family driveways, buildings, and lawns within the proposed lots are considered exempt from water quality treatment as stated in Title 38, Chapter 3, Section 420-D (Stormwater Management), Subsection 7E of the Maine Revised Statutes, which reads, "Impervious and disturbed areas associated with construction or expansion of a single-family, detached residence on a parcel do not require review pursuant to this section."

"Parcel" is defined in Chapter 500, Section 3(W) to be the same as "parcel of land" under Site Location of Development rules, which is Chapter 371(1)(L). The stormwater management standard under the Site Law is found at 38 M.R.S. § 484-D(4-A). Lots reviewed under a Site Law permit and in a lake watershed included in the list adopted pursuant to section 420-D would need to meet the

quality standards, however the Subdivision is in stream watershed so quality standards do not apply. Lots will be offered for sale to general public. Upon sale of the lots, owners will have their choice of builder. Stroudwater Development Partners, LLC may be the designated as the preferred builder.

The current course of action is to provide primary water quality and quantity control through a Best Management Practice (BMP) approved by the Maine Department of Environmental Protection (MDEP). The majority of the roadway will be directed towards proprietary high-performance filter BMPs before being redirected towards detention basins to provide channel volume protection and quantity control. The development will provide water quality treatment for no less than 75% of the new roadway impervious area and no less than 50% of the roadway developed area. Although not required the stormwater BMPs within the roadway will be oversized to provide water quality treatment for the upgradient house lots as well. Channel protection volume is not required or nor will it be provided for the house lots tributary to the detention basin. Water quantity will be provided for the roadways and although not specifically required provided for the single-family house lots.

The planned unit residential (PRUD) development (excluding the access road) will provide water quality treatment for no less than 95% of the new impervious area (parking lot and buildings) and no less than 80% of the developed area. The runoff generated within the PRUD lot will be directed towards a combination of vegetated underdrain soil filters (VUSF) and proprietary high-performance filtration BMPs. Sections of the lot will also be tributary to the rearmost open space lot and be treated by the existing, undisturbed buffer. Channel Protection Volume and water quantity will be provided by the downgradient dry detention basin.

EXISTING CONDITIONS

The proposed redevelopment project is located in between the Maine Turnpike to the West, the Stroudwater River and Unum to the South, a Subdivision and Stroudwater Christian Church to the East, and a Subdivision and Portland Technology Park to the North. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated December 16, 2016 and revised through June 16, 2017.

The property is in the R-3 Residential Zone. Abutting Uses include:

- North R1, OP & ROS Zone – Residential & Office Park
- West R1 & R2 Zone – Single Family Residential & Religious Institution
- South OP Zone – Office Park
- East I-L Zone – Industrial Land & Maine Turnpike

The exiting property is generally flat in the areas closest to Westbrook Street. To the north, the property gradually transitions into hills. The terrain becomes steeper as it approaches the river. A topographic map of the proposed project location can be found in Section 1. The majority of stormwater runoff from the subject site drains to Stroudwater River. The runoff flows south-east down multiple hills towards Stroudwater River. The river continues to flow approximately 1 mile east before it reaches Fore River. The water is later discharged into Casco Bay. The site is not within a watershed classified as an Urban Impaired Stream as defined by the Maine DEP Chapter 502.

PROPOSED DEVELOPMENT

The proposed development includes 100 lots of which 97 are single and two-family house lots, one planned unit residential lot (PRUD) and two open space lots. The PRUD will include 25 units within 5 multi-family buildings. The lot includes roadways, sidewalks and infrastructure to serve the proposed residential development.

New impervious surfaces comprise of pavement and gravel associated with the proposed roadway, as well as single family homes, multi-families and associated driveways and parking for lot development. The roadway will be built in accordance with the City of Portland Local Street Standards and will be twenty-eight feet wide to accommodate two-way traffic and parallel parking on one side of the street. The roadway will be curbed on both sides of the street with a six-foot esplanade and one five-foot sidewalk. The project is requesting a waiver for the two-sidewalk requirement on either side of the street to reduce the overall impervious area. The private driveway associated with the Planned Unit Residential Development (PRUD) will be twenty-two feet wide with an esplanade at non-wetland crossing areas and a five-foot-wide sidewalk. The PRUD driveway wetland crossing culvert will be embedded a minimum twelve inches to support connectivity and minimize impact.

The development will be served by the Portland Water District, Central Maine Power, Communications, Unitil and the municipal sewer and storm systems. Solid waste and recycling will be through the municipal curb pick-up.

The majority of the roadway will be directed towards proprietary high-performance filter BMPs before being redirected towards detention basins to meet the General and Flooding Standards. The stormwater management plan was designed so that existing drainage patterns are not significantly altered.

GENERAL STANDARDS - WATER QUALITY

According to Section 3 (c) of the Chapter 500, General Standard rules, "For a linear portion of a project, runoff volume control may be reduced to no less than 75% of the volume from the impervious area and no less than 50% of the developed area that is impervious or landscaped." The development will exceed the minimum water quality treatment for no less than 75% of the new roadway impervious area and no less than 50% of the roadway developed area. The creation of the roadway impervious area is the regulatory driver requiring water quality treatment, as such the water quality stormwater BMPs are proposed within the right-of-way. Although not required, the stormwater BMPs will be oversized to provide water quality treatment for the upgradient house lots. Channel protection volume is not required or nor will it be provided for the single-family house lots tributary to the detention basin. Chanel protection volume has been provided for the roadway impervious and developed area. The project includes the redevelopment of existing impervious area including rooftops, asphalt and gravel driveways and parking.

The planned unit residential (PRUD) development (excluding the access road) will provide water quality treatment for no less than 95% of the new impervious area (parking lot and buildings) and no less than 80% of the developed area.

Treatment Area

The Applicant and Engineer held multiple coordination meetings with the Department of Public Works (DPW) to review the proposed Stormwater Best Management Practices (BMPs) within the development's future public Right-of-Way (ROW).

As a result of these meetings DPW supports the use of water quality stormwater BMPs within the public ROW, with conditions and provided the respective party maintain the percentage of the contributing impervious area from the public ROW and Lot Area to the stormwater BMP. The Applicant was supportive of this compromise which results in the following:

- DPW will maintain approximately 57% or 11 of the stormwater BMPs. DPW has requested that these BMPs be FocalPoints and be designed a minimum 5 ft away from the curb line.
- The Homeowners Association (HOA) will maintain approximately 43% or 9 of the stormwater BMPs where the majority of the flow is from the single-family house lots. These BMPs may be FocalPoints or an approved equivalent. The lots tributary to the stormwater BMP will be eligible for the stormwater credit. DPW has also requested that the BMPs be designed a minimum 5 ft away from curb line.

The proprietary high-performance filter BMPs will be constructed to be in accordance with the Maine Stormwater Best Management Practice Manual, Appendix B Proprietary System requirements specified within the MaineDEP approval, most recent letter. Channel Protection Volume will be provided by the down gradient detention basin.

The PRUD runoff will be directed towards a combination of vegetated underdrain soil filters (VUSF) and proprietary high-performance filtration BMPs. Channel Protection Volume and water quantity will be provided by the downgradient dry detention basin. The Vegetated Underdrained Soil Filter BMPs (VUSF) are sized to meet or exceed the requirements set forth within the MDEP Volume III: BMPs Technical Design Manual Section 7.1. Filtration BMPs have been shown to be very effective at removing a wide range of pollutants from stormwater runoff.

The treatment of the impervious and developed surfaces by the Stormwater BMPs is summarized in Table 1.

		Table 1: New Impervious Area Treatment					
		Existing Impervious Area (SF)	Proposed Total Impervious Area (SF)	Net change in Impervious Area (SF)	Proposed Impervious Area with Treatment (SF)	% Overall New Imp. Area Treated	MDEP Req.
Linear	Single Family	25,787	154,004	119,289	116,560	91%	75%
	PRUD	0	22,341	22,341	22,341	100%	75%
House lots	Single Family	8,928	147,098	138,170	104,250	75%	0%
	PRUD	0	43,583	43,583	43,583	100%	95%

*Area excludes linear driveway to the PRUD.

As shown in Table 1, the project significantly exceeds the required treatment for new impervious surfaces.

Furthermore, the MDEP defines "developed area" as "disturbed area" excluding area that within one calendar year of being disturbed is returned to a condition with the same drainage pattern that existed prior to the disturbance and is revegetated, provided the area is not mowed more than once per year.

Based upon this definition, Table 2 summarizes the proposed disturbance and treatment areas.

	Table 2: Developed Area Treatment				
		Proposed Total Developed Area (SF)	Proposed Developed Area with Treatment (SF)	% Overall Developed Area Treated	MDEP Requirement
Linear	Single Family	207,483	154,483	74%	50%
	PRUD	24,672	24,672	100%	50%
House lots	Single Family	959,680	499,617	52%	0%
	PRUD	168,402	145,856	87%	80%

As shown in Table 2, the project anticipates exceeding the required treatment for the total developed area.

Filter Area Size

Per the requirements for a vegetated underdrain sand filter (VUSF) as defined in Volume III BMPs Technical Design Manual, Chapter 7.1, the surface area of the filter shall be no less than the sum of 5% of the tributary impervious area and 2% of the tributary landscaped area.

The filter area is calculated by the following formula:

$$Filter\ Area\ (sf) = (Imperivous\ Area\ \times\ 0.05) + (Landscaped\ Area\ \times\ 0.02)$$

Table 3 – Total Filter Surface Area, displays the proposed sand filter sizing requirements and the actual size. Tributary impervious areas include linear (roadway) and non-linear (parking and buildings) to the VUSF.

Table 3 –Total Filter Surface Area				
	Tributary Landscaped Area (SF)	Tributary Impervious Area (SF)	Filter Area Required (SF)	Filter Area Provided (SF)
VUSF 1	8,306	13,531	843	937
VUSF 2	6,082	2,006	222	258
VUSF 3	7,270	2,006	246	278
VUSF 4	10,446	2,006	309	341
VUSF 5	4,013	2,006	181	208

The outflow from the sand filter structure is then tributary to the dry detention basin with its outlet

control structure before outletting to the level lip spreader. As shown, the size of the soil filter area will meet and exceed the surface area requirements.

Buffers

A portion of the total PRUD developed area is proposed to be directed to the rearmost open space lot and treated via the undisturbed meadow buffer space. Meadow buffers are a Maine DEP recognized BMP as described within the Stormwater BMP Manual Chapter 5 and provide both water quality and quantity benefits to tributary runoff. The tributary area consists of half of the southernmost PRUD building roof, the rear yard, and southernmost PRUD roadway inslopes directly abutting the open space lot. The developed area conforms with the characteristics listed in the BMP Manual Chapter 5.1 and is largely pervious (less than 10%) with a flow path well below the 150-foot maximum flowing directly into the buffer as sheet flow. The meadow buffer within the open space lot is to remain undisturbed and will not be cut or mowed more than twice a year.

Stormwater detention is also provided within the micro-topography of the meadow buffers and wetlands. The water quantity benefits of the open space meadow buffers have not been quantified.

Water Quality Volume (Channel Protection Volume)

In accordance with the Volume III: BMPs Technical Design Manual, a water quality volume of 1.0-inch times the tributary roadway and PRUD impervious area plus 0.4-inch times the roadway and PRUD tributary landscaped developed area is required to be treated by the vegetated underdrain soil filter. The water quality volume is calculated by the following formula:

$$Treatment\ Volume\ (cf) = \frac{\left((Impervious\ Area\ \times\ 1.0") + (\text{Disturbed Area} \times 0.4")\right)}{(12"/1')}$$

A summary of the proposed water quality volume is as follows:

Table 4 – Water Quality Volume Table, displays the tributary landscaped area, tributary impervious area, treatment volume required, and treatment volume provided.

Table 4 - Water Quality Volume Table (CPV)				
	Tributary Landscaped Area (SF)	Tributary Impervious Area (SF)	Treatment Volume Required (CF)	Treatment Volume Provided
Pond 1*	20,599	85,900	**5,230**	**5,581**
Pond 2*	28,990	123,245	**7,491**	**7,531**
Pond 3	102,272	65,924	****4301**	**5545**

*Excludes single family house lots

**Excludes water quality volume within upgradient VUSFs

As shown, the size of the combined water quality volume will meet and exceed the treatment volume requirements. The treatment volumes provided are based upon the artificial rainfall and associated storage provided within the Pond, further discussed below. The HydroCAD reports may be provided for each individual pond water quality volume, if requested.

HydroCAD Adjustments

Given that the water quality volumetric infiltration rates through the soil filter vary, a water quality outlet is modeled to provide the required minimum 24-hour release time. This is completed by adjusting the artificial rainfall amount in HydroCAD until the inflow volume is equal to or greater than the water quality volume (CPV). The storm events are modeled as type III, 24-hour storm events in HydroCAD.

A vertical orifice is modeled in HydroCAD at the outlet structures of the Pond 1, 2 and 3. The orifice diameter is sized to detain the stormwater for an approximate period of 24 hours. The orifice for the water quantity volume is then set above the peak elevation determined for the water quality volume.

FLOODING STANDARD – WATER QUANTITY

To evaluate the project with respect to the Flooding Standard, the proposed development was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.1", 4.6", 5.8", respectively. Rainfall amounts are sourced from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu), Extreme Precipitation Tables.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. for a project of this land area to round to the nearest whole number, of a cubic foot per second (cfs).

Modeling Assumptions

Time of Concentration (Tc)

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each subcatchment into the model. The Tc's were derived as outlined in Post-Development Calculations section. HydroCAD recommends a sheet flow length not to exceed 100 feet.

Curve Number (CN)

In both the pre and post conditions, curve numbers were chosen conservatively. The following curve numbers were used in both conditions:

- Paved parking: 98
- Roofs: 98
- Gravel Surface: 96
- <50% Grass cover, Poor, HSG D: 89
- <50% Grass cover, Poor, HSG C: 86
- 50-75% Grass cover, Fair, HSG D: 84
- 50-75% Grass cover, Fair, HSG C: 79
- >75% Grass cover, Good, HSG D: 80

- >75% Grass cover, Good, HSG C: 74
- Woods/grass comb., Poor, HSG D: 86
- Woods/grass comb., Poor, HSG C: 82
- Woods/grass comb., Fair, HSG D: 82
- Woods/grass comb., Fair, HSG C: 76
- Woods/grass comb., Good, HSG D: 79
- Woods/grass comb., Good, HSG C: 72

The areas assumed to be "<50% Grass cover, Poor" were areas that contained a large amount of gravel, however there was some grass present. **Alternatively, these areas could have been labeled "Pasture, grassland or range, Poor", however the CN values for both conditions are identical.**

The areas assumed to be "50-75% Grass cover, Fair", were located in one of the following locations:

- Within the pasture, where cow paths were evident.
- On residential lawns, where approximately half of the grass was dead.

Alternatively, these areas could have been labeled "Pasture, grassland or range, Fair", however the CN values for both conditions are identical.

The majority of the areas assumed to be "Woods/grass comb., Poor" were found on existing residential properties. These areas were most likely man made, either by planting minimal trees or by cutting down a large majority of trees in a specific area.

The areas assumed to be "Woods/grass comb., Fair" were areas that contained approximately 50-75% trees and the remaining area was grass.

Additionally, conservative wetland curve number runoff was used within the subcatchments, as follows:

- Wetlands: 90

A curve number of 90 was used for all wetlands. This was based upon recommendations provided on the online HydroCAD index, in the Swamp Modeling Section.

Wetlands

Flow traveling through a wetland was modeled using assumptions based off information found in the Swamp Modeling Section of the HydroCAD Manual. The manual states that flow through a swamp or wetland, without a specific outlet control, should be modeled as a standard reach routing. The reach might be a V or trapezoidal shape, typically with low side-slopes (high Z-value). Additionally, the wetlands should be modeled using a high Manning's value (up to 0.15) to represent the extreme "roughness" of flow through weeds, brush, or woods. The flow depth was assumed to be two (2) feet. The bottom width of the channel was estimated by measuring the width of the wetland on the survey drawing.

Pre-development Calculations

The pre-development condition was modeled as six subcatchments including:

- Subcatchment 1: Tributary to Partridge Circle
- Subcatchment 2A: Tributary to Westbrook Street
- Subcatchment 2B: Tributary to Westbrook Street
- Subcatchment 3: Tributary to the Stroudwater River
- Subcatchment 4: Tributary to the Stroudwater River
- Subcatchment 5: Tributary to the Stroudwater River

A full copy of the HydroCAD calculations is included within Attachment C of this report.

A Pre-development Watershed Map developed for this project showing the subcatchments is included as Attachment A.

The peak flow rates for the 2, 10, and 25-year storm events at POI #1 Partridge Subdivision, POI#2 Westbrook St and POI#99 Stroudwater River. are presented in Table 3 below, and a full copy of the HydroCAD calculations is included within Attachment C of this report.

Table 3: Pre - Development Peak Stormwater Flows

Drainage Area	2-yr Storm (CFS)	10-yr Storm (CFS)	25-yr Storm (CFS)
POI #1 (Partridge)	2	4	5
POI #2 (Westbrook St)	11	17	20
POI #99 (Stroudwater)	36	70	98

Post-development Calculations

Nomenclature for subcatchment labeling is consistent with the pre-development drainage model; however, the names of subcatchments that have been further divided continue with a decimal followed by a new numeric identification, starting with "1". For example, what was subcatchment 3 in the pre-development model has been divided into subcatchment 3.1 and subcatchment 3.2 in the post-development model. The sum of the area of subcatchments in the post-development model is equal to the area of subcatchments in the pre-development model.

Ground cover changes associated with the development of driveways, buildings, and lawns within the proposed single-family lots were included in the stormwater model for analysis of the MaineDEP and City flooding standards. These ground cover changes were based upon the assumption that each of the ninety-eight (98) lots would be developed to include a total developed area that is the size of the lot, 600 (50'X12') square feet being driveway, 900 (25'X36') square feet being rooftop, and the remainder being lawn or landscaped area. Existing drainage patterns will be generally maintained with the proposed stormwater management design.

The post-development condition was modeled as thirty-seven subcatchments including:

- Subcatchment 1: Tributary to Partridge Circle
- Subcatchment 2A: Tributary to Westbrook Street
- Subcatchment 2B: Tributary to Westbrook Street
- Subcatchment 3: Tributary to the Stroudwater River
    - 3.2-11: Tributary to FocalPoint Water Quality Units then to Pond 1 before outletting to the Stroudwater River. Excluding subcat, 3.1, 3.12, 3.13, 3.14 tributary to Pond 1 only.
    - 3.20: Tributary to Pond 1 before outletting to the Stroudwater River
        - The Filterra Water Quality Units utilize a relative elevation of 100.
- Subcatchment 4: Tributary to the Stroudwater River
- Subcatchment 5: Tributary to the PRUD 36" culvert before outletting in the Stroudwater River
    - 5.1-5.15 Tributary to FocalPoint Water Quality Units then to Pond 2 before outletting to the Stroudwater River. Excluding subcat, 5.2,5.3,5.6,5.7 tributary to Pond 2 Only.
        - The Filterra Water Quality Units utilize a relative elevation of 100.
    - 5.21: Tributary to Pond 2 before outletting to the Stroudwater River.
    - 6.1 – 6.5: Tributary to the VUSF before outletting Pond 3.
    - 6.6-6.10: Tributary to Filterra Water Quality Units then to Pond 3
    - 5.20: Open Space Tributary to the Stroudwater River

A post-development Watershed Map for this project showing the subcatchments is included as Attachment B.

Post-development peak flow rates for the 2-, 10-, and 25-year storm events are summarized below for each of the subcatchments. The HydroCAD calculations are included within Attachment C.

Table 4: Post - Development Peak Stormwater Flows

Drainage Area	2-yr Storm (CFS)	10-yr Storm (CFS)	25-yr Storm (CFS)
POI #1 (Partridge)	1	2	3
POI #2 (Westbrook St)	6	12	17
POI #99 (Stroudwater)	36	69	98

The post-development flowrates are then compared to the pre-development flowrates in the table below.

Table 5: Pre & Post - Development Comparison

Drainage Area	2–yr Storm Event (CFS)		10–yr Storm Event (CFS)		25–yr Storm Event (CFS)	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
POI #1	2	1	4	2	5	3
POI #2	11	6	17	12	20	17
POI #99	36	36	70	69	98	98

As shown in Table 5, the post-development peak flows from the property are well below the pre-development levels. A Post-Development Watershed Map developed for this project is included as Attachment B.

STORM DRAIN SIZING

Storm drain sizing was within the roadway network was sized using Hydraflow Storm Sewers software to compute the minimum pipe diameter for the 10-Year storm event utilizing an intensity-duration-frequency curve (IDF Curve) specific to Portland, Maine. Calculations may be provided upon request.

INSPECTIONS & MAINTENANCE

Provisions for periodic inspection and maintenance of the stormwater BMPs are included in the Post Construction – Stormwater Inspection & Maintenance Plan as submitted under separate cover. The agreement outlines the maintenance and inspection requirements for the site BMPs including providing inspection logs and information on qualified inspectors as well as required maintenance activities and related inspection and maintenance frequencies. The Plan will outline the various responsible parties and be recorded with the Cumberland County Registry of Deeds.

SOILS

Onsite soil information includes the following:

- Class B High Intensity Soil Survey performed by Mark Hampton Associates.

Please refer to Document 11 for the report and explorations that accompany the attached Soil Map.

The site is comprised of primarily Lamoine and Buxton soils which are classified as types C and D hydrologic soils, respectively. The areas where Lamoine has been identified, have been classified as somewhat poorly drained. The areas where Buxton has been identified, have been classified as moderately well drained. Small parts of the site are comprised of Podunk soils which is characterized by moderately well drained soils. Permeability is moderately rapid to rapid. Lastly, eight wetlands with Scantic soils exist on site which are poorly drained and has a saturated hydraulic conductivity of the surface and subsurface horizons that are moderately high or high and low or moderately low in the subsoil and substratum. These existing soils were modeled in their respective hydrologic groups in both the pre- and post-conditions.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Lamoine	0.37	0.37
Buxton	0.49	0.49
Podunk	0.37	0.37
Scantic	0.49	0.49

The soil "K" values for the soils, listed above, indicate a moderate susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County and the USDA Soil Survey.

An impermeable liner will be placed across the entire bottom and sideslopes to the top of the channel protection volume so that stormwater runoff does from the development does not mix directly with the groundwater.

CONCLUSION

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. The design does not anticipate creating erosion, drainage, or runoff problems for the development, the city, or abutting properties.

ATTACHMENTS

Attachment A: Pre – Development Watershed Map
Attachment B: Post – Development Watershed Map
Attachment C: HydroCAD Calculations

STROUDWATER PRESERVE
PORTLAND, MAINE

FOCALPOINT HIGH PERFORMANCE BIOFILTRATION SYSTEM SUMMARY TABLE

NOVEMBER 4, 2017 (REV. NOVEMBER 21, 2017)

UNIT I.D.	Total Area (ac)	Total Impervious Area (ac)	Total Landscaped Area (sac)	High Flow Media Footprint (sf)*	FOCALPOINT Dimensions	
					A (ft)	B (ft)
1	0.467	0.16	0.307	**49.2**	3	16.4
2	0.308	0.118	0.190	**33.8**	3	11.3
3	0.486	0.139	0.347	**48.3**	3	16.1
4	1.346	0.231	1.115	**117.8**	5	23.6
5	0.941	0.379	0.562	**105.1**	3	35.0
6	2.099	0.476	1.623	**195.8**	4	48.9
7	0.292	0.188	0.104	**40.0**	3	13.3
8	0.562	0.156	0.406	**55.4**	3	18.5
9	0.443	0.155	0.288	**47.0**	3	15.7
10	0.249	0.123	0.126	**30.2**	3	10.1
11	0.941	0.34	0.601	**101.0**	3	33.7
12	0.118	0.118	0.000	**20.5**	3	6.8
13	0.493	0.227	0.266	**58.0**	3	19.3
14	0.309	0.191	0.118	**41.4**	3	13.8
15	1.153	0.353	0.800	**117.1**	3	39.0
16	0.495	0.191	0.304	**54.4**	3	18.1
17	2.569	0.503	2.066	**231.3**	4	57.8
18	0.634	0.41	0.224	**86.9**	3	29.0
19	0.441	0.304	0.137	**62.4**	4	15.6
20	1.038	0.271	0.767	**100.5**	3	33.5
				1596.2		

* min size 20sf

LEGEND	
HATCH STYLE	ASSOCIATED AREAS
	HYDROLOGIC SOIL GROUP (HSG), TYPE C
	HYDROLOGIC SOIL GROUP (HSG), TYPE D
	ROOFS
	PAVED PARKING
	>75% GRASS COVER, GOOD
	50–75% GRASS COVER, FAIR
	<50% GRASS COVER, POOR

	WOODS/GRASS COMB., GOOD
	WOODS/GRASS COMB., FAIR
	WOODS/GRASS COMBO., POOR
	GRAVEL SURFACE
	WETLAND

SUBCATCHMENT BOUNDARY

TIME OF CONCENTRATION PATH

POI–1 POINT OF INTEREST

1 POND

1 REACH

1 SUBCATCHMENT NUMBER

SF SHEET FLOW

PF PIPE FLOW

SCF SHALLOW CONCENTRATED FLOW

CF CHANNEL FLOW

ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/16

DRAWING NAME: PRE DEVELOPMENT WATERSHED MAP

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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JN:	1079
SCALE:	1"=100'
DESIGNED BY:	WHS
DRAWN BY:	ADG
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11419
10-25-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
PRE

LEGEND	
HATCH STYLE	ASSOCIATED AREAS
	HYDROLOGIC SOIL GROUP (HSG), TYPE C
	HYDROLOGIC SOIL GROUP (HSG), TYPE D
	ROOFS
	PAVED PARKING
	>75% GRASS COVER, GOOD
	50–75% GRASS COVER, FAIR
	<50% GRASS COVER, POOR

	WOODS/GRASS COMB., GOOD
	WOODS/GRASS COMB., FAIR
	WOODS/GRASS COMBO., POOR
	GRAVEL SURFACE
	WETLAND

SUBCATCHMENT BOUNDARY

TIME OF CONCENTRATION PATH

POI–1 POINT OF INTEREST

1 POND

1 REACH

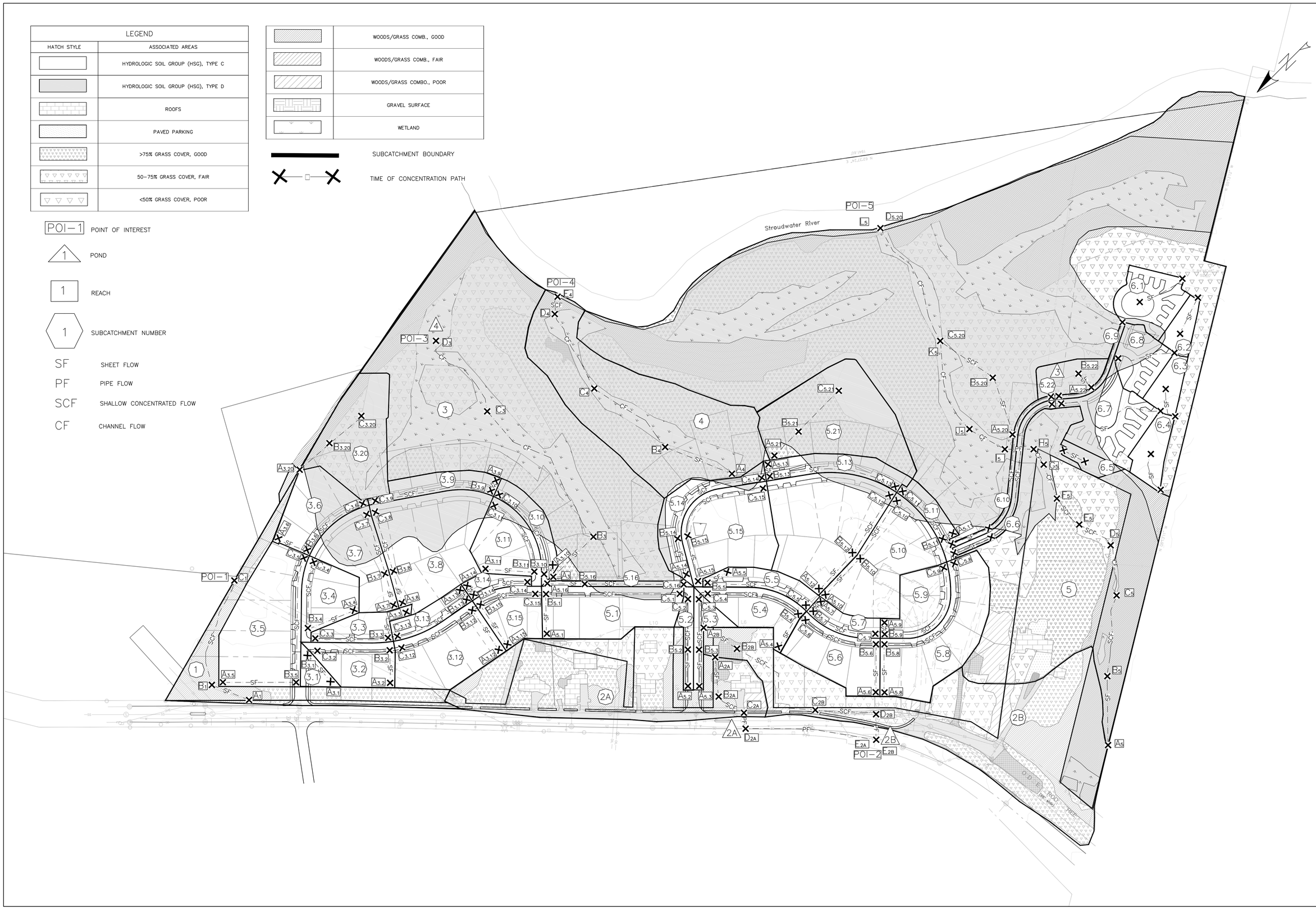
1 SUBCATCHMENT NUMBER

SF SHEET FLOW

PF PIPE FLOW

SCF SHALLOW CONCENTRATED FLOW

CF CHANNEL FLOW



ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
CITY COMMENT	WHS 11/21/17

DRAWING NAME: POST DEVELOPMENT WATERSHED MAP

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

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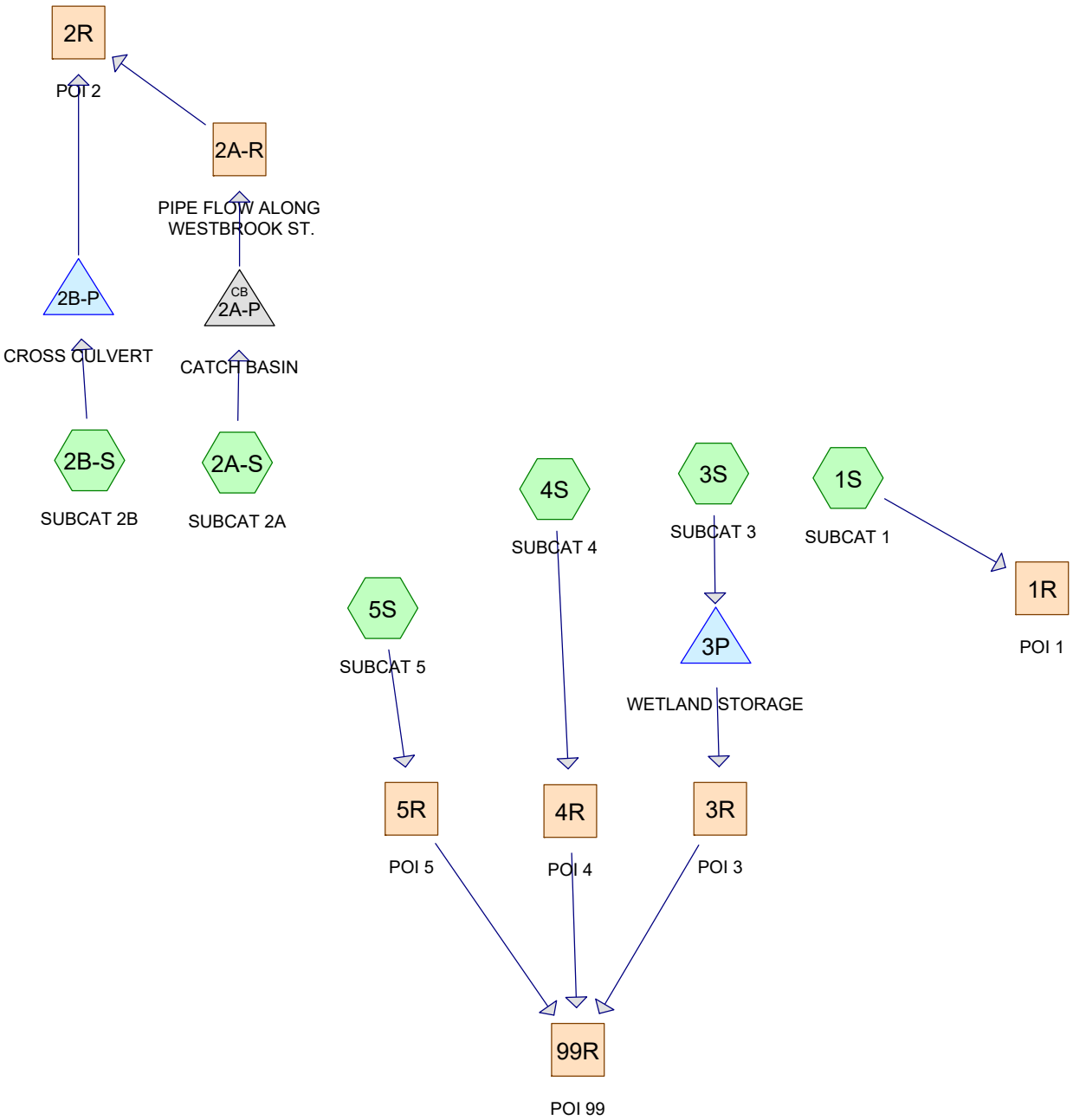
(207) 775-2655

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=100'
DESIGNED BY:	WHS
DRAWN BY:	ADG
CHECKED BY:	WHS

STATE OF MAINE — WILLIAM H. SAVAGE — No. 11416 — 11-21-17 — REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.

POST



Subcat Reach Pond Link

Drainage Diagram for Pre-development_8-24-17
Prepared by Acorn Engineering, Inc., Printed 8/29/2017
HydroCAD® 9.10 s/n 06436 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.566	72	Woods/grass comb., Good, HSG C (1S, 2A-S, 2B-S, 3S, 5S)
12.272	74	>75% Grass cover, Good, HSG C (1S, 2A-S, 2B-S, 3S, 4S, 5S)
9.461	79	50-75% Grass cover, Fair, HSG C (2A-S, 2B-S, 3S, 4S, 5S)
7.244	79	Woods/grass comb., Good, HSG D (2B-S, 3S, 4S, 5S)
11.880	80	>75% Grass cover, Good, HSG D (3S, 4S, 5S)
1.128	82	Woods/grass comb., Poor, HSG C (2A-S, 2B-S, 3S, 5S)
7.546	84	50-75% Grass cover, Fair, HSG D (3S, 5S)
0.728	86	<50% Grass cover, Poor, HSG C (2B-S, 5S)
0.417	89	<50% Grass cover, Poor, HSG D (5S)
6.689	90	Wetland, HSG D (2B-S, 3S, 4S, 5S)
0.546	96	Gravel surface, HSG C (2A-S, 2B-S, 5S)
0.047	96	Gravel surface, HSG D (4S)
1.124	98	Paved parking, HSG C (2A-S, 2B-S, 5S)
0.536	98	Roofs, HSG C (2A-S, 4S, 5S)
0.083	98	Roofs, HSG D (2B-S, 3S)
63.267		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
29.361	HSG C	1S, 2A-S, 2B-S, 3S, 4S, 5S
33.906	HSG D	2B-S, 3S, 4S, 5S
0.000	Other	
63.267		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	2A-P	56.54	56.26	25.4	0.0110	0.011	12.0	0.0	0.0
2	2B-P	58.96	57.71	63.0	0.0198	0.012	18.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=0.92"
Flow Length=771' Tc=44.5 min CN=73 Runoff=1.54 cfs 0.254 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=1.39"
Flow Length=208' Tc=11.3 min CN=81 Runoff=3.43 cfs 0.294 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=1.39"
Flow Length=295' Tc=12.6 min CN=81 Runoff=8.16 cfs 0.727 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=1.33"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=13.29 cfs 1.878 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=1.33"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=4.86 cfs 0.565 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=1.39"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=20.41 cfs 3.364 af

Reach 1R: POI 1 Inflow=1.54 cfs 0.254 af
Outflow=1.54 cfs 0.254 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=3.43 cfs 0.294 af
Outflow=3.43 cfs 0.294 af

Reach 2R: POI 2 Inflow=10.66 cfs 1.021 af
Outflow=10.66 cfs 1.021 af

Reach 3R: POI 3 Inflow=13.28 cfs 1.878 af
Outflow=13.28 cfs 1.878 af

Reach 4R: POI 4 Inflow=4.86 cfs 0.565 af
Outflow=4.86 cfs 0.565 af

Reach 5R: POI 5 Inflow=20.41 cfs 3.364 af
Outflow=20.41 cfs 3.364 af

Reach 99R: POI 99 Inflow=36.03 cfs 5.807 af
Outflow=36.03 cfs 5.807 af

Pond 2A-P: CATCH BASIN Peak Elev=57.67' Inflow=3.43 cfs 0.294 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=3.43 cfs 0.294 af

Pond 2B-P: CROSS CULVERT Peak Elev=60.49' Storage=898 cf Inflow=8.16 cfs 0.727 af
Outflow=7.52 cfs 0.727 af

Pond 3P: WETLAND STORAGE Peak Elev=22.13' Storage=290 cf Inflow=13.29 cfs 1.878 af
Outflow=13.28 cfs 1.878 af

Total Runoff Area = 63.267 ac Runoff Volume = 7.082 af Average Runoff Depth = 1.34"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=1.97"
Flow Length=771' Tc=44.5 min CN=73 Runoff=3.52 cfs 0.545 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=2.63"
Flow Length=208' Tc=11.3 min CN=81 Runoff=6.57 cfs 0.557 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=2.63"
Flow Length=295' Tc=12.6 min CN=81 Runoff=15.66 cfs 1.377 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=2.55"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=25.94 cfs 3.609 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=2.55"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=9.50 cfs 1.086 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=2.63"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=39.19 cfs 6.372 af

Reach 1R: POI 1 Inflow=3.52 cfs 0.545 af
Outflow=3.52 cfs 0.545 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=6.57 cfs 0.557 af
Outflow=6.57 cfs 0.557 af

Reach 2R: POI 2 Inflow=16.70 cfs 1.934 af
Outflow=16.70 cfs 1.934 af

Reach 3R: POI 3 Inflow=25.93 cfs 3.609 af
Outflow=25.93 cfs 3.609 af

Reach 4R: POI 4 Inflow=9.50 cfs 1.086 af
Outflow=9.50 cfs 1.086 af

Reach 5R: POI 5 Inflow=39.19 cfs 6.372 af
Outflow=39.19 cfs 6.372 af

Reach 99R: POI 99 Inflow=69.82 cfs 11.067 af
Outflow=69.82 cfs 11.067 af

Pond 2A-P: CATCH BASIN Peak Elev=59.08' Inflow=6.57 cfs 0.557 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=6.57 cfs 0.557 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.28' Storage=4,304 cf Inflow=15.66 cfs 1.377 af
Outflow=10.68 cfs 1.377 af

Pond 3P: WETLAND STORAGE Peak Elev=22.21' Storage=497 cf Inflow=25.94 cfs 3.609 af
Outflow=25.93 cfs 3.609 af

Total Runoff Area = 63.267 ac Runoff Volume = 13.546 af Average Runoff Depth = 2.57"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=2.92"
Flow Length=771' Tc=44.5 min CN=73 Runoff=5.29 cfs 0.808 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=3.70"
Flow Length=208' Tc=11.3 min CN=81 Runoff=9.20 cfs 0.782 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=3.70"
Flow Length=295' Tc=12.6 min CN=81 Runoff=21.93 cfs 1.935 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=3.60"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=36.69 cfs 5.102 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=3.60"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=13.42 cfs 1.536 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=3.70"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=54.94 cfs 8.953 af

Reach 1R: POI 1 Inflow=5.29 cfs 0.808 af
Outflow=5.29 cfs 0.808 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=9.20 cfs 0.782 af
Outflow=9.20 cfs 0.782 af

Reach 2R: POI 2 Inflow=20.00 cfs 2.718 af
Outflow=20.00 cfs 2.718 af

Reach 3R: POI 3 Inflow=36.67 cfs 5.102 af
Outflow=36.67 cfs 5.102 af

Reach 4R: POI 4 Inflow=13.42 cfs 1.536 af
Outflow=13.42 cfs 1.536 af

Reach 5R: POI 5 Inflow=54.94 cfs 8.953 af
Outflow=54.94 cfs 8.953 af

Reach 99R: POI 99 Inflow=98.23 cfs 15.591 af
Outflow=98.23 cfs 15.591 af

Pond 2A-P: CATCH BASIN Peak Elev=60.82' Inflow=9.20 cfs 0.782 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=9.20 cfs 0.782 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.56' Storage=9,901 cf Inflow=21.93 cfs 1.935 af
Outflow=11.57 cfs 1.935 af

Pond 3P: WETLAND STORAGE Peak Elev=22.27' Storage=665 cf Inflow=36.69 cfs 5.102 af
Outflow=36.67 cfs 5.102 af

Total Runoff Area = 63.267 ac Runoff Volume = 19.117 af Average Runoff Depth = 3.63"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Summary for Subcatchment 1S: SUBCAT 1

Runoff = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
43,973	72	Woods/grass comb., Good, HSG C
100,522	74	>75% Grass cover, Good, HSG C
144,495	73	Weighted Average
144,495		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0013	0.06		**Sheet Flow, A to B** Range n= 0.130 P2= 3.10"
13.5	402	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	58	0.0071	0.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.6	173	0.0658	1.80		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.6	38	0.0429	1.04		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
44.5	771	Total			

Summary for Subcatchment 2A-S: SUBCAT 2A

Runoff = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
19,972	98	Paved parking, HSG C
10,861	98	Roofs, HSG C
2,798	82	Woods/grass comb., Poor, HSG C
28,926	72	Woods/grass comb., Good, HSG C
8,096	79	50-75% Grass cover, Fair, HSG C
36,064	74	>75% Grass cover, Good, HSG C
3,767	96	Gravel surface, HSG C
110,484	81	Weighted Average
79,651		72.09% Pervious Area
30,833		27.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0232	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	108	0.0355	0.94		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
11.3	208	Total			

Summary for Subcatchment 2B-S: SUBCAT 2B

Runoff = 21.93 cfs @ 12.17 hrs, Volume= 1.935 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	21,440	98	Paved parking, HSG C
	698	98	Roofs, HSG D
	16,430	82	Woods/grass comb., Poor, HSG C
	20,162	72	Woods/grass comb., Good, HSG C
	26,628	79	Woods/grass comb., Good, HSG D
	1,155	86	<50% Grass cover, Poor, HSG C
	127,949	79	50-75% Grass cover, Fair, HSG C
	40,537	74	>75% Grass cover, Good, HSG C
	13,579	96	Gravel surface, HSG C
*	4,687	90	Wetland, HSG D
	273,265	81	Weighted Average
	251,127		91.90% Pervious Area
	22,138		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0185	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
3.4	195	0.0186	0.95		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.6	295	Total			

Summary for Subcatchment 3S: SUBCAT 3

Runoff = 36.69 cfs @ 12.49 hrs, Volume= 5.102 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,937	98	Roofs, HSG D
	4,329	82	Woods/grass comb., Poor, HSG C
	43,145	79	Woods/grass comb., Good, HSG D
	42,073	72	Woods/grass comb., Good, HSG C
	169,626	84	50-75% Grass cover, Fair, HSG D
	96,244	79	50-75% Grass cover, Fair, HSG C
	150,700	80	>75% Grass cover, Good, HSG D
	151,466	74	>75% Grass cover, Good, HSG C
*	80,062	90	Wetland, HSG D
	740,582	80	Weighted Average
	737,645		99.60% Pervious Area
	2,937		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	100	0.0011	0.06		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
4.2	274	0.0238	1.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.6	332	0.0547	3.51		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
1.6	257	0.0459	2.61	224.14	**Trap/Vee/Rect Channel Flow, D-E, WETLAND** Bot.W=23.00' D=2.00' Z= 10.0 '/' Top.W=63.00' n= 0.150
1.4	161	0.0281	1.97	145.91	**Trap/Vee/Rect Channel Flow, E-F, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
37.1	1,124	Total			

Summary for Subcatchment 4S: SUBCAT 4

Runoff = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,391	98	Roofs, HSG C
	4,174	79	Woods/grass comb., Good, HSG D
	24,054	79	50-75% Grass cover, Fair, HSG C
	66,075	74	>75% Grass cover, Good, HSG C
	99,065	80	>75% Grass cover, Good, HSG D
	2,029	96	Gravel surface, HSG D
*	25,138	90	Wetland, HSG D
	222,926	80	Weighted Average
	220,535		98.93% Pervious Area
	2,391		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0147	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
5.3	216	0.0094	0.68		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.3	97	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.6	123	0.0500	3.35		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
2.6	430	0.0410	2.71	401.23	**Trap/Vee/Rect Channel Flow, E-F, WETLAND** Bot.W=54.00' D=2.00' Z= 10.0 '/' Top.W=94.00' n= 0.150
2.2	290	0.0340	2.17	160.49	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
1.0	55	0.0330	0.91		**Shallow Concentrated Flow, G-H** Woodland Kv= 5.0 fps
24.3	1,311	Total			

Summary for Subcatchment 5S: SUBCAT 5

Runoff = 54.94 cfs @ 12.69 hrs, Volume= 8.953 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	7,567	98	Paved parking, HSG C
	10,086	98	Roofs, HSG C
	25,596	82	Woods/grass comb., Poor, HSG C
	20,197	72	Woods/grass comb., Good, HSG C
	241,580	79	Woods/grass comb., Good, HSG D
	18,185	89	<50% Grass cover, Poor, HSG D
	30,567	86	<50% Grass cover, Poor, HSG C
	155,775	79	50-75% Grass cover, Fair, HSG C
	159,085	84	50-75% Grass cover, Fair, HSG D
	267,724	80	>75% Grass cover, Good, HSG D
	139,890	74	>75% Grass cover, Good, HSG C
	6,434	96	Gravel surface, HSG C
*	181,478	90	Wetland, HSG D
	1,264,164	81	Weighted Average
	1,246,511		98.60% Pervious Area
	17,653		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
8.5	273	0.0115	0.54		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	130	0.0165	1.45	89.64	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=11.00' D=2.00' Z= 10.0 '/' Top.W=51.00' n= 0.150
1.1	95	0.0456	1.49		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1121	2.34		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
0.3	88	0.1143	4.22	413.93	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=29.00' D=2.00' Z= 10.0 '/' Top.W=69.00' n= 0.150
3.3	463	0.0325	2.34	280.36	**Trap/Vee/Rect Channel Flow, G-H, WETLAND** Bot.W=40.00' D=2.00' Z= 10.0 '/' Top.W=80.00' n= 0.150
6.2	327	0.0044	0.88	117.26	**Trap/Vee/Rect Channel Flow, H-I, WETLAND** Bot.W=47.00' D=2.00' Z= 10.0 '/' Top.W=87.00' n= 0.150
50.3	1,562	Total			

Summary for Reach 1R: POI 1

Inflow Area = 3.317 ac, 0.00% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af
Outflow = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST.

Inflow Area = 2.536 ac, 27.91% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af
Outflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2R: POI 2

Inflow Area = 8.810 ac, 13.80% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 20.00 cfs @ 12.17 hrs, Volume= 2.718 af
Outflow = 20.00 cfs @ 12.17 hrs, Volume= 2.718 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 3R: POI 3

Inflow Area = 17.001 ac, 0.40% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af
Outflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 4R: POI 4

Inflow Area = 5.118 ac, 1.07% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af
Outflow = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 5R: POI 5

Inflow Area = 29.021 ac, 1.40% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 54.94 cfs @ 12.69 hrs, Volume= 8.953 af
Outflow = 54.94 cfs @ 12.69 hrs, Volume= 8.953 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 99R: POI 99

Inflow Area = 51.140 ac, 1.03% Impervious, Inflow Depth = 3.66" for 25-year event
Inflow = 98.23 cfs @ 12.57 hrs, Volume= 15.591 af
Outflow = 98.23 cfs @ 12.57 hrs, Volume= 15.591 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 2A-P: CATCH BASIN

Inflow Area = 2.536 ac, 27.91% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af
Outflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Atten= 0%, Lag= 0.0 min
Primary = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 60.82' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.54'	**12.0" Round Culvert** L= 25.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 56.54' / 56.26' S= 0.0110 '/' Cc= 0.900 n= 0.011

Primary OutFlow Max=9.19 cfs @ 12.15 hrs HW=60.81' (Free Discharge)
1=Culvert (Barrel Controls 9.19 cfs @ 11.70 fps)

Summary for Pond 2B-P: CROSS CULVERT

Inflow Area = 6.273 ac, 8.10% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 21.93 cfs @ 12.17 hrs, Volume= 1.935 af
Outflow = 11.57 cfs @ 12.41 hrs, Volume= 1.935 af, Atten= 47%, Lag= 14.6 min
Primary = 11.57 cfs @ 12.41 hrs, Volume= 1.935 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 61.56' @ 12.41 hrs Surf.Area= 26,312 sf Storage= 9,901 cf

Plug-Flow detention time= 5.0 min calculated for 1.935 af (100% of inflow)
Center-of-Mass det. time= 5.0 min (824.0 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	58.96'	30,434 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.96	100	0	0
60.00	624	376	376
61.00	2,395	1,510	1,886
62.10	49,511	28,548	30,434

Device	Routing	Invert	Outlet Devices
#1	Primary	58.96'	**18.0" Round 18" Ex. Culvert** L= 63.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.96' / 57.71' S= 0.0198 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	62.00'	**50.0' long x 16.0' breadth Westbrook Street** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.57 cfs @ 12.41 hrs HW=61.56' (Free Discharge)
└**1=18" Ex. Culvert** (Inlet Controls 11.57 cfs @ 6.55 fps)
└**2=Westbrook Street** (Controls 0.00 cfs)

Summary for Pond 3P: WETLAND STORAGE

Inflow Area = 17.001 ac, 0.40% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 36.69 cfs @ 12.49 hrs, Volume= 5.102 af
Outflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af, Atten= 0%, Lag= 0.4 min
Primary = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.27' @ 12.50 hrs Surf.Area= 3,240 sf Storage= 665 cf

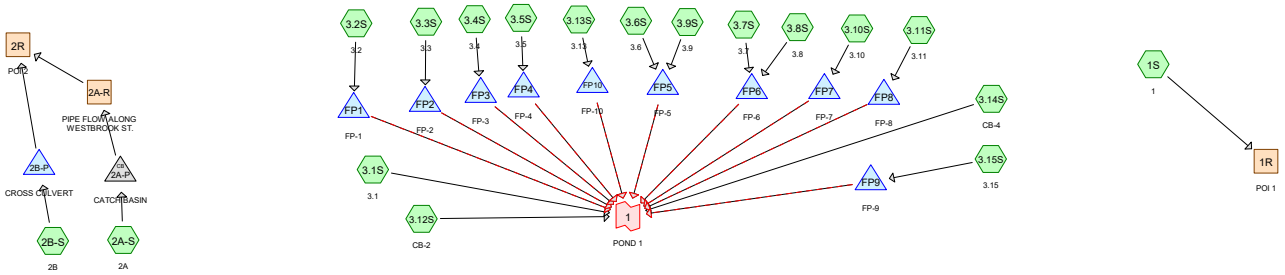
Plug-Flow detention time= 0.4 min calculated for 5.101 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (844.8 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	15,910 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	1,777	0	0
23.00	7,298	4,538	4,538
24.00	15,446	11,372	15,910

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**100.0' long x 98.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=36.65 cfs @ 12.50 hrs HW=22.27' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 36.65 cfs @ 1.38 fps)



Subcat Reach Pond Link

Routing Diagram for Post-Dev_WestbrookSt_11-21-17
Prepared by HP Inc., Printed 11/21/2017
HydroCAD® 10.00-20 s/n 00620 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.835	79	50-75% Grass cover, Fair, HSG C (2A-S, 2B-S)
7.030	74	>75% Grass cover, Good, HSG C (1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S)
1.174	80	>75% Grass cover, Good, HSG D (3.10S, 3.14S, 3.6S, 3.7S, 3.8S, 3.9S)
0.325	96	Gravel surface, HSG C (2A-S, 2B-S)
0.792	98	Paved parking, HSG D (2A-S, 2B-S)
1.329	98	Paved roads w/curbs & sewers, HSG D (3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S)
0.333	98	Roofs, HSG D (2A-S, 2B-S)
1.102	98	Unconnected roofs, HSG D (3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S)
0.107	90	Wetland, HSG D (2B-S)
2.468	72	Woods/grass comb., Good, HSG C (1S, 2A-S, 2B-S)
0.315	82	Woods/grass comb., Poor, HSG C (2A-S, 2B-S)
16.810	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
11.973	HSG C	1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S
4.838	HSG D	2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S
0.000	Other	
16.810		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	1.835	0.000	0.000	1.835	50-75% Grass cover, Fair	2A-S, 2B-S
0.000	0.000	7.030	1.174	0.000	8.204	>75% Grass cover, Good	1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.325	0.000	0.000	0.325	Gravel surface	2A-S, 2B-S
0.000	0.000	0.000	0.792	0.000	0.792	Paved parking	2A-S, 2B-S
0.000	0.000	0.000	1.329	0.000	1.329	Paved roads w/curbs & sewers	3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.333	0.000	0.333	Roofs	2A-S, 2B-S
0.000	0.000	0.000	1.102	0.000	1.102	Unconnected roofs	3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.15S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S
0.000	0.000	0.000	0.107	0.000	0.107	Wetland	2B-S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	2.468	0.000	0.000	2.468	Woods/grass comb., Good	1S, 2A-S, 2B-S
0.000	0.000	0.315	0.000	0.000	0.315	Woods/grass comb., Poor	2A-S, 2B-S
0.000	**0.000**	**11.973**	**4.838**	**0.000**	**16.810**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	2A-P	56.54	56.26	25.4	0.0110	0.011	12.0	0.0	0.0
2	2B-P	58.96	57.71	63.0	0.0198	0.012	18.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: 1 Runoff Area=54,168 sf 0.00% Impervious Runoff Depth=0.92"
Flow Length=377' Tc=15.1 min CN=73 Runoff=0.93 cfs 0.095 af

Subcatchment 2A-S: 2A Runoff Area=130,259 sf 25.70% Impervious Runoff Depth=1.39"
Flow Length=208' Tc=11.3 min CN=81 Runoff=4.04 cfs 0.347 af

Subcatchment 2B-S: 2B Runoff Area=184,958 sf 8.40% Impervious Runoff Depth=1.26"
Flow Length=579' Tc=25.7 min CN=79 Runoff=3.73 cfs 0.447 af

Subcatchment 3.10S: 3.10 Runoff Area=12,721 sf 64.24% Impervious Runoff Depth=2.16"
Flow Length=337' Tc=6.0 min CN=91 Runoff=0.73 cfs 0.053 af

Subcatchment 3.11S: 3.11 Runoff Area=24,501 sf 27.78% Impervious Runoff Depth=1.26"
Flow Length=172' Tc=1.5 min UI Adjusted CN=79 Runoff=0.96 cfs 0.059 af

Subcatchment 3.12S: CB-2 Runoff Area=37,602 sf 20.48% Impervious Runoff Depth=1.20"
Flow Length=351' Tc=18.5 min UI Adjusted CN=78 Runoff=0.82 cfs 0.086 af

Subcatchment 3.13S: 3.13 Runoff Area=10,835 sf 49.60% Impervious Runoff Depth=1.75"
Flow Length=273' Tc=7.5 min CN=86 Runoff=0.48 cfs 0.036 af

Subcatchment 3.14S: CB-4 Runoff Area=6,302 sf 46.38% Impervious Runoff Depth=1.67"
Flow Length=153' Slope=0.0300 '/' Tc=1.1 min CN=85 Runoff=0.34 cfs 0.020 af

Subcatchment 3.15S: 3.15 Runoff Area=19,302 sf 34.98% Impervious Runoff Depth=1.46"
Flow Length=353' Tc=15.5 min CN=82 Runoff=0.56 cfs 0.054 af

Subcatchment 3.1S: 3.1 Runoff Area=5,704 sf 47.25% Impervious Runoff Depth=1.67"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=85 Runoff=0.22 cfs 0.018 af

Subcatchment 3.2S: 3.2 Runoff Area=20,329 sf 34.31% Impervious Runoff Depth=1.46"
Flow Length=347' Tc=13.1 min CN=82 Runoff=0.63 cfs 0.057 af

Subcatchment 3.3S: 3.3 Runoff Area=13,410 sf 38.23% Impervious Runoff Depth=1.53"
Flow Length=338' Tc=14.2 min CN=83 Runoff=0.42 cfs 0.039 af

Subcatchment 3.4S: 3.4 Runoff Area=21,170 sf 28.60% Impervious Runoff Depth=1.26"
Flow Length=362' Tc=14.7 min UI Adjusted CN=79 Runoff=0.54 cfs 0.051 af

Subcatchment 3.5S: 3.5 Runoff Area=58,624 sf 17.14% Impervious Runoff Depth=1.14"
Flow Length=532' Tc=20.2 min UI Adjusted CN=77 Runoff=1.16 cfs 0.128 af

Subcatchment 3.6S: 3.6 Runoff Area=26,611 sf 25.90% Impervious Runoff Depth=1.39"
Flow Length=301' Tc=10.8 min UI Adjusted CN=81 Runoff=0.84 cfs 0.071 af

Subcatchment 3.7S: 3.7 Runoff Area=29,265 sf 25.02% Impervious Runoff Depth=1.39"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=1.05 cfs 0.078 af

Subcatchment 3.8S: 3.8 Runoff Area=62,140 sf 21.59% Impervious Runoff Depth=1.33"
Flow Length=255' Tc=7.0 min UI Adjusted CN=80 Runoff=2.11 cfs 0.158 af

Subcatchment 3.9S: 3.9 Runoff Area=14,356 sf 67.09% Impervious Runoff Depth=2.26"
Flow Length=365' Tc=7.7 min CN=92 Runoff=0.80 cfs 0.062 af

Reach 1R: POI 1 Inflow=0.93 cfs 0.095 af
Outflow=0.93 cfs 0.095 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=4.04 cfs 0.347 af
Outflow=4.04 cfs 0.347 af

Reach 2R: POI 2 Inflow=6.28 cfs 0.793 af
Outflow=6.28 cfs 0.793 af

Pond 2A-P: CATCH BASIN Peak Elev=57.95' Inflow=4.04 cfs 0.347 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=4.04 cfs 0.347 af

Pond 2B-P: CROSS CULVERT Peak Elev=59.88' Storage=305 cf Inflow=3.73 cfs 0.447 af
Outflow=3.71 cfs 0.447 af

Pond FP1: FP-1 Peak Elev=100.60' Storage=124 cf Inflow=0.63 cfs 0.057 af
Primary=0.11 cfs 0.042 af Secondary=0.51 cfs 0.015 af Outflow=0.63 cfs 0.057 af

Pond FP10: FP-10 Peak Elev=100.59' Storage=74 cf Inflow=0.48 cfs 0.036 af
Primary=0.07 cfs 0.026 af Secondary=0.41 cfs 0.010 af Outflow=0.48 cfs 0.036 af

Pond FP2: FP-2 Peak Elev=100.58' Storage=81 cf Inflow=0.42 cfs 0.039 af
Primary=0.08 cfs 0.029 af Secondary=0.34 cfs 0.010 af Outflow=0.42 cfs 0.039 af

Pond FP3: FP-3 Peak Elev=100.59' Storage=118 cf Inflow=0.54 cfs 0.051 af
Primary=0.11 cfs 0.039 af Secondary=0.42 cfs 0.012 af Outflow=0.53 cfs 0.051 af

Pond FP4: FP-4 Peak Elev=100.65' Storage=330 cf Inflow=1.16 cfs 0.128 af
Primary=0.27 cfs 0.098 af Secondary=0.88 cfs 0.030 af Outflow=1.15 cfs 0.128 af

Pond FP5: FP-5 Peak Elev=100.69' Storage=327 cf Inflow=1.60 cfs 0.133 af
Primary=0.24 cfs 0.096 af Secondary=1.33 cfs 0.037 af Outflow=1.57 cfs 0.133 af

Pond FP6: FP-6 Peak Elev=100.80' Storage=757 cf Inflow=3.16 cfs 0.235 af
Primary=0.45 cfs 0.172 af Secondary=2.49 cfs 0.064 af Outflow=2.94 cfs 0.235 af

Pond FP7: FP-7 Peak Elev=100.62' Storage=105 cf Inflow=0.73 cfs 0.053 af
Primary=0.09 cfs 0.037 af Secondary=0.63 cfs 0.015 af Outflow=0.73 cfs 0.053 af

Pond FP8: FP-8 Peak Elev=100.64' Storage=153 cf Inflow=0.96 cfs 0.059 af
Primary=0.13 cfs 0.045 af Secondary=0.81 cfs 0.015 af Outflow=0.94 cfs 0.059 af

Pond FP9: FP-9 Peak Elev=100.59' Storage=116 cf Inflow=0.56 cfs 0.054 af
Primary=0.11 cfs 0.040 af Secondary=0.45 cfs 0.014 af Outflow=0.56 cfs 0.054 af

Link 1: POND 1

Inflow=9.13 cfs 0.970 af
Primary=9.13 cfs 0.970 af

Total Runoff Area = 16.810 ac Runoff Volume = 1.858 af Average Runoff Depth = 1.33"
78.84% Pervious = 13.254 ac 21.16% Impervious = 3.556 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: 1 Runoff Area=54,168 sf 0.00% Impervious Runoff Depth=1.97"
Flow Length=377' Tc=15.1 min CN=73 Runoff=2.13 cfs 0.204 af

Subcatchment 2A-S: 2A Runoff Area=130,259 sf 25.70% Impervious Runoff Depth=2.63"
Flow Length=208' Tc=11.3 min CN=81 Runoff=7.75 cfs 0.657 af

Subcatchment 2B-S: 2B Runoff Area=184,958 sf 8.40% Impervious Runoff Depth=2.46"
Flow Length=579' Tc=25.7 min CN=79 Runoff=7.42 cfs 0.871 af

Subcatchment 3.10S: 3.10 Runoff Area=12,721 sf 64.24% Impervious Runoff Depth=3.59"
Flow Length=337' Tc=6.0 min CN=91 Runoff=1.18 cfs 0.087 af

Subcatchment 3.11S: 3.11 Runoff Area=24,501 sf 27.78% Impervious Runoff Depth=2.46"
Flow Length=172' Tc=1.5 min UI Adjusted CN=79 Runoff=1.91 cfs 0.115 af

Subcatchment 3.12S: CB-2 Runoff Area=37,602 sf 20.48% Impervious Runoff Depth=2.38"
Flow Length=351' Tc=18.5 min UI Adjusted CN=78 Runoff=1.67 cfs 0.171 af

Subcatchment 3.13S: 3.13 Runoff Area=10,835 sf 49.60% Impervious Runoff Depth=3.10"
Flow Length=273' Tc=7.5 min CN=86 Runoff=0.85 cfs 0.064 af

Subcatchment 3.14S: CB-4 Runoff Area=6,302 sf 46.38% Impervious Runoff Depth=3.00"
Flow Length=153' Slope=0.0300 '/' Tc=1.1 min CN=85 Runoff=0.60 cfs 0.036 af

Subcatchment 3.15S: 3.15 Runoff Area=19,302 sf 34.98% Impervious Runoff Depth=2.72"
Flow Length=353' Tc=15.5 min CN=82 Runoff=1.06 cfs 0.101 af

Subcatchment 3.1S: 3.1 Runoff Area=5,704 sf 47.25% Impervious Runoff Depth=3.00"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=85 Runoff=0.39 cfs 0.033 af

Subcatchment 3.2S: 3.2 Runoff Area=20,329 sf 34.31% Impervious Runoff Depth=2.72"
Flow Length=347' Tc=13.1 min CN=82 Runoff=1.19 cfs 0.106 af

Subcatchment 3.3S: 3.3 Runoff Area=13,410 sf 38.23% Impervious Runoff Depth=2.81"
Flow Length=338' Tc=14.2 min CN=83 Runoff=0.78 cfs 0.072 af

Subcatchment 3.4S: 3.4 Runoff Area=21,170 sf 28.60% Impervious Runoff Depth=2.46"
Flow Length=362' Tc=14.7 min UI Adjusted CN=79 Runoff=1.07 cfs 0.100 af

Subcatchment 3.5S: 3.5 Runoff Area=58,624 sf 17.14% Impervious Runoff Depth=2.29"
Flow Length=532' Tc=20.2 min UI Adjusted CN=77 Runoff=2.42 cfs 0.257 af

Subcatchment 3.6S: 3.6 Runoff Area=26,611 sf 25.90% Impervious Runoff Depth=2.63"
Flow Length=301' Tc=10.8 min UI Adjusted CN=81 Runoff=1.61 cfs 0.134 af

Subcatchment 3.7S: 3.7 Runoff Area=29,265 sf 25.02% Impervious Runoff Depth=2.63"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=2.00 cfs 0.148 af

Subcatchment 3.8S: 3.8 Runoff Area=62,140 sf 21.59% Impervious Runoff Depth=2.55"
Flow Length=255' Tc=7.0 min UI Adjusted CN=80 Runoff=4.11 cfs 0.303 af

Subcatchment 3.9S: 3.9 Runoff Area=14,356 sf 67.09% Impervious Runoff Depth=3.70"
Flow Length=365' Tc=7.7 min CN=92 Runoff=1.29 cfs 0.102 af

Reach 1R: POI 1 Inflow=2.13 cfs 0.204 af
Outflow=2.13 cfs 0.204 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=7.75 cfs 0.657 af
Outflow=7.75 cfs 0.657 af

Reach 2R: POI 2 Inflow=12.32 cfs 1.527 af
Outflow=12.32 cfs 1.527 af

Pond 2A-P: CATCH BASIN Peak Elev=59.79' Inflow=7.75 cfs 0.657 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=7.75 cfs 0.657 af

Pond 2B-P: CROSS CULVERT Peak Elev=60.42' Storage=791 cf Inflow=7.42 cfs 0.871 af
Outflow=7.20 cfs 0.871 af

Pond FP1: FP-1 Peak Elev=100.67' Storage=144 cf Inflow=1.19 cfs 0.106 af
Primary=0.11 cfs 0.065 af Secondary=1.07 cfs 0.041 af Outflow=1.18 cfs 0.106 af

Pond FP10: FP-10 Peak Elev=100.64' Storage=83 cf Inflow=0.85 cfs 0.064 af
Primary=0.07 cfs 0.040 af Secondary=0.78 cfs 0.024 af Outflow=0.85 cfs 0.064 af

Pond FP2: FP-2 Peak Elev=100.63' Storage=91 cf Inflow=0.78 cfs 0.072 af
Primary=0.08 cfs 0.045 af Secondary=0.70 cfs 0.028 af Outflow=0.78 cfs 0.072 af

Pond FP3: FP-3 Peak Elev=100.66' Storage=138 cf Inflow=1.07 cfs 0.100 af
Primary=0.11 cfs 0.062 af Secondary=0.95 cfs 0.038 af Outflow=1.07 cfs 0.100 af

Pond FP4: FP-4 Peak Elev=100.77' Storage=430 cf Inflow=2.42 cfs 0.257 af
Primary=0.27 cfs 0.157 af Secondary=2.13 cfs 0.100 af Outflow=2.40 cfs 0.257 af

Pond FP5: FP-5 Peak Elev=100.80' Storage=410 cf Inflow=2.83 cfs 0.236 af
Primary=0.24 cfs 0.145 af Secondary=2.54 cfs 0.090 af Outflow=2.78 cfs 0.236 af

Pond FP6: FP-6 Peak Elev=100.99' Storage=1,100 cf Inflow=6.12 cfs 0.450 af
Primary=0.45 cfs 0.269 af Secondary=5.32 cfs 0.181 af Outflow=5.77 cfs 0.450 af

Pond FP7: FP-7 Peak Elev=100.67' Storage=118 cf Inflow=1.18 cfs 0.087 af
Primary=0.09 cfs 0.055 af Secondary=1.09 cfs 0.032 af Outflow=1.18 cfs 0.087 af

Pond FP8: FP-8 Peak Elev=100.73' Storage=189 cf Inflow=1.91 cfs 0.115 af
Primary=0.13 cfs 0.071 af Secondary=1.74 cfs 0.044 af Outflow=1.87 cfs 0.115 af

Pond FP9: FP-9 Peak Elev=100.66' Storage=134 cf Inflow=1.06 cfs 0.101 af
Primary=0.11 cfs 0.062 af Secondary=0.95 cfs 0.039 af Outflow=1.06 cfs 0.101 af

Link 1: POND 1

Inflow=18.36 cfs 1.828 af
Primary=18.36 cfs 1.828 af

Total Runoff Area = 16.810 ac Runoff Volume = 3.560 af Average Runoff Depth = 2.54"
78.84% Pervious = 13.254 ac 21.16% Impervious = 3.556 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: 1 Runoff Area=54,168 sf 0.00% Impervious Runoff Depth=2.92"
Flow Length=377' Tc=15.1 min CN=73 Runoff=3.20 cfs 0.303 af

Subcatchment 2A-S: 2A Runoff Area=130,259 sf 25.70% Impervious Runoff Depth=3.70"
Flow Length=208' Tc=11.3 min CN=81 Runoff=10.84 cfs 0.923 af

Subcatchment 2B-S: 2B Runoff Area=184,958 sf 8.40% Impervious Runoff Depth=3.50"
Flow Length=579' Tc=25.7 min CN=79 Runoff=10.56 cfs 1.239 af

Subcatchment 3.10S: 3.10 Runoff Area=12,721 sf 64.24% Impervious Runoff Depth=4.76"
Flow Length=337' Tc=6.0 min CN=91 Runoff=1.55 cfs 0.116 af

Subcatchment 3.11S: 3.11 Runoff Area=24,501 sf 27.78% Impervious Runoff Depth=3.50"
Flow Length=172' Tc=1.5 min UI Adjusted CN=79 Runoff=2.71 cfs 0.164 af

Subcatchment 3.12S: CB-2 Runoff Area=37,602 sf 20.48% Impervious Runoff Depth=3.40"
Flow Length=351' Tc=18.5 min UI Adjusted CN=78 Runoff=2.40 cfs 0.245 af

Subcatchment 3.13S: 3.13 Runoff Area=10,835 sf 49.60% Impervious Runoff Depth=4.22"
Flow Length=273' Tc=7.5 min CN=86 Runoff=1.14 cfs 0.087 af

Subcatchment 3.14S: CB-4 Runoff Area=6,302 sf 46.38% Impervious Runoff Depth=4.11"
Flow Length=153' Slope=0.0300 '/' Tc=1.1 min CN=85 Runoff=0.82 cfs 0.050 af

Subcatchment 3.15S: 3.15 Runoff Area=19,302 sf 34.98% Impervious Runoff Depth=3.80"
Flow Length=353' Tc=15.5 min CN=82 Runoff=1.47 cfs 0.140 af

Subcatchment 3.1S: 3.1 Runoff Area=5,704 sf 47.25% Impervious Runoff Depth=4.11"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=85 Runoff=0.53 cfs 0.045 af

Subcatchment 3.2S: 3.2 Runoff Area=20,329 sf 34.31% Impervious Runoff Depth=3.80"
Flow Length=347' Tc=13.1 min CN=82 Runoff=1.65 cfs 0.148 af

Subcatchment 3.3S: 3.3 Runoff Area=13,410 sf 38.23% Impervious Runoff Depth=3.91"
Flow Length=338' Tc=14.2 min CN=83 Runoff=1.08 cfs 0.100 af

Subcatchment 3.4S: 3.4 Runoff Area=21,170 sf 28.60% Impervious Runoff Depth=3.50"
Flow Length=362' Tc=14.7 min UI Adjusted CN=79 Runoff=1.52 cfs 0.142 af

Subcatchment 3.5S: 3.5 Runoff Area=58,624 sf 17.14% Impervious Runoff Depth=3.31"
Flow Length=532' Tc=20.2 min UI Adjusted CN=77 Runoff=3.51 cfs 0.371 af

Subcatchment 3.6S: 3.6 Runoff Area=26,611 sf 25.90% Impervious Runoff Depth=3.70"
Flow Length=301' Tc=10.8 min UI Adjusted CN=81 Runoff=2.25 cfs 0.188 af

Subcatchment 3.7S: 3.7 Runoff Area=29,265 sf 25.02% Impervious Runoff Depth=3.70"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=2.80 cfs 0.207 af

Subcatchment 3.8S: 3.8 Runoff Area=62,140 sf 21.59% Impervious Runoff Depth=3.60"
Flow Length=255' Tc=7.0 min UI Adjusted CN=80 Runoff=5.80 cfs 0.428 af

Subcatchment 3.9S: 3.9 Runoff Area=14,356 sf 67.09% Impervious Runoff Depth=4.87"
Flow Length=365' Tc=7.7 min CN=92 Runoff=1.67 cfs 0.134 af

Reach 1R: POI 1 Inflow=3.20 cfs 0.303 af
Outflow=3.20 cfs 0.303 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=10.84 cfs 0.923 af
Outflow=10.84 cfs 0.923 af

Reach 2R: POI 2 Inflow=17.07 cfs 2.161 af
Outflow=17.07 cfs 2.161 af

Pond 2A-P: CATCH BASIN Peak Elev=62.21' Inflow=10.84 cfs 0.923 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=10.84 cfs 0.923 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.00' Storage=1,881 cf Inflow=10.56 cfs 1.239 af
Outflow=9.66 cfs 1.239 af

Pond FP1: FP-1 Peak Elev=100.71' Storage=160 cf Inflow=1.65 cfs 0.148 af
Primary=0.11 cfs 0.081 af Secondary=1.53 cfs 0.067 af Outflow=1.64 cfs 0.148 af

Pond FP10: FP-10 Peak Elev=100.67' Storage=89 cf Inflow=1.14 cfs 0.087 af
Primary=0.07 cfs 0.050 af Secondary=1.07 cfs 0.038 af Outflow=1.14 cfs 0.087 af

Pond FP2: FP-2 Peak Elev=100.66' Storage=98 cf Inflow=1.08 cfs 0.100 af
Primary=0.08 cfs 0.056 af Secondary=1.00 cfs 0.045 af Outflow=1.08 cfs 0.100 af

Pond FP3: FP-3 Peak Elev=100.70' Storage=153 cf Inflow=1.52 cfs 0.142 af
Primary=0.11 cfs 0.078 af Secondary=1.41 cfs 0.064 af Outflow=1.52 cfs 0.142 af

Pond FP4: FP-4 Peak Elev=100.85' Storage=510 cf Inflow=3.51 cfs 0.371 af
Primary=0.27 cfs 0.197 af Secondary=3.21 cfs 0.173 af Outflow=3.48 cfs 0.371 af

Pond FP5: FP-5 Peak Elev=100.87' Storage=475 cf Inflow=3.83 cfs 0.322 af
Primary=0.24 cfs 0.180 af Secondary=3.53 cfs 0.142 af Outflow=3.78 cfs 0.322 af

Pond FP6: FP-6 Peak Elev=101.47' Storage=1,115 cf Inflow=8.60 cfs 0.635 af
Primary=0.45 cfs 0.336 af Secondary=8.40 cfs 0.299 af Outflow=8.85 cfs 0.635 af

Pond FP7: FP-7 Peak Elev=100.71' Storage=128 cf Inflow=1.55 cfs 0.116 af
Primary=0.09 cfs 0.067 af Secondary=1.45 cfs 0.048 af Outflow=1.54 cfs 0.116 af

Pond FP8: FP-8 Peak Elev=100.80' Storage=217 cf Inflow=2.71 cfs 0.164 af
Primary=0.13 cfs 0.090 af Secondary=2.53 cfs 0.074 af Outflow=2.66 cfs 0.164 af

Pond FP9: FP-9 Peak Elev=100.70' Storage=148 cf Inflow=1.47 cfs 0.140 af
Primary=0.11 cfs 0.077 af Secondary=1.36 cfs 0.063 af Outflow=1.47 cfs 0.140 af

Link 1: POND 1

Inflow=25.61 cfs 2.565 af
Primary=25.61 cfs 2.565 af

Total Runoff Area = 16.810 ac Runoff Volume = 5.030 af Average Runoff Depth = 3.59"
78.84% Pervious = 13.254 ac 21.16% Impervious = 3.556 ac

Summary for Subcatchment 1S: 1

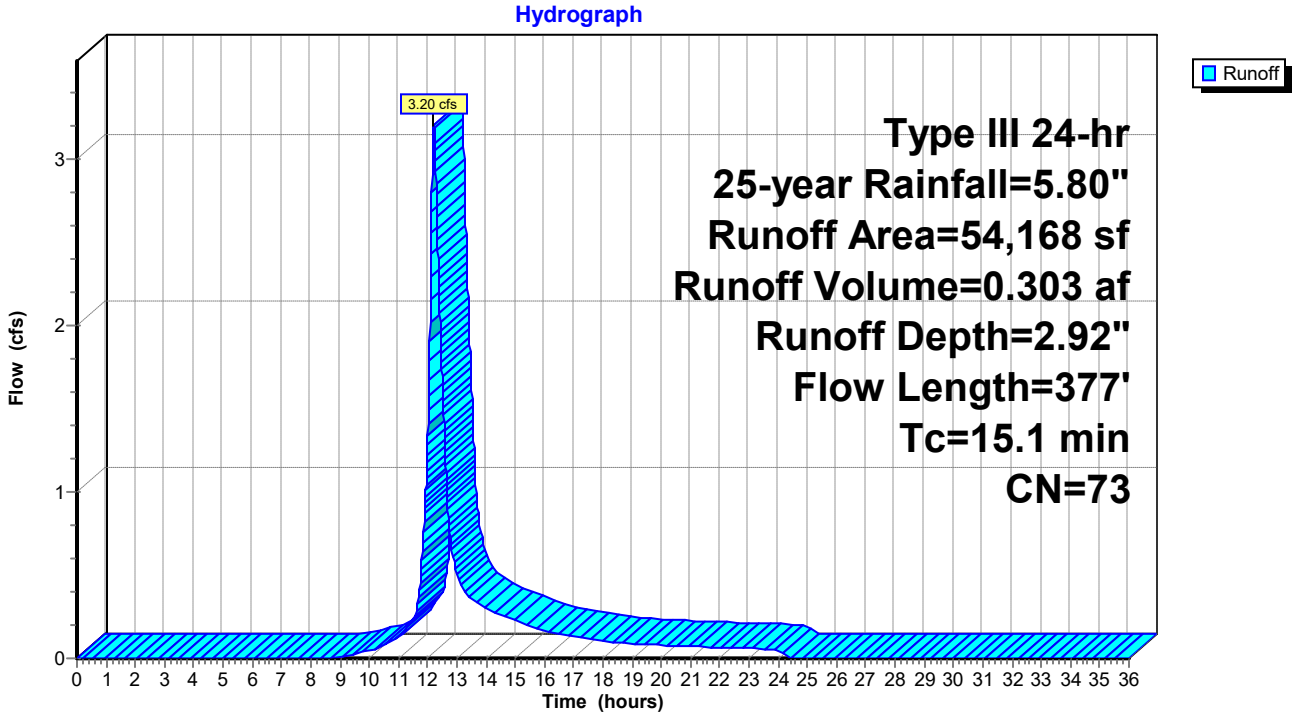
Runoff = 3.20 cfs @ 12.21 hrs, Volume= 0.303 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
30,426	72	Woods/grass comb., Good, HSG C
23,742	74	>75% Grass cover, Good, HSG C
54,168	73	Weighted Average
54,168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0166	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
4.4	277	0.0440	1.05		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
15.1	377	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2A-S: 2A

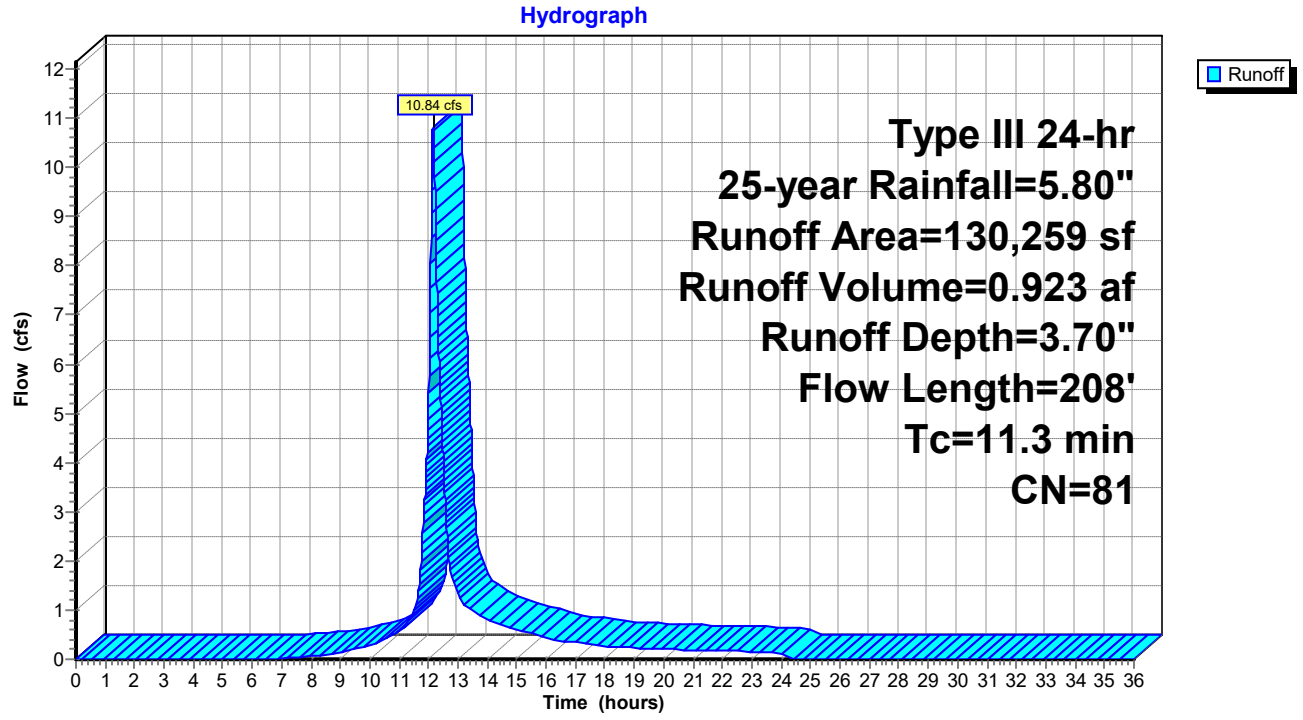
Runoff = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
19,676	98	Paved parking, HSG D
13,805	98	Roofs, HSG D
2,799	82	Woods/grass comb., Poor, HSG C
27,402	72	Woods/grass comb., Good, HSG C
24,494	79	50-75% Grass cover, Fair, HSG C
38,306	74	>75% Grass cover, Good, HSG C
3,777	96	Gravel surface, HSG C
130,259	81	Weighted Average
96,778		74.30% Pervious Area
33,481		25.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0232	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	108	0.0355	0.94		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
11.3	208	Total			

Subcatchment 2A-S: 2A



Summary for Subcatchment 2B-S: 2B

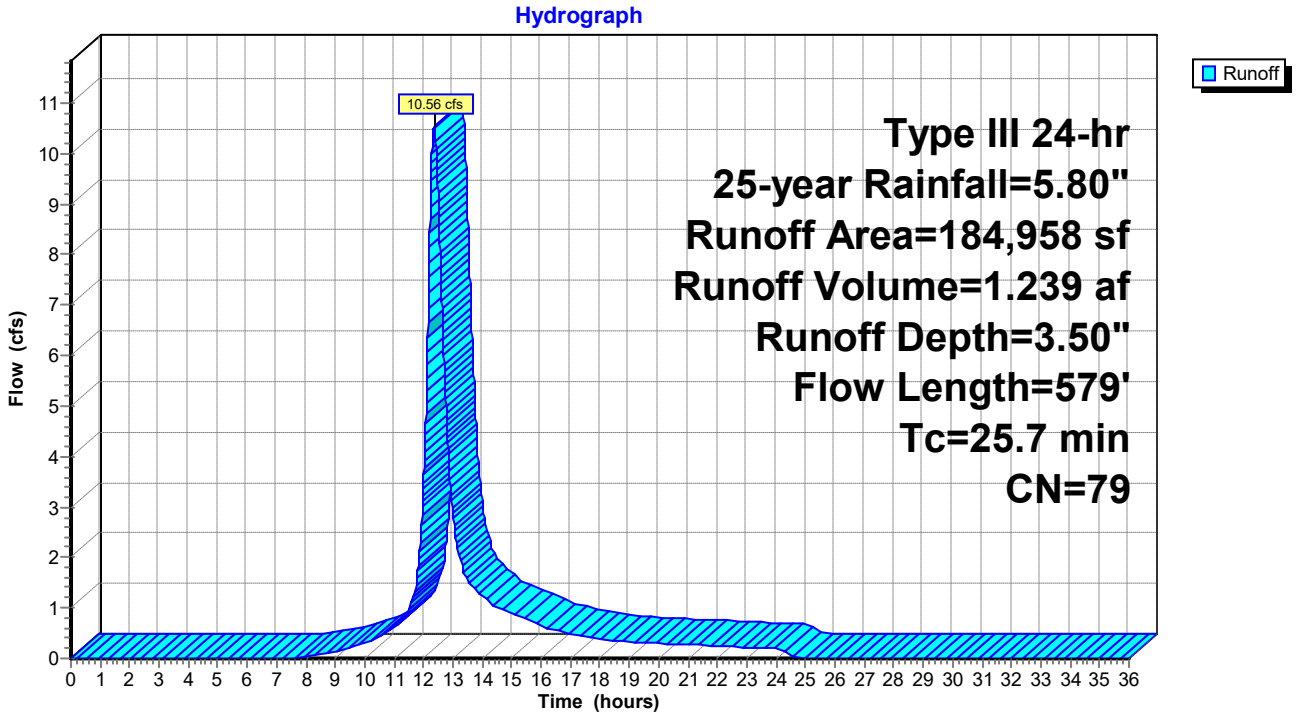
Runoff = 10.56 cfs @ 12.36 hrs, Volume= 1.239 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	14,844	98	Paved parking, HSG D
	697	98	Roofs, HSG D
	10,901	82	Woods/grass comb., Poor, HSG C
	49,690	72	Woods/grass comb., Good, HSG C
	55,432	79	50-75% Grass cover, Fair, HSG C
	38,333	74	>75% Grass cover, Good, HSG C
	10,379	96	Gravel surface, HSG C
*	4,682	90	Wetland, HSG D
	184,958	79	Weighted Average
	169,417		91.60% Pervious Area
	15,541		8.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	100	0.0082	0.12		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
10.1	300	0.0011	0.50		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
1.4	179	0.0194	2.09		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
25.7	579	Total			

Subcatchment 2B-S: 2B



Summary for Subcatchment 3.10S: 3.10

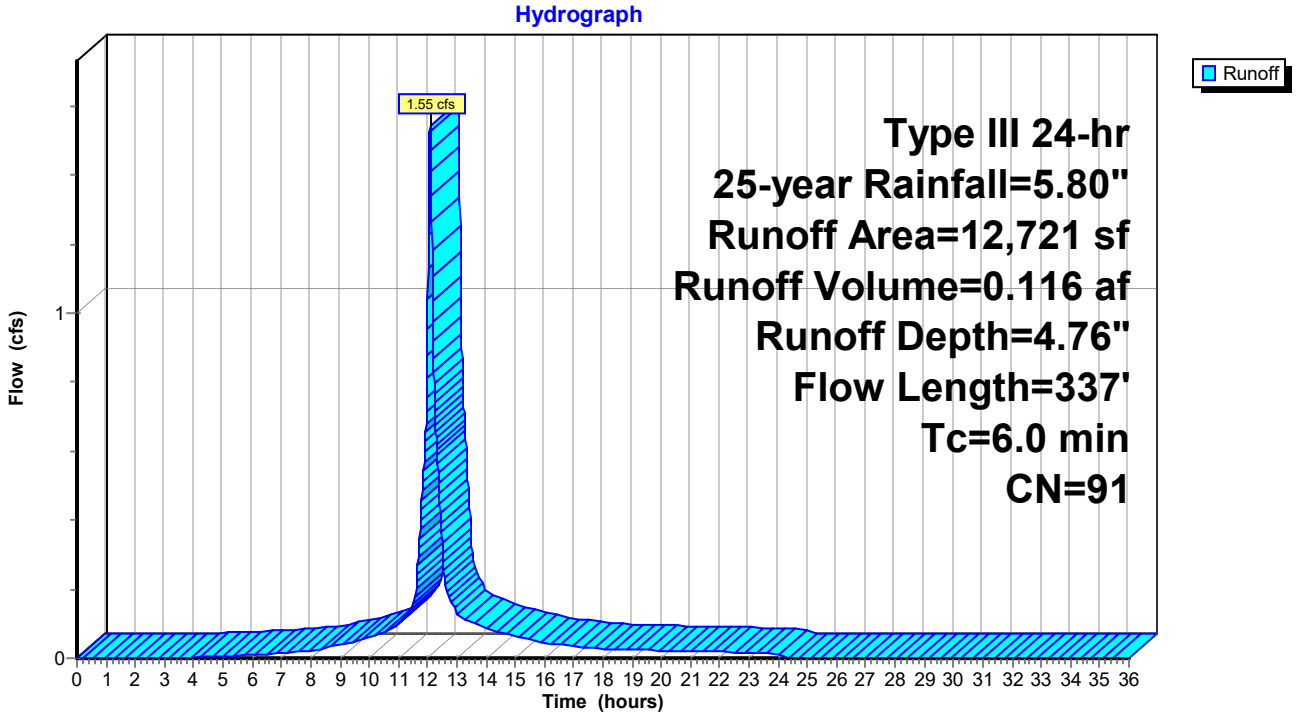
Runoff = 1.55 cfs @ 12.08 hrs, Volume= 0.116 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,172	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
1,608	74	>75% Grass cover, Good, HSG C
2,941	80	>75% Grass cover, Good, HSG D
12,721	91	Weighted Average
4,549		35.76% Pervious Area
8,172		64.24% Impervious Area
3,000		36.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	65	0.0667	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.6	272	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.0	337	Total			

Subcatchment 3.10S: 3.10



Summary for Subcatchment 3.11S: 3.11

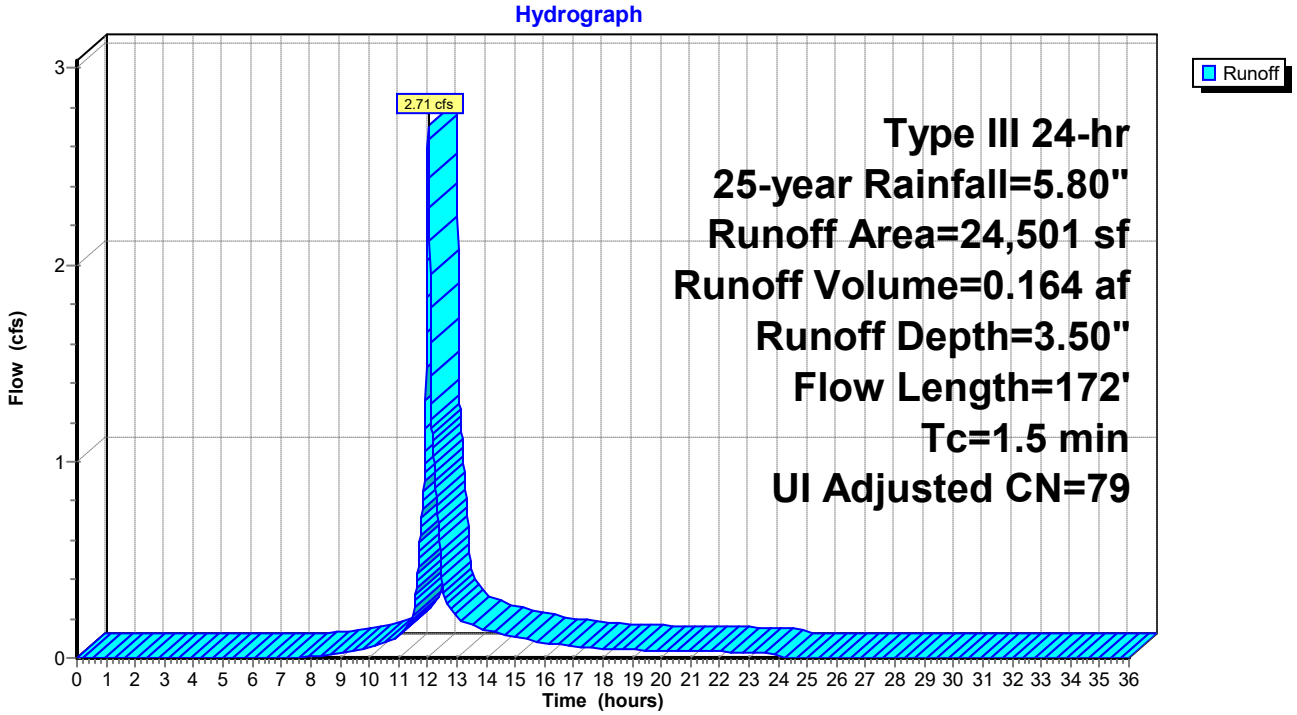
Runoff = 2.71 cfs @ 12.02 hrs, Volume= 0.164 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,807	98		Paved roads w/curbs & sewers, HSG D
3,000	98		Unconnected roofs, HSG D
17,694	74		>75% Grass cover, Good, HSG C
24,501	81	79	Weighted Average, UI Adjusted
17,694			72.22% Pervious Area
6,807			27.78% Impervious Area
3,000			44.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.6	122	0.0300	3.52		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.5	172	Total			

Subcatchment 3.11S: 3.11



Summary for Subcatchment 3.12S: CB-2

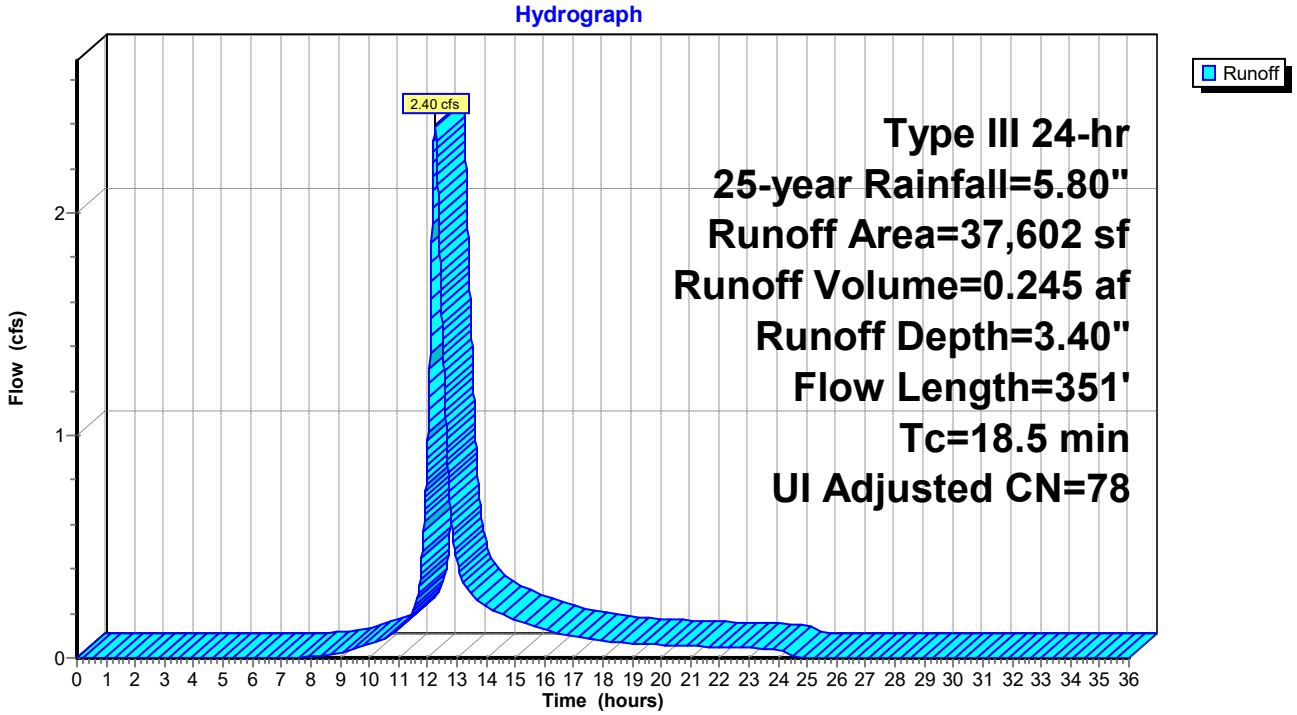
Runoff = 2.40 cfs @ 12.25 hrs, Volume= 0.245 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,950	98		Paved roads w/curbs & sewers, HSG D
3,750	98		Unconnected roofs, HSG D
29,902	74		>75% Grass cover, Good, HSG C
37,602	79	78	Weighted Average, UI Adjusted
29,902			79.52% Pervious Area
7,700			20.48% Impervious Area
3,750			48.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	200	0.0200	0.19		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.2	151	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
18.5	351	Total			

Subcatchment 3.12S: CB-2



Summary for Subcatchment 3.13S: 3.13

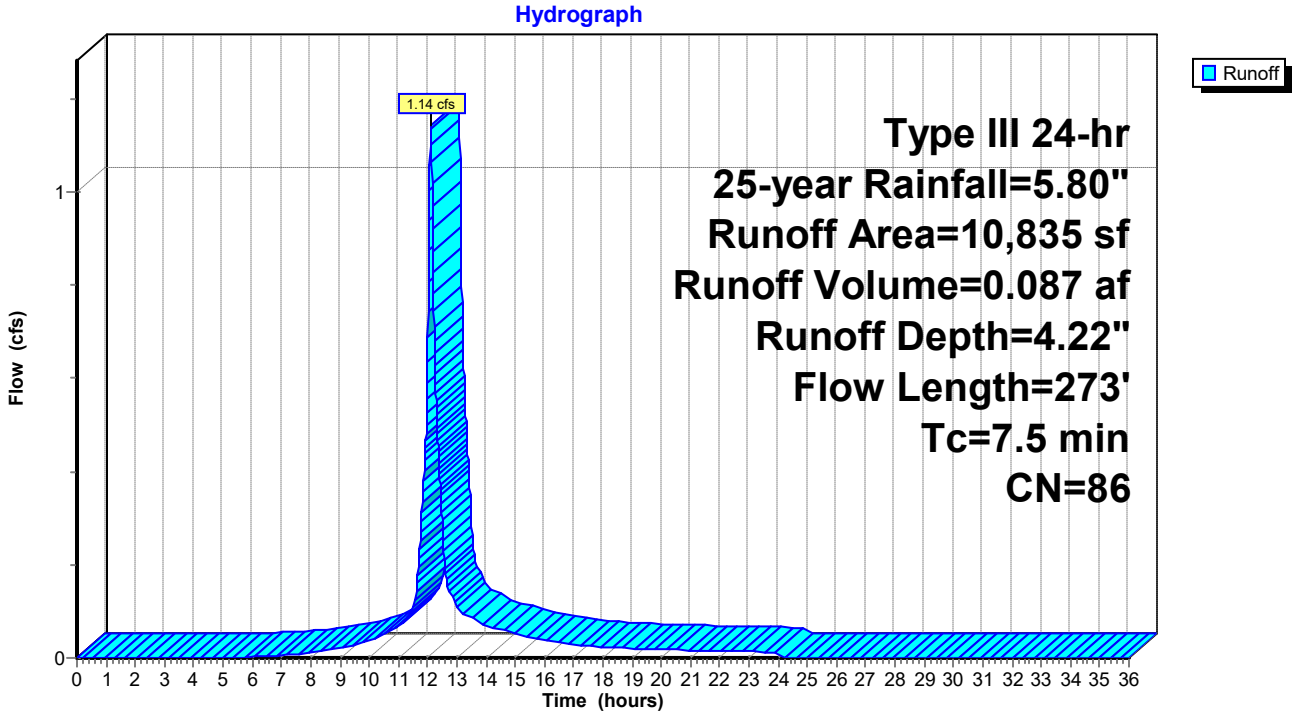
Runoff = 1.14 cfs @ 12.11 hrs, Volume= 0.087 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,124	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
5,461	74	>75% Grass cover, Good, HSG C
10,835	86	Weighted Average
5,461		50.40% Pervious Area
5,374		49.60% Impervious Area
2,250		41.87% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.8	223	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.5	273	Total			

Subcatchment 3.13S: 3.13



Summary for Subcatchment 3.14S: CB-4

[49] Hint: Tc<2dt may require smaller dt

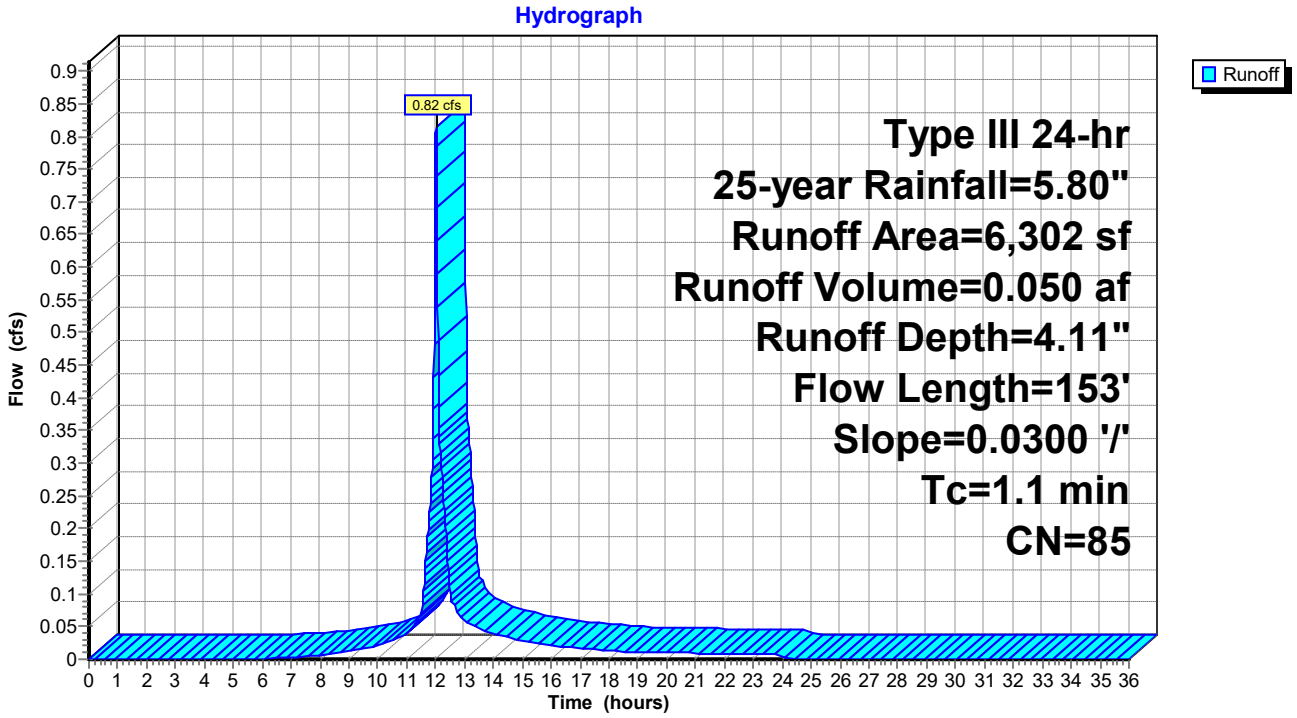
Runoff = 0.82 cfs @ 12.02 hrs, Volume= 0.050 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,173	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
3,338	74	>75% Grass cover, Good, HSG C
41	80	>75% Grass cover, Good, HSG D
6,302	85	Weighted Average
3,379		53.62% Pervious Area
2,923		46.38% Impervious Area
750		25.66% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.39		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.5	103	0.0300	3.52		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.1	153	Total			

Subcatchment 3.14S: CB-4



Summary for Subcatchment 3.15S: 3.15

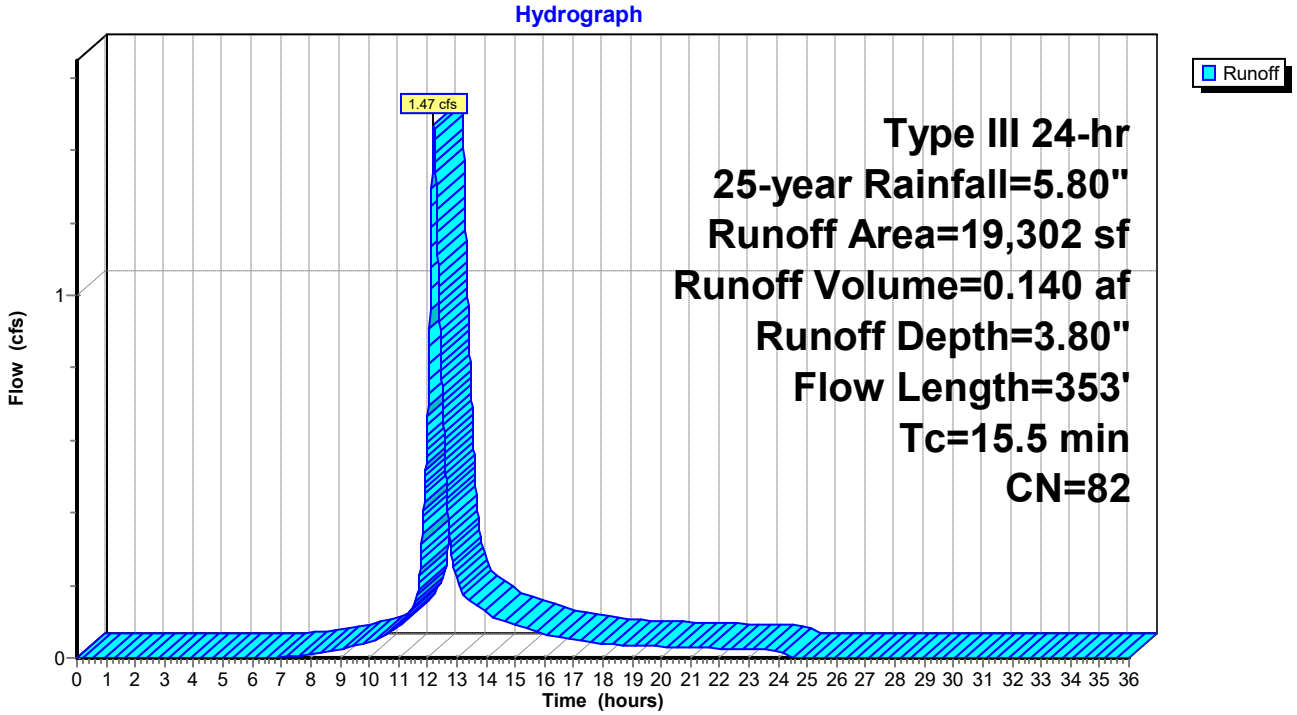
Runoff = 1.47 cfs @ 12.21 hrs, Volume= 0.140 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,752	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
12,550	74	>75% Grass cover, Good, HSG C
19,302	82	Weighted Average
12,550		65.02% Pervious Area
6,752		34.98% Impervious Area
3,000		44.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.7	203	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.5	353	Total			

Subcatchment 3.15S: 3.15



Summary for Subcatchment 3.1S: 3.1

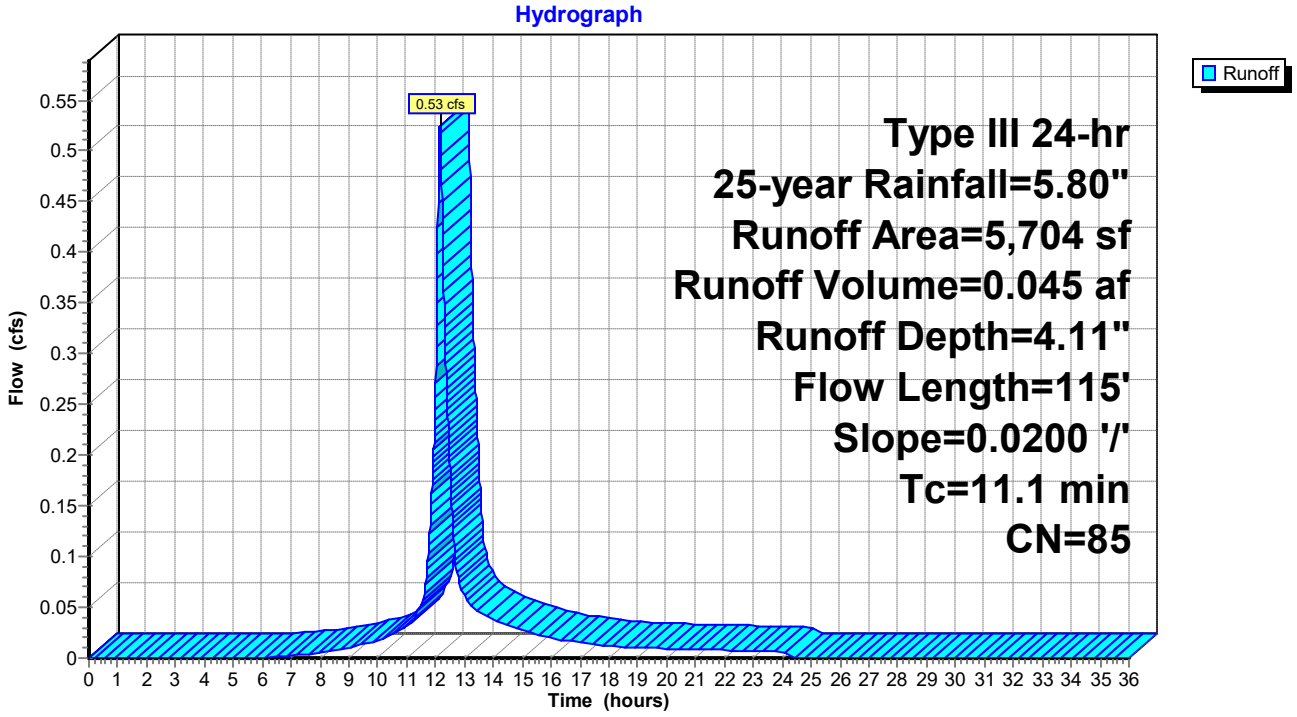
Runoff = 0.53 cfs @ 12.15 hrs, Volume= 0.045 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
1,945	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
3,009	74	>75% Grass cover, Good, HSG C
5,704	85	Weighted Average
3,009		52.75% Pervious Area
2,695		47.25% Impervious Area
750		27.83% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	115	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 3.1S: 3.1



Summary for Subcatchment 3.2S: 3.2

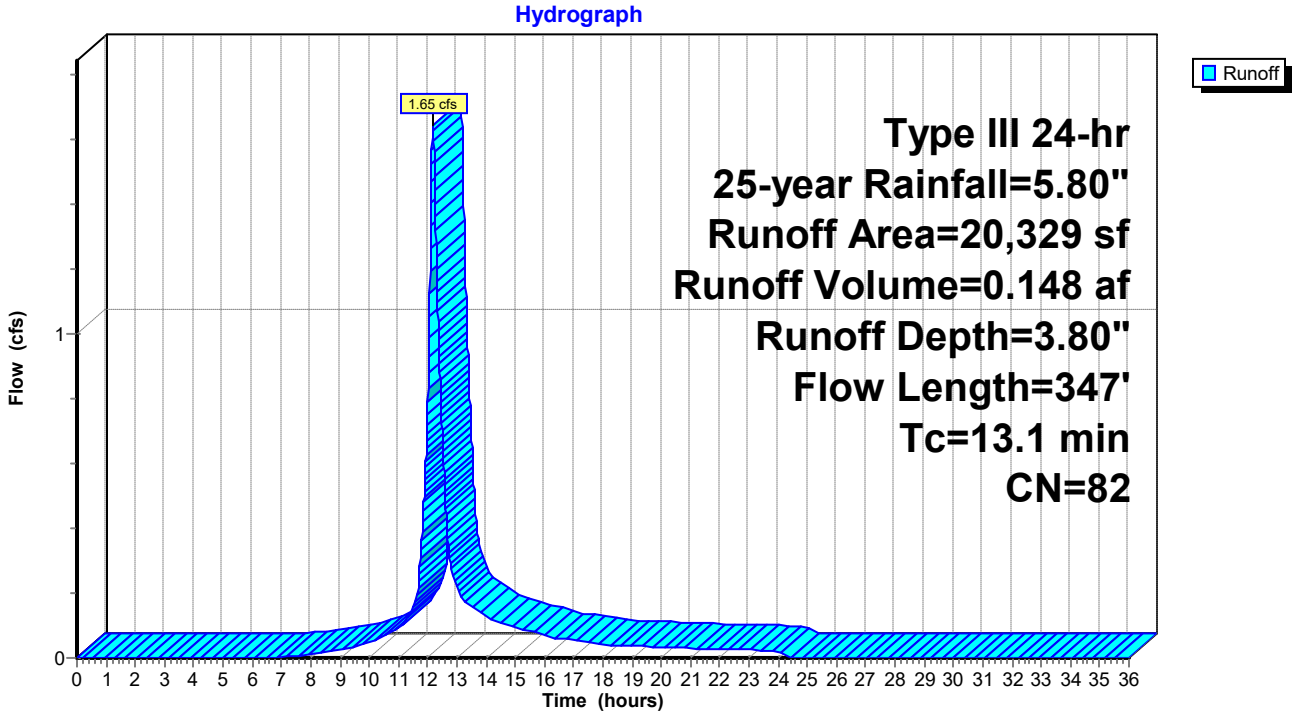
Runoff = 1.65 cfs @ 12.18 hrs, Volume= 0.148 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,725	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
13,354	74	>75% Grass cover, Good, HSG C
20,329	82	Weighted Average
13,354		65.69% Pervious Area
6,975		34.31% Impervious Area
2,250		32.26% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	116	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	231	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
13.1	347	Total			

Subcatchment 3.2S: 3.2



Summary for Subcatchment 3.3S: 3.3

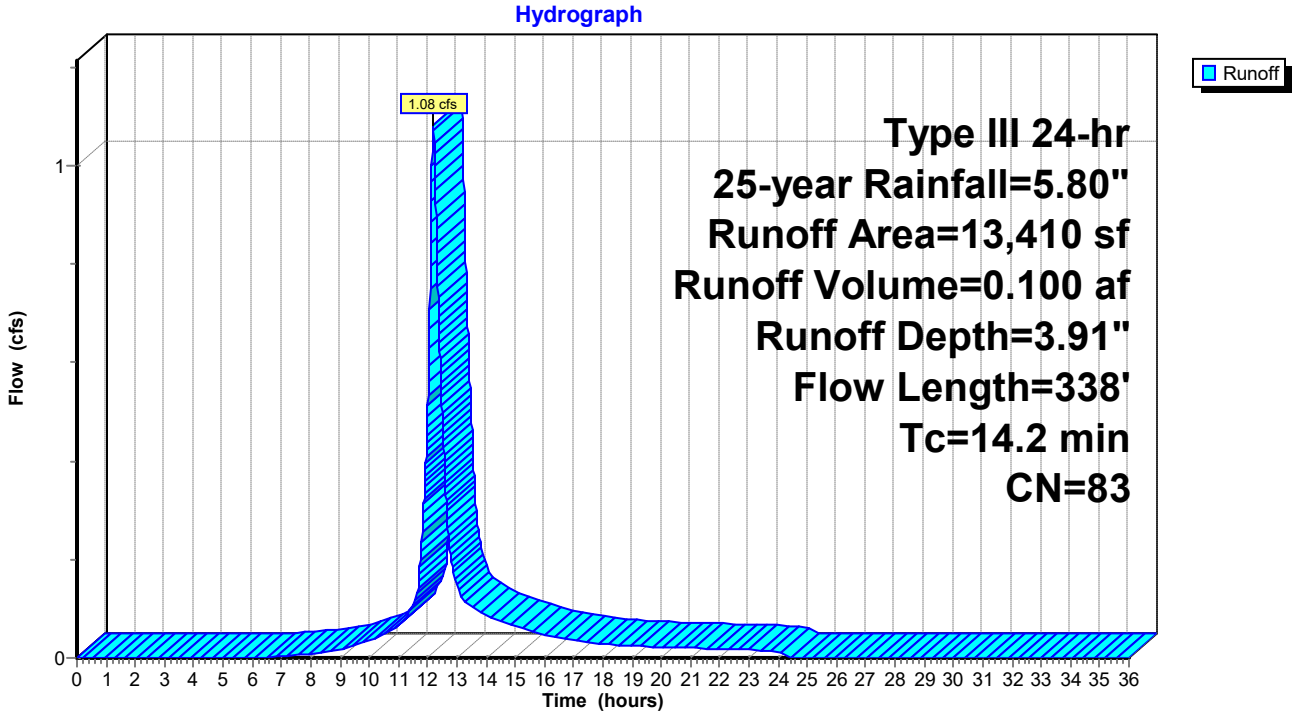
Runoff = 1.08 cfs @ 12.19 hrs, Volume= 0.100 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,877	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
8,283	74	>75% Grass cover, Good, HSG C
13,410	83	Weighted Average
8,283		61.77% Pervious Area
5,127		38.23% Impervious Area
2,250		43.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	133	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.7	205	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.2	338	Total			

Subcatchment 3.3S: 3.3



Summary for Subcatchment 3.4S: 3.4

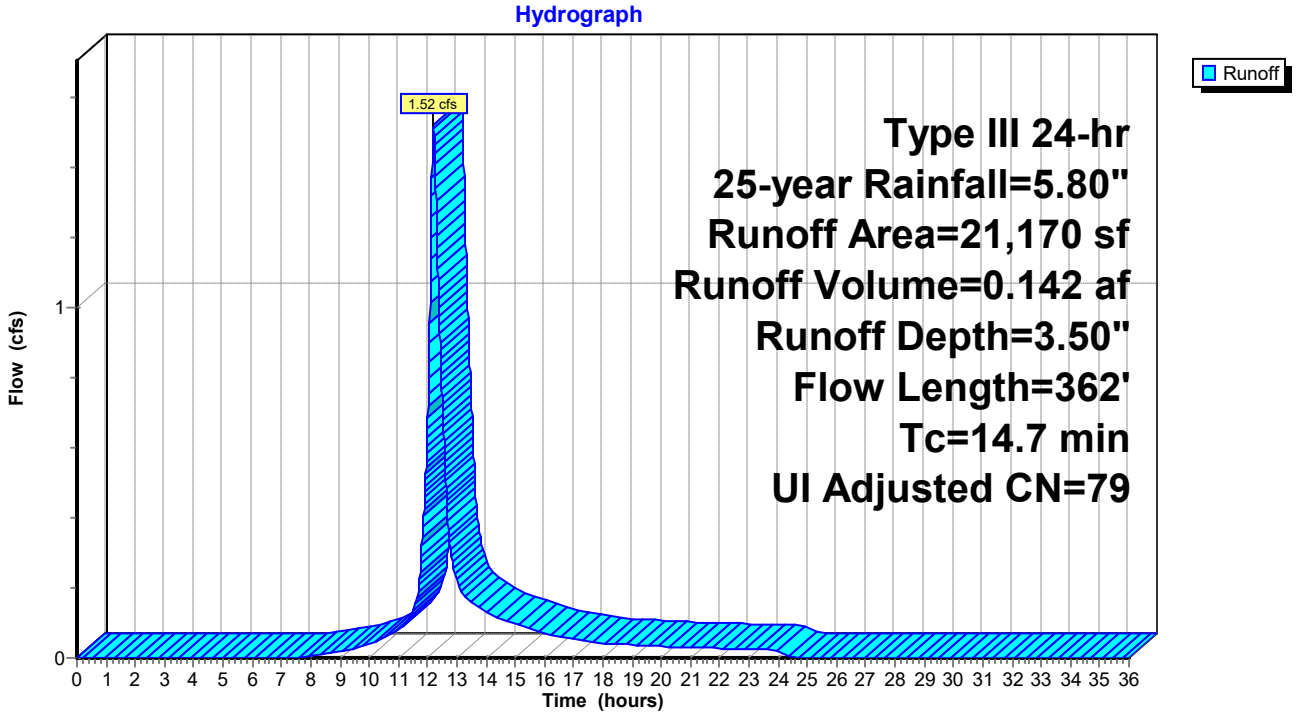
Runoff = 1.52 cfs @ 12.20 hrs, Volume= 0.142 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,055	98		Paved roads w/curbs & sewers, HSG D
3,000	98		Unconnected roofs, HSG D
15,115	74		>75% Grass cover, Good, HSG C
21,170	81	79	Weighted Average, UI Adjusted
15,115			71.40% Pervious Area
6,055			28.60% Impervious Area
3,000			49.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	138	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.8	224	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.7	362	Total			

Subcatchment 3.4S: 3.4



Summary for Subcatchment 3.5S: 3.5

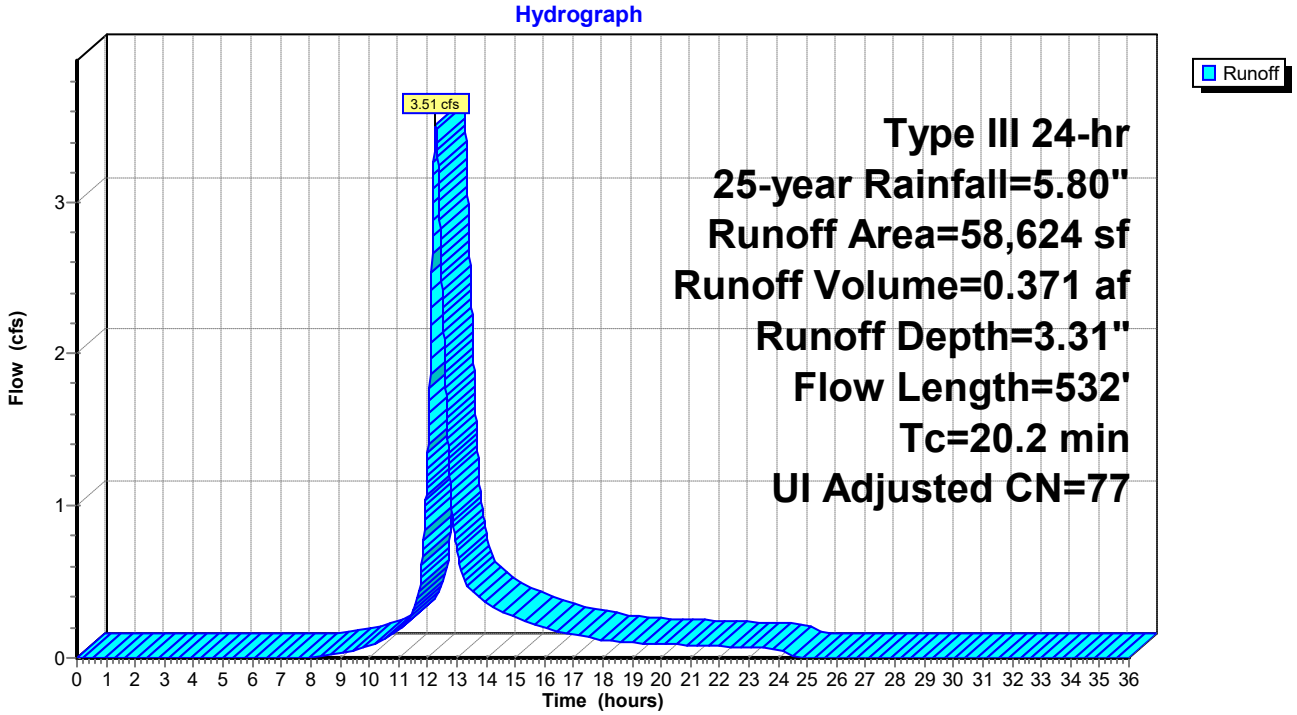
Runoff = 3.51 cfs @ 12.28 hrs, Volume= 0.371 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
6,296	98		Paved roads w/curbs & sewers, HSG D
3,750	98		Unconnected roofs, HSG D
48,578	74		>75% Grass cover, Good, HSG C
58,624	78	77	Weighted Average, UI Adjusted
48,578			82.86% Pervious Area
10,046			17.14% Impervious Area
3,750			37.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	203	0.0200	0.19		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.7	329	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
20.2	532	Total			

Subcatchment 3.5S: 3.5



Summary for Subcatchment 3.6S: 3.6

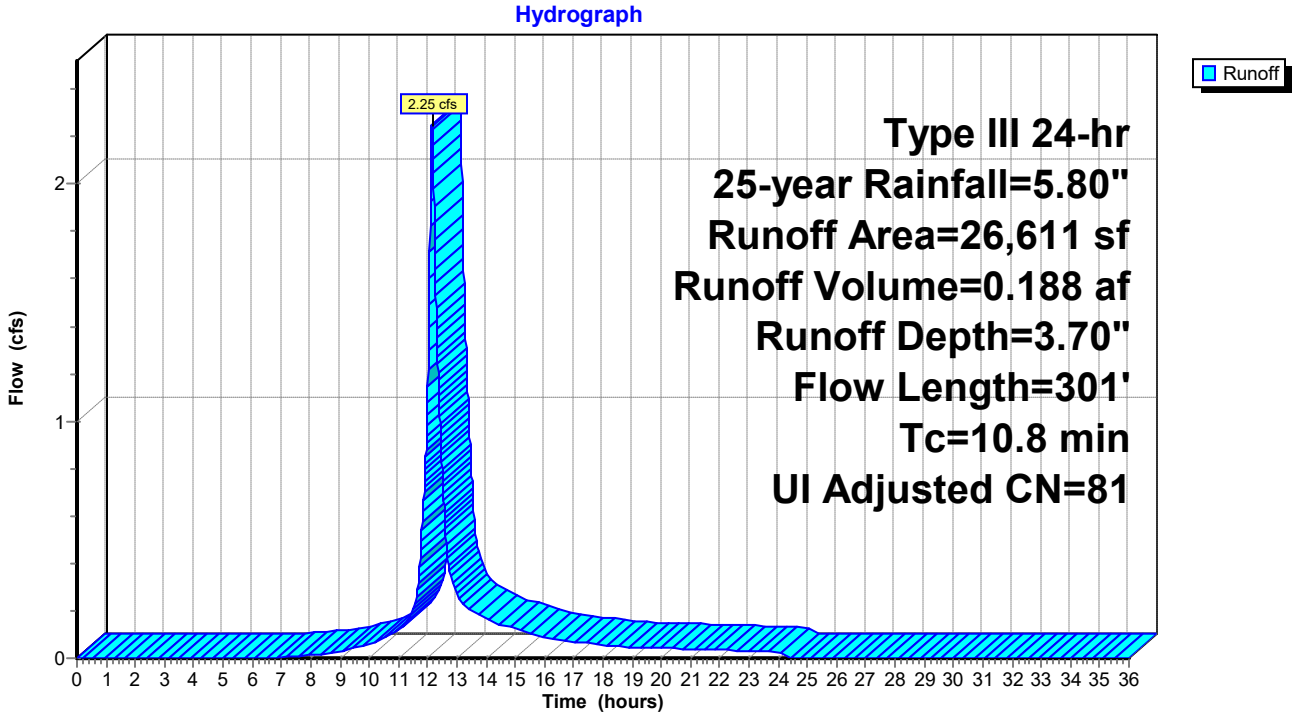
Runoff = 2.25 cfs @ 12.15 hrs, Volume= 0.188 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,893	98		Paved roads w/curbs & sewers, HSG D
3,000	98		Unconnected roofs, HSG D
10,441	74		>75% Grass cover, Good, HSG C
9,277	80		>75% Grass cover, Good, HSG D
26,611	82	81	Weighted Average, UI Adjusted
19,718			74.10% Pervious Area
6,893			25.90% Impervious Area
3,000			43.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	98	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	203	0.0275	3.37		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
10.8	301	Total			

Subcatchment 3.6S: 3.6



Summary for Subcatchment 3.7S: 3.7

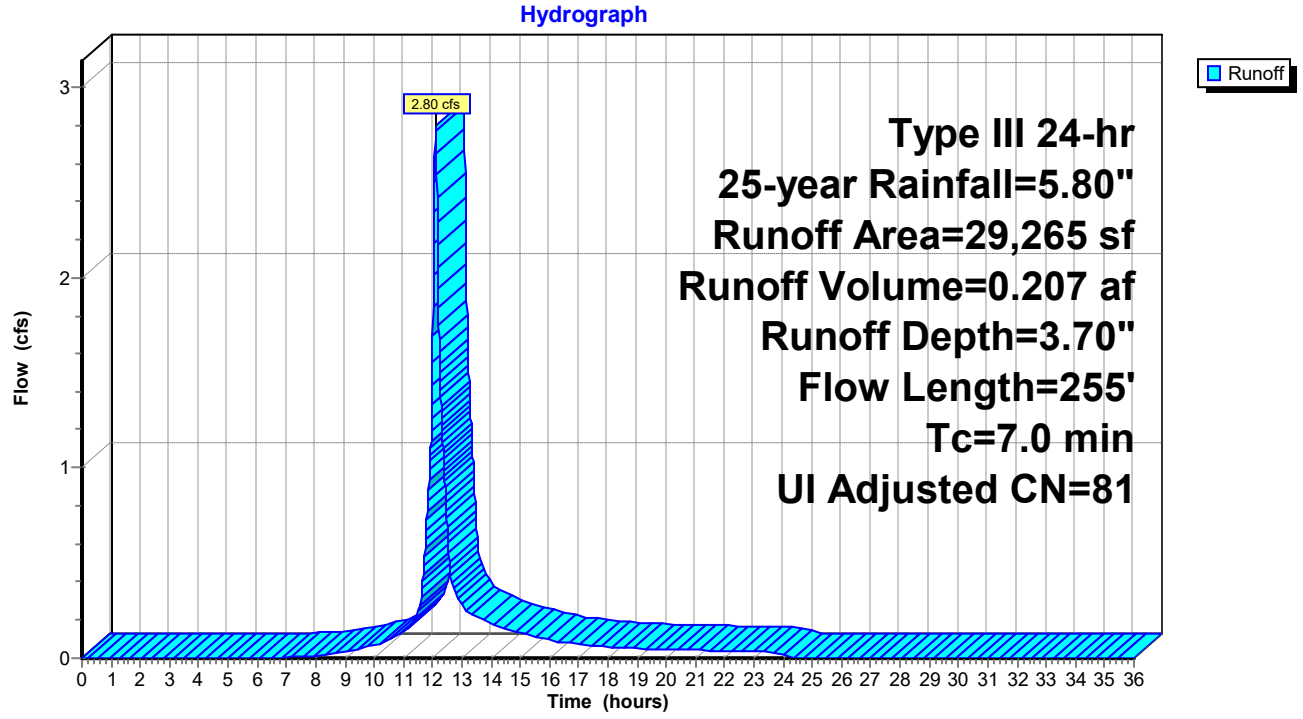
Runoff = 2.80 cfs @ 12.10 hrs, Volume= 0.207 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
2,821	98		Paved roads w/curbs & sewers, HSG D
4,500	98		Unconnected roofs, HSG D
10,982	74		>75% Grass cover, Good, HSG C
10,962	80		>75% Grass cover, Good, HSG D
29,265	82	81	Weighted Average, UI Adjusted
21,944			74.98% Pervious Area
7,321			25.02% Impervious Area
4,500			61.47% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.9	155	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	255	Total			

Subcatchment 3.7S: 3.7



Summary for Subcatchment 3.8S: 3.8

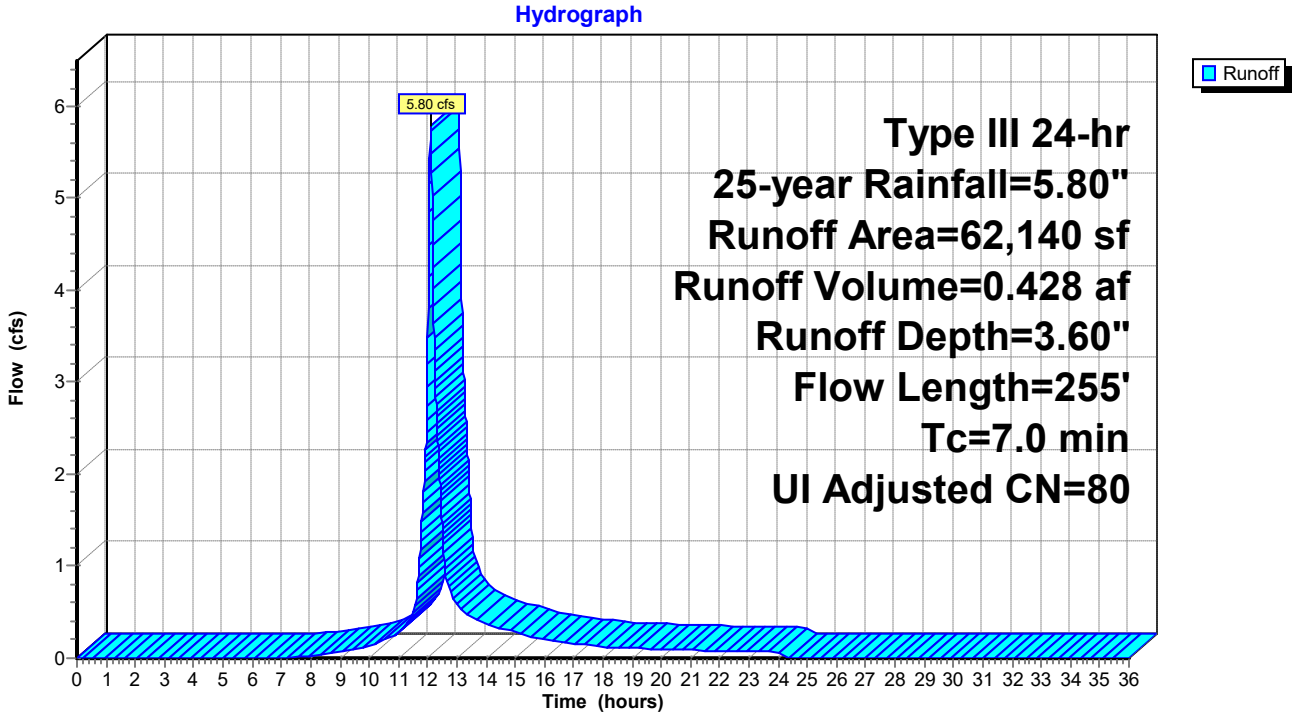
Runoff = 5.80 cfs @ 12.10 hrs, Volume= 0.428 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
4,419	98		Paved roads w/curbs & sewers, HSG D
9,000	98		Unconnected roofs, HSG D
25,529	74		>75% Grass cover, Good, HSG C
23,192	80		>75% Grass cover, Good, HSG D
62,140	81	80	Weighted Average, UI Adjusted
48,721			78.41% Pervious Area
13,419			21.59% Impervious Area
9,000			67.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.9	155	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	255	Total			

Subcatchment 3.8S: 3.8



Summary for Subcatchment 3.9S: 3.9

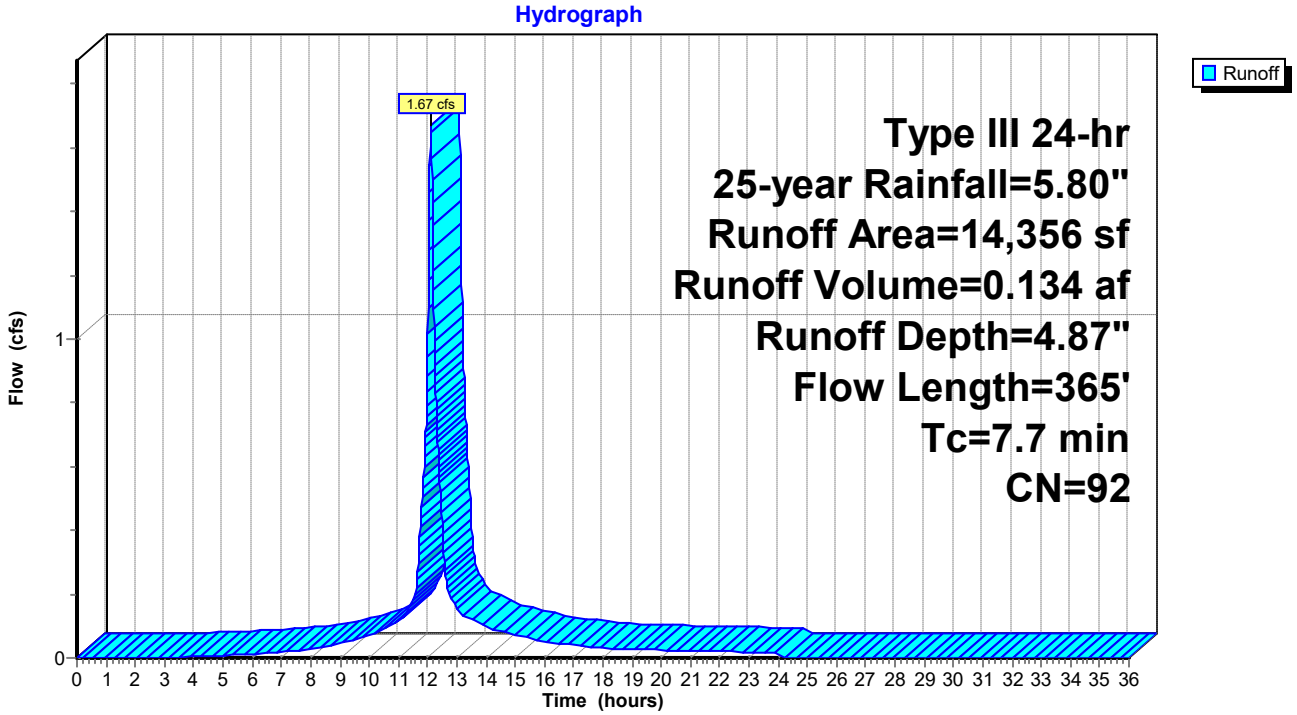
Runoff = 1.67 cfs @ 12.11 hrs, Volume= 0.134 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,881	98	Paved roads w/curbs & sewers, HSG D
3,750	98	Unconnected roofs, HSG D
4,725	80	>75% Grass cover, Good, HSG D
14,356	92	Weighted Average
4,725		32.91% Pervious Area
9,631		67.09% Impervious Area
3,750		38.94% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.1	316	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.7	365	Total			

Subcatchment 3.9S: 3.9



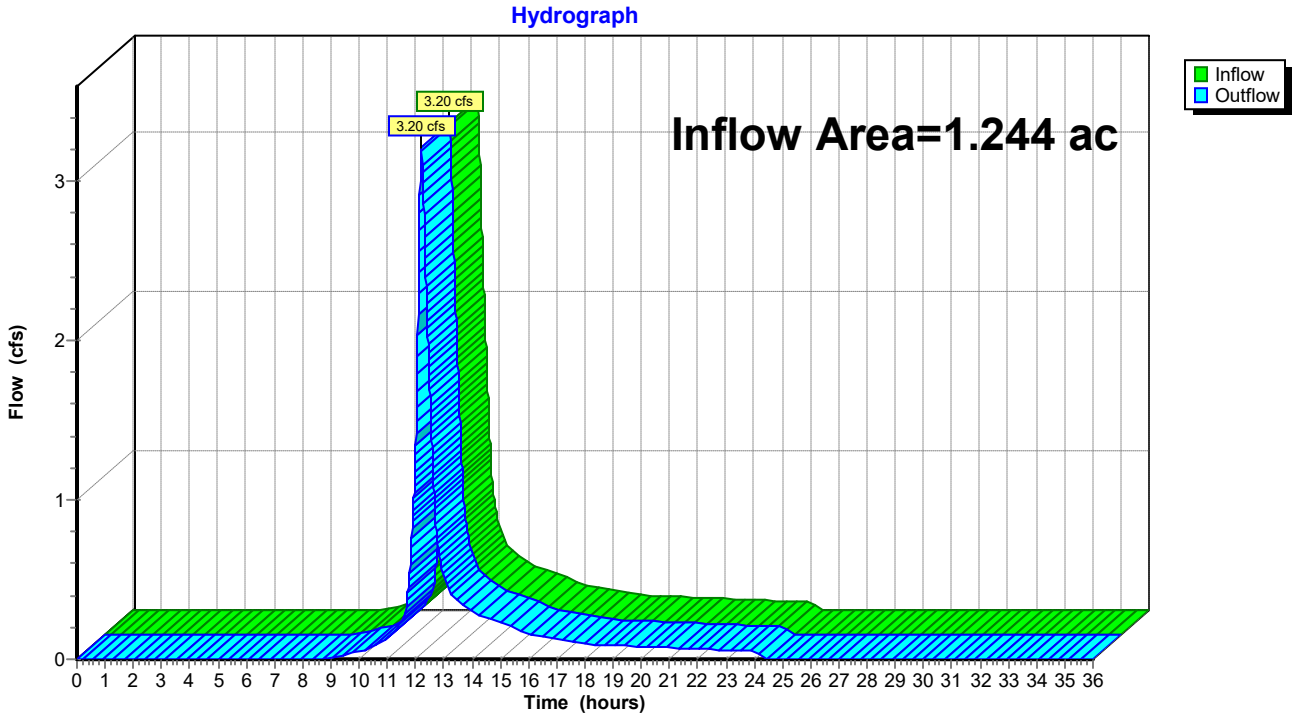
Summary for Reach 1R: POI 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.244 ac, 0.00% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 3.20 cfs @ 12.21 hrs, Volume= 0.303 af
Outflow = 3.20 cfs @ 12.21 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: POI 1



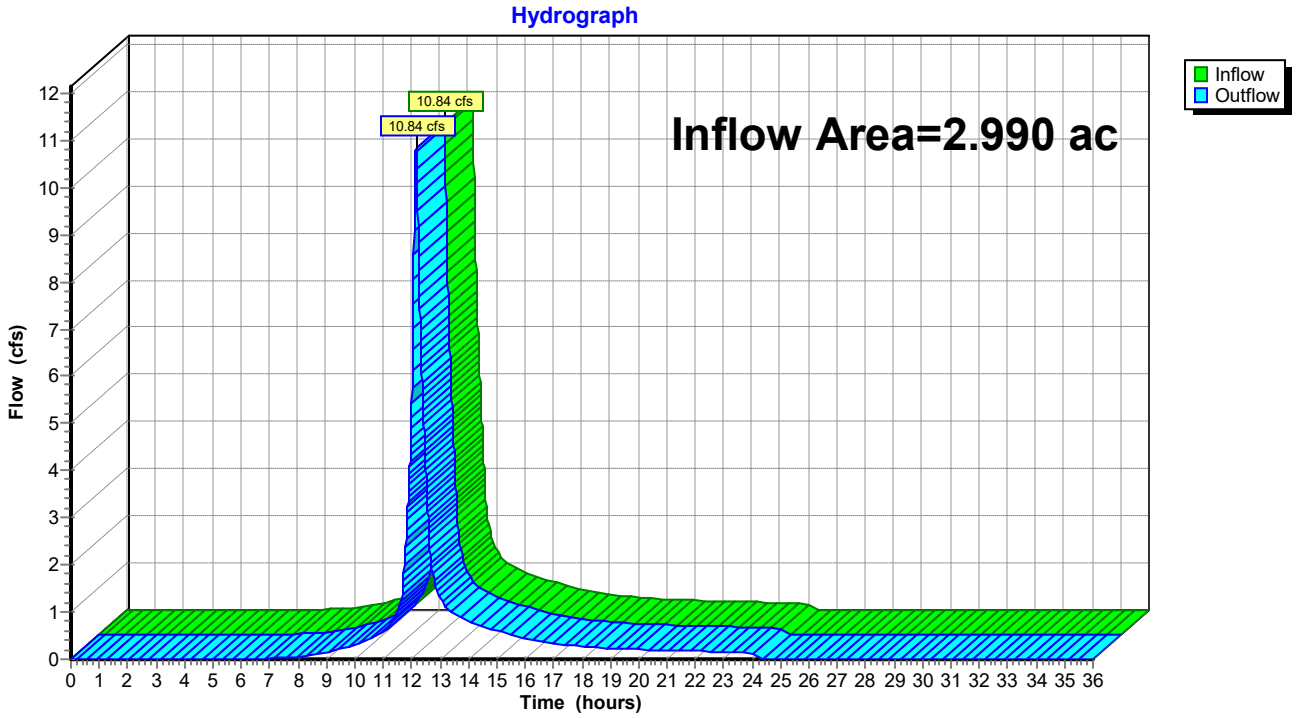
Summary for Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.990 ac, 25.70% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af
Outflow = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST.



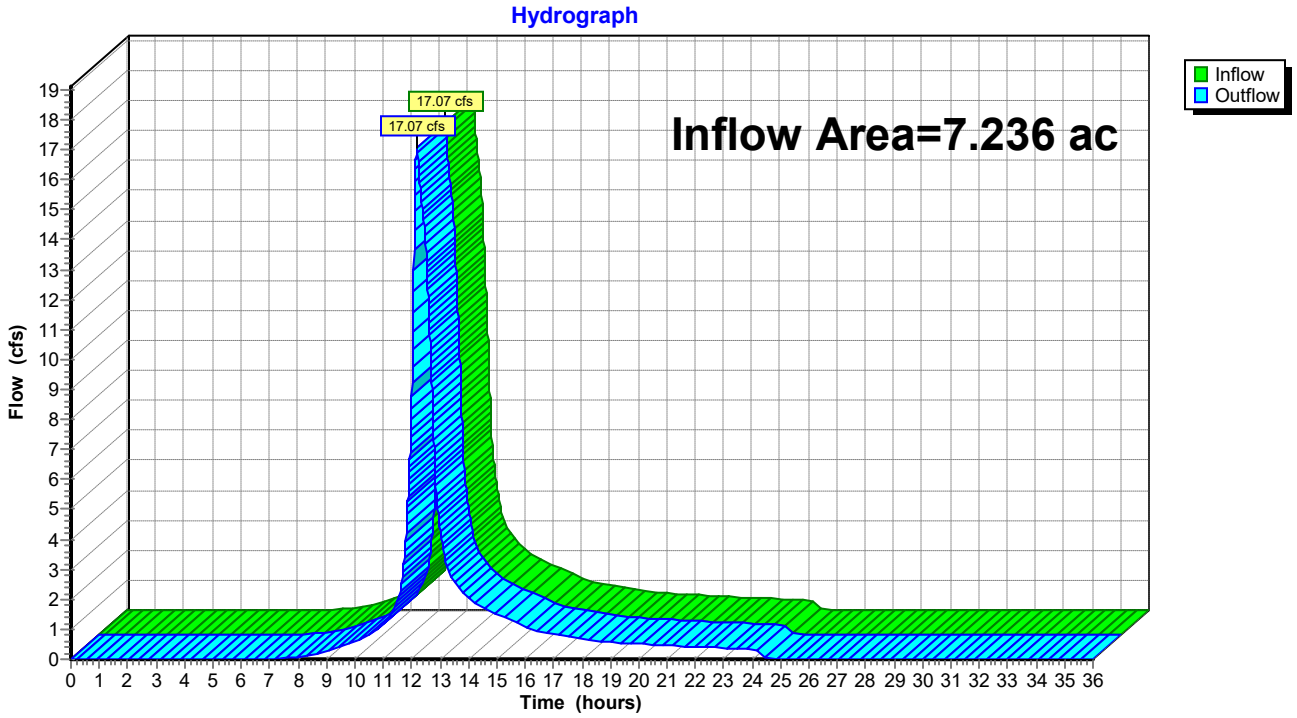
Summary for Reach 2R: POI 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.236 ac, 15.55% Impervious, Inflow Depth = 3.58" for 25-year event
Inflow = 17.07 cfs @ 12.19 hrs, Volume= 2.161 af
Outflow = 17.07 cfs @ 12.19 hrs, Volume= 2.161 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2



Summary for Pond 2A-P: CATCH BASIN

[57] Hint: Peaked at 62.21' (Flood elevation advised)

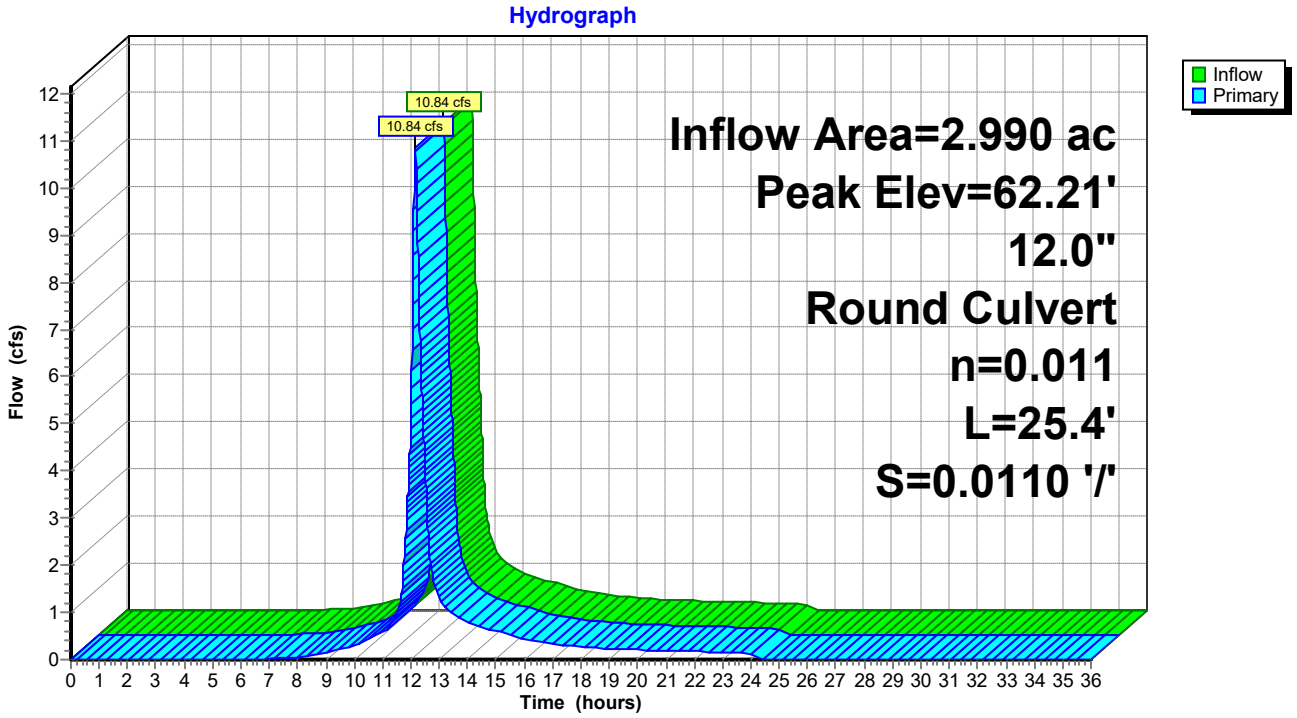
Inflow Area = 2.990 ac, 25.70% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af
Outflow = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.0 min
Primary = 10.84 cfs @ 12.15 hrs, Volume= 0.923 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 62.21' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.54'	**12.0" Round Culvert** L= 25.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 56.54' / 56.26' S= 0.0110 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=10.84 cfs @ 12.15 hrs HW=62.20' (Free Discharge)
1=Culvert (Barrel Controls 10.84 cfs @ 13.80 fps)

Pond 2A-P: CATCH BASIN



Summary for Pond 2B-P: CROSS CULVERT

Inflow Area = 4.246 ac, 8.40% Impervious, Inflow Depth = 3.50" for 25-year event
Inflow = 10.56 cfs @ 12.36 hrs, Volume= 1.239 af
Outflow = 9.66 cfs @ 12.46 hrs, Volume= 1.239 af, Atten= 9%, Lag= 6.1 min
Primary = 9.66 cfs @ 12.46 hrs, Volume= 1.239 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 61.00' @ 12.46 hrs Surf.Area= 2,392 sf Storage= 1,881 cf

Plug-Flow detention time= 2.0 min calculated for 1.239 af (100% of inflow)
Center-of-Mass det. time= 2.0 min (838.4 - 836.4)

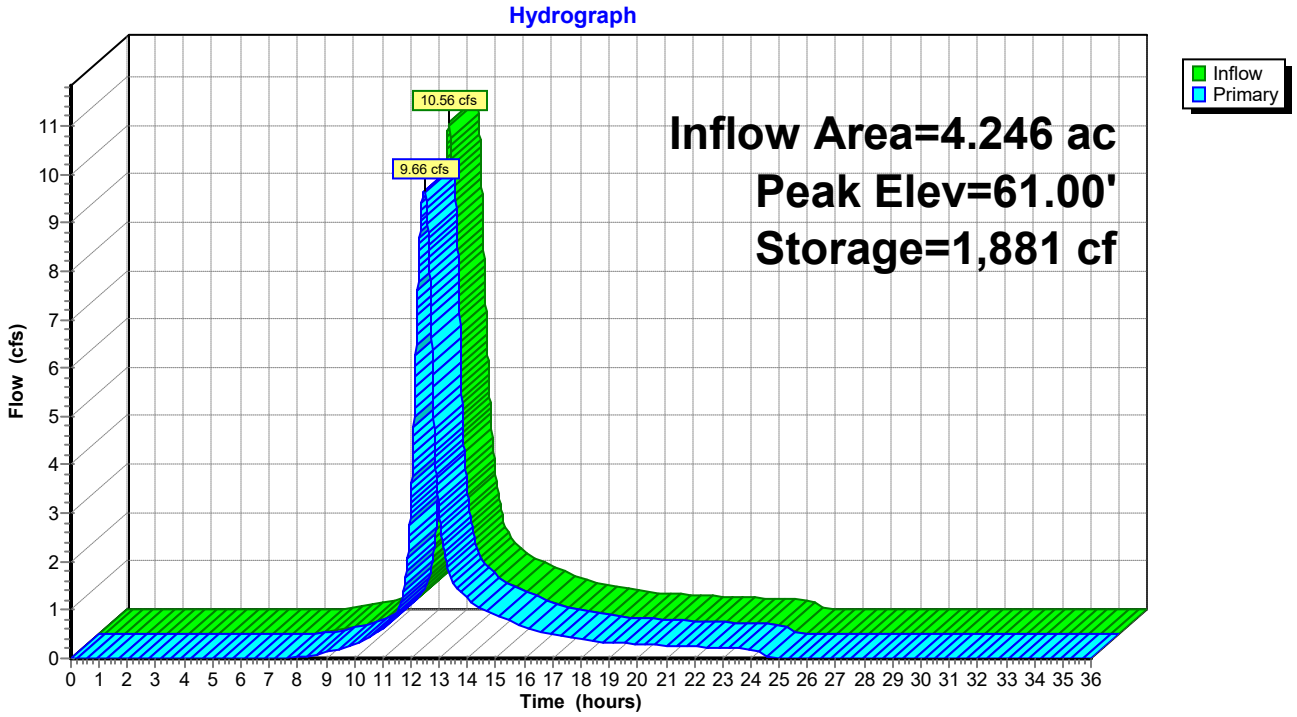
Volume	Invert	Avail.Storage	Storage Description
#1	58.96'	27,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.96	100	0	0
60.00	624	376	376
61.00	2,395	1,510	1,886
62.00	49,511	25,953	27,839

Device	Routing	Invert	Outlet Devices
#1	Primary	58.96'	**18.0" Round Culvert** L= 63.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.96' / 57.71' S= 0.0198 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Primary	62.00'	**50.0' long x 16.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=9.66 cfs @ 12.46 hrs HW=61.00' (Free Discharge)
1=Culvert (Inlet Controls 9.66 cfs @ 5.46 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2B-P: CROSS CULVERT



Summary for Pond FP1: FP-1

Inflow Area = 0.467 ac, 34.31% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 1.65 cfs @ 12.18 hrs, Volume= 0.148 af
Outflow = 1.64 cfs @ 12.19 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.5 min
Primary = 0.11 cfs @ 11.26 hrs, Volume= 0.081 af
Secondary = 1.53 cfs @ 12.19 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.71' @ 12.19 hrs Surf.Area= 49 sf Storage= 160 cf

Plug-Flow detention time= 3.8 min calculated for 0.148 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (820.6 - 816.9)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	22 cf	**3.00'W x 16.40'L x 2.25'H FocalPoint** 111 cf Overall x 20.0% Voids
#2	100.00'	258 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		280 cf	Total Available Storage

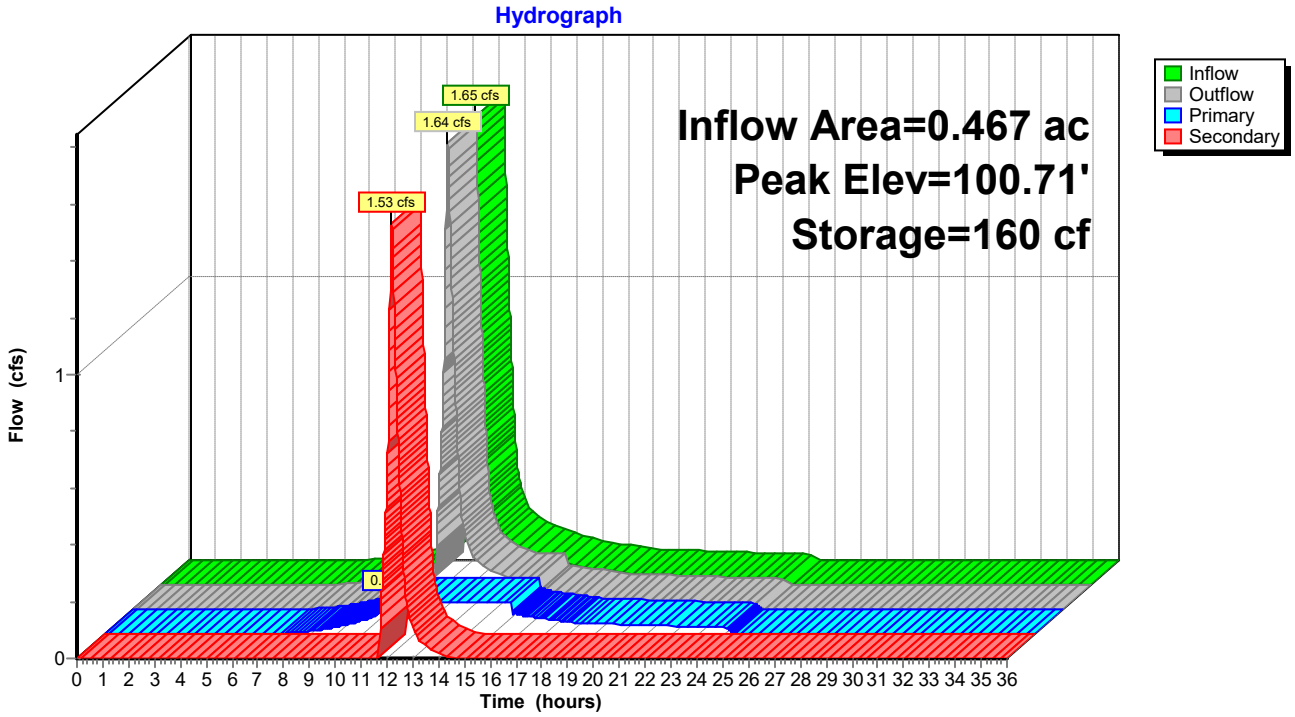
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	49	0	0
100.50	246	74	74
101.00	492	185	258

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.11 cfs @ 11.26 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=1.53 cfs @ 12.19 hrs HW=100.71' (Free Discharge)
2=Orifice/Grate (Weir Controls 1.53 cfs @ 1.51 fps)

Pond FP1: FP-1


Hydrograph
Inflow Area=0.467 ac
Peak Elev=100.71'
Storage=160 cf
1.65 cfs
1.64 cfs
1.53 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Summary for Pond FP10: FP-10

Inflow Area = 0.249 ac, 49.60% Impervious, Inflow Depth = 4.22" for 25-year event
Inflow = 1.14 cfs @ 12.11 hrs, Volume= 0.087 af
Outflow = 1.14 cfs @ 12.11 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.3 min
Primary = 0.07 cfs @ 11.14 hrs, Volume= 0.050 af
Secondary = 1.07 cfs @ 12.11 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.67' @ 12.11 hrs Surf.Area= 30 sf Storage= 89 cf

Plug-Flow detention time= 3.4 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 3.4 min (803.8 - 800.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	14 cf	**3.00'W x 10.10'L x 2.25'H FocalPoint** 68 cf Overall x 20.0% Voids
#2	100.00'	159 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		173 cf	Total Available Storage

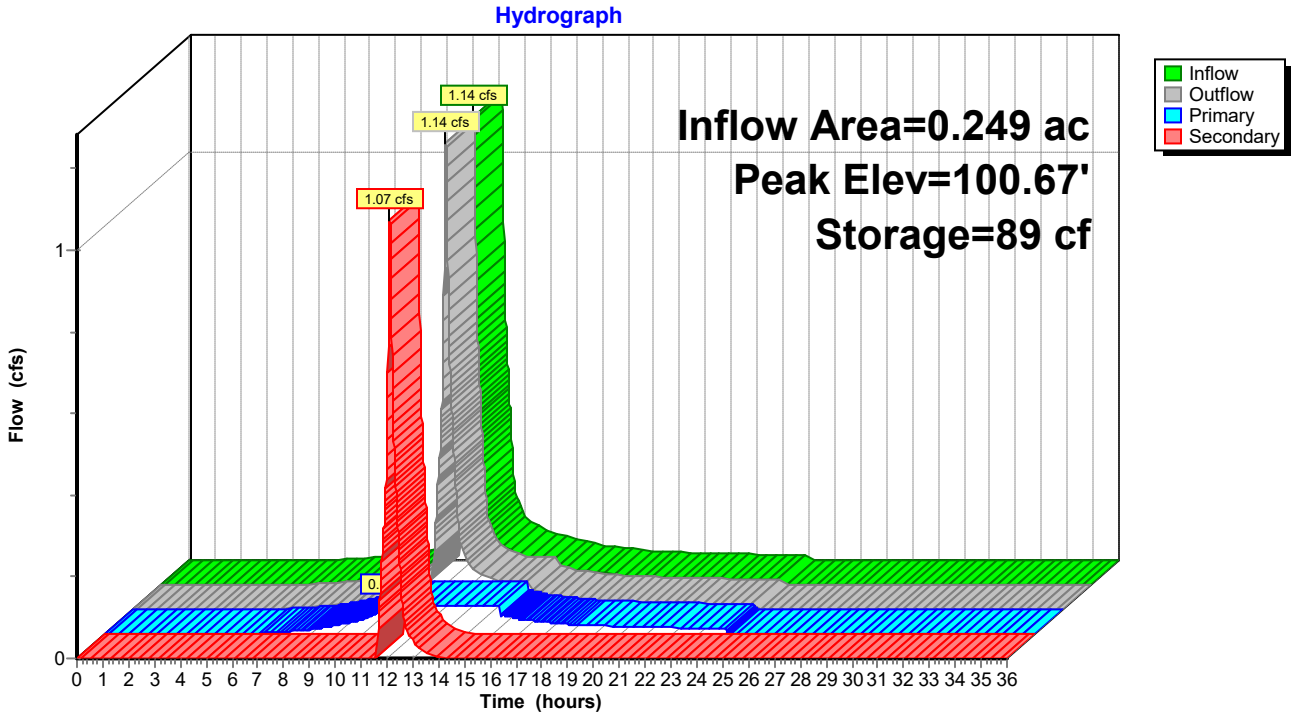
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	30	0	0
100.50	152	46	46
101.00	303	114	159

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.07 cfs @ 11.14 hrs HW=97.89' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=1.07 cfs @ 12.11 hrs HW=100.67' (Free Discharge)
2=Orifice/Grate (Weir Controls 1.07 cfs @ 1.34 fps)

Pond FP10: FP-10



Summary for Pond FP2: FP-2

Inflow Area = 0.308 ac, 38.23% Impervious, Inflow Depth = 3.91" for 25-year event
Inflow = 1.08 cfs @ 12.19 hrs, Volume= 0.100 af
Outflow = 1.08 cfs @ 12.20 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.4 min
Primary = 0.08 cfs @ 11.27 hrs, Volume= 0.056 af
Secondary = 1.00 cfs @ 12.20 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.66' @ 12.20 hrs Surf.Area= 34 sf Storage= 98 cf

Plug-Flow detention time= 3.6 min calculated for 0.100 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (818.8 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	15 cf	**3.00'W x 11.30'L x 2.25'H FocalPoint** 76 cf Overall x 20.0% Voids
#2	100.00'	178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		194 cf	Total Available Storage

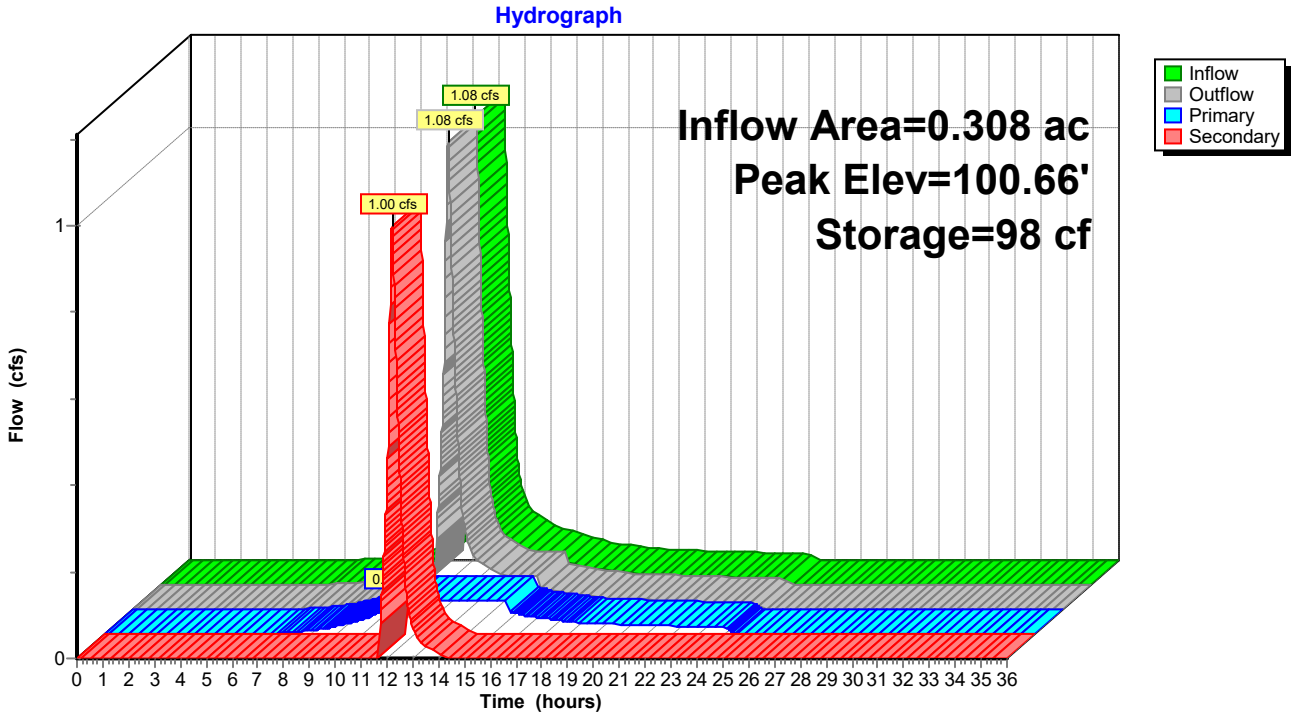
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	34	0	0
100.50	170	51	51
101.00	339	127	178

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.08 cfs @ 11.27 hrs HW=97.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=1.00 cfs @ 12.20 hrs HW=100.66' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 1.00 cfs @ 1.31 fps)

Pond FP2: FP-2


Hydrograph
Inflow Area=0.308 ac
Peak Elev=100.66'
Storage=98 cf
1.08 cfs
1.08 cfs
1.00 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Summary for Pond FP3: FP-3

Inflow Area = 0.486 ac, 28.60% Impervious, Inflow Depth = 3.50" for 25-year event
Inflow = 1.52 cfs @ 12.20 hrs, Volume= 0.142 af
Outflow = 1.52 cfs @ 12.21 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.6 min
Primary = 0.11 cfs @ 11.37 hrs, Volume= 0.078 af
Secondary = 1.41 cfs @ 12.21 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.70' @ 12.21 hrs Surf.Area= 48 sf Storage= 153 cf

Plug-Flow detention time= 3.9 min calculated for 0.142 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (830.0 - 826.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	22 cf	**3.00'W x 16.10'L x 2.25'H FocalPoint** 109 cf Overall x 20.0% Voids
#2	100.00'	254 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		275 cf	Total Available Storage

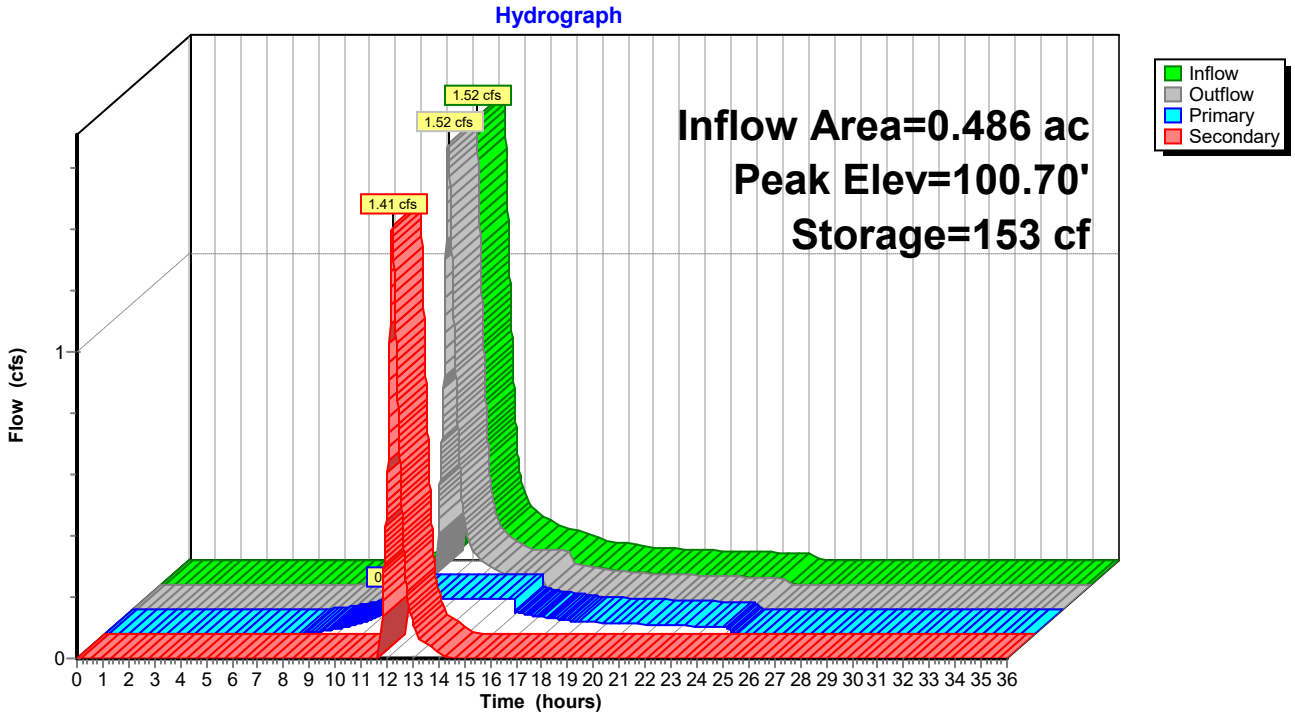
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	48	0	0
100.50	242	73	73
101.00	483	181	254

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.11 cfs @ 11.37 hrs HW=97.89' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=1.40 cfs @ 12.21 hrs HW=100.70' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 1.40 cfs @ 1.47 fps)

Pond FP3: FP-3


Hydrograph
Inflow Area=0.486 ac
Peak Elev=100.70'
Storage=153 cf
1.52 cfs
1.52 cfs
1.41 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Summary for Pond FP4: FP-4

Inflow Area = 1.346 ac, 17.14% Impervious, Inflow Depth = 3.31" for 25-year event
Inflow = 3.51 cfs @ 12.28 hrs, Volume= 0.371 af
Outflow = 3.48 cfs @ 12.30 hrs, Volume= 0.371 af, Atten= 1%, Lag= 1.2 min
Primary = 0.27 cfs @ 11.44 hrs, Volume= 0.197 af
Secondary = 3.21 cfs @ 12.30 hrs, Volume= 0.173 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.85' @ 12.30 hrs Surf.Area= 118 sf Storage= 510 cf

Plug-Flow detention time= 4.4 min calculated for 0.371 af (100% of inflow)
Center-of-Mass det. time= 4.4 min (840.6 - 836.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	53 cf	**5.00'W x 23.60'L x 2.25'H FocalPoint** 266 cf Overall x 20.0% Voids
#2	100.00'	620 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		673 cf	Total Available Storage

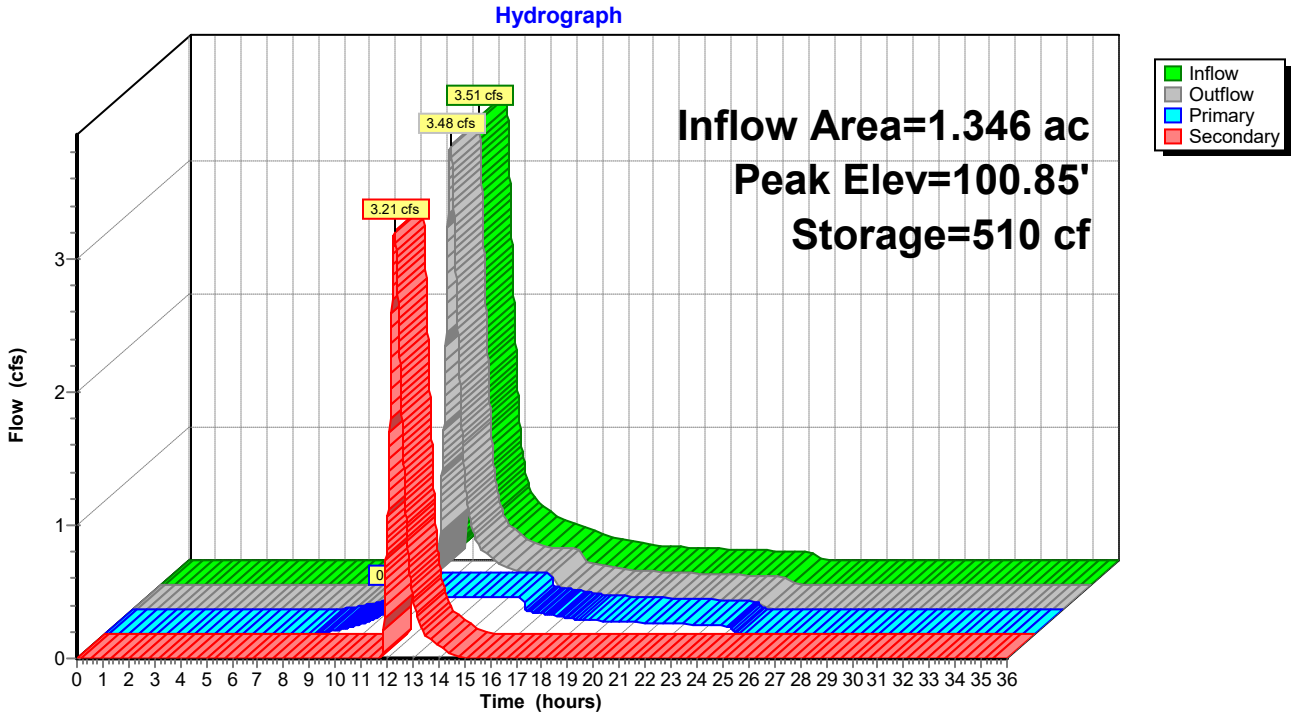
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	118	0	0
100.50	590	177	177
101.00	1,180	443	620

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.27 cfs @ 11.44 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.27 cfs)

Secondary OutFlow Max=3.20 cfs @ 12.30 hrs HW=100.85' (Free Discharge)
2=Orifice/Grate (Weir Controls 3.20 cfs @ 1.94 fps)

Pond FP4: FP-4


Hydrograph
Inflow Area=1.346 ac
Peak Elev=100.85'
Storage=510 cf
3.51 cfs
3.48 cfs
3.21 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)

Summary for Pond FP5: FP-5

Inflow Area = 0.940 ac, 40.33% Impervious, Inflow Depth = 4.11" for 25-year event
Inflow = 3.83 cfs @ 12.13 hrs, Volume= 0.322 af
Outflow = 3.78 cfs @ 12.15 hrs, Volume= 0.322 af, Atten= 1%, Lag= 1.1 min
Primary = 0.24 cfs @ 11.12 hrs, Volume= 0.180 af
Secondary = 3.53 cfs @ 12.15 hrs, Volume= 0.142 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.87' @ 12.15 hrs Surf.Area= 105 sf Storage= 475 cf

Plug-Flow detention time= 3.9 min calculated for 0.322 af (100% of inflow)
Center-of-Mass det. time= 3.9 min (805.7 - 801.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	47 cf	**3.00'W x 35.00'L x 2.25'H FocalPoint** 236 cf Overall x 20.0% Voids
#2	100.00'	551 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		599 cf	Total Available Storage

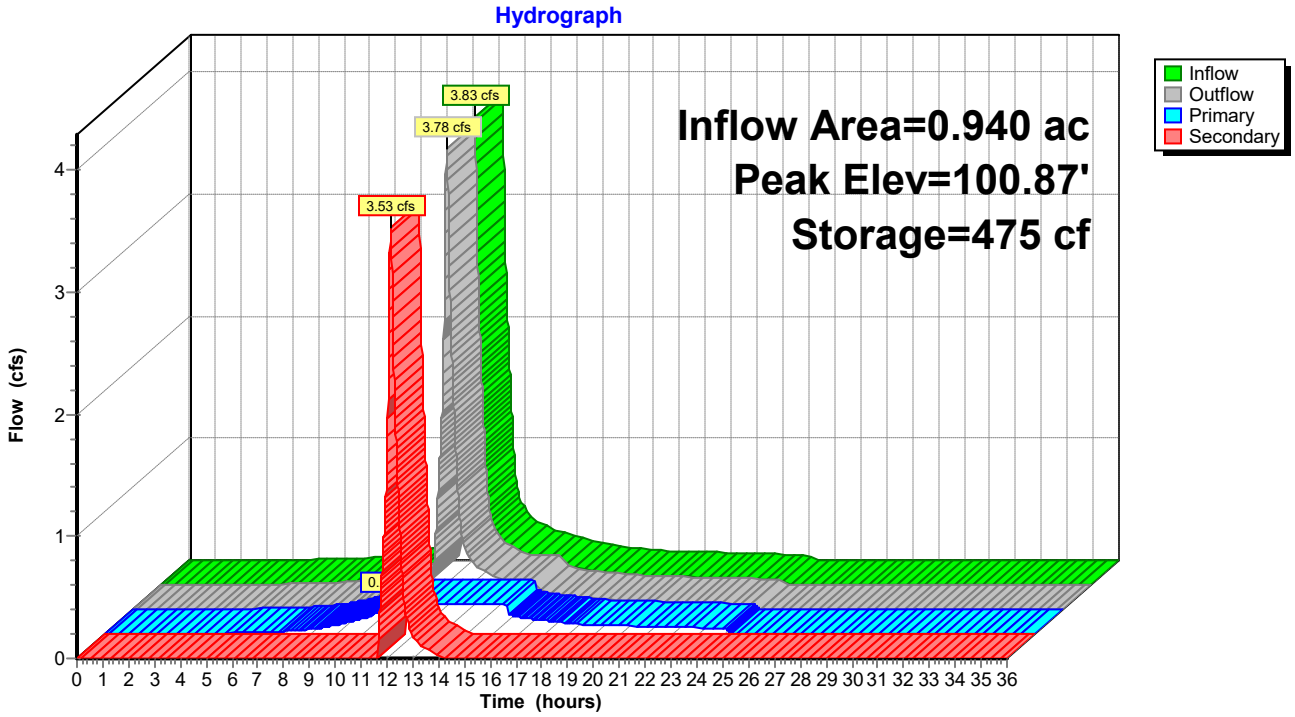
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	105	0	0
100.50	525	158	158
101.00	1,050	394	551

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.24 cfs @ 11.12 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=3.53 cfs @ 12.15 hrs HW=100.87' (Free Discharge)
2=Orifice/Grate (Weir Controls 3.53 cfs @ 2.00 fps)

Pond FP5: FP-5


Hydrograph
Inflow Area=0.940 ac
Peak Elev=100.87'
Storage=475 cf
3.83 cfs
3.78 cfs
3.53 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)

Summary for Pond FP6: FP-6

[93] Warning: Storage range exceeded by 0.47'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 2.098 ac, 22.69% Impervious, Inflow Depth = 3.63" for 25-year event
Inflow = 8.60 cfs @ 12.10 hrs, Volume= 0.635 af
Outflow = 8.85 cfs @ 12.10 hrs, Volume= 0.635 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 11.16 hrs, Volume= 0.336 af
Secondary = 8.40 cfs @ 12.10 hrs, Volume= 0.299 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 101.47' @ 12.10 hrs Surf.Area= 196 sf Storage= 1,115 cf

Plug-Flow detention time= 4.6 min calculated for 0.635 af (100% of inflow)
Center-of-Mass det. time= 4.6 min (820.2 - 815.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	88 cf	**4.00'W x 48.90'L x 2.25'H FocalPoint** 440 cf Overall x 20.0% Voids
#2	100.00'	1,027 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		1,115 cf	Total Available Storage

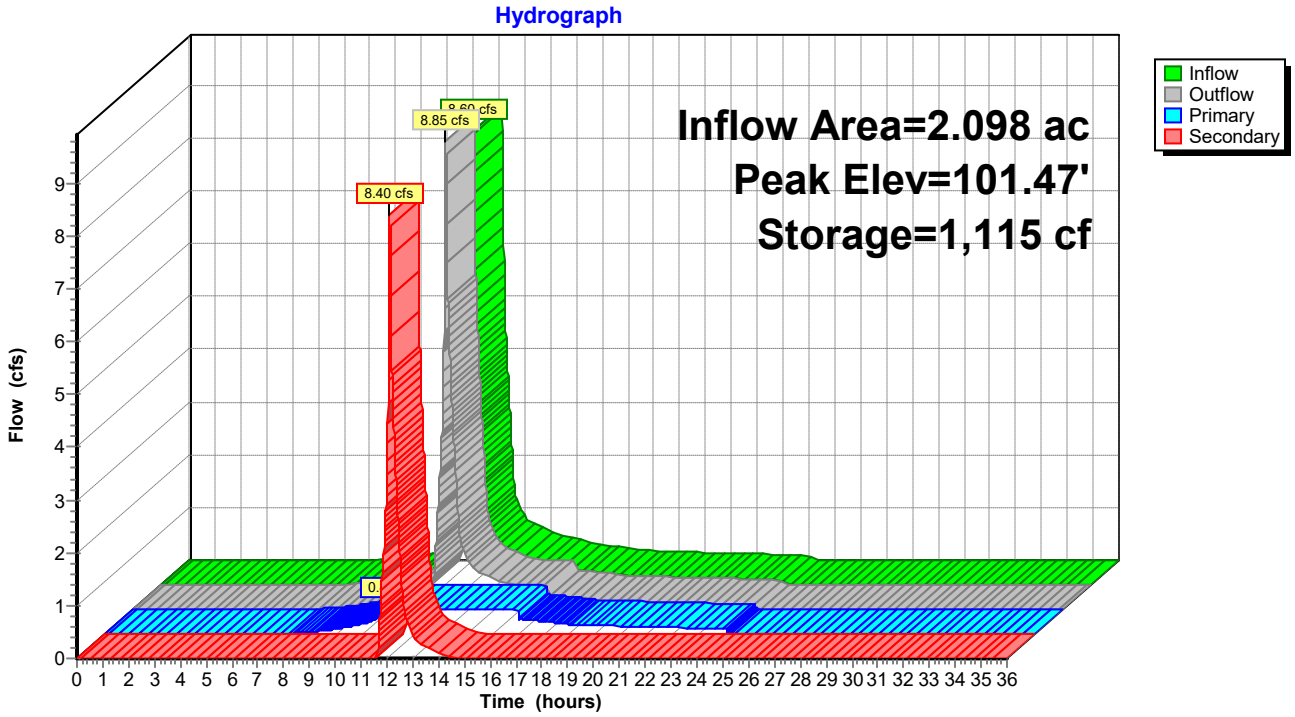
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	196	0	0
100.50	978	294	294
101.00	1,956	734	1,027

Device	Routing	Invert	Outlet Devices
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.45 cfs @ 11.16 hrs HW=97.89' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.45 cfs)

Secondary OutFlow Max=8.40 cfs @ 12.10 hrs HW=101.47' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 8.40 cfs @ 4.75 fps)

Pond FP6: FP-6


Hydrograph
Inflow
Outflow
Primary
Secondary
Inflow Area=2.098 ac
Peak Elev=101.47'
Storage=1,115 cf
8.85 cfs
8.40 cfs
0
Flow (cfs)
Time (hours)

Summary for Pond FP7: FP-7

Inflow Area = 0.292 ac, 64.24% Impervious, Inflow Depth = 4.76" for 25-year event
Inflow = 1.55 cfs @ 12.08 hrs, Volume= 0.116 af
Outflow = 1.54 cfs @ 12.09 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.5 min
Primary = 0.09 cfs @ 10.93 hrs, Volume= 0.067 af
Secondary = 1.45 cfs @ 12.09 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.71' @ 12.09 hrs Surf.Area= 40 sf Storage= 128 cf

Plug-Flow detention time= 3.3 min calculated for 0.116 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (785.4 - 782.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	18 cf	**3.00'W x 13.30'L x 2.25'H FocalPoint** 90 cf Overall x 20.0% Voids
#2	100.00'	210 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		228 cf	Total Available Storage

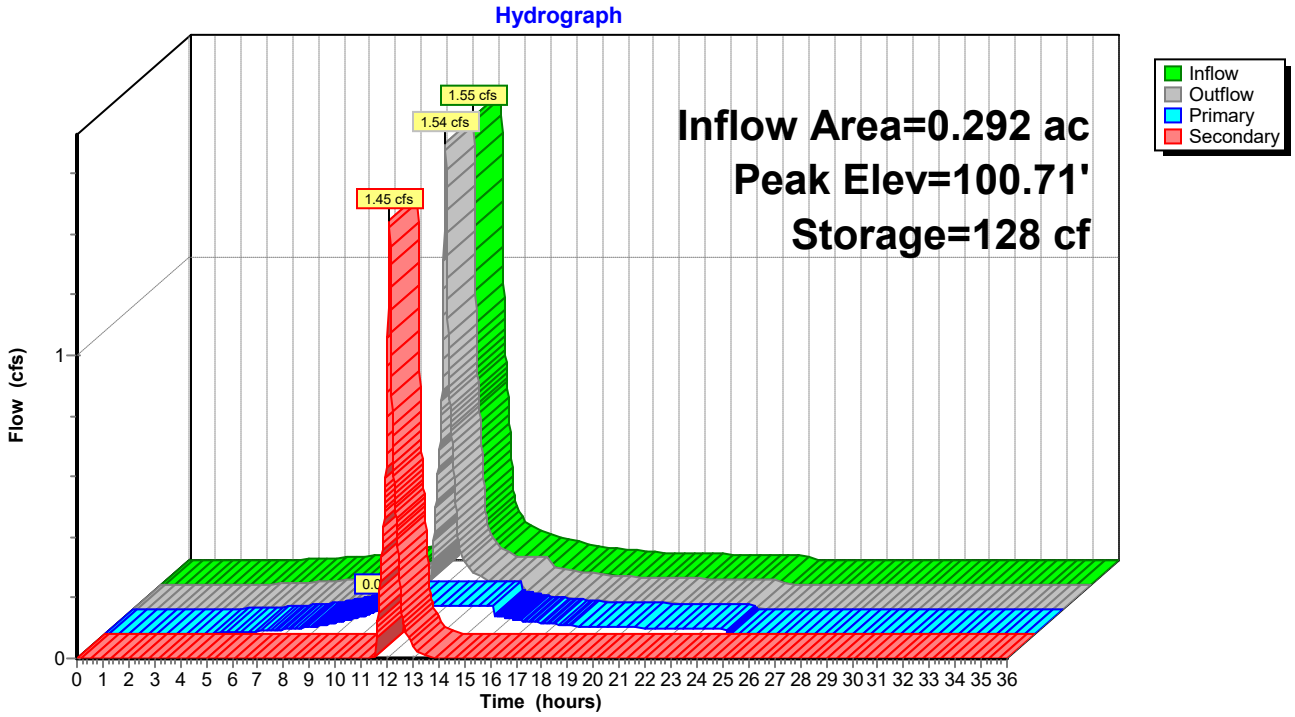
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	40	0	0
100.50	200	60	60
101.00	399	150	210

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.09 cfs @ 10.93 hrs HW=97.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Secondary OutFlow Max=1.44 cfs @ 12.09 hrs HW=100.71' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 1.44 cfs @ 1.49 fps)

Pond FP7: FP-7


Hydrograph
Inflow Area=0.292 ac
Peak Elev=100.71'
Storage=128 cf
1.55 cfs
1.54 cfs
1.45 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)

Summary for Pond FP8: FP-8

Inflow Area = 0.562 ac, 27.78% Impervious, Inflow Depth = 3.50" for 25-year event
Inflow = 2.71 cfs @ 12.02 hrs, Volume= 0.164 af
Outflow = 2.66 cfs @ 12.03 hrs, Volume= 0.164 af, Atten= 2%, Lag= 0.6 min
Primary = 0.13 cfs @ 11.17 hrs, Volume= 0.090 af
Secondary = 2.53 cfs @ 12.03 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.80' @ 12.03 hrs Surf.Area= 56 sf Storage= 217 cf

Plug-Flow detention time= 3.9 min calculated for 0.164 af (100% of inflow)
Center-of-Mass det. time= 3.9 min (817.8 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	25 cf	**3.00'W x 18.50'L x 2.25'H FocalPoint** 125 cf Overall x 20.0% Voids
#2	100.00'	292 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		317 cf	Total Available Storage

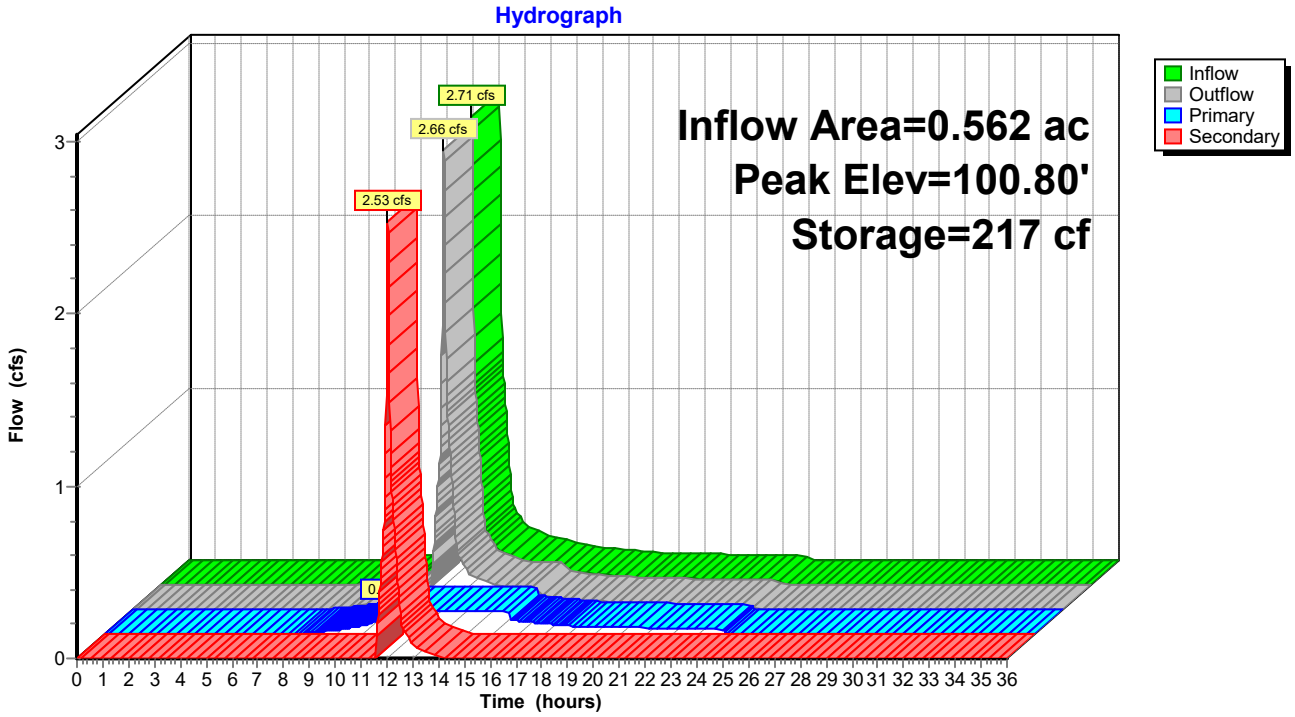
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	56	0	0
100.50	278	84	84
101.00	555	208	292

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.13 cfs @ 11.17 hrs HW=97.89' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Secondary OutFlow Max=2.52 cfs @ 12.03 hrs HW=100.80' (Free Discharge)
2=Orifice/Grate (Weir Controls 2.52 cfs @ 1.79 fps)

Pond FP8: FP-8


Hydrograph
Inflow Area=0.562 ac
Peak Elev=100.80'
Storage=217 cf
2.71 cfs
2.66 cfs
2.53 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)

Summary for Pond FP9: FP-9

Inflow Area = 0.443 ac, 34.98% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 1.47 cfs @ 12.21 hrs, Volume= 0.140 af
Outflow = 1.47 cfs @ 12.22 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.5 min
Primary = 0.11 cfs @ 11.30 hrs, Volume= 0.077 af
Secondary = 1.36 cfs @ 12.22 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.70' @ 12.22 hrs Surf.Area= 47 sf Storage= 148 cf

Plug-Flow detention time= 3.7 min calculated for 0.140 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (822.8 - 819.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	21 cf	**3.00'W x 15.70'L x 2.25'H FocalPoint** 106 cf Overall x 20.0% Voids
#2	100.00'	248 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		269 cf	Total Available Storage

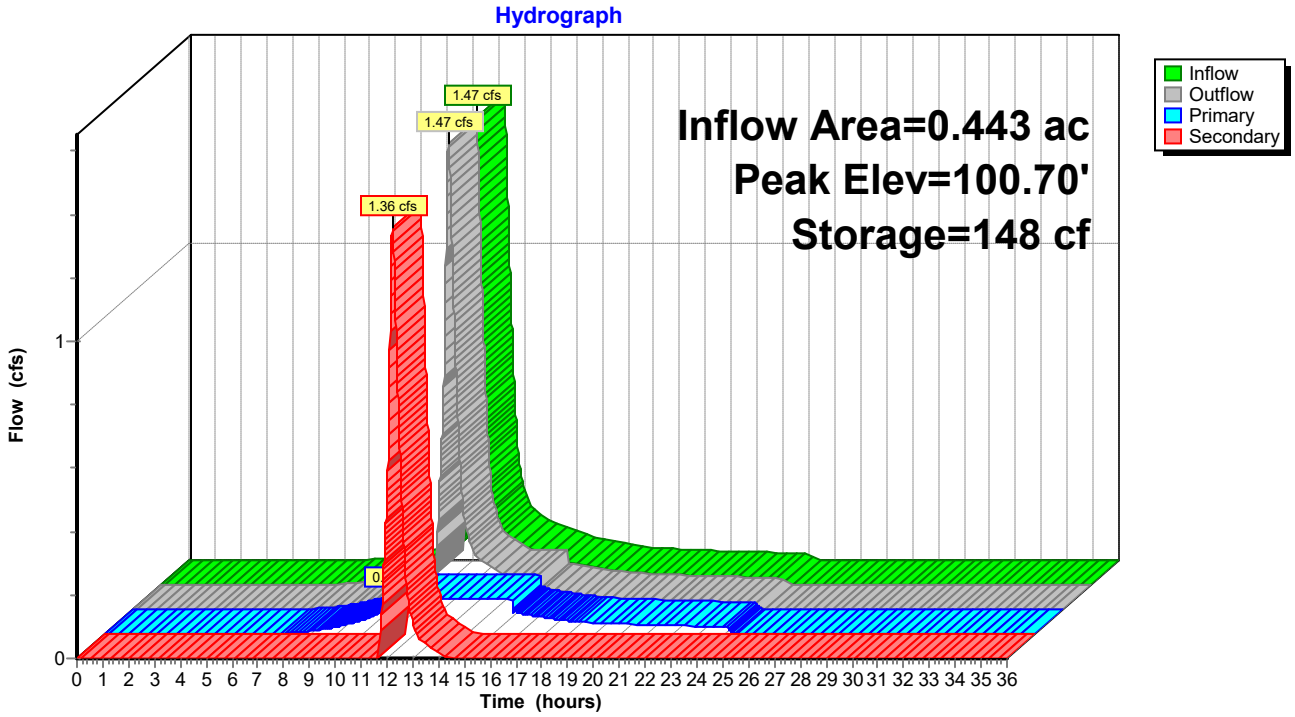
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	47	0	0
100.50	236	71	71
101.00	471	177	248

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.11 cfs @ 11.30 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=1.36 cfs @ 12.22 hrs HW=100.70' (Free Discharge)
2=Orifice/Grate (Weir Controls 1.36 cfs @ 1.45 fps)

Pond FP9: FP-9

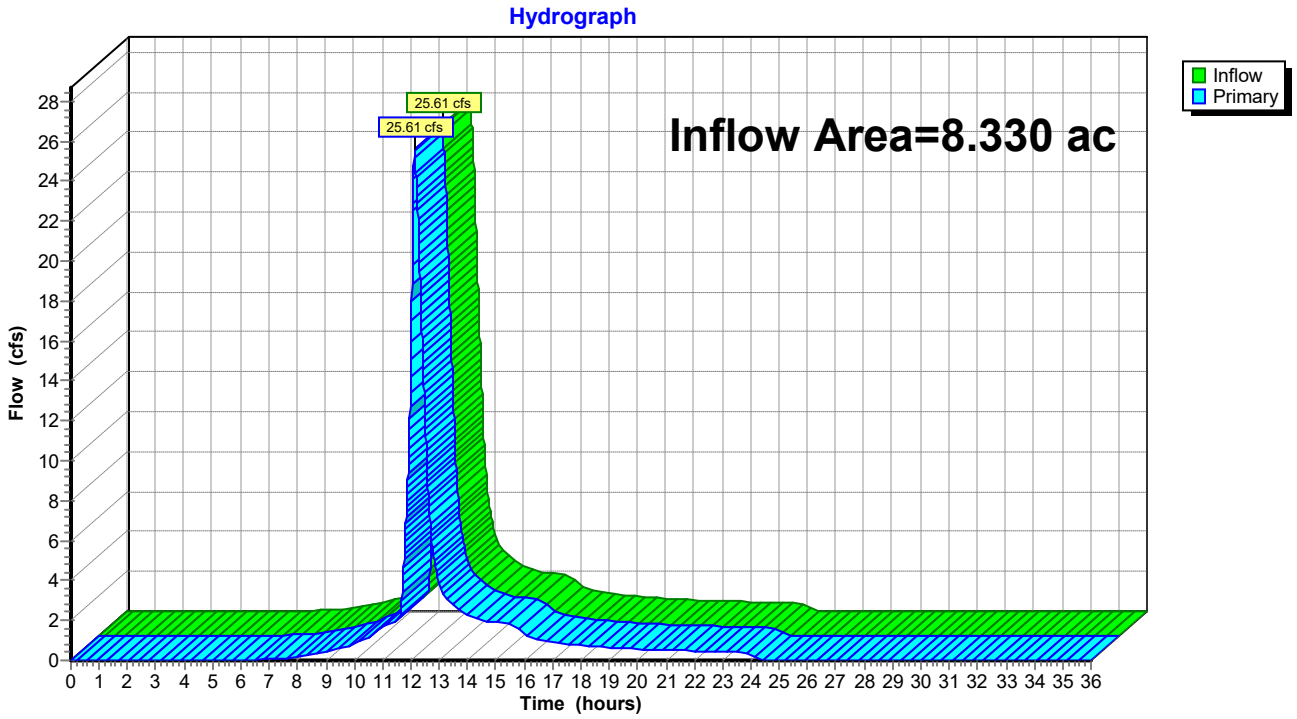

Hydrograph
Inflow Area=0.443 ac
Peak Elev=100.70'
Storage=148 cf
1.47 cfs
1.47 cfs
1.36 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

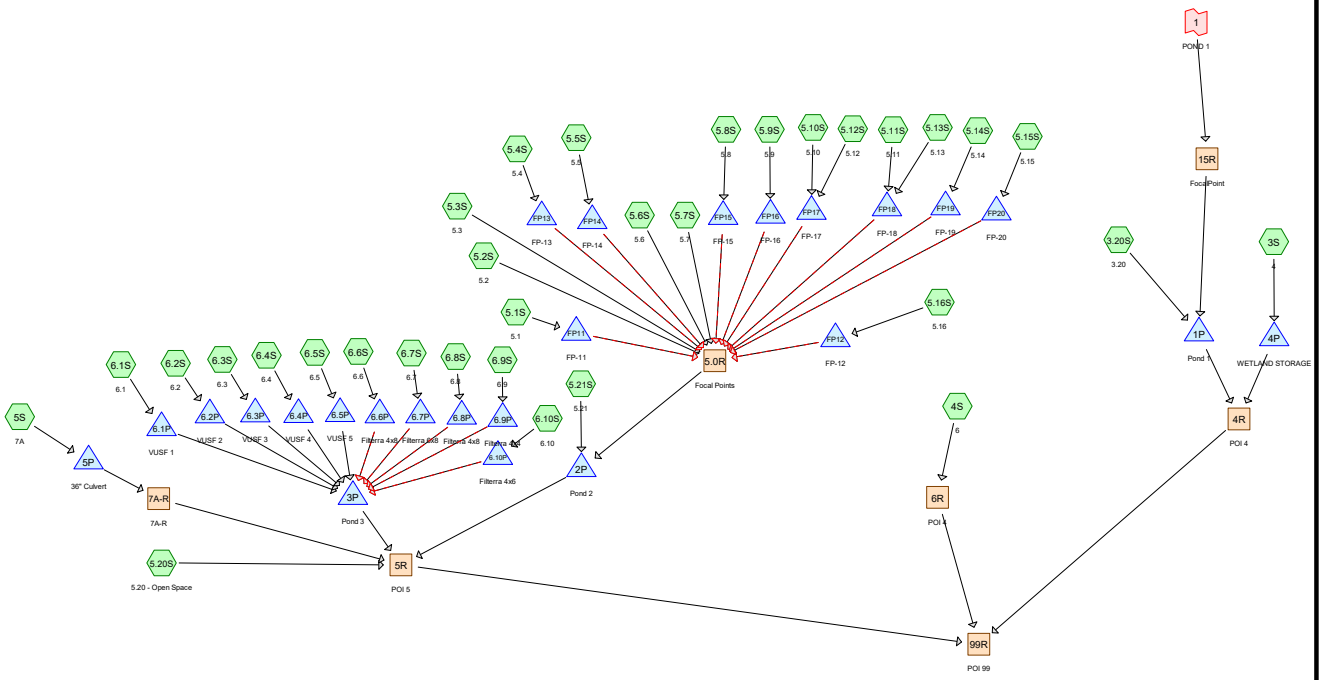
Summary for Link 1: POND 1

Inflow Area = 8.330 ac, 29.18% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af
Primary = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 1: POND 1





Subcat Reach Pond Link

Routing Diagram for Post-development_11-20-17
Prepared by HP Inc., Printed 11/21/2017
HydroCAD® 10.00-20 s/n 00620 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.683	79	50-75% Grass cover, Fair, HSG C (5.20S, 5S)
4.467	84	50-75% Grass cover, Fair, HSG D (3.20S, 3S, 5.20S)
0.331	86	<50% Grass cover, Poor, HSG C (5S)
0.502	89	<50% Grass cover, Poor, HSG D (5.20S, 5S)
8.221	74	>75% Grass cover, Good, HSG C (5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S, 6.1S, 6.2S, 6.3S, 6.4S, 6.7S, 6.8S)
10.340	80	>75% Grass cover, Good, HSG D (3S, 4S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.21S, 6.1S, 6.5S, 6.6S, 6.8S)
0.093	96	Gravel surface, HSG D (4S, 5S)
1.285	98	Paved parking, HSG D (5S, 6.10S, 6.1S, 6.6S, 6.7S, 6.8S, 6.9S)
1.904	98	Paved roads w/curbs & sewers, HSG D (5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.16S, 5.1S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S)
0.162	98	Roofs, HSG D (5S)
0.138	98	Unconnected roofs, HSG C (6.2S, 6.3S, 6.4S)
1.630	98	Unconnected roofs, HSG D (5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 6.5S)
0.046	98	Untreated PRUD roof section (5.20S)
0.466	98	Water Surface, HSG D (3.20S, 5.21S)
6.386	90	Wetland, HSG D (3.20S, 3S, 4S, 5.20S, 5S)
0.607	72	Woods/grass comb., Good, HSG C (3.20S, 5.20S, 5S)
6.873	79	Woods/grass comb., Good, HSG D (3S, 4S, 5.20S, 5S)
0.208	82	Woods/grass comb., Poor, HSG C (5S)
0.115	86	Woods/grass comb., Poor, HSG D (3.20S)
46.457	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
12.188	HSG C	3.20S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S, 6.1S, 6.2S, 6.3S, 6.4S, 6.7S, 6.8S
34.222	HSG D	3.20S, 3S, 4S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.16S, 5.1S, 5.20S, 5.21S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S, 6.10S, 6.1S, 6.5S, 6.6S, 6.7S, 6.8S, 6.9S
0.046	Other	5.20S
46.457		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	2.683	4.467	0.000	7.151	50-75% Grass cover, Fair	3.20S, 3S, 5.20S, 5S
0.000	0.000	0.331	0.502	0.000	0.832	<50% Grass cover, Poor	5.20S, 5S
0.000	0.000	8.221	10.340	0.000	18.561	>75% Grass cover, Good	3S, 4S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.21S, 5.2S, 5.3S, 5.4

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.093	0.000	0.093	Gravel surface	4S, 5S
0.000	0.000	0.000	1.285	0.000	1.285	Paved parking	5S, 6.10S, 6.1S, 6.6S, 6.7S, 6.8S, 6.9S
0.000	0.000	0.000	1.904	0.000	1.904	Paved roads w/curbs & sewers	5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.16S, 5.1S, 5.2S, 5.3S, 5.4S,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.162	0.000	0.162	Roofs	5S
0.000	0.000	0.138	1.630	0.000	1.768	Unconnected roofs	5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.2S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 6.2S, 6.3S, 6.4S, 6.5S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.046	0.046	Untreated PRUD roof section	5.20S
0.000	0.000	0.000	0.466	0.000	0.466	Water Surface	3.20S, 5.21S
0.000	0.000	0.000	6.386	0.000	6.386	Wetland	3.20S, 3S, 4S, 5.20S, 5S
0.000	0.000	0.607	6.873	0.000	7.480	Woods/grass comb., Good	3.20S, 3S, 4S, 5.20S, 5S
0.000	0.000	0.208	0.115	0.000	0.322	Woods/grass comb., Poor	3.20S, 5S
0.000	**0.000**	**12.188**	**34.222**	**0.046**	**46.457**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	32.90	31.00	60.0	0.0317	0.013	15.0	0.0	0.0
2	2P	27.90	27.65	25.0	0.0100	0.013	15.0	0.0	0.0
3	3P	29.25	29.00	30.0	0.0083	0.013	15.0	0.0	0.0
4	5P	31.20	28.50	72.0	0.0375	0.013	36.0	0.0	12.0
5	6.1P	37.00	36.85	5.0	0.0300	0.013	6.0	0.0	0.0
6	6.2P	46.05	46.00	5.0	0.0100	0.013	6.0	0.0	0.0
7	6.3P	46.05	46.00	5.0	0.0100	0.013	6.0	0.0	0.0
8	6.4P	46.05	46.00	5.0	0.0100	0.013	6.0	0.0	0.0
9	6.5P	38.25	37.75	80.0	0.0063	0.013	6.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3.20S: 3.20 Runoff Area=46,743 sf 14.07% Impervious Runoff Depth=1.67"
Flow Length=203' Tc=9.6 min CN=85 Runoff=1.86 cfs 0.150 af

Subcatchment 3S: 4 Runoff Area=305,647 sf 0.00% Impervious Runoff Depth=1.53"
Flow Length=798' Tc=12.4 min CN=83 Runoff=10.17 cfs 0.893 af

Subcatchment 4S: 6 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth=1.46"
Flow Length=692' Tc=15.7 min CN=82 Runoff=3.70 cfs 0.356 af

Subcatchment 5.10S: 5.10 Runoff Area=47,756 sf 18.76% Impervious Runoff Depth=1.14"
Flow Length=304' Tc=9.5 min UI Adjusted CN=77 Runoff=1.26 cfs 0.104 af

Subcatchment 5.11S: 5.11 Runoff Area=9,804 sf 62.46% Impervious Runoff Depth=2.08"
Flow Length=221' Tc=6.5 min CN=90 Runoff=0.53 cfs 0.039 af

Subcatchment 5.12S: 5.12 Runoff Area=64,150 sf 20.19% Impervious Runoff Depth=1.14"
Flow Length=308' Tc=7.3 min UI Adjusted CN=77 Runoff=1.82 cfs 0.140 af

Subcatchment 5.13S: 5.13 Runoff Area=17,829 sf 65.72% Impervious Runoff Depth=2.16"
Flow Length=385' Slope=0.0200 '/' Tc=7.6 min CN=91 Runoff=0.97 cfs 0.074 af

Subcatchment 5.14S: 5.14 Runoff Area=19,221 sf 68.90% Impervious Runoff Depth=2.16"
Flow Length=417' Slope=0.0100 '/' Tc=4.4 min CN=91 Runoff=1.17 cfs 0.080 af

Subcatchment 5.15S: 5.15 Runoff Area=45,228 sf 26.11% Impervious Runoff Depth=1.26"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min UI Adjusted CN=79 Runoff=1.62 cfs 0.109 af

Subcatchment 5.16S: 5.16 Runoff Area=5,127 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=346' Slope=0.0100 '/' Tc=3.6 min CN=98 Runoff=0.39 cfs 0.028 af

Subcatchment 5.1S: 5.1 Runoff Area=41,011 sf 36.14% Impervious Runoff Depth=1.53"
Flow Length=485' Tc=15.3 min CN=83 Runoff=1.26 cfs 0.120 af

Subcatchment 5.20S: 5.20 - Open Space Runoff Area=721,253 sf 0.28% Impervious Runoff Depth=1.46"
Flow Length=633' Tc=17.6 min CN=82 Runoff=19.93 cfs 2.012 af

Subcatchment 5.21S: 5.21 Runoff Area=66,087 sf 20.74% Impervious Runoff Depth=1.60"
Flow Length=225' Tc=10.3 min CN=84 Runoff=2.46 cfs 0.202 af

Subcatchment 5.2S: 5.2 Runoff Area=7,330 sf 75.16% Impervious Runoff Depth=2.26"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=92 Runoff=0.50 cfs 0.032 af

Subcatchment 5.3S: 5.3 Runoff Area=9,426 sf 58.44% Impervious Runoff Depth=1.91"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=0.55 cfs 0.034 af

Subcatchment 5.4S: 5.4 Runoff Area=21,480 sf 45.97% Impervious Runoff Depth=1.67"
Flow Length=419' Tc=14.1 min CN=85 Runoff=0.75 cfs 0.069 af

Subcatchment 5.5S: 5.5 Runoff Area=13,445 sf 62.02% Impervious Runoff Depth=1.99"
Flow Length=346' Tc=8.1 min CN=89 Runoff=0.67 cfs 0.051 af

Subcatchment 5.6S: 5.6 Runoff Area=30,002 sf 30.54% Impervious Runoff Depth=1.39"
Flow Length=455' Tc=16.2 min CN=81 Runoff=0.82 cfs 0.080 af

Subcatchment 5.7S: 5.7 Runoff Area=9,511 sf 53.44% Impervious Runoff Depth=1.83"
Flow Length=251' Tc=7.3 min CN=87 Runoff=0.45 cfs 0.033 af

Subcatchment 5.8S: 5.8 Runoff Area=50,222 sf 30.65% Impervious Runoff Depth=1.39"
Flow Length=442' Tc=14.3 min CN=81 Runoff=1.43 cfs 0.134 af

Subcatchment 5.9S: 5.9 Runoff Area=21,581 sf 38.53% Impervious Runoff Depth=1.53"
Flow Length=370' Tc=6.9 min CN=83 Runoff=0.86 cfs 0.063 af

Subcatchment 5S: 7A Runoff Area=220,025 sf 3.86% Impervious Runoff Depth=1.33"
Flow Length=820' Tc=41.8 min CN=80 Runoff=3.73 cfs 0.558 af

Subcatchment 6.10S: 6.10 Runoff Area=5,542 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=501' Slope=0.0100 '/' Tc=4.9 min CN=98 Runoff=0.40 cfs 0.030 af

Subcatchment 6.1S: 6.1 Runoff Area=21,837 sf 61.96% Impervious Runoff Depth=1.99"
Flow Length=129' Tc=11.2 min CN=89 Runoff=0.98 cfs 0.083 af

Subcatchment 6.2S: 6.2 Runoff Area=8,088 sf 24.80% Impervious Runoff Depth=1.14"
Flow Length=101' Tc=7.7 min UI Adjusted CN=77 Runoff=0.23 cfs 0.018 af

Subcatchment 6.3S: 6.3 Runoff Area=9,276 sf 21.63% Impervious Runoff Depth=1.14"
Flow Length=79' Tc=9.5 min UI Adjusted CN=77 Runoff=0.24 cfs 0.020 af

Subcatchment 6.4S: 6.4 Runoff Area=12,452 sf 16.11% Impervious Runoff Depth=1.08"
Flow Length=101' Tc=11.2 min UI Adjusted CN=76 Runoff=0.29 cfs 0.026 af

Subcatchment 6.5S: 6.5 Runoff Area=5,779 sf 34.71% Impervious Runoff Depth=1.75"
Flow Length=79' Tc=11.0 min CN=86 Runoff=0.23 cfs 0.019 af

Subcatchment 6.6S: 6.6 Runoff Area=9,616 sf 90.90% Impervious Runoff Depth=2.65"
Tc=5.0 min CN=96 Runoff=0.66 cfs 0.049 af

Subcatchment 6.7S: 6.7 Runoff Area=30,420 sf 51.53% Impervious Runoff Depth=1.75"
Flow Length=326' Tc=7.7 min CN=86 Runoff=1.35 cfs 0.102 af

Subcatchment 6.8S: 6.8 Runoff Area=16,857 sf 46.90% Impervious Runoff Depth=1.83"
Flow Length=152' Tc=7.4 min CN=87 Runoff=0.79 cfs 0.059 af

Subcatchment 6.9S: 6.9 Runoff Area=3,142 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=280' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=0.24 cfs 0.017 af

Reach 4R: POI 4 Inflow=10.95 cfs 1.922 af
Outflow=10.95 cfs 1.922 af

Reach 5.0R: Focal Points Inflow=12.02 cfs 1.189 af
Outflow=12.02 cfs 1.189 af

Reach 5R: POI 5 Inflow=22.49 cfs 4.175 af
Outflow=22.49 cfs 4.175 af

Reach 6R: POI 4 Inflow=3.70 cfs 0.356 af
Outflow=3.70 cfs 0.356 af

Reach 7A-R: 7A-R Inflow=3.61 cfs 0.558 af
Outflow=3.61 cfs 0.558 af

Reach 15R: FocalPoint Inflow=9.13 cfs 0.970 af
Outflow=9.13 cfs 0.970 af

Reach 99R: POI 99 Inflow=36.25 cfs 6.453 af
Outflow=36.25 cfs 6.453 af

Pond 1P: Pond 1 Peak Elev=36.27' Storage=23,663 cf Inflow=10.97 cfs 1.119 af
Outflow=1.50 cfs 1.029 af

Pond 2P: Pond 2 Peak Elev=30.53' Storage=32,874 cf Inflow=14.48 cfs 1.392 af
Outflow=1.39 cfs 1.238 af

Pond 3P: Pond 3 Peak Elev=31.42' Storage=9,089 cf Inflow=3.59 cfs 0.417 af
Outflow=0.49 cfs 0.367 af

Pond 4P: WETLAND STORAGE Peak Elev=22.11' Storage=235 cf Inflow=10.17 cfs 0.893 af
Outflow=10.16 cfs 0.893 af

Pond 5P: 36" Culvert Peak Elev=32.82' Storage=907 cf Inflow=3.73 cfs 0.558 af
36.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=3.61 cfs 0.558 af

Pond 6.10P: Filterra 4x6 Peak Elev=103.06' Storage=31 cf Inflow=0.40 cfs 0.030 af
Primary=0.16 cfs 0.028 af Secondary=0.25 cfs 0.003 af Outflow=0.40 cfs 0.030 af

Pond 6.1P: VUSF 1 Peak Elev=40.67' Storage=1,484 cf Inflow=0.98 cfs 0.083 af
Outflow=0.20 cfs 0.079 af

Pond 6.2P: VUSF 2 Peak Elev=50.15' Storage=268 cf Inflow=0.23 cfs 0.018 af
Outflow=0.05 cfs 0.017 af

Pond 6.3P: VUSF 3 Peak Elev=50.17' Storage=298 cf Inflow=0.24 cfs 0.020 af
Outflow=0.05 cfs 0.020 af

Pond 6.4P: VUSF 4 Peak Elev=50.21' Storage=407 cf Inflow=0.29 cfs 0.026 af
Outflow=0.05 cfs 0.026 af

Pond 6.5P: VUSF 5 Peak Elev=41.84' Storage=335 cf Inflow=0.23 cfs 0.019 af
Outflow=0.05 cfs 0.018 af

Pond 6.6P: Filterra 4x8 Peak Elev=103.09' Storage=43 cf Inflow=0.66 cfs 0.049 af
Primary=0.21 cfs 0.042 af Secondary=0.45 cfs 0.006 af Outflow=0.66 cfs 0.049 af

Pond 6.7P: Filterra 6x8 Peak Elev=103.17' Storage=68 cf Inflow=1.35 cfs 0.102 af
Primary=0.32 cfs 0.079 af Secondary=1.04 cfs 0.023 af Outflow=1.35 cfs 0.102 af

Pond 6.8P: Filterra 4x8 Peak Elev=103.11' Storage=44 cf Inflow=0.79 cfs 0.059 af
Primary=0.21 cfs 0.047 af Secondary=0.58 cfs 0.011 af Outflow=0.79 cfs 0.059 af

Pond 6.9P: Filterra 4x4 Peak Elev=103.05' Storage=21 cf Inflow=0.24 cfs 0.017 af
Primary=0.10 cfs 0.016 af Secondary=0.18 cfs 0.001 af Outflow=0.28 cfs 0.017 af

Pond FP11: FP-11 Peak Elev=100.66' Storage=292 cf Inflow=1.26 cfs 0.120 af
Primary=0.23 cfs 0.088 af Secondary=1.01 cfs 0.032 af Outflow=1.25 cfs 0.120 af

Pond FP12: FP-12 Peak Elev=100.58' Storage=48 cf Inflow=0.39 cfs 0.028 af
Primary=0.05 cfs 0.021 af Secondary=0.34 cfs 0.007 af Outflow=0.38 cfs 0.028 af

Pond FP13: FP-13 Peak Elev=100.62' Storage=151 cf Inflow=0.75 cfs 0.069 af
Primary=0.13 cfs 0.050 af Secondary=0.61 cfs 0.019 af Outflow=0.75 cfs 0.069 af

Pond FP14: FP-14 Peak Elev=100.61' Storage=106 cf Inflow=0.67 cfs 0.051 af
Primary=0.10 cfs 0.037 af Secondary=0.57 cfs 0.014 af Outflow=0.66 cfs 0.051 af

Pond FP15: FP-15 Peak Elev=100.68' Storage=349 cf Inflow=1.43 cfs 0.134 af
Primary=0.27 cfs 0.099 af Secondary=1.14 cfs 0.034 af Outflow=1.41 cfs 0.134 af

Pond FP16: FP-16 Peak Elev=100.63' Storage=146 cf Inflow=0.86 cfs 0.063 af
Primary=0.13 cfs 0.046 af Secondary=0.72 cfs 0.017 af Outflow=0.85 cfs 0.063 af

Pond FP17: FP-17 Peak Elev=100.77' Storage=851 cf Inflow=3.04 cfs 0.244 af
Primary=0.54 cfs 0.187 af Secondary=2.19 cfs 0.057 af Outflow=2.72 cfs 0.244 af

Pond FP18: FP-18 Peak Elev=100.69' Storage=267 cf Inflow=1.50 cfs 0.113 af
Primary=0.20 cfs 0.081 af Secondary=1.27 cfs 0.032 af Outflow=1.47 cfs 0.113 af

Pond FP19: FP-19 Peak Elev=100.66' Storage=180 cf Inflow=1.17 cfs 0.080 af
Primary=0.14 cfs 0.057 af Secondary=1.01 cfs 0.022 af Outflow=1.15 cfs 0.080 af

Pond FP20: FP-20 Peak Elev=100.70' Storage=313 cf Inflow=1.62 cfs 0.109 af
Primary=0.23 cfs 0.082 af Secondary=1.33 cfs 0.027 af Outflow=1.56 cfs 0.109 af

Link 2k-year Primary Outflow Imported from Post-Dev_WestbrookSt_11-21-17~Link 1.hce Inflow=9.13 cfs 0.970 af
Area= 8.330 ac 29.18% Imperv. Primary=9.13 cfs 0.970 af

Total Runoff Area = 46.457 ac Runoff Volume = 5.784 af Average Runoff Depth = 1.49"
87.88% Pervious = 40.826 ac 12.12% Impervious = 5.631 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3.20S: 3.20 Runoff Area=46,743 sf 14.07% Impervious Runoff Depth=3.00"
Flow Length=203' Tc=9.6 min CN=85 Runoff=3.32 cfs 0.268 af

Subcatchment 3S: 4 Runoff Area=305,647 sf 0.00% Impervious Runoff Depth=2.81"
Flow Length=798' Tc=12.4 min CN=83 Runoff=18.80 cfs 1.646 af

Subcatchment 4S: 6 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth=2.72"
Flow Length=692' Tc=15.7 min CN=82 Runoff=6.96 cfs 0.666 af

Subcatchment 5.10S: 5.10 Runoff Area=47,756 sf 18.76% Impervious Runoff Depth=2.29"
Flow Length=304' Tc=9.5 min UI Adjusted CN=77 Runoff=2.61 cfs 0.209 af

Subcatchment 5.11S: 5.11 Runoff Area=9,804 sf 62.46% Impervious Runoff Depth=3.49"
Flow Length=221' Tc=6.5 min CN=90 Runoff=0.88 cfs 0.065 af

Subcatchment 5.12S: 5.12 Runoff Area=64,150 sf 20.19% Impervious Runoff Depth=2.29"
Flow Length=308' Tc=7.3 min UI Adjusted CN=77 Runoff=3.77 cfs 0.281 af

Subcatchment 5.13S: 5.13 Runoff Area=17,829 sf 65.72% Impervious Runoff Depth=3.59"
Flow Length=385' Slope=0.0200 '/' Tc=7.6 min CN=91 Runoff=1.57 cfs 0.123 af

Subcatchment 5.14S: 5.14 Runoff Area=19,221 sf 68.90% Impervious Runoff Depth=3.59"
Flow Length=417' Slope=0.0100 '/' Tc=4.4 min CN=91 Runoff=1.90 cfs 0.132 af

Subcatchment 5.15S: 5.15 Runoff Area=45,228 sf 26.11% Impervious Runoff Depth=2.46"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min UI Adjusted CN=79 Runoff=3.22 cfs 0.213 af

Subcatchment 5.16S: 5.16 Runoff Area=5,127 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=346' Slope=0.0100 '/' Tc=3.6 min CN=98 Runoff=0.58 cfs 0.043 af

Subcatchment 5.1S: 5.1 Runoff Area=41,011 sf 36.14% Impervious Runoff Depth=2.81"
Flow Length=485' Tc=15.3 min CN=83 Runoff=2.33 cfs 0.221 af

Subcatchment 5.20S: 5.20 - Open Space Runoff Area=721,253 sf 0.28% Impervious Runoff Depth=2.72"
Flow Length=633' Tc=17.6 min CN=82 Runoff=37.54 cfs 3.759 af

Subcatchment 5.21S: 5.21 Runoff Area=66,087 sf 20.74% Impervious Runoff Depth=2.91"
Flow Length=225' Tc=10.3 min CN=84 Runoff=4.46 cfs 0.367 af

Subcatchment 5.2S: 5.2 Runoff Area=7,330 sf 75.16% Impervious Runoff Depth=3.70"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=92 Runoff=0.80 cfs 0.052 af

Subcatchment 5.3S: 5.3 Runoff Area=9,426 sf 58.44% Impervious Runoff Depth=3.29"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=0.94 cfs 0.059 af

Subcatchment 5.4S: 5.4 Runoff Area=21,480 sf 45.97% Impervious Runoff Depth=3.00"
Flow Length=419' Tc=14.1 min CN=85 Runoff=1.34 cfs 0.123 af

Subcatchment 5.5S: 5.5 Runoff Area=13,445 sf 62.02% Impervious Runoff Depth=3.39"
Flow Length=346' Tc=8.1 min CN=89 Runoff=1.11 cfs 0.087 af

Subcatchment 5.6S: 5.6 Runoff Area=30,002 sf 30.54% Impervious Runoff Depth=2.63"
Flow Length=455' Tc=16.2 min CN=81 Runoff=1.57 cfs 0.151 af

Subcatchment 5.7S: 5.7 Runoff Area=9,511 sf 53.44% Impervious Runoff Depth=3.19"
Flow Length=251' Tc=7.3 min CN=87 Runoff=0.77 cfs 0.058 af

Subcatchment 5.8S: 5.8 Runoff Area=50,222 sf 30.65% Impervious Runoff Depth=2.63"
Flow Length=442' Tc=14.3 min CN=81 Runoff=2.75 cfs 0.253 af

Subcatchment 5.9S: 5.9 Runoff Area=21,581 sf 38.53% Impervious Runoff Depth=2.81"
Flow Length=370' Tc=6.9 min CN=83 Runoff=1.58 cfs 0.116 af

Subcatchment 5S: 7A Runoff Area=220,025 sf 3.86% Impervious Runoff Depth=2.55"
Flow Length=820' Tc=41.8 min CN=80 Runoff=7.28 cfs 1.072 af

Subcatchment 6.10S: 6.10 Runoff Area=5,542 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=501' Slope=0.0100 '/' Tc=4.9 min CN=98 Runoff=0.59 cfs 0.046 af

Subcatchment 6.1S: 6.1 Runoff Area=21,837 sf 61.96% Impervious Runoff Depth=3.39"
Flow Length=129' Tc=11.2 min CN=89 Runoff=1.64 cfs 0.142 af

Subcatchment 6.2S: 6.2 Runoff Area=8,088 sf 24.80% Impervious Runoff Depth=2.29"
Flow Length=101' Tc=7.7 min UI Adjusted CN=77 Runoff=0.47 cfs 0.035 af

Subcatchment 6.3S: 6.3 Runoff Area=9,276 sf 21.63% Impervious Runoff Depth=2.29"
Flow Length=79' Tc=9.5 min UI Adjusted CN=77 Runoff=0.51 cfs 0.041 af

Subcatchment 6.4S: 6.4 Runoff Area=12,452 sf 16.11% Impervious Runoff Depth=2.21"
Flow Length=101' Tc=11.2 min UI Adjusted CN=76 Runoff=0.62 cfs 0.053 af

Subcatchment 6.5S: 6.5 Runoff Area=5,779 sf 34.71% Impervious Runoff Depth=3.10"
Flow Length=79' Tc=11.0 min CN=86 Runoff=0.40 cfs 0.034 af

Subcatchment 6.6S: 6.6 Runoff Area=9,616 sf 90.90% Impervious Runoff Depth=4.14"
Tc=5.0 min CN=96 Runoff=1.01 cfs 0.076 af

Subcatchment 6.7S: 6.7 Runoff Area=30,420 sf 51.53% Impervious Runoff Depth=3.10"
Flow Length=326' Tc=7.7 min CN=86 Runoff=2.37 cfs 0.180 af

Subcatchment 6.8S: 6.8 Runoff Area=16,857 sf 46.90% Impervious Runoff Depth=3.19"
Flow Length=152' Tc=7.4 min CN=87 Runoff=1.36 cfs 0.103 af

Subcatchment 6.9S: 6.9 Runoff Area=3,142 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=280' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=0.36 cfs 0.026 af

Reach 4R: POI 4 Inflow=20.48 cfs 3.646 af
Outflow=20.48 cfs 3.646 af

Reach 5.0R: Focal Points Inflow=23.21 cfs 2.188 af
Outflow=23.21 cfs 2.188 af

Reach 5R: POI 5 Inflow=42.79 cfs 7.861 af
Outflow=42.79 cfs 7.861 af

Reach 6R: POI 4 Inflow=6.96 cfs 0.666 af
Outflow=6.96 cfs 0.666 af

Reach 7A-R: 7A-R Inflow=6.97 cfs 1.072 af
Outflow=6.97 cfs 1.072 af

Reach 15R: FocalPoint Inflow=18.36 cfs 1.828 af
Outflow=18.36 cfs 1.828 af

Reach 99R: POI 99 Inflow=69.25 cfs 12.173 af
Outflow=69.25 cfs 12.173 af

Pond 1P: Pond 1 Peak Elev=37.93' Storage=40,189 cf Inflow=21.63 cfs 2.097 af
Outflow=4.94 cfs 2.000 af

Pond 2P: Pond 2 Peak Elev=32.48' Storage=64,907 cf Inflow=27.62 cfs 2.555 af
Outflow=2.04 cfs 2.362 af

Pond 3P: Pond 3 Peak Elev=32.10' Storage=12,506 cf Inflow=5.88 cfs 0.731 af
Outflow=0.81 cfs 0.668 af

Pond 4P: WETLAND STORAGE Peak Elev=22.17' Storage=381 cf Inflow=18.80 cfs 1.646 af
Outflow=18.78 cfs 1.646 af

Pond 5P: 36" Culvert Peak Elev=33.15' Storage=2,102 cf Inflow=7.28 cfs 1.072 af
36.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=6.97 cfs 1.072 af

Pond 6.10P: Filterra 4x6 Peak Elev=103.09' Storage=32 cf Inflow=0.59 cfs 0.046 af
Primary=0.16 cfs 0.039 af Secondary=0.44 cfs 0.007 af Outflow=0.59 cfs 0.046 af

Pond 6.1P: VUSF 1 Peak Elev=41.52' Storage=2,662 cf Inflow=1.64 cfs 0.142 af
Outflow=0.32 cfs 0.137 af

Pond 6.2P: VUSF 2 Peak Elev=50.67' Storage=668 cf Inflow=0.47 cfs 0.035 af
Outflow=0.05 cfs 0.035 af

Pond 6.3P: VUSF 3 Peak Elev=50.69' Storage=765 cf Inflow=0.51 cfs 0.041 af
Outflow=0.05 cfs 0.041 af

Pond 6.4P: VUSF 4 Peak Elev=50.72' Storage=1,088 cf Inflow=0.62 cfs 0.053 af
Outflow=0.05 cfs 0.053 af

Pond 6.5P: VUSF 5 Peak Elev=42.18' Storage=662 cf Inflow=0.40 cfs 0.034 af
Outflow=0.05 cfs 0.033 af

Pond 6.6P: Filterra 4x8 Peak Elev=103.14' Storage=44 cf Inflow=1.01 cfs 0.076 af
Primary=0.21 cfs 0.060 af Secondary=0.80 cfs 0.016 af Outflow=1.01 cfs 0.076 af

Pond 6.7P: Filterra 6x8 Peak Elev=103.26' Storage=72 cf Inflow=2.37 cfs 0.180 af
Primary=0.31 cfs 0.122 af Secondary=2.05 cfs 0.058 af Outflow=2.36 cfs 0.180 af

Pond 6.8P: Filterra 4x8 Peak Elev=103.18' Storage=46 cf Inflow=1.36 cfs 0.103 af
Primary=0.21 cfs 0.073 af Secondary=1.15 cfs 0.030 af Outflow=1.36 cfs 0.103 af

Pond 6.9P: Filterra 4x4 Peak Elev=103.06' Storage=21 cf Inflow=0.36 cfs 0.026 af
Primary=0.10 cfs 0.023 af Secondary=0.26 cfs 0.003 af Outflow=0.36 cfs 0.026 af

Pond FP11: FP-11 Peak Elev=100.76' Storage=365 cf Inflow=2.33 cfs 0.221 af
Primary=0.23 cfs 0.135 af Secondary=2.08 cfs 0.086 af Outflow=2.31 cfs 0.221 af

Pond FP12: FP-12 Peak Elev=100.61' Storage=52 cf Inflow=0.58 cfs 0.043 af
Primary=0.05 cfs 0.029 af Secondary=0.53 cfs 0.014 af Outflow=0.57 cfs 0.043 af

Pond FP13: FP-13 Peak Elev=100.68' Storage=175 cf Inflow=1.34 cfs 0.123 af
Primary=0.13 cfs 0.076 af Secondary=1.20 cfs 0.047 af Outflow=1.33 cfs 0.123 af

Pond FP14: FP-14 Peak Elev=100.66' Storage=120 cf Inflow=1.11 cfs 0.087 af
Primary=0.10 cfs 0.055 af Secondary=1.01 cfs 0.032 af Outflow=1.11 cfs 0.087 af

Pond FP15: FP-15 Peak Elev=100.79' Storage=449 cf Inflow=2.75 cfs 0.253 af
Primary=0.27 cfs 0.155 af Secondary=2.44 cfs 0.098 af Outflow=2.71 cfs 0.253 af

Pond FP16: FP-16 Peak Elev=100.71' Storage=174 cf Inflow=1.58 cfs 0.116 af
Primary=0.13 cfs 0.072 af Secondary=1.44 cfs 0.045 af Outflow=1.57 cfs 0.116 af

Pond FP17: FP-17 Peak Elev=101.00' Storage=1,307 cf Inflow=6.31 cfs 0.491 af
Primary=0.54 cfs 0.301 af Secondary=5.37 cfs 0.190 af Outflow=5.91 cfs 0.491 af

Pond FP18: FP-18 Peak Elev=100.77' Storage=321 cf Inflow=2.44 cfs 0.188 af
Primary=0.20 cfs 0.119 af Secondary=2.20 cfs 0.069 af Outflow=2.41 cfs 0.188 af

Pond FP19: FP-19 Peak Elev=100.73' Storage=211 cf Inflow=1.90 cfs 0.132 af
Primary=0.14 cfs 0.084 af Secondary=1.73 cfs 0.048 af Outflow=1.87 cfs 0.132 af

Pond FP20: FP-20 Peak Elev=100.83' Storage=415 cf Inflow=3.22 cfs 0.213 af
Primary=0.23 cfs 0.131 af Secondary=2.90 cfs 0.082 af Outflow=3.13 cfs 0.213 af

Link 10 Linear Primary Outflow Imported from Post-Dev_WestbrookSt_11-21-17~Link 1.hce Inflow=18.36 cfs 1.828 af
Area= 8.330 ac 29.18% Imperv. Primary=18.36 cfs 1.828 af

Total Runoff Area = 46.457 ac Runoff Volume = 10.702 af Average Runoff Depth = 2.76"
87.88% Pervious = 40.826 ac 12.12% Impervious = 5.631 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3.20S: 3.20 Runoff Area=46,743 sf 14.07% Impervious Runoff Depth=4.11"
Flow Length=203' Tc=9.6 min CN=85 Runoff=4.51 cfs 0.368 af

Subcatchment 3S: 4 Runoff Area=305,647 sf 0.00% Impervious Runoff Depth=3.91"
Flow Length=798' Tc=12.4 min CN=83 Runoff=25.91 cfs 2.284 af

Subcatchment 4S: 6 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth=3.80"
Flow Length=692' Tc=15.7 min CN=82 Runoff=9.67 cfs 0.930 af

Subcatchment 5.10S: 5.10 Runoff Area=47,756 sf 18.76% Impervious Runoff Depth=3.31"
Flow Length=304' Tc=9.5 min UI Adjusted CN=77 Runoff=3.77 cfs 0.302 af

Subcatchment 5.11S: 5.11 Runoff Area=9,804 sf 62.46% Impervious Runoff Depth=4.65"
Flow Length=221' Tc=6.5 min CN=90 Runoff=1.15 cfs 0.087 af

Subcatchment 5.12S: 5.12 Runoff Area=64,150 sf 20.19% Impervious Runoff Depth=3.31"
Flow Length=308' Tc=7.3 min UI Adjusted CN=77 Runoff=5.46 cfs 0.406 af

Subcatchment 5.13S: 5.13 Runoff Area=17,829 sf 65.72% Impervious Runoff Depth=4.76"
Flow Length=385' Slope=0.0200 '/' Tc=7.6 min CN=91 Runoff=2.05 cfs 0.162 af

Subcatchment 5.14S: 5.14 Runoff Area=19,221 sf 68.90% Impervious Runoff Depth=4.76"
Flow Length=417' Slope=0.0100 '/' Tc=4.4 min CN=91 Runoff=2.47 cfs 0.175 af

Subcatchment 5.15S: 5.15 Runoff Area=45,228 sf 26.11% Impervious Runoff Depth=3.50"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min UI Adjusted CN=79 Runoff=4.58 cfs 0.303 af

Subcatchment 5.16S: 5.16 Runoff Area=5,127 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=346' Slope=0.0100 '/' Tc=3.6 min CN=98 Runoff=0.73 cfs 0.055 af

Subcatchment 5.1S: 5.1 Runoff Area=41,011 sf 36.14% Impervious Runoff Depth=3.91"
Flow Length=485' Tc=15.3 min CN=83 Runoff=3.21 cfs 0.306 af

Subcatchment 5.20S: 5.20 - Open Space Runoff Area=721,253 sf 0.28% Impervious Runoff Depth=3.80"
Flow Length=633' Tc=17.6 min CN=82 Runoff=52.19 cfs 5.248 af

Subcatchment 5.21S: 5.21 Runoff Area=66,087 sf 20.74% Impervious Runoff Depth=4.01"
Flow Length=225' Tc=10.3 min CN=84 Runoff=6.10 cfs 0.507 af

Subcatchment 5.2S: 5.2 Runoff Area=7,330 sf 75.16% Impervious Runoff Depth=4.87"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=92 Runoff=1.04 cfs 0.068 af

Subcatchment 5.3S: 5.3 Runoff Area=9,426 sf 58.44% Impervious Runoff Depth=4.43"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=1.25 cfs 0.080 af

Subcatchment 5.4S: 5.4 Runoff Area=21,480 sf 45.97% Impervious Runoff Depth=4.11"
Flow Length=419' Tc=14.1 min CN=85 Runoff=1.82 cfs 0.169 af

Subcatchment 5.5S: 5.5 Runoff Area=13,445 sf 62.02% Impervious Runoff Depth=4.54"
Flow Length=346' Tc=8.1 min CN=89 Runoff=1.47 cfs 0.117 af

Subcatchment 5.6S: 5.6 Runoff Area=30,002 sf 30.54% Impervious Runoff Depth=3.70"
Flow Length=455' Tc=16.2 min CN=81 Runoff=2.19 cfs 0.212 af

Subcatchment 5.7S: 5.7 Runoff Area=9,511 sf 53.44% Impervious Runoff Depth=4.33"
Flow Length=251' Tc=7.3 min CN=87 Runoff=1.03 cfs 0.079 af

Subcatchment 5.8S: 5.8 Runoff Area=50,222 sf 30.65% Impervious Runoff Depth=3.70"
Flow Length=442' Tc=14.3 min CN=81 Runoff=3.85 cfs 0.356 af

Subcatchment 5.9S: 5.9 Runoff Area=21,581 sf 38.53% Impervious Runoff Depth=3.91"
Flow Length=370' Tc=6.9 min CN=83 Runoff=2.18 cfs 0.161 af

Subcatchment 5S: 7A Runoff Area=220,025 sf 3.86% Impervious Runoff Depth=3.60"
Flow Length=820' Tc=41.8 min CN=80 Runoff=10.27 cfs 1.516 af

Subcatchment 6.10S: 6.10 Runoff Area=5,542 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=501' Slope=0.0100 '/' Tc=4.9 min CN=98 Runoff=0.75 cfs 0.059 af

Subcatchment 6.1S: 6.1 Runoff Area=21,837 sf 61.96% Impervious Runoff Depth=4.54"
Flow Length=129' Tc=11.2 min CN=89 Runoff=2.17 cfs 0.190 af

Subcatchment 6.2S: 6.2 Runoff Area=8,088 sf 24.80% Impervious Runoff Depth=3.31"
Flow Length=101' Tc=7.7 min UI Adjusted CN=77 Runoff=0.68 cfs 0.051 af

Subcatchment 6.3S: 6.3 Runoff Area=9,276 sf 21.63% Impervious Runoff Depth=3.31"
Flow Length=79' Tc=9.5 min UI Adjusted CN=77 Runoff=0.73 cfs 0.059 af

Subcatchment 6.4S: 6.4 Runoff Area=12,452 sf 16.11% Impervious Runoff Depth=3.21"
Flow Length=101' Tc=11.2 min UI Adjusted CN=76 Runoff=0.91 cfs 0.076 af

Subcatchment 6.5S: 6.5 Runoff Area=5,779 sf 34.71% Impervious Runoff Depth=4.22"
Flow Length=79' Tc=11.0 min CN=86 Runoff=0.55 cfs 0.047 af

Subcatchment 6.6S: 6.6 Runoff Area=9,616 sf 90.90% Impervious Runoff Depth=5.33"
Tc=5.0 min CN=96 Runoff=1.28 cfs 0.098 af

Subcatchment 6.7S: 6.7 Runoff Area=30,420 sf 51.53% Impervious Runoff Depth=4.22"
Flow Length=326' Tc=7.7 min CN=86 Runoff=3.19 cfs 0.246 af

Subcatchment 6.8S: 6.8 Runoff Area=16,857 sf 46.90% Impervious Runoff Depth=4.33"
Flow Length=152' Tc=7.4 min CN=87 Runoff=1.82 cfs 0.140 af

Subcatchment 6.9S: 6.9 Runoff Area=3,142 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=280' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=0.45 cfs 0.033 af

Reach 4R: POI 4 Inflow=30.34 cfs 5.117 af
Outflow=30.34 cfs 5.117 af

Reach 5.0R: Focal Points Inflow=34.15 cfs 3.039 af
Outflow=34.15 cfs 3.039 af

Reach 5R: POI 5 Inflow=59.35 cfs 10.988 af
Outflow=59.35 cfs 10.988 af

Reach 6R: POI 4 Inflow=9.67 cfs 0.930 af
Outflow=9.67 cfs 0.930 af

Reach 7A-R: 7A-R Inflow=9.80 cfs 1.516 af
Outflow=9.80 cfs 1.516 af

Reach 15R: FocalPoint Inflow=25.61 cfs 2.565 af
Outflow=25.61 cfs 2.565 af

Reach 99R: POI 99 Inflow=97.62 cfs 17.034 af
Outflow=97.62 cfs 17.034 af

Pond 1P: Pond 1 Peak Elev=39.33' Storage=56,750 cf Inflow=30.10 cfs 2.933 af
Outflow=6.62 cfs 2.833 af

Pond 2P: Pond 2 Peak Elev=33.95' Storage=93,084 cf Inflow=39.99 cfs 3.546 af
Outflow=2.42 cfs 3.310 af

Pond 3P: Pond 3 Peak Elev=32.92' Storage=17,211 cf Inflow=7.66 cfs 0.992 af
Outflow=1.07 cfs 0.914 af

Pond 4P: WETLAND STORAGE Peak Elev=22.21' Storage=496 cf Inflow=25.91 cfs 2.284 af
Outflow=25.89 cfs 2.284 af

Pond 5P: 36" Culvert Peak Elev=33.40' Storage=3,196 cf Inflow=10.27 cfs 1.516 af
36.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=9.80 cfs 1.516 af

Pond 6.10P: Filterra 4x6 Peak Elev=103.11' Storage=33 cf Inflow=0.75 cfs 0.059 af
Primary=0.16 cfs 0.047 af Secondary=0.60 cfs 0.012 af Outflow=0.75 cfs 0.059 af

Pond 6.1P: VUSF 1 Peak Elev=41.61' Storage=2,857 cf Inflow=2.17 cfs 0.190 af
Outflow=1.15 cfs 0.185 af

Pond 6.2P: VUSF 2 Peak Elev=50.99' Storage=1,067 cf Inflow=0.68 cfs 0.051 af
Outflow=0.05 cfs 0.051 af

Pond 6.3P: VUSF 3 Peak Elev=51.01' Storage=1,245 cf Inflow=0.73 cfs 0.059 af
Outflow=0.06 cfs 0.059 af

Pond 6.4P: VUSF 4 Peak Elev=51.04' Storage=1,791 cf Inflow=0.91 cfs 0.076 af
Outflow=0.06 cfs 0.076 af

Pond 6.5P: VUSF 5 Peak Elev=42.40' Storage=957 cf Inflow=0.55 cfs 0.047 af
Outflow=0.05 cfs 0.046 af

Pond 6.6P: Filterra 4x8 Peak Elev=103.17' Storage=45 cf Inflow=1.28 cfs 0.098 af
Primary=0.21 cfs 0.073 af Secondary=1.07 cfs 0.025 af Outflow=1.28 cfs 0.098 af

Pond 6.7P: Filterra 6x8 Peak Elev=103.33' Storage=76 cf Inflow=3.19 cfs 0.246 af
Primary=0.31 cfs 0.156 af Secondary=2.88 cfs 0.090 af Outflow=3.19 cfs 0.245 af

Pond 6.8P: Filterra 4x8 Peak Elev=103.22' Storage=47 cf Inflow=1.82 cfs 0.140 af
Primary=0.21 cfs 0.092 af Secondary=1.61 cfs 0.047 af Outflow=1.82 cfs 0.139 af

Pond 6.9P: Filterra 4x4 Peak Elev=103.08' Storage=21 cf Inflow=0.45 cfs 0.033 af
Primary=0.10 cfs 0.028 af Secondary=0.35 cfs 0.006 af Outflow=0.45 cfs 0.033 af

Pond FP11: FP-11 Peak Elev=100.83' Storage=421 cf Inflow=3.21 cfs 0.306 af
Primary=0.23 cfs 0.168 af Secondary=2.96 cfs 0.138 af Outflow=3.19 cfs 0.306 af

Pond FP12: FP-12 Peak Elev=100.62' Storage=54 cf Inflow=0.73 cfs 0.055 af
Primary=0.05 cfs 0.035 af Secondary=0.68 cfs 0.020 af Outflow=0.73 cfs 0.055 af

Pond FP13: FP-13 Peak Elev=100.73' Storage=194 cf Inflow=1.82 cfs 0.169 af
Primary=0.13 cfs 0.095 af Secondary=1.68 cfs 0.074 af Outflow=1.81 cfs 0.169 af

Pond FP14: FP-14 Peak Elev=100.70' Storage=130 cf Inflow=1.47 cfs 0.117 af
Primary=0.10 cfs 0.068 af Secondary=1.37 cfs 0.049 af Outflow=1.47 cfs 0.117 af

Pond FP15: FP-15 Peak Elev=100.87' Storage=529 cf Inflow=3.85 cfs 0.356 af
Primary=0.27 cfs 0.194 af Secondary=3.53 cfs 0.162 af Outflow=3.80 cfs 0.356 af

Pond FP16: FP-16 Peak Elev=100.76' Storage=195 cf Inflow=2.18 cfs 0.161 af
Primary=0.13 cfs 0.089 af Secondary=2.04 cfs 0.072 af Outflow=2.16 cfs 0.161 af

Pond FP17: FP-17 Peak Elev=101.74' Storage=1,318 cf Inflow=9.13 cfs 0.708 af
Primary=0.54 cfs 0.380 af Secondary=9.49 cfs 0.327 af Outflow=10.02 cfs 0.708 af

Pond FP18: FP-18 Peak Elev=100.83' Storage=362 cf Inflow=3.20 cfs 0.250 af
Primary=0.20 cfs 0.146 af Secondary=2.95 cfs 0.104 af Outflow=3.15 cfs 0.250 af

Pond FP19: FP-19 Peak Elev=100.78' Storage=234 cf Inflow=2.47 cfs 0.175 af
Primary=0.14 cfs 0.103 af Secondary=2.30 cfs 0.072 af Outflow=2.44 cfs 0.175 af

Pond FP20: FP-20 Peak Elev=100.92' Storage=497 cf Inflow=4.58 cfs 0.303 af
Primary=0.23 cfs 0.165 af Secondary=4.22 cfs 0.138 af Outflow=4.45 cfs 0.303 af

Link 25-year Primary Outflow Imported from Post-Dev_WestbrookSt_11-21-17~Link 1.hce Inflow=25.61 cfs 2.565 af
Area= 8.330 ac 29.18% Imperv. Primary=25.61 cfs 2.565 af

Total Runoff Area = 46.457 ac Runoff Volume = 14.889 af Average Runoff Depth = 3.85"
87.88% Pervious = 40.826 ac 12.12% Impervious = 5.631 ac

Summary for Subcatchment 3.20S: 3.20

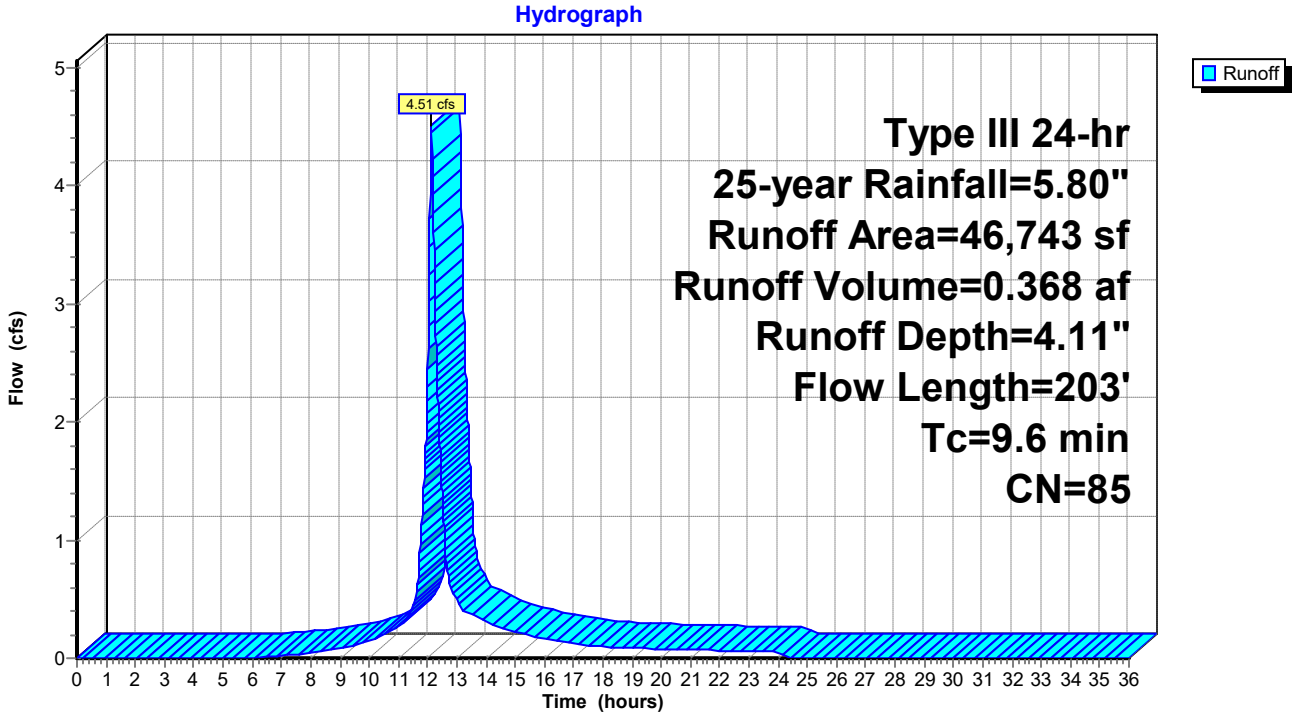
Runoff = 4.51 cfs @ 12.13 hrs, Volume= 0.368 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	6,576	98	Water Surface, HSG D
	7,184	72	Woods/grass comb., Good, HSG C
	4,999	86	Woods/grass comb., Poor, HSG D
*	1,914	90	Wetland, HSG D
	26,070	84	50-75% Grass cover, Fair, HSG D
	46,743	85	Weighted Average
	40,167		85.93% Pervious Area
	6,576		14.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0667	0.19		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.6	103	0.3300	2.87		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
9.6	203	Total			

Subcatchment 3.20S: 3.20



Summary for Subcatchment 3S: 4

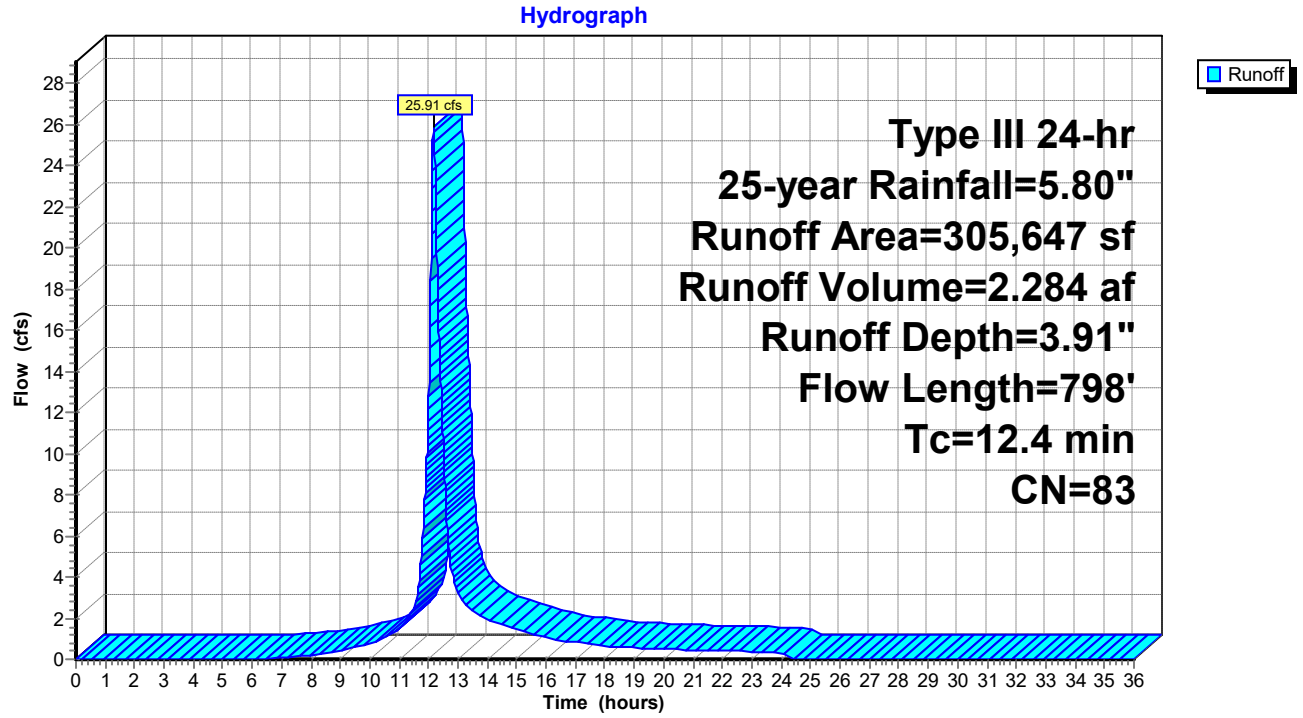
Runoff = 25.91 cfs @ 12.17 hrs, Volume= 2.284 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	32,385	79	Woods/grass comb., Good, HSG D
	83,760	84	50-75% Grass cover, Fair, HSG D
*	75,145	90	Wetland, HSG D
	114,357	80	>75% Grass cover, Good, HSG D
	305,647	83	Weighted Average
	305,647		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	146	0.0950	0.34		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.9	418	0.0330	2.42	343.30	**Trap/Vee/Rect Channel Flow, B-C, WETLAND** Bot.W=51.00' D=2.00' Z= 10.0 '/' Top.W=91.00' n= 0.150
2.3	234	0.0201	1.67	123.40	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
12.4	798	Total			

Subcatchment 3S: 4



Summary for Subcatchment 4S: 6

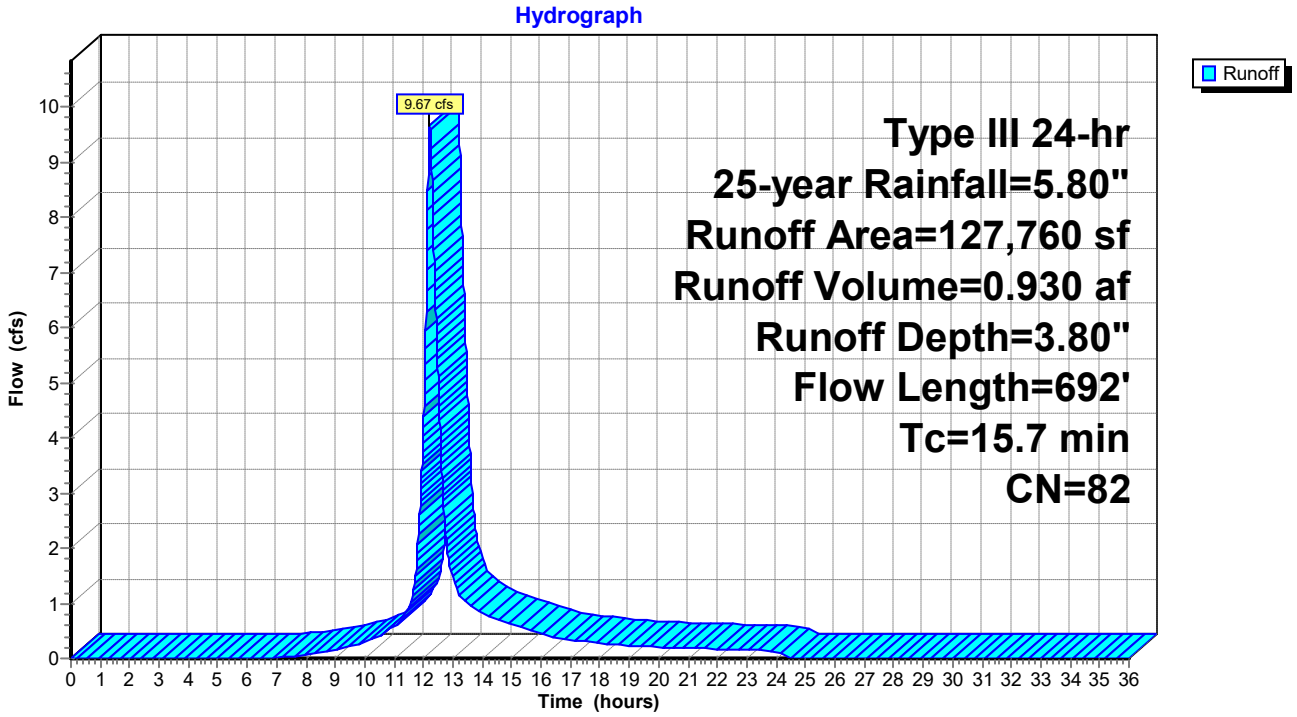
Runoff = 9.67 cfs @ 12.21 hrs, Volume= 0.930 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	4,776	79	Woods/grass comb., Good, HSG D
	96,355	80	>75% Grass cover, Good, HSG D
*	24,600	90	Wetland, HSG D
*	2,029	96	Gravel surface, HSG D
	127,760	82	Weighted Average
	127,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	201	0.0370	0.28		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
1.4	238	0.0462	2.82	366.88	**Trap/Vee/Rect Channel Flow, B-C, WETLAND** Bot.W=45.00' D=2.00' Z= 10.0 '/' Top.W=85.00' n= 0.150
1.3	206	0.0470	2.55	188.70	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
0.9	47	0.0330	0.91		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
15.7	692	Total			

Subcatchment 4S: 6



Summary for Subcatchment 5.10S: 5.10

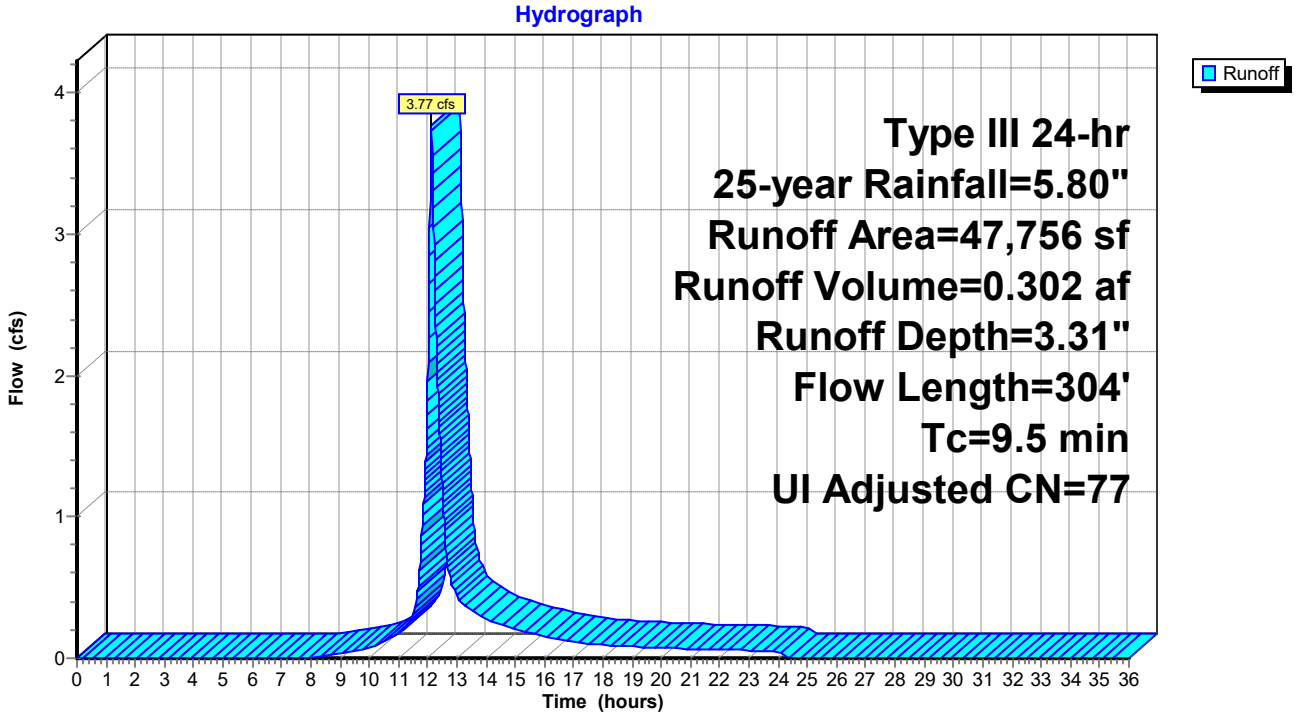
Runoff = 3.77 cfs @ 12.13 hrs, Volume= 0.302 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
2,960	98		Paved roads w/curbs & sewers, HSG D
6,000	98		Unconnected roofs, HSG D
38,557	74		>75% Grass cover, Good, HSG C
239	80		>75% Grass cover, Good, HSG D
47,756	79	77	Weighted Average, UI Adjusted
38,796			81.24% Pervious Area
8,960			18.76% Impervious Area
6,000			66.96% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
3.4	204	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	304	Total			

Subcatchment 5.10S: 5.10



Summary for Subcatchment 5.11S: 5.11

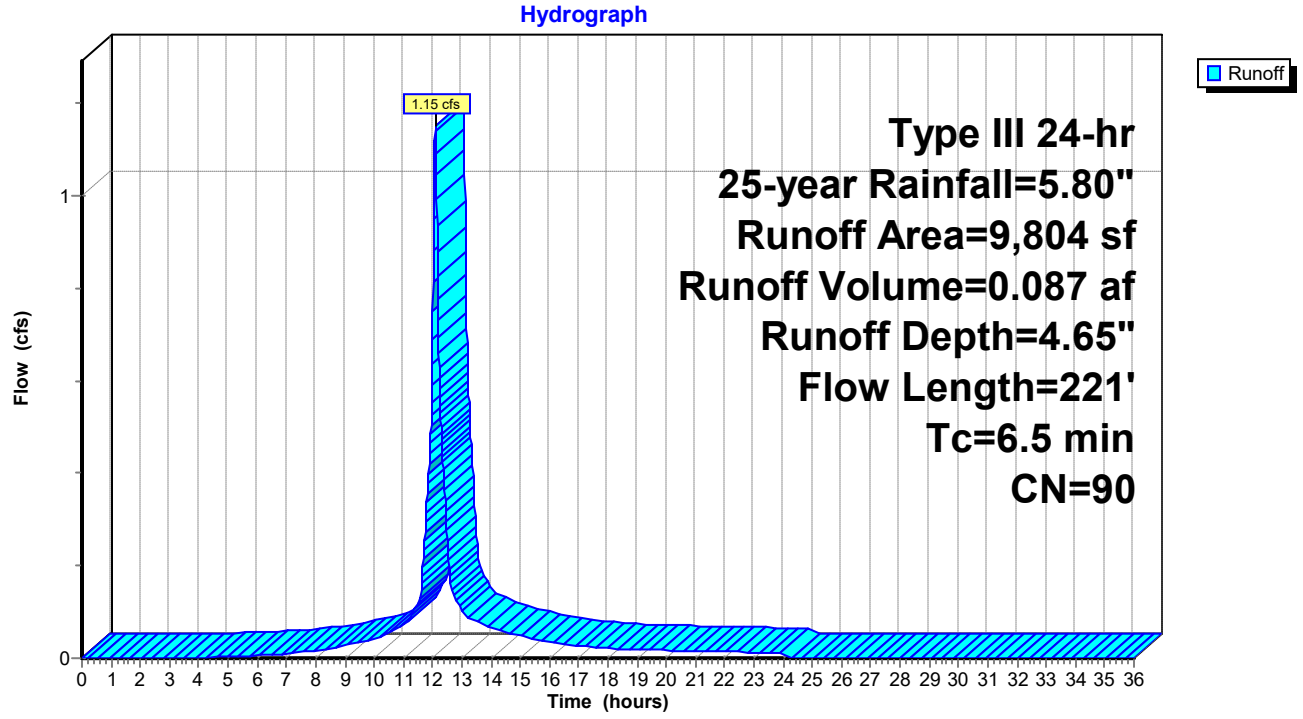
Runoff = 1.15 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,874	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
1,259	74	>75% Grass cover, Good, HSG C
2,421	80	>75% Grass cover, Good, HSG D
9,804	90	Weighted Average
3,680		37.54% Pervious Area
6,124		62.46% Impervious Area
2,250		36.74% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	52	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.6	169	0.0500	4.54		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.5	221	Total			

Subcatchment 5.11S: 5.11



Summary for Subcatchment 5.12S: 5.12

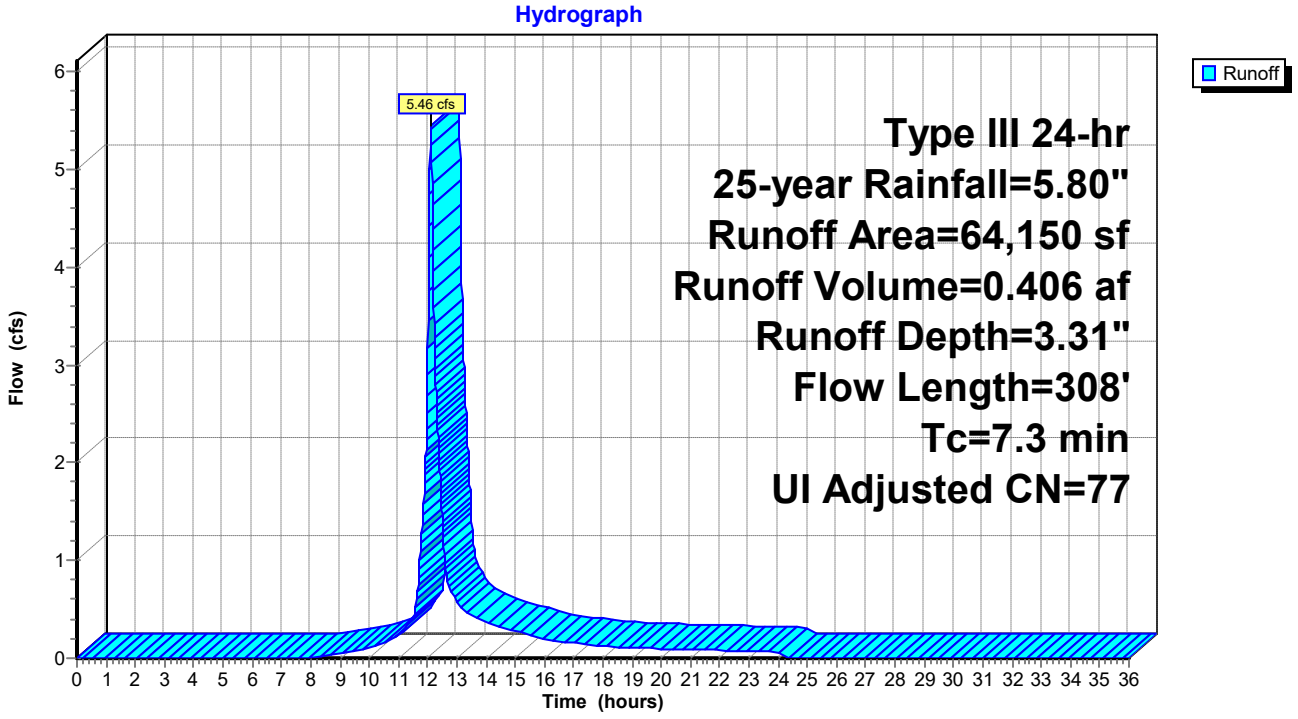
Runoff = 5.46 cfs @ 12.11 hrs, Volume= 0.406 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
4,701	98		Paved roads w/curbs & sewers, HSG D
8,250	98		Unconnected roofs, HSG D
50,849	74		>75% Grass cover, Good, HSG C
350	80		>75% Grass cover, Good, HSG D
64,150	79	77	Weighted Average, UI Adjusted
51,199			79.81% Pervious Area
12,951			20.19% Impervious Area
8,250			63.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.2	208	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.3	308	Total			

Subcatchment 5.12S: 5.12



Summary for Subcatchment 5.13S: 5.13

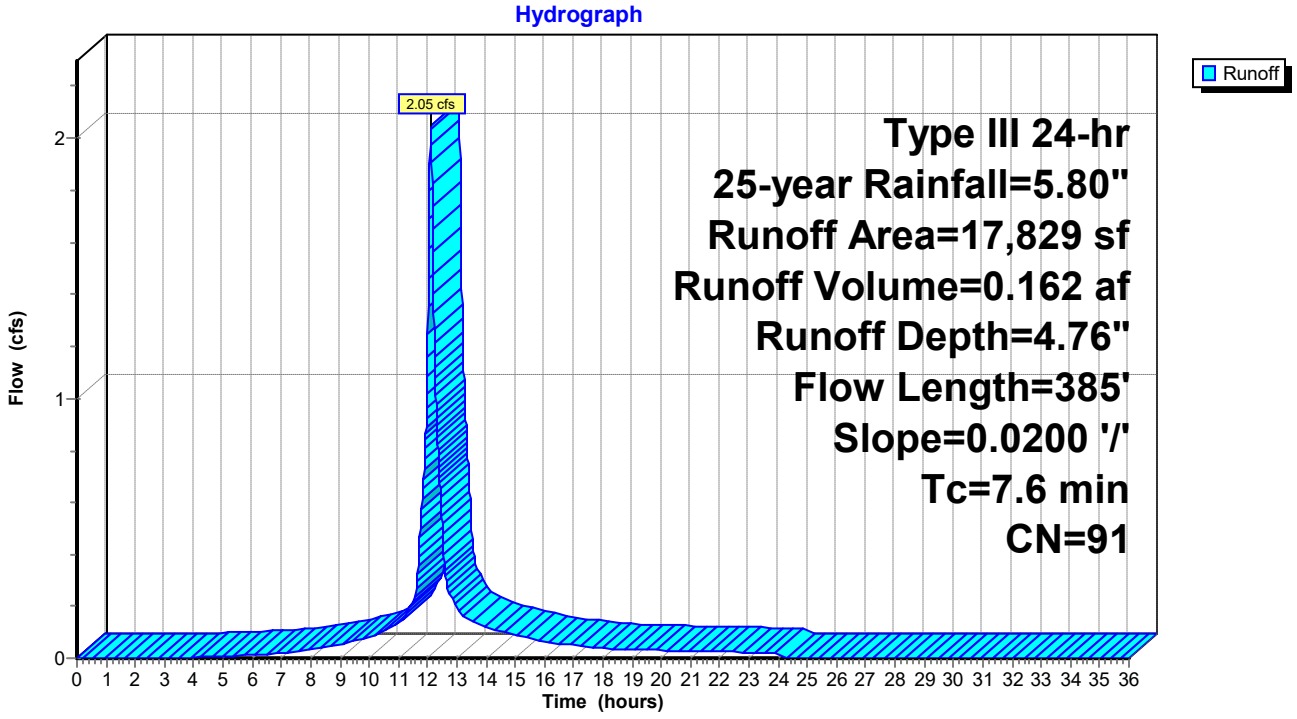
Runoff = 2.05 cfs @ 12.10 hrs, Volume= 0.162 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
6,467	98	Paved roads w/curbs & sewers, HSG D
5,250	98	Unconnected roofs, HSG D
1,909	74	>75% Grass cover, Good, HSG C
4,203	80	>75% Grass cover, Good, HSG D
17,829	91	Weighted Average
6,112		34.28% Pervious Area
11,717		65.72% Impervious Area
5,250		44.81% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	335	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.6	385	Total			

Subcatchment 5.13S: 5.13



Summary for Subcatchment 5.14S: 5.14

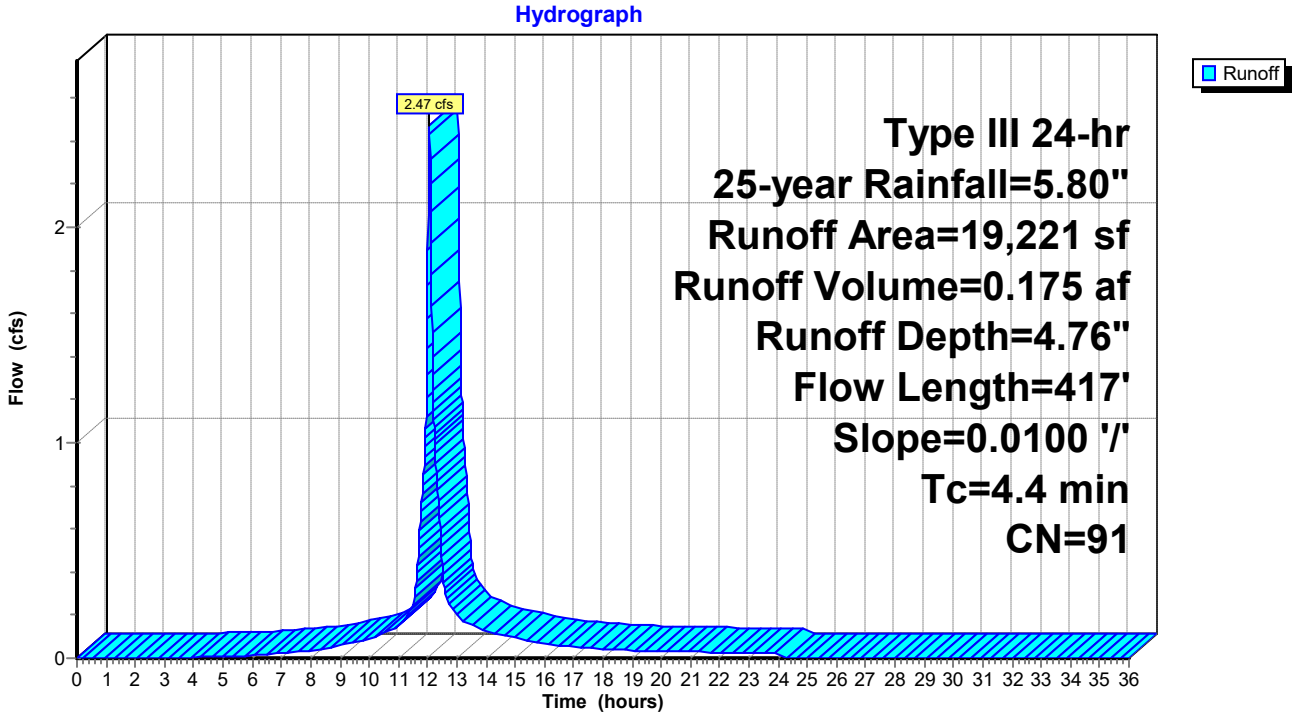
Runoff = 2.47 cfs @ 12.06 hrs, Volume= 0.175 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
7,993	98	Paved roads w/curbs & sewers, HSG D
5,250	98	Unconnected roofs, HSG D
4,039	74	>75% Grass cover, Good, HSG C
1,939	80	>75% Grass cover, Good, HSG D
19,221	91	Weighted Average
5,978		31.10% Pervious Area
13,243		68.90% Impervious Area
5,250		39.64% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	150	0.0100	1.11		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
2.2	267	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.4	417	Total			

Subcatchment 5.14S: 5.14



Summary for Subcatchment 5.15S: 5.15

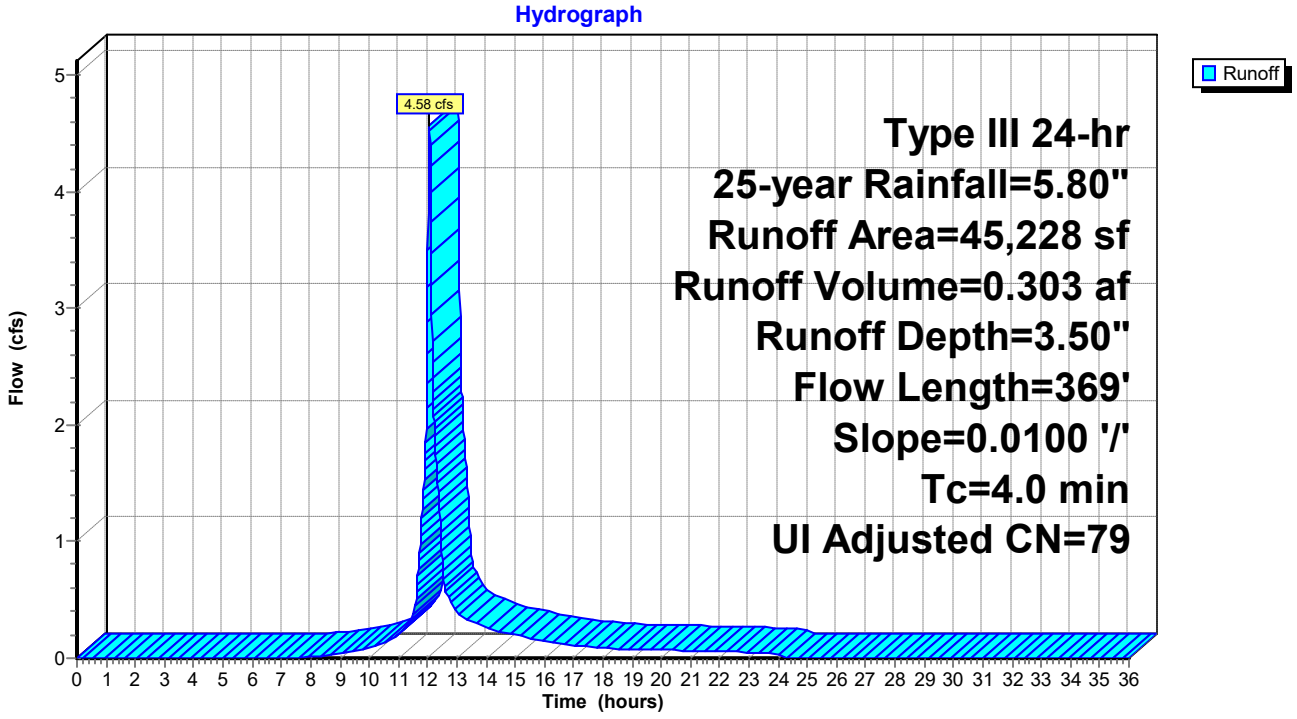
Runoff = 4.58 cfs @ 12.06 hrs, Volume= 0.303 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
5,811	98		Paved roads w/curbs & sewers, HSG D
6,000	98		Unconnected roofs, HSG D
33,095	74		>75% Grass cover, Good, HSG C
322	80		>75% Grass cover, Good, HSG D
45,228	80	79	Weighted Average, UI Adjusted
33,417			73.89% Pervious Area
11,811			26.11% Impervious Area
6,000			50.80% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	135	0.0100	1.09		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
1.9	234	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.0	369	Total			

Subcatchment 5.15S: 5.15



Summary for Subcatchment 5.16S: 5.16

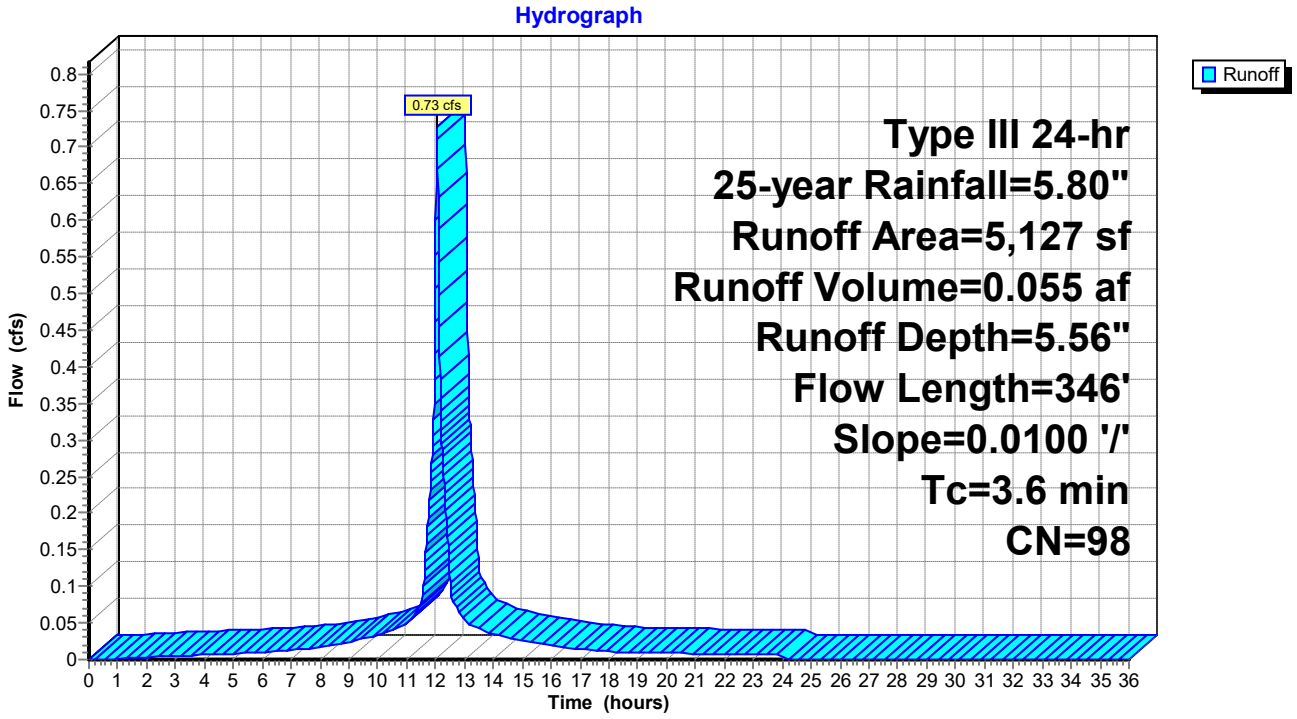
Runoff = 0.73 cfs @ 12.05 hrs, Volume= 0.055 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,127	98	Paved roads w/curbs & sewers, HSG D
5,127		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
2.0	246	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.6	346	Total			

Subcatchment 5.16S: 5.16



Summary for Subcatchment 5.1S: 5.1

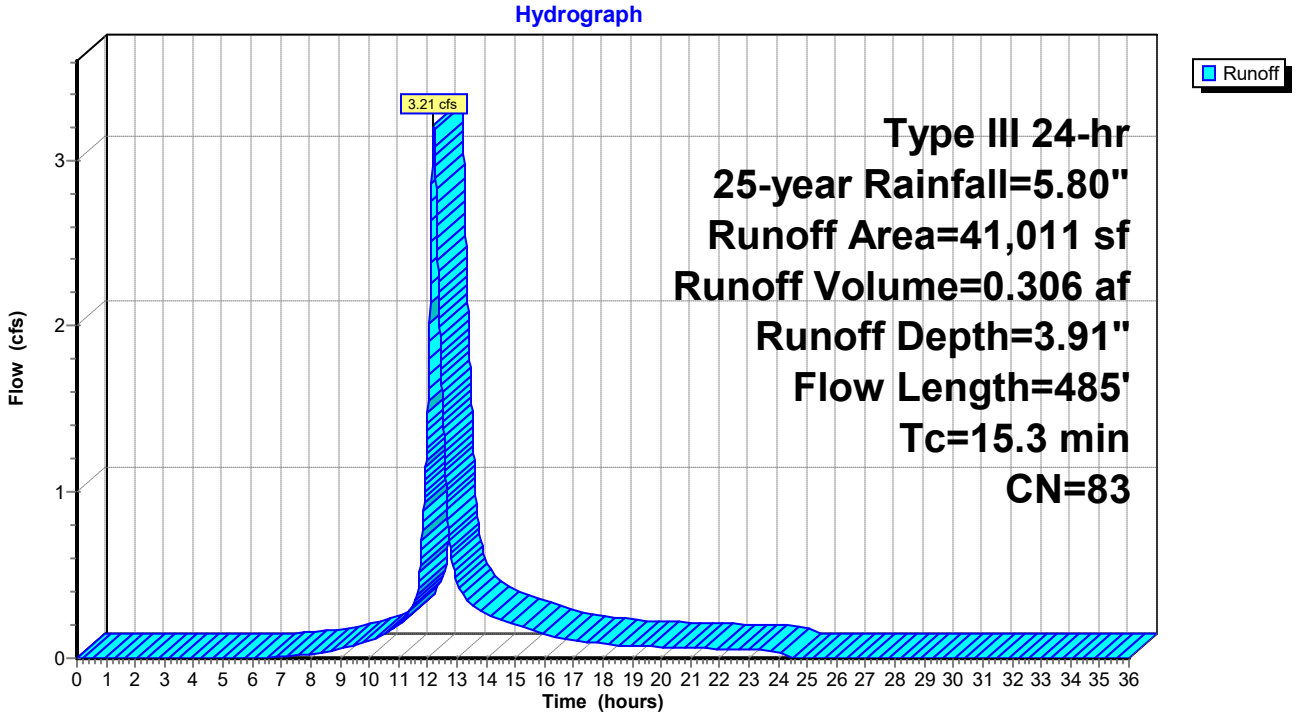
Runoff = 3.21 cfs @ 12.21 hrs, Volume= 0.306 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
9,570	98	Paved roads w/curbs & sewers, HSG D
5,250	98	Unconnected roofs, HSG D
23,164	74	>75% Grass cover, Good, HSG C
3,027	80	>75% Grass cover, Good, HSG D
41,011	83	Weighted Average
26,191		63.86% Pervious Area
14,820		36.14% Impervious Area
5,250		35.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	131	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.9	354	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.3	485	Total			

Subcatchment 5.1S: 5.1



Summary for Subcatchment 5.20S: 5.20 - Open Space

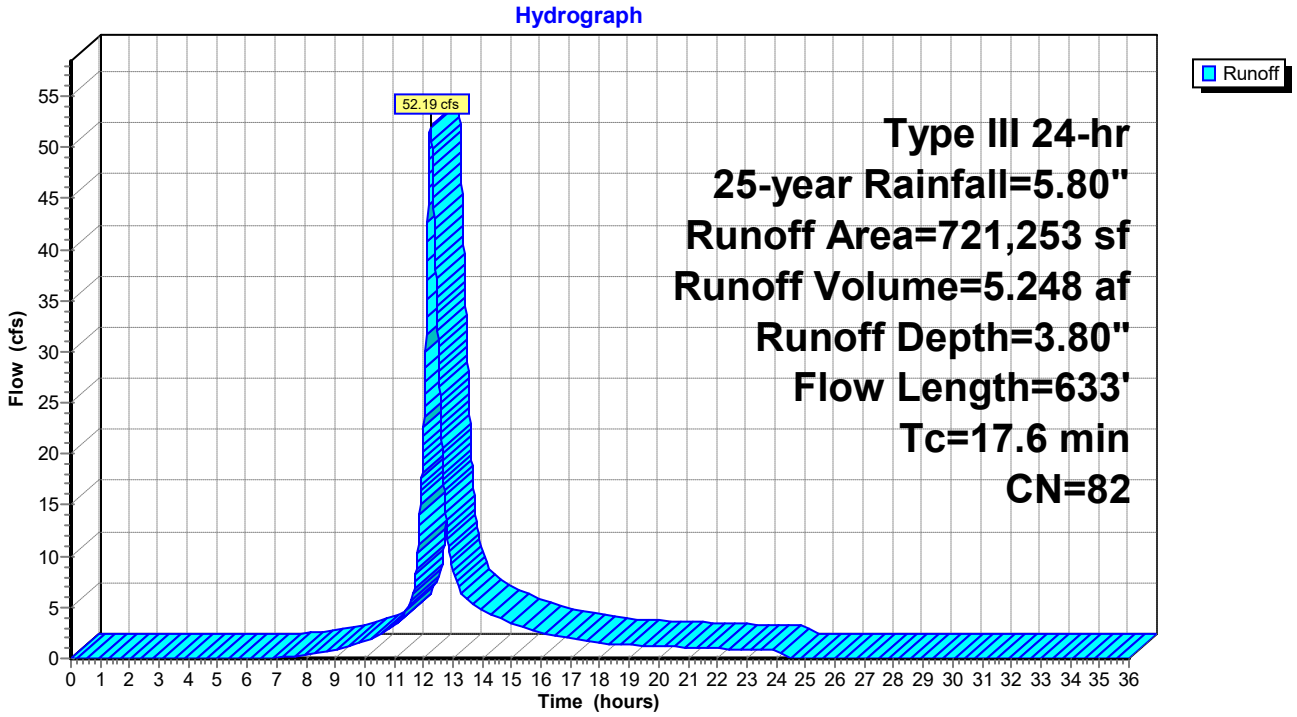
Runoff = 52.19 cfs @ 12.24 hrs, Volume= 5.248 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,115	72	Woods/grass comb., Good, HSG C
	222,405	79	Woods/grass comb., Good, HSG D
*	158,830	90	Wetland, HSG D
	84,772	84	50-75% Grass cover, Fair, HSG D
	71,177	79	50-75% Grass cover, Fair, HSG C
	15,969	89	<50% Grass cover, Poor, HSG D
	163,979	80	>75% Grass cover, Good, HSG D
*	2,006	98	Untreated PRUD roof section
	721,253	82	Weighted Average
	719,247		99.72% Pervious Area
	2,006		0.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	150	0.0330	0.25		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
1.4	158	0.0710	1.87		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.1	325	0.0044	0.88	127.38	**Trap/Vee/Rect Channel Flow, C-D, Wetland** Bot.W=52.00' D=2.00' Z= 10.0 '/' Top.W=92.00' n= 0.150
17.6	633	Total			

Subcatchment 5.20S: 5.20 - Open Space



Summary for Subcatchment 5.21S: 5.21

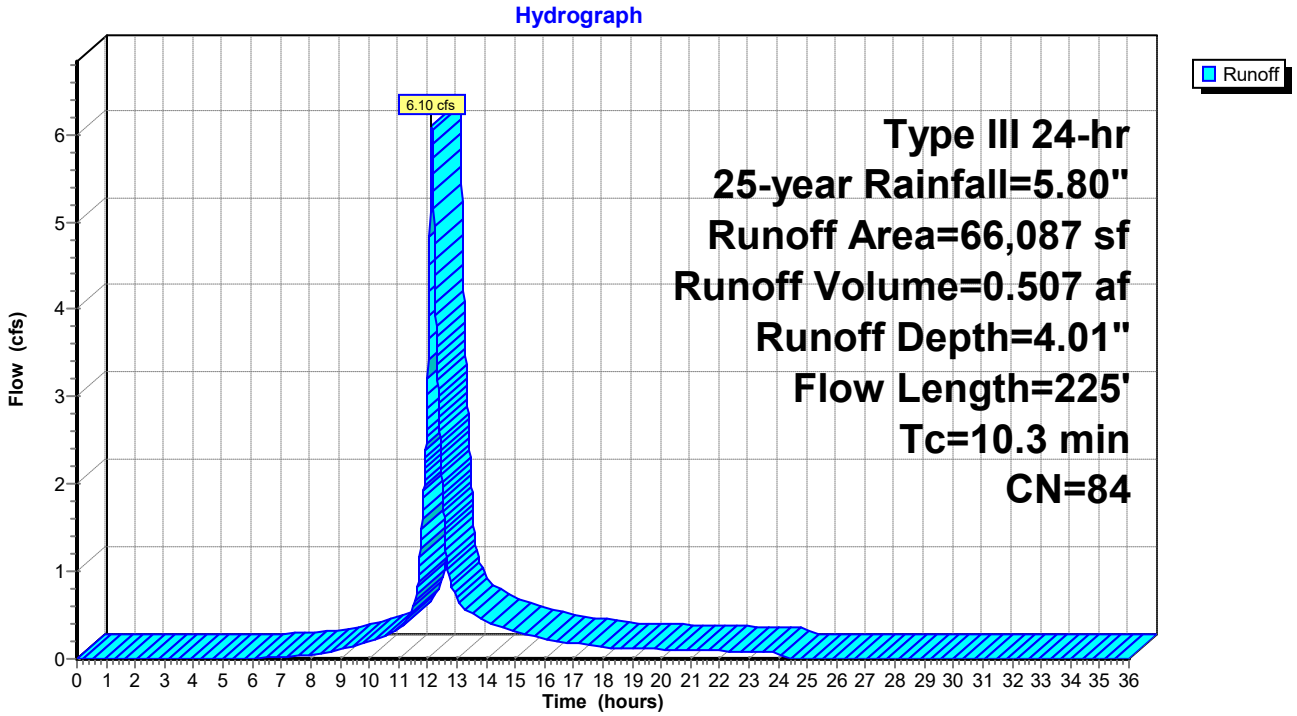
Runoff = 6.10 cfs @ 12.14 hrs, Volume= 0.507 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
52,382	80	>75% Grass cover, Good, HSG D
13,705	98	Water Surface, HSG D
66,087	84	Weighted Average
52,382		79.26% Pervious Area
13,705		20.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	85	0.1000	0.35		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
6.2	140	0.3300	0.38		**Sheet Flow, B-C** Grass: Dense n= 0.240 P2= 3.10"
10.3	225	Total			

Subcatchment 5.21S: 5.21



Summary for Subcatchment 5.2S: 5.2

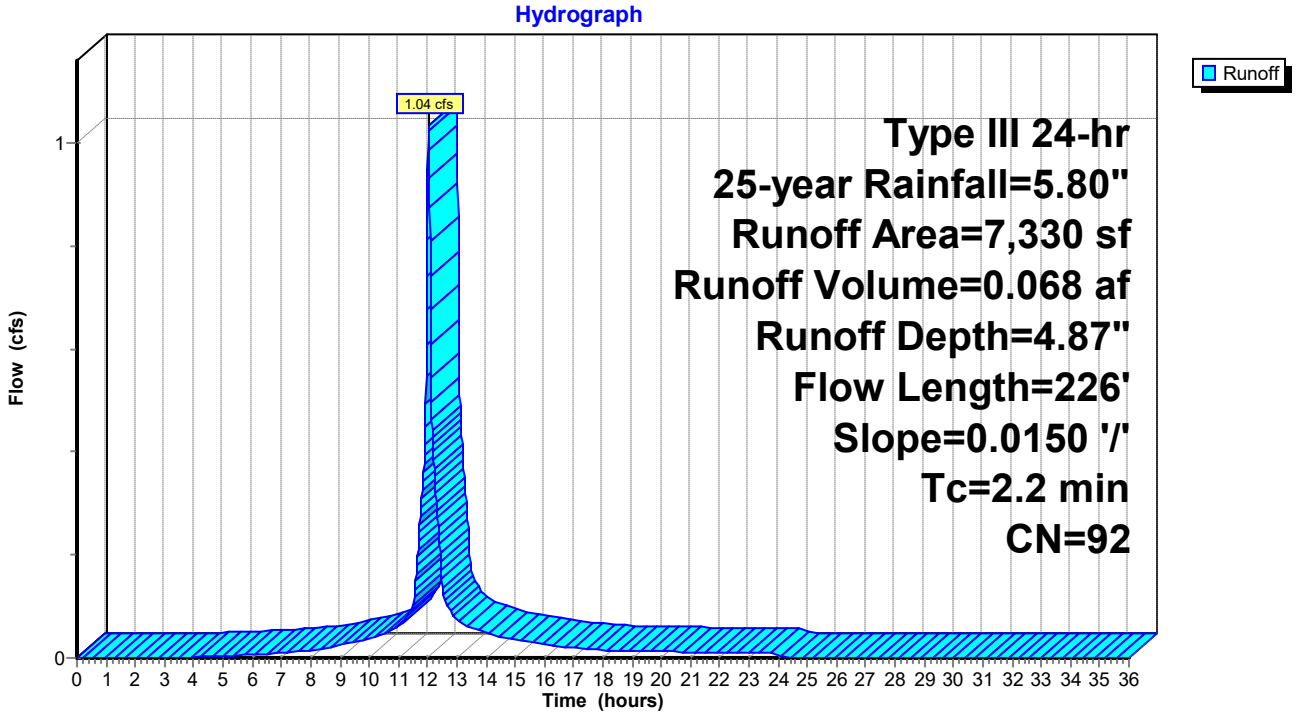
Runoff = 1.04 cfs @ 12.03 hrs, Volume= 0.068 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,759	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
1,821	74	>75% Grass cover, Good, HSG C
7,330	92	Weighted Average
1,821		24.84% Pervious Area
5,509		75.16% Impervious Area
750		13.61% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.21		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.8	126	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
2.2	226	Total			

Subcatchment 5.2S: 5.2



Summary for Subcatchment 5.3S: 5.3

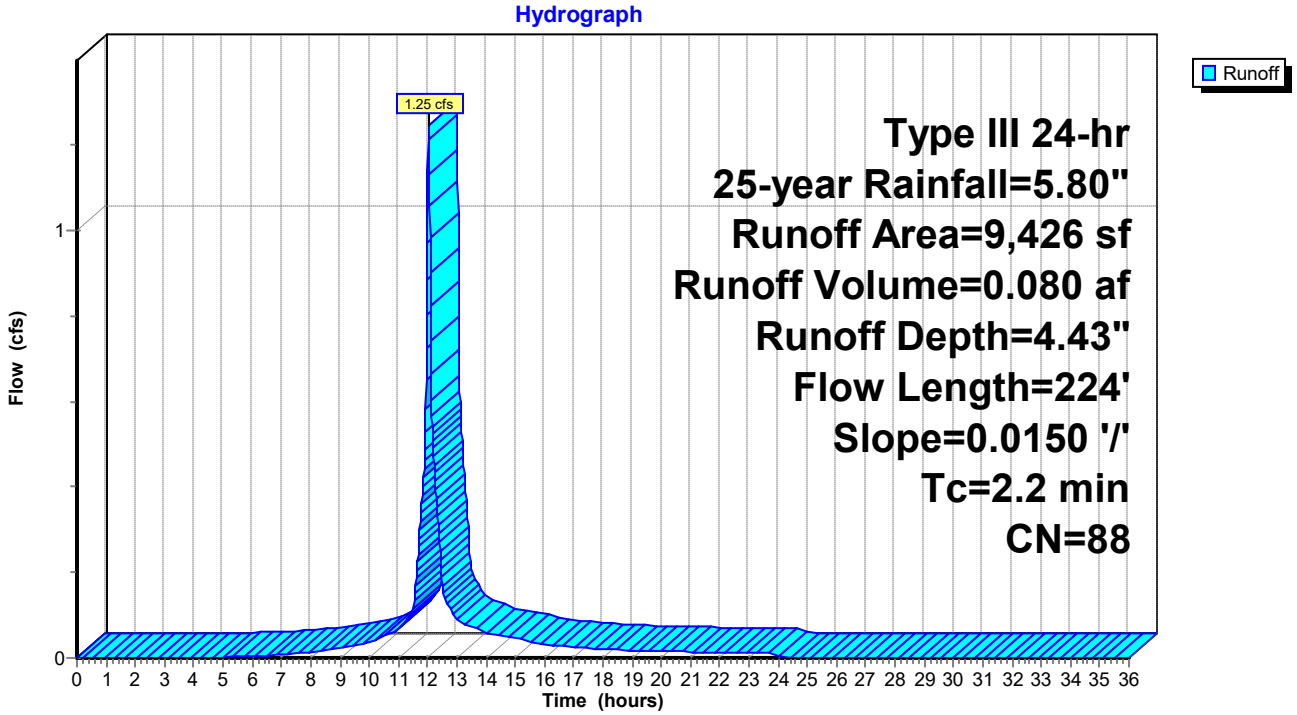
Runoff = 1.25 cfs @ 12.03 hrs, Volume= 0.080 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,759	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
3,917	74	>75% Grass cover, Good, HSG C
9,426	88	Weighted Average
3,917		41.56% Pervious Area
5,509		58.44% Impervious Area
750		13.61% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.21		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.8	124	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
2.2	224	Total			

Subcatchment 5.3S: 5.3



Summary for Subcatchment 5.4S: 5.4

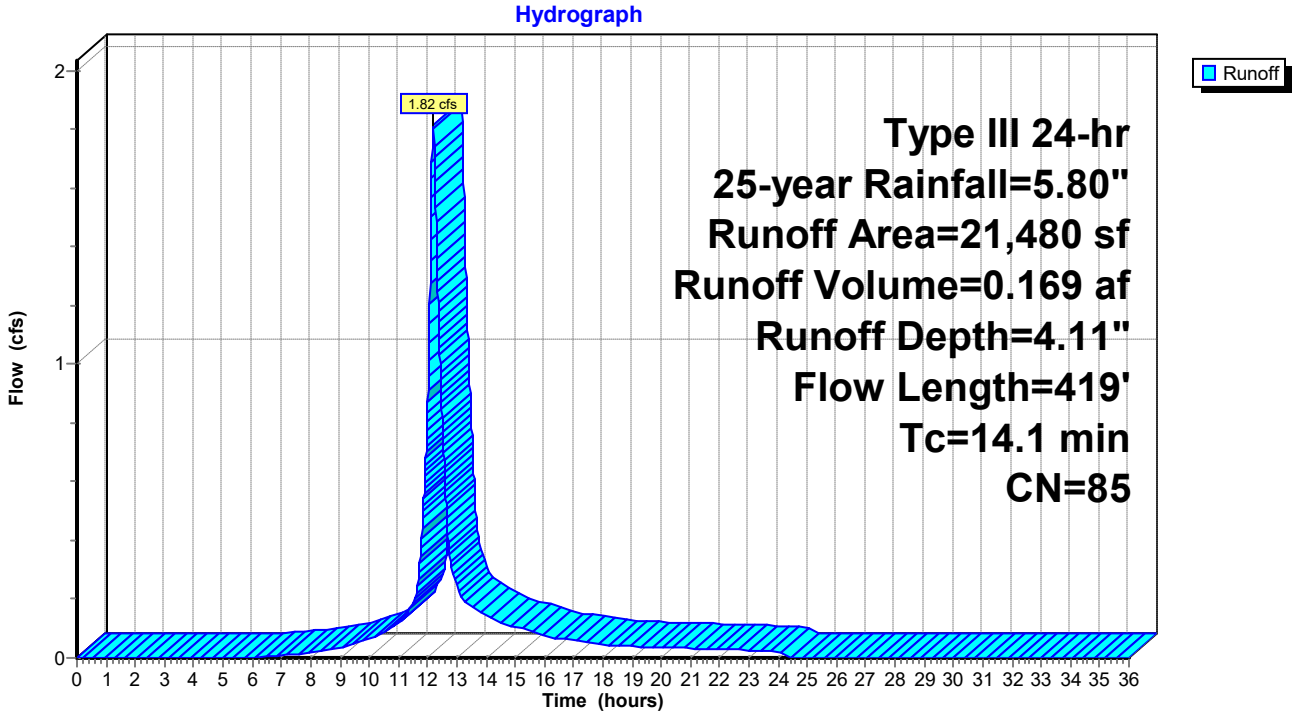
Runoff = 1.82 cfs @ 12.19 hrs, Volume= 0.169 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,375	98	Paved roads w/curbs & sewers, HSG D
4,500	98	Unconnected roofs, HSG D
11,605	74	>75% Grass cover, Good, HSG C
21,480	85	Weighted Average
11,605		54.03% Pervious Area
9,875		45.97% Impervious Area
4,500		45.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	123	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.4	296	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.1	419	Total			

Subcatchment 5.4S: 5.4



Summary for Subcatchment 5.5S: 5.5

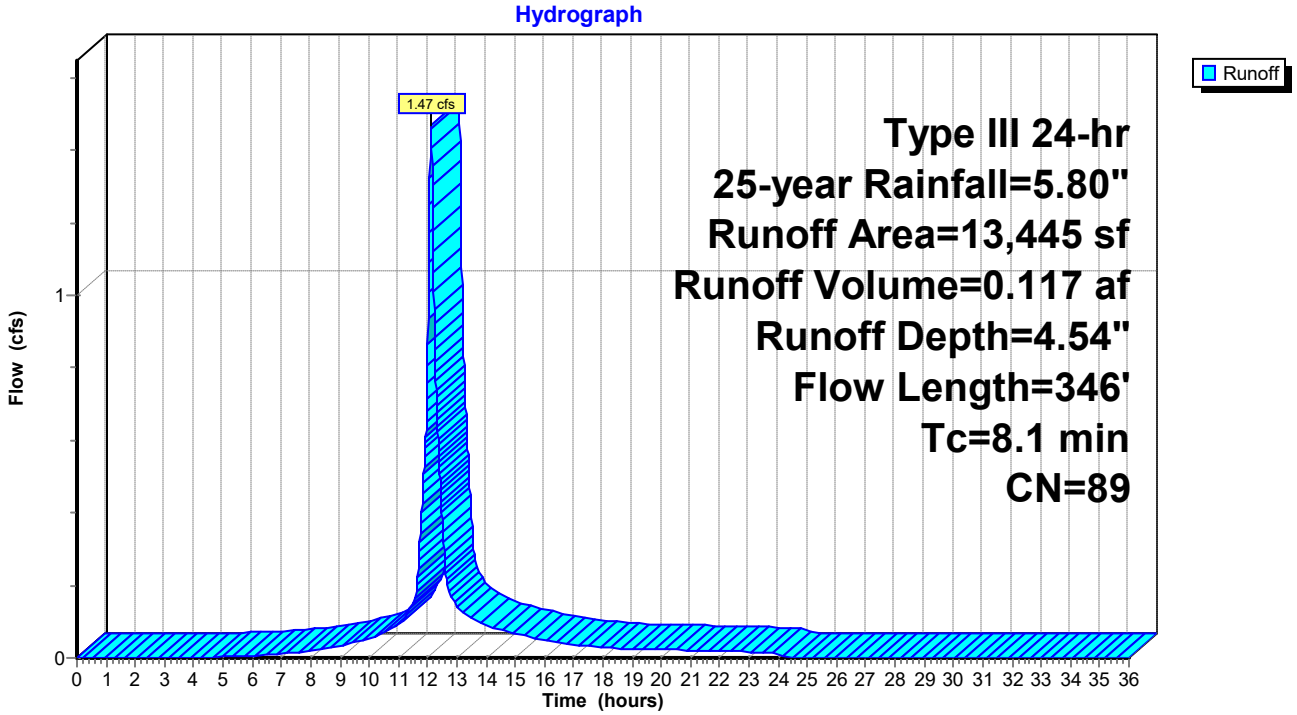
Runoff = 1.47 cfs @ 12.11 hrs, Volume= 0.117 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,839	98	Paved roads w/curbs & sewers, HSG D
4,500	98	Unconnected roofs, HSG D
5,106	74	>75% Grass cover, Good, HSG C
13,445	89	Weighted Average
5,106		37.98% Pervious Area
8,339		62.02% Impervious Area
4,500		53.96% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.4	296	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
8.1	346	Total			

Subcatchment 5.5S: 5.5



Summary for Subcatchment 5.6S: 5.6

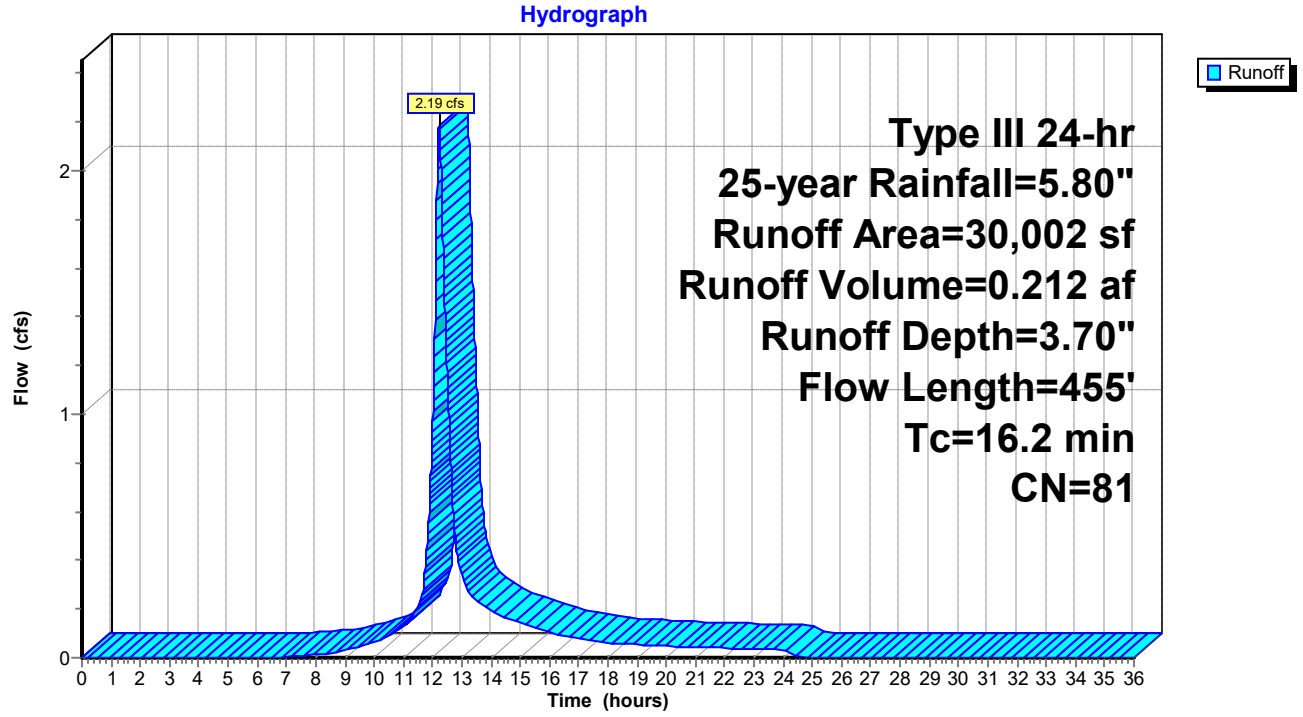
Runoff = 2.19 cfs @ 12.22 hrs, Volume= 0.212 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,913	98	Paved roads w/curbs & sewers, HSG D
5,250	98	Unconnected roofs, HSG D
20,839	74	>75% Grass cover, Good, HSG C
30,002	81	Weighted Average
20,839		69.46% Pervious Area
9,163		30.54% Impervious Area
5,250		57.30% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	132	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.1	122	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	201	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.2	455	Total			

Subcatchment 5.6S: 5.6



Summary for Subcatchment 5.7S: 5.7

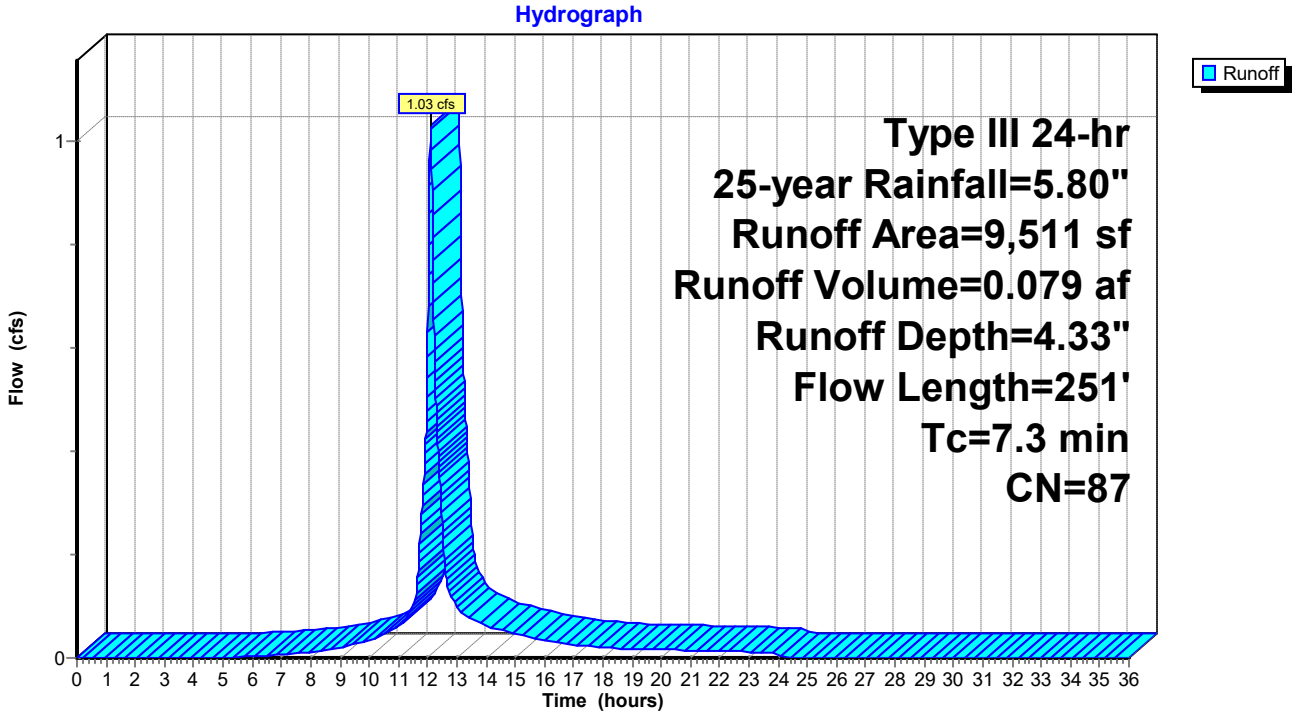
Runoff = 1.03 cfs @ 12.10 hrs, Volume= 0.079 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,833	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
4,428	74	>75% Grass cover, Good, HSG C
9,511	87	Weighted Average
4,428		46.56% Pervious Area
5,083		53.44% Impervious Area
2,250		44.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.7	202	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.3	251	Total			

Subcatchment 5.7S: 5.7



Summary for Subcatchment 5.8S: 5.8

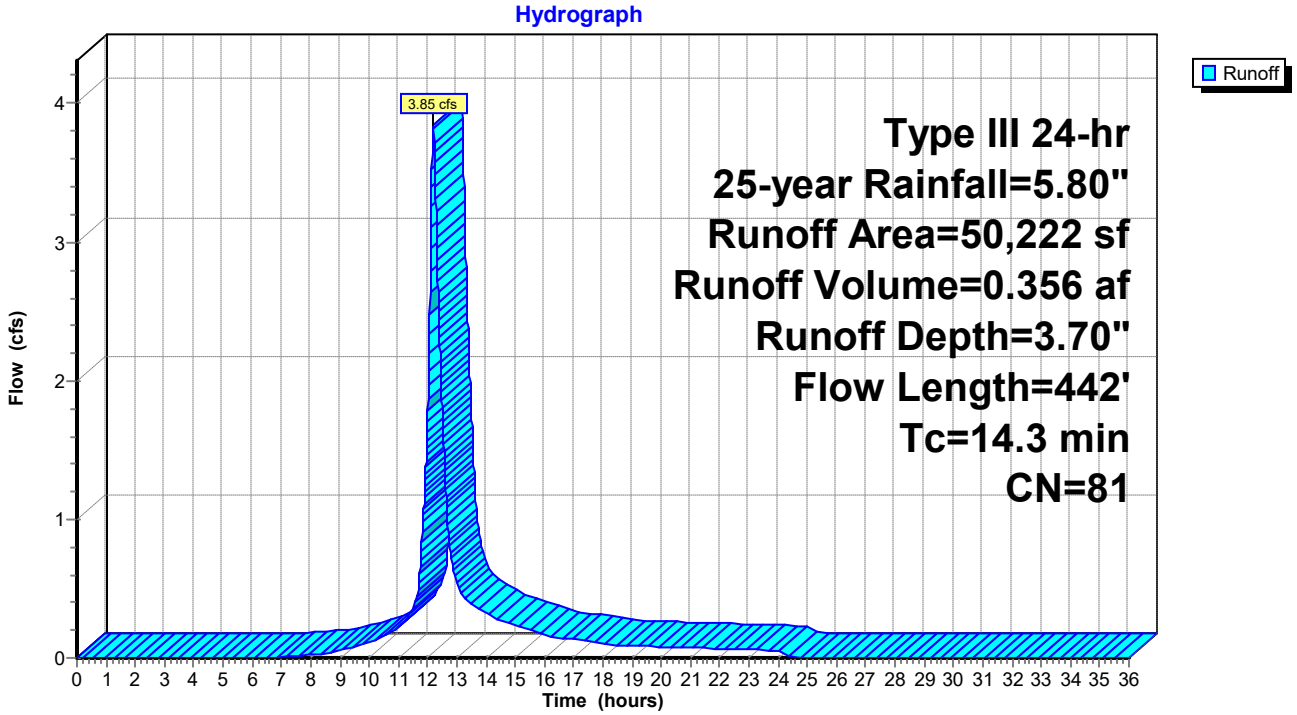
Runoff = 3.85 cfs @ 12.19 hrs, Volume= 0.356 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
6,392	98	Paved roads w/curbs & sewers, HSG D
9,000	98	Unconnected roofs, HSG D
34,830	74	>75% Grass cover, Good, HSG C
50,222	81	Weighted Average
34,830		69.35% Pervious Area
15,392		30.65% Impervious Area
9,000		58.47% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	122	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.6	320	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.3	442	Total			

Subcatchment 5.8S: 5.8



Summary for Subcatchment 5.9S: 5.9

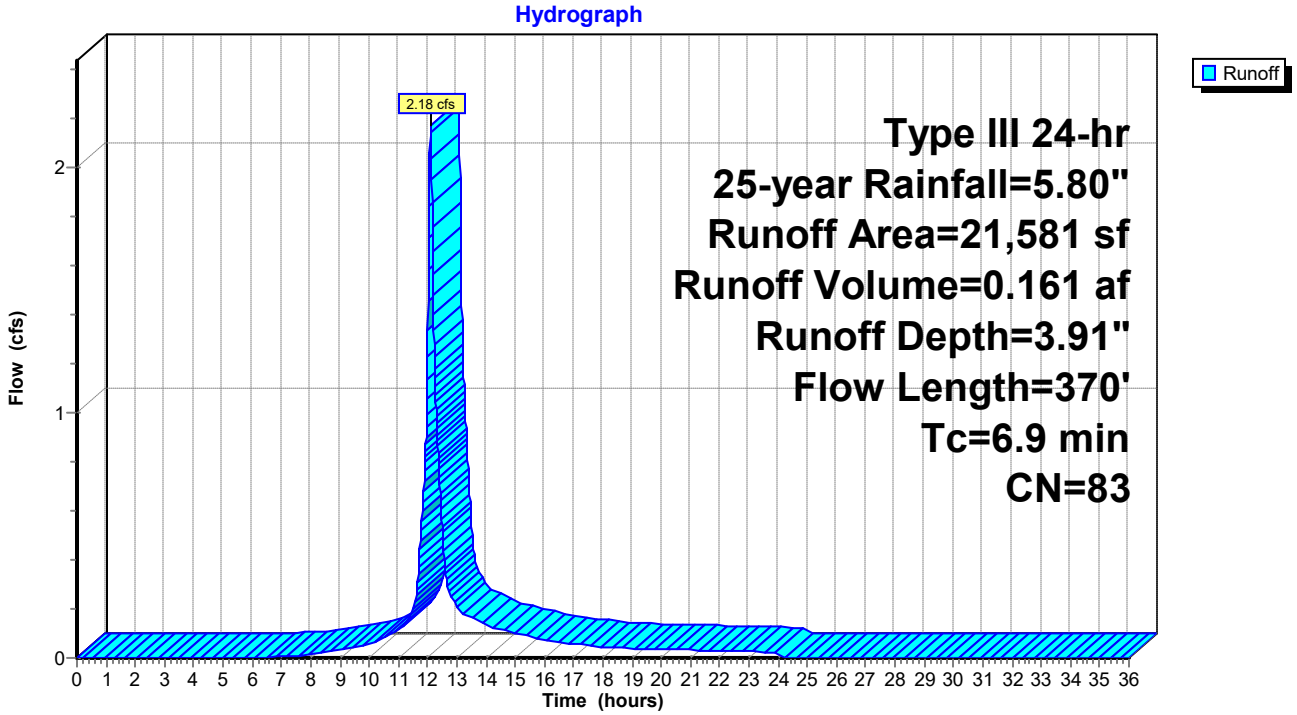
Runoff = 2.18 cfs @ 12.10 hrs, Volume= 0.161 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,566	98	Paved roads w/curbs & sewers, HSG D
3,750	98	Unconnected roofs, HSG D
13,265	74	>75% Grass cover, Good, HSG C
21,581	83	Weighted Average
13,265		61.47% Pervious Area
8,316		38.53% Impervious Area
3,750		45.09% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.2	320	0.0500	4.54		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.9	370	Total			

Subcatchment 5.9S: 5.9



Summary for Subcatchment 5S: 7A

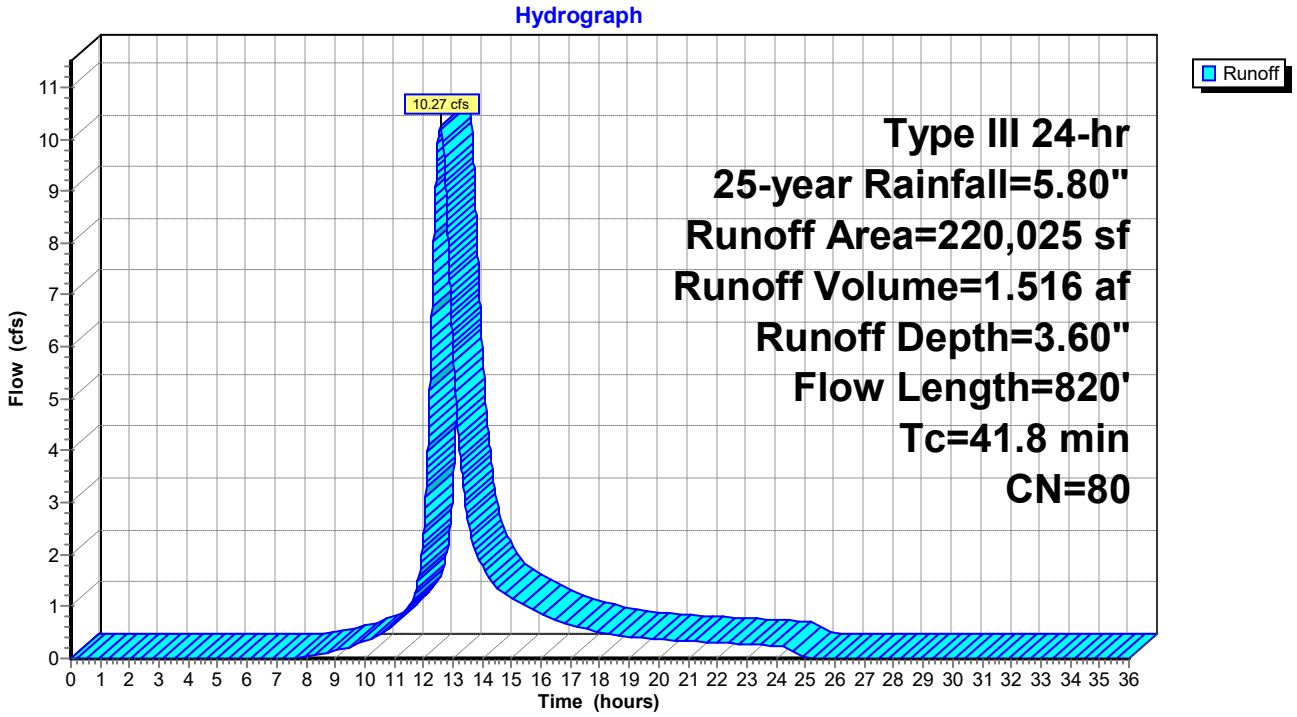
Runoff = 10.27 cfs @ 12.58 hrs, Volume= 1.516 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	1,436	98	Paved parking, HSG D
	7,057	98	Roofs, HSG D
	9,042	82	Woods/grass comb., Poor, HSG C
	17,153	72	Woods/grass comb., Good, HSG C
	39,818	79	Woods/grass comb., Good, HSG D
	5,895	89	<50% Grass cover, Poor, HSG D
	14,399	86	<50% Grass cover, Poor, HSG C
	45,703	79	50-75% Grass cover, Fair, HSG C
	59,810	74	>75% Grass cover, Good, HSG C
*	2,024	96	Gravel surface, HSG D
*	17,688	90	Wetland, HSG D
	220,025	80	Weighted Average
	211,532		96.14% Pervious Area
	8,493		3.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
8.5	273	0.0115	0.54		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	130	0.0165	1.45	89.64	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=11.00' D=2.00' Z= 10.0 '/' Top.W=51.00' n= 0.150
1.5	95	0.0456	1.07		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.9	86	0.1121	1.67		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.3	88	0.1143	4.22	413.93	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=29.00' D=2.00' Z= 10.0 '/' Top.W=69.00' n= 0.150
0.3	48	0.0558	3.11	410.39	**Trap/Vee/Rect Channel Flow, G-H, WETLAND** Bot.W=46.00' D=2.00' Z= 10.0 '/' Top.W=86.00' n= 0.150
41.8	820	Total			

Subcatchment 5S: 7A



Summary for Subcatchment 6.10S: 6.10

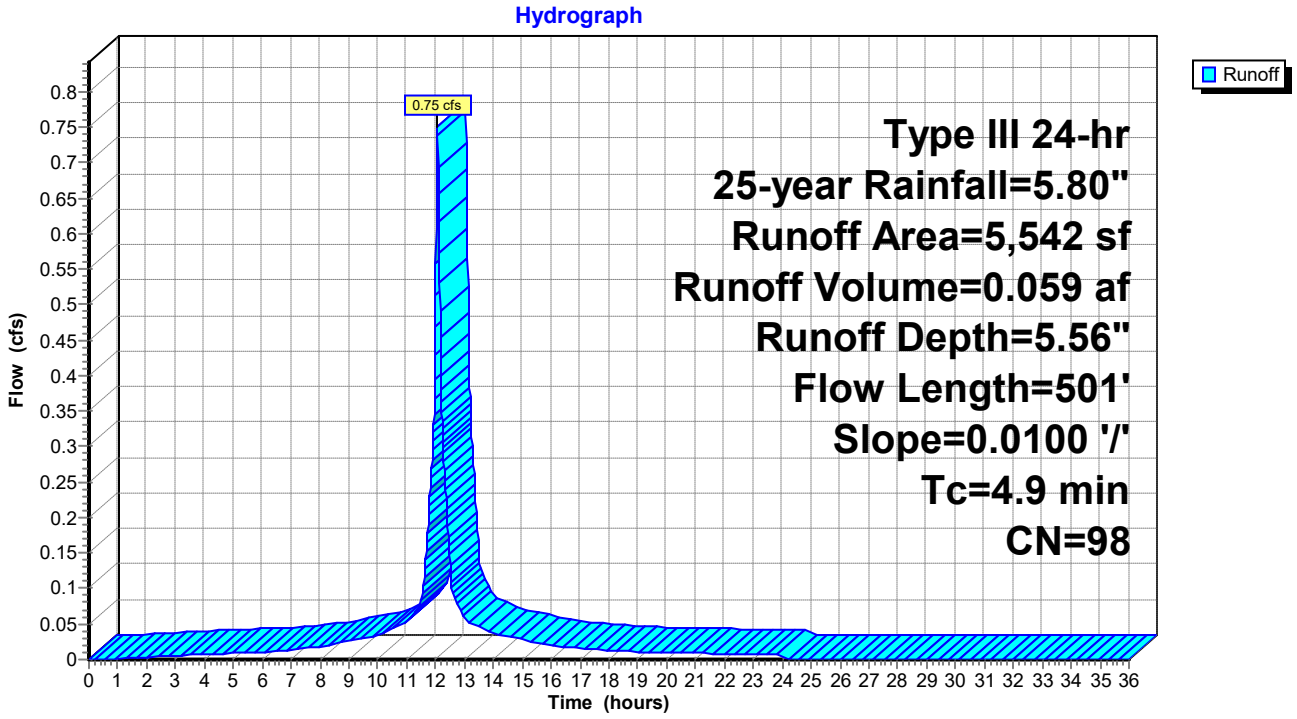
Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,542	98	Paved parking, HSG D
5,542		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
3.3	401	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.9	501	Total			

Subcatchment 6.10S: 6.10



Summary for Subcatchment 6.1S: 6.1

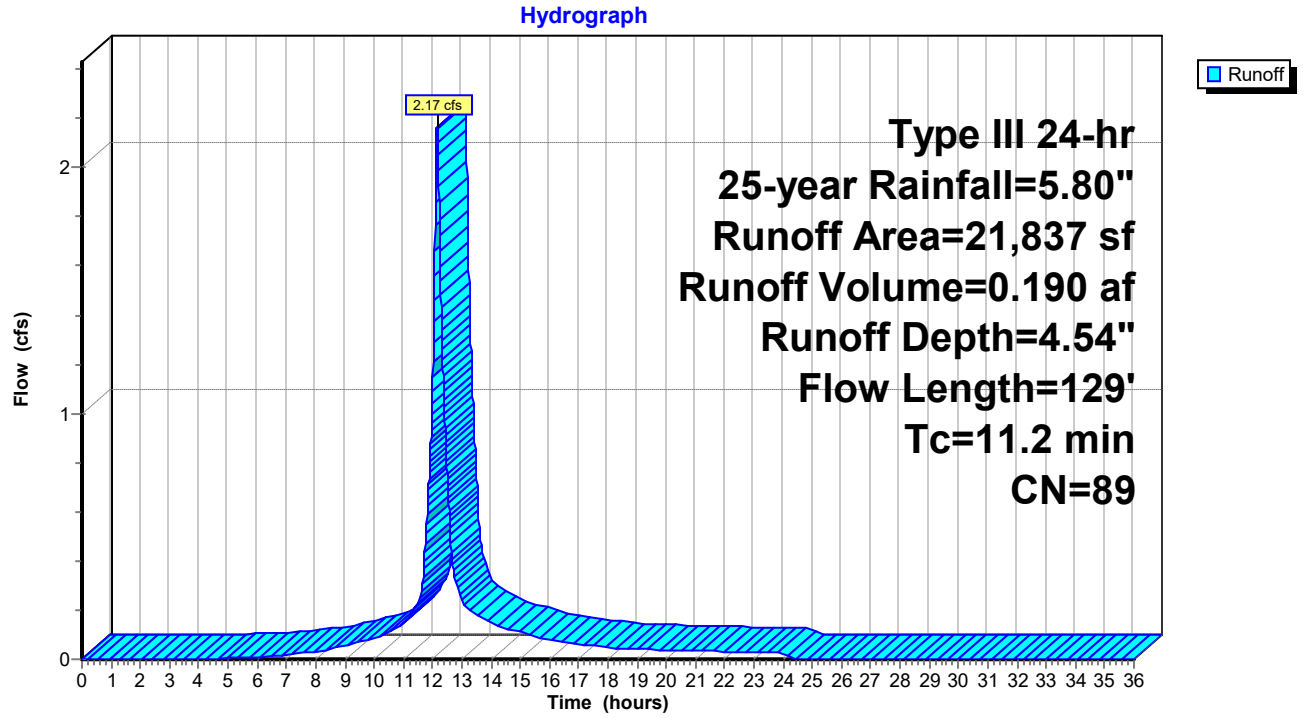
Runoff = 2.17 cfs @ 12.15 hrs, Volume= 0.190 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
350	80	>75% Grass cover, Good, HSG D
13,531	98	Paved parking, HSG D
7,956	74	>75% Grass cover, Good, HSG C
21,837	89	Weighted Average
8,306		38.04% Pervious Area
13,531		61.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	20	0.3300	3.01		**Sheet Flow, Roof A to B** Smooth surfaces n= 0.011 P2= 3.10"
7.5	50	0.0100	0.11		**Sheet Flow, Lawn B to C** Grass: Short n= 0.150 P2= 3.10"
0.4	20	0.0100	0.74		**Sheet Flow, C to D Pavement** Smooth surfaces n= 0.011 P2= 3.10"
3.2	39	0.0500	0.20		**Sheet Flow, D to E Lawn & VUSF** Grass: Short n= 0.150 P2= 3.10"
11.2	129	Total			

Subcatchment 6.1S: 6.1



Summary for Subcatchment 6.2S: 6.2

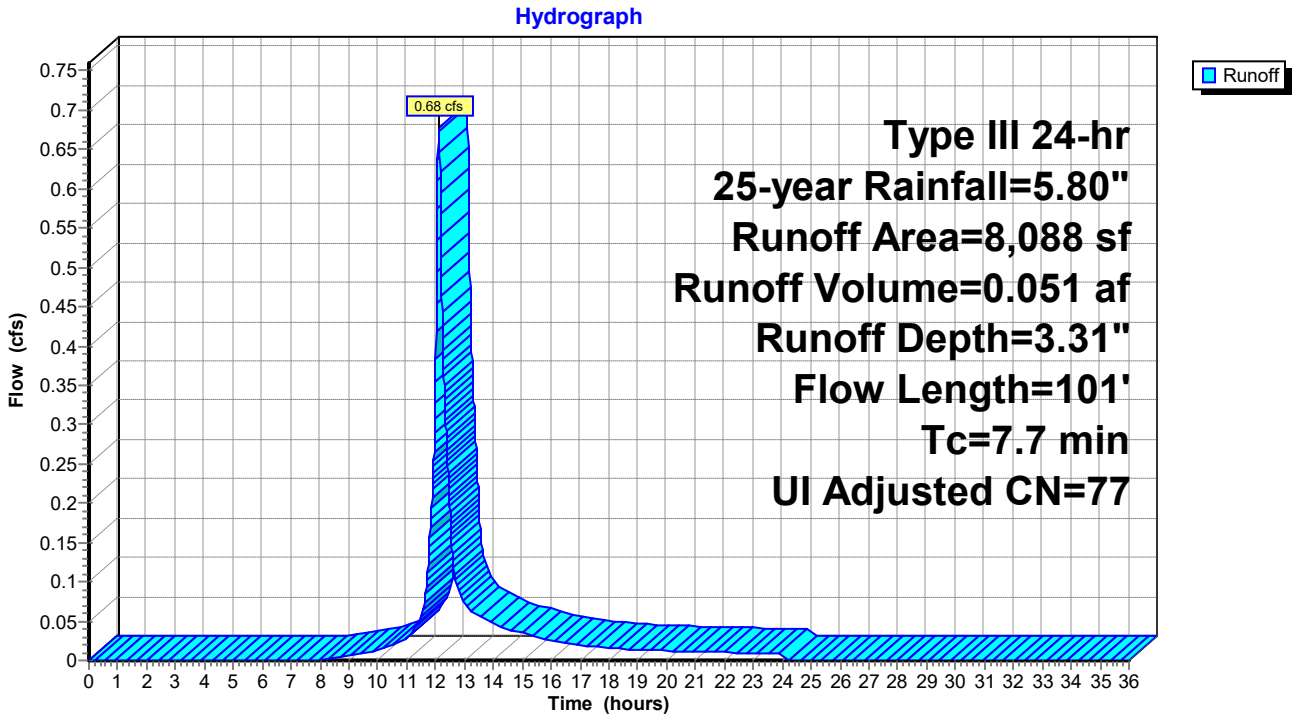
Runoff = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
6,082	74		>75% Grass cover, Good, HSG C
2,006	98		Unconnected roofs, HSG C
8,088	80	77	Weighted Average, UI Adjusted
6,082			75.20% Pervious Area
2,006			24.80% Impervious Area
2,006			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	10	0.3300	0.22		**Sheet Flow, A to B Berm** Grass: Dense n= 0.240 P2= 3.10"
7.0	91	0.0400	0.22		**Sheet Flow, Lawn & VUSF B to C** Grass: Short n= 0.150 P2= 3.10"
7.7	101	Total			

Subcatchment 6.2S: 6.2



Summary for Subcatchment 6.3S: 6.3

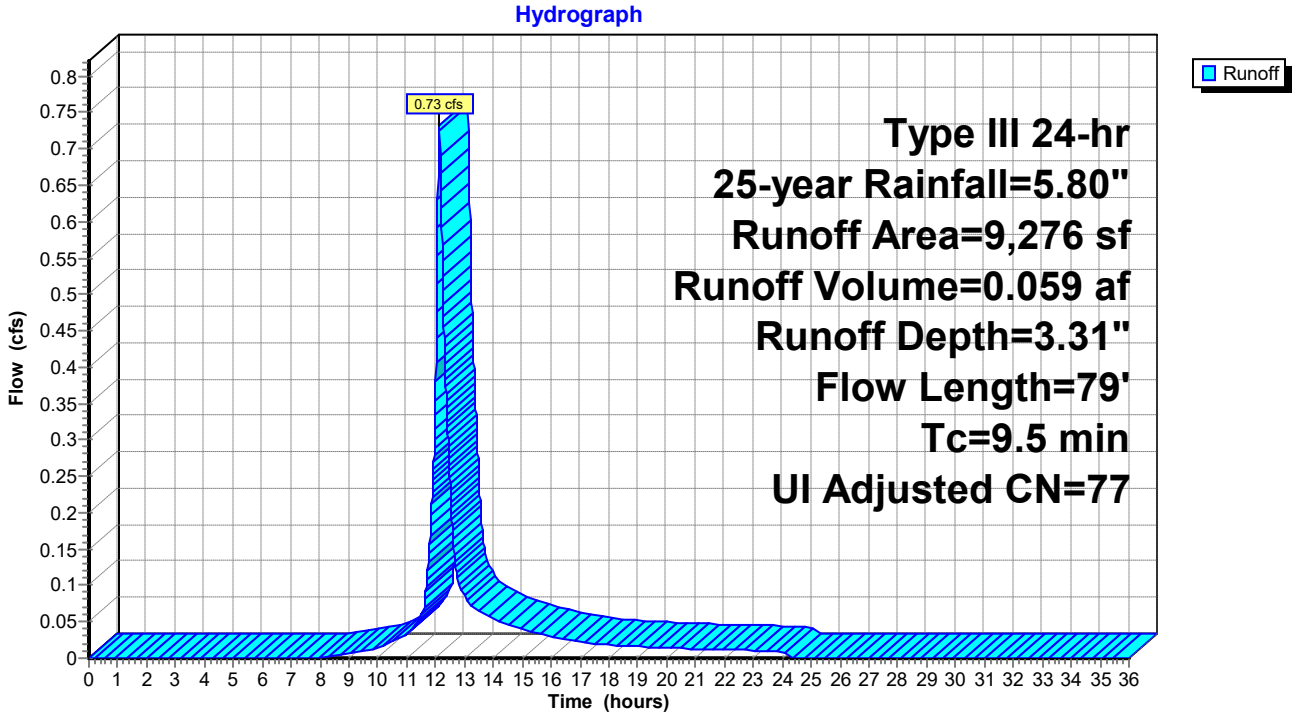
Runoff = 0.73 cfs @ 12.13 hrs, Volume= 0.059 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
7,270	74		>75% Grass cover, Good, HSG C
2,006	98		Unconnected roofs, HSG C
9,276	79	77	Weighted Average, UI Adjusted
7,270			78.37% Pervious Area
2,006			21.63% Impervious Area
2,006			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	19	0.3300	0.25		**Sheet Flow, A to B Berm** Grass: Dense n= 0.240 P2= 3.10"
2.5	35	0.0750	0.23		**Sheet Flow, B to C Lawn** Grass: Short n= 0.150 P2= 3.10"
5.7	25	0.0050	0.07		**Sheet Flow, C to D VUSF** Grass: Short n= 0.150 P2= 3.10"
9.5	79	Total			

Subcatchment 6.3S: 6.3



Summary for Subcatchment 6.4S: 6.4

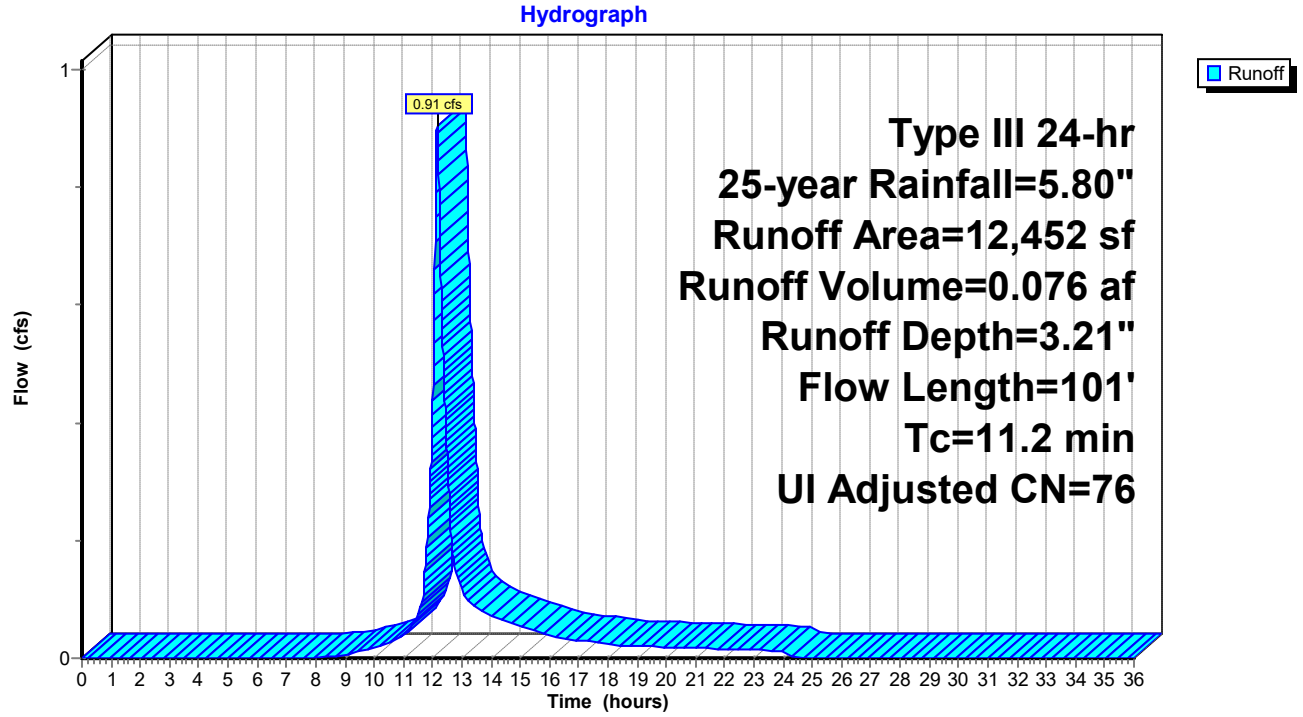
Runoff = 0.91 cfs @ 12.16 hrs, Volume= 0.076 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
10,446	74		>75% Grass cover, Good, HSG C
2,006	98		Unconnected roofs, HSG C
12,452	78	76	Weighted Average, UI Adjusted
10,446			83.89% Pervious Area
2,006			16.11% Impervious Area
2,006			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	24	0.3330	0.27		**Sheet Flow, A to B Berm** Grass: Dense n= 0.240 P2= 3.10"
3.3	48	0.0750	0.25		**Sheet Flow, B to C Lawn** Grass: Short n= 0.150 P2= 3.10"
6.4	29	0.0050	0.08		**Sheet Flow, C to D VUSF** Grass: Short n= 0.150 P2= 3.10"
11.2	101	Total			

Subcatchment 6.4S: 6.4



Summary for Subcatchment 6.5S: 6.5

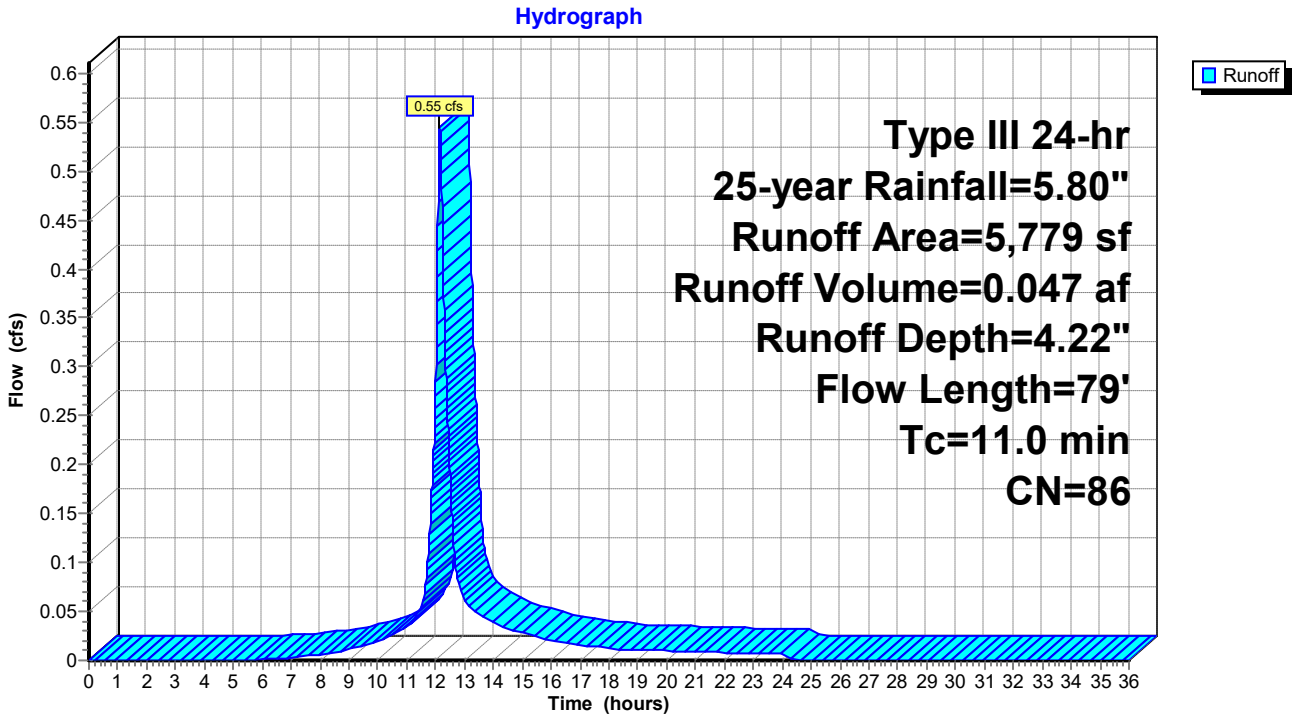
Runoff = 0.55 cfs @ 12.15 hrs, Volume= 0.047 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,773	80	>75% Grass cover, Good, HSG D
2,006	98	Unconnected roofs, HSG D
5,779	86	Weighted Average
3,773		65.29% Pervious Area
2,006		34.71% Impervious Area
2,006		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	55	0.0270	0.17		**Sheet Flow, A to B Lawn** Grass: Short n= 0.150 P2= 3.10"
5.5	24	0.0050	0.07		**Sheet Flow, B to C VUSF** Grass: Short n= 0.150 P2= 3.10"
11.0	79	Total			

Subcatchment 6.5S: 6.5



Summary for Subcatchment 6.6S: 6.6

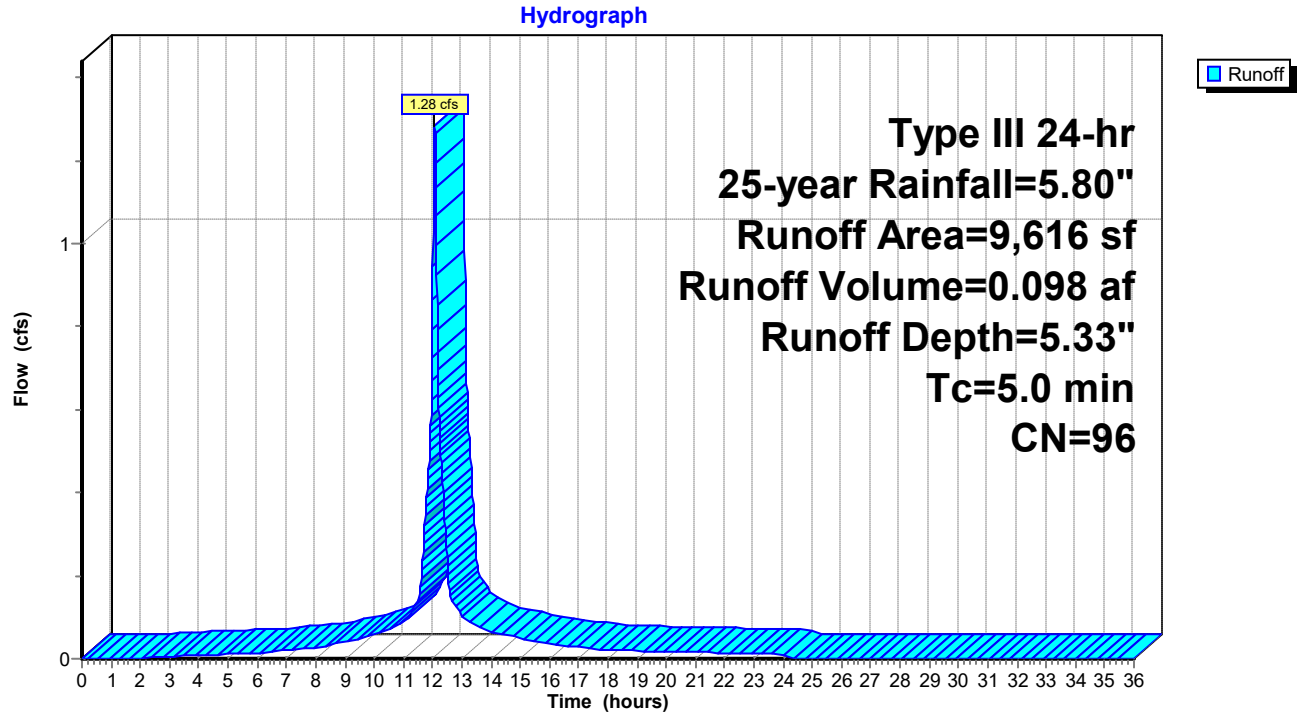
Runoff = 1.28 cfs @ 12.07 hrs, Volume= 0.098 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
875	80	>75% Grass cover, Good, HSG D
8,741	98	Paved parking, HSG D
9,616	96	Weighted Average
875		9.10% Pervious Area
8,741		90.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6.6S: 6.6



Summary for Subcatchment 6.7S: 6.7

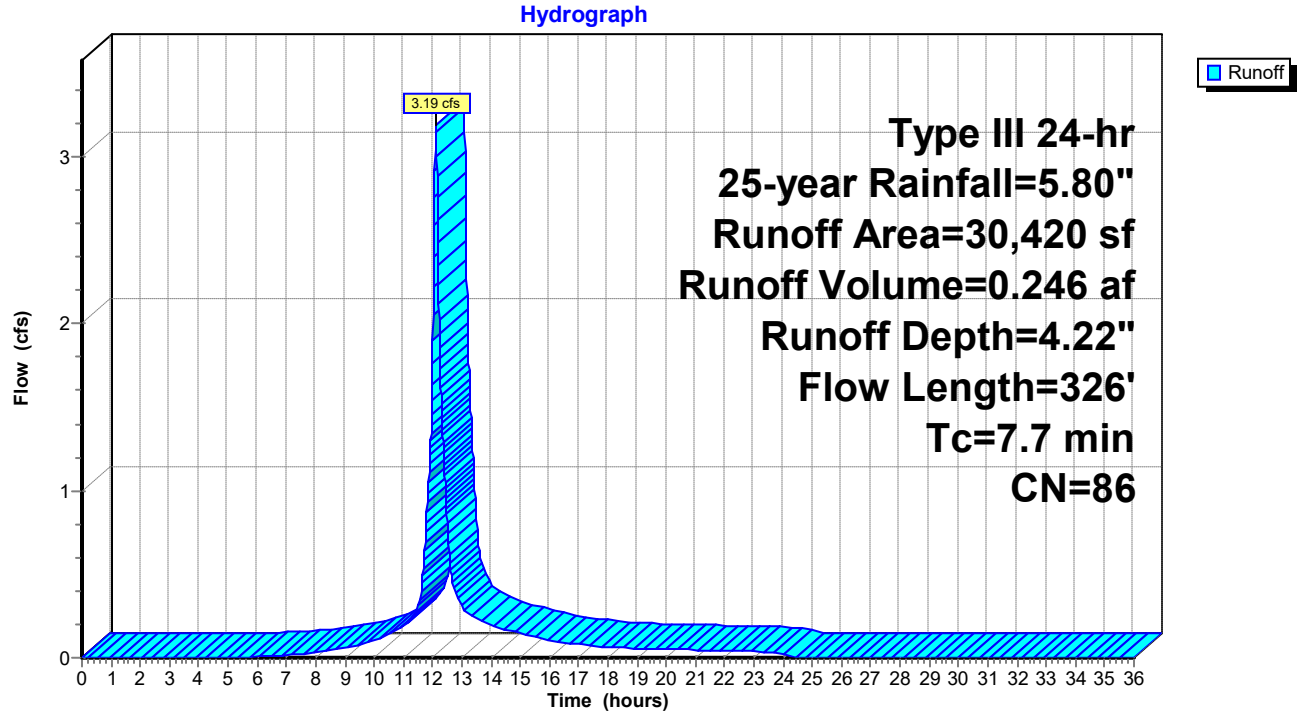
Runoff = 3.19 cfs @ 12.11 hrs, Volume= 0.246 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
14,745	74	>75% Grass cover, Good, HSG C
15,675	98	Paved parking, HSG D
30,420	86	Weighted Average
14,745		48.47% Pervious Area
15,675		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	24	0.3300	3.12		**Sheet Flow, A to B Roof** Smooth surfaces n= 0.011 P2= 3.10"
4.6	27	0.0100	0.10		**Sheet Flow, B to C Lawn** Grass: Short n= 0.150 P2= 3.10"
1.6	100	0.0100	1.03		**Sheet Flow, C to D Pavement** Smooth surfaces n= 0.011 P2= 3.10"
1.4	175	0.0100	2.03		**Shallow Concentrated Flow, E to F Paved gutter line** Paved Kv= 20.3 fps
7.7	326	Total			

Subcatchment 6.7S: 6.7



Summary for Subcatchment 6.8S: 6.8

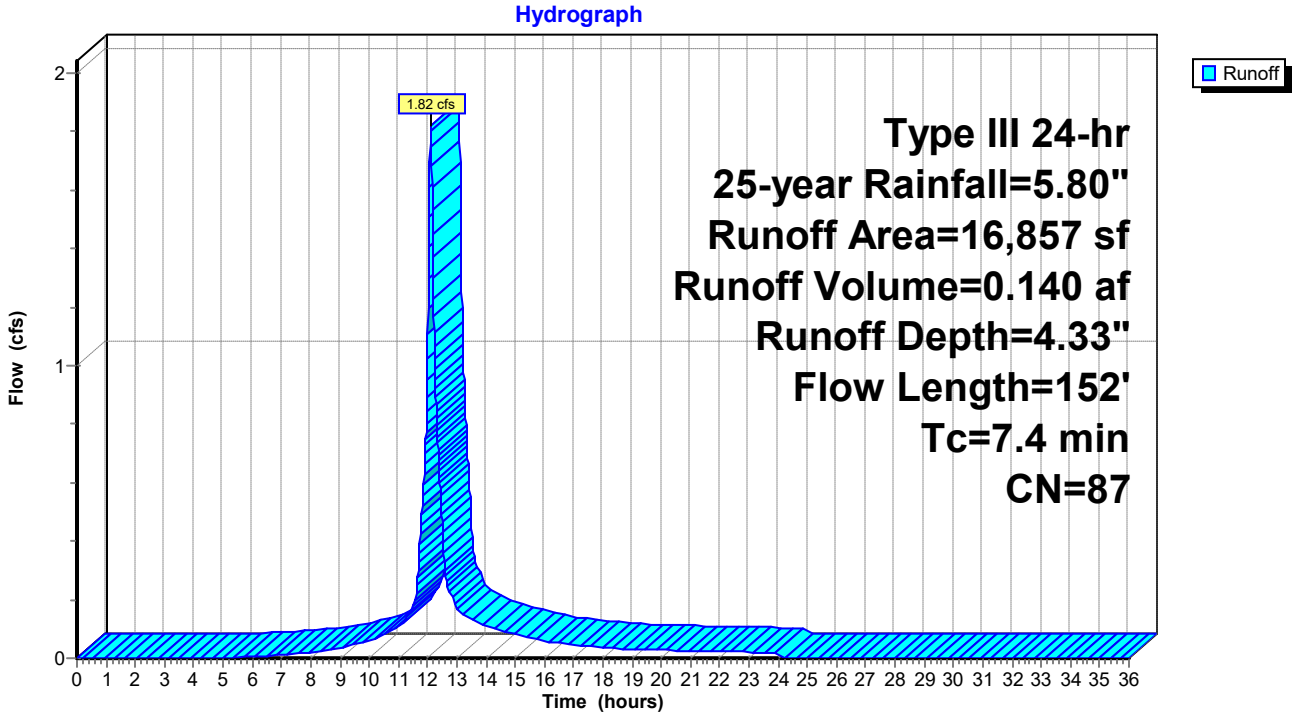
Runoff = 1.82 cfs @ 12.10 hrs, Volume= 0.140 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,818	80	>75% Grass cover, Good, HSG D
7,906	98	Paved parking, HSG D
3,133	74	>75% Grass cover, Good, HSG C
16,857	87	Weighted Average
8,951		53.10% Pervious Area
7,906		46.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	22	0.3300	3.07		**Sheet Flow, A to B roof** Smooth surfaces n= 0.011 P2= 3.10"
5.7	35	0.0100	0.10		**Sheet Flow, B to C Lawn** Grass: Short n= 0.150 P2= 3.10"
1.6	95	0.0100	1.02		**Sheet Flow, C to D Paved Gutter line** Smooth surfaces n= 0.011 P2= 3.10"
7.4	152	Total			

Subcatchment 6.8S: 6.8



Summary for Subcatchment 6.9S: 6.9

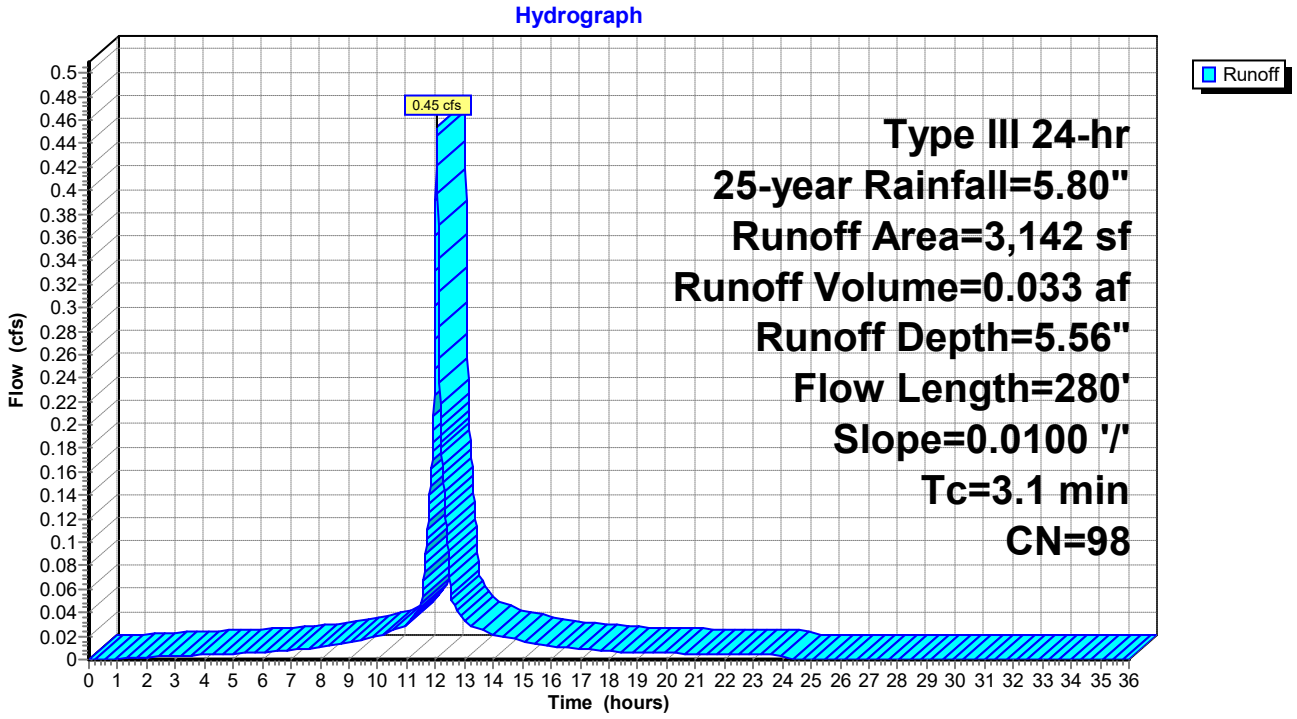
Runoff = 0.45 cfs @ 12.04 hrs, Volume= 0.033 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,142	98	Paved parking, HSG D
3,142		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
1.5	180	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.1	280	Total			

Subcatchment 6.9S: 6.9



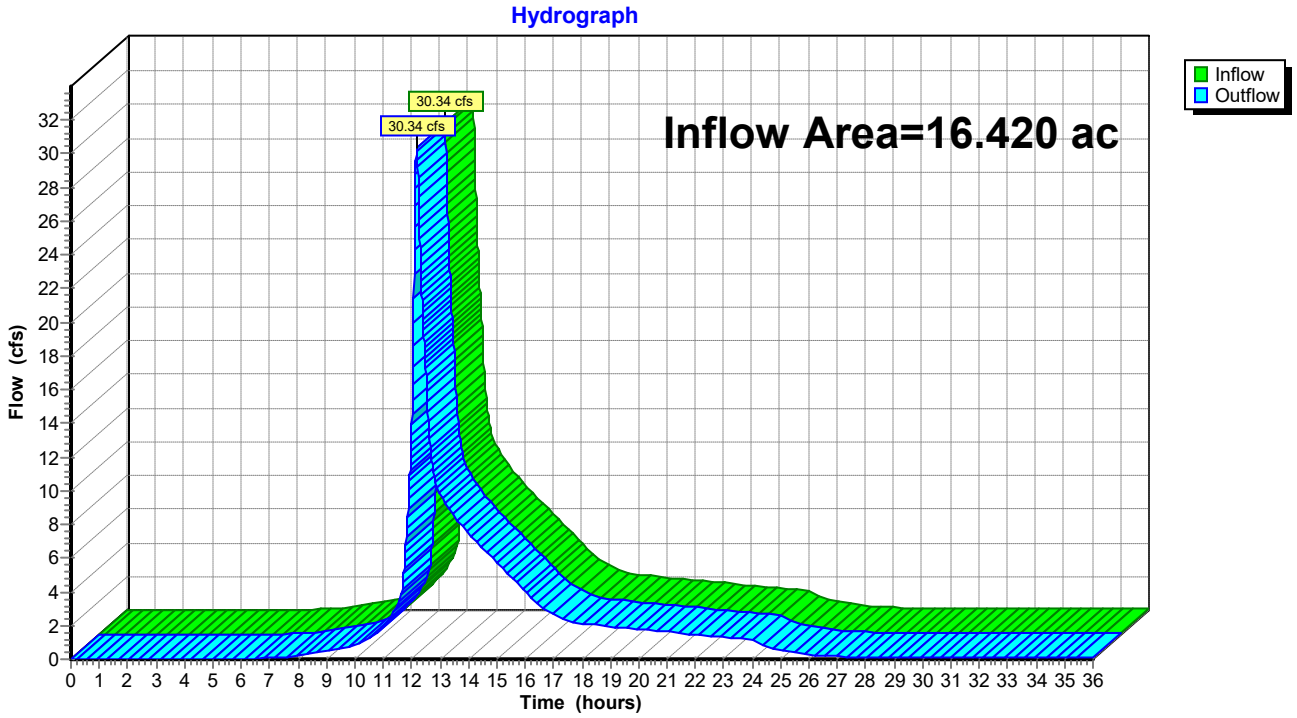
Summary for Reach 4R: POI 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 16.420 ac, 15.72% Impervious, Inflow Depth > 3.74" for 25-year event
Inflow = 30.34 cfs @ 12.18 hrs, Volume= 5.117 af
Outflow = 30.34 cfs @ 12.18 hrs, Volume= 5.117 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 4R: POI 4



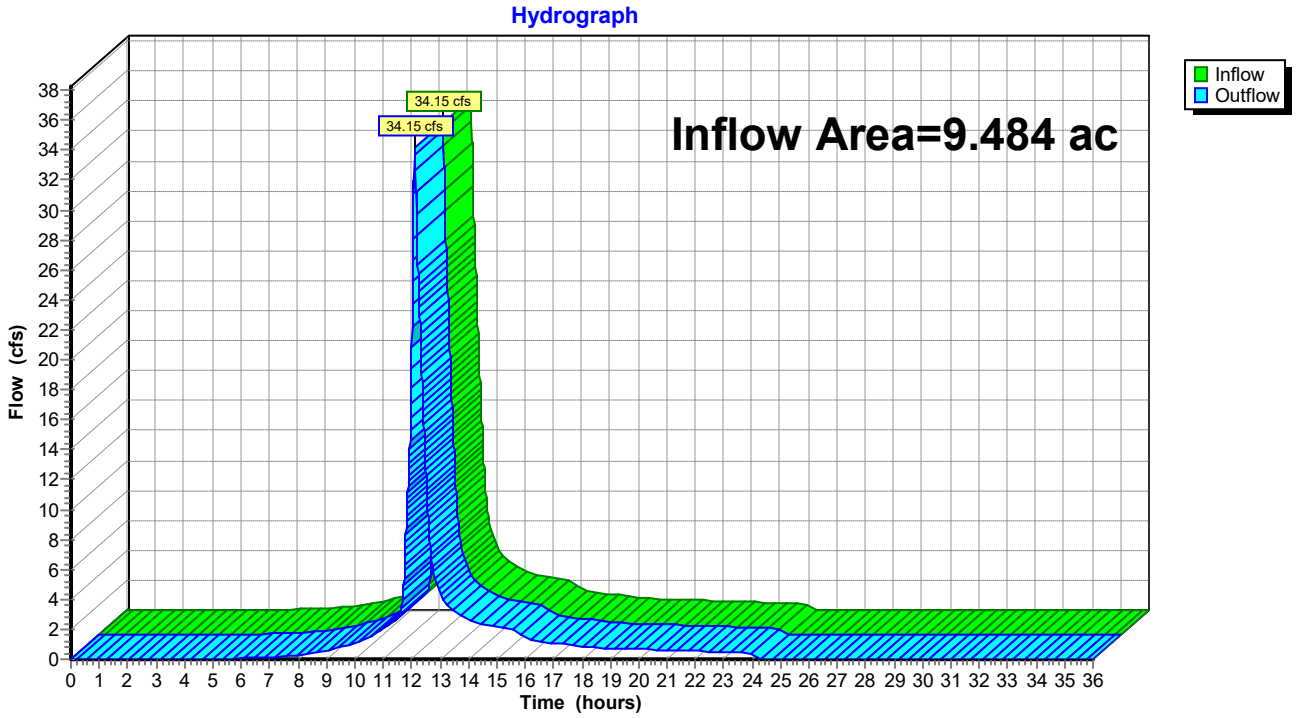
Summary for Reach 5.0R: Focal Points

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.484 ac, 36.78% Impervious, Inflow Depth = 3.84" for 25-year event
Inflow = 34.15 cfs @ 12.11 hrs, Volume= 3.039 af
Outflow = 34.15 cfs @ 12.11 hrs, Volume= 3.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 5.0R: Focal Points



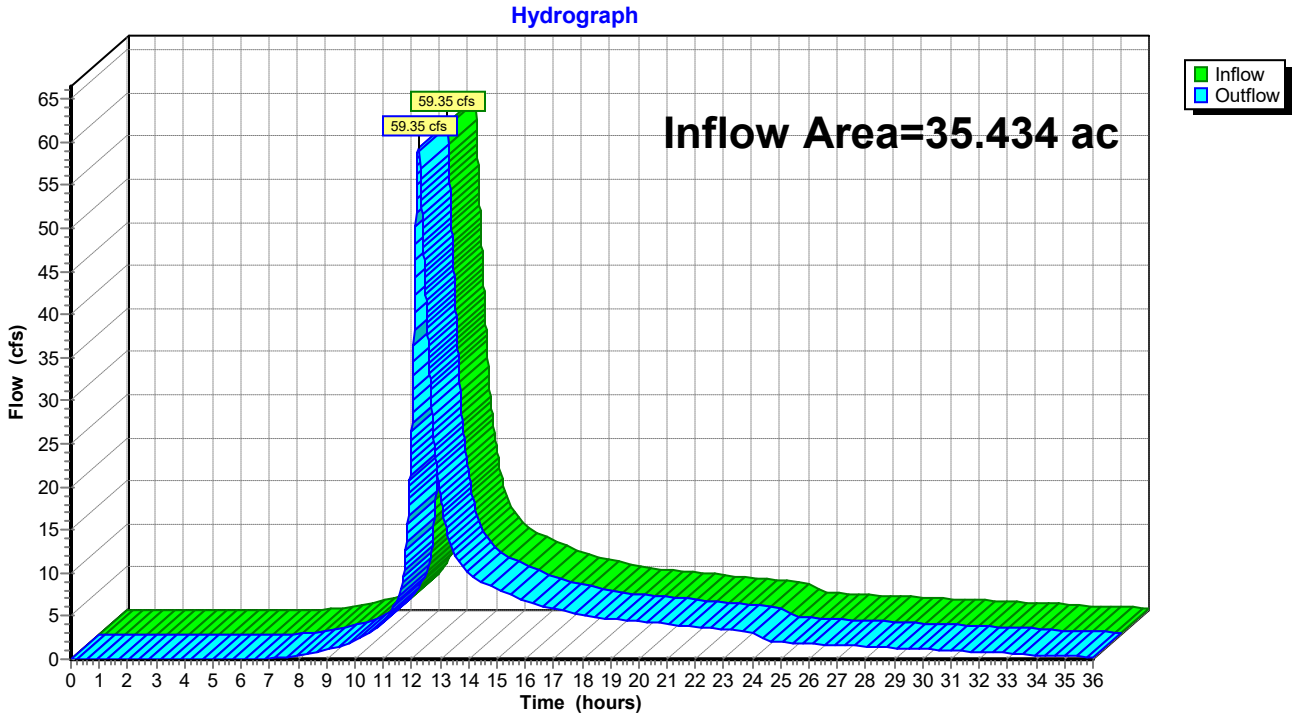
Summary for Reach 5R: POI 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 35.434 ac, 15.47% Impervious, Inflow Depth > 3.72" for 25-year event
Inflow = 59.35 cfs @ 12.25 hrs, Volume= 10.988 af
Outflow = 59.35 cfs @ 12.25 hrs, Volume= 10.988 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 5R: POI 5



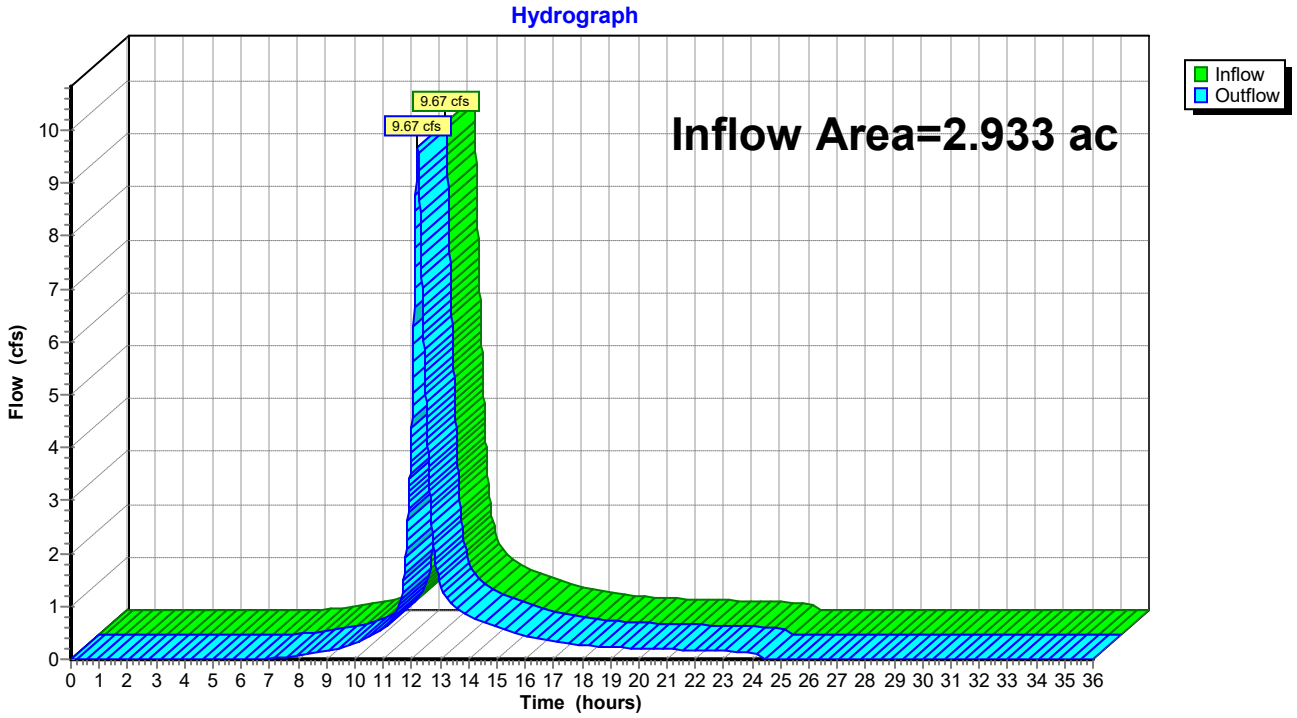
Summary for Reach 6R: POI 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.933 ac, 0.00% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 9.67 cfs @ 12.21 hrs, Volume= 0.930 af
Outflow = 9.67 cfs @ 12.21 hrs, Volume= 0.930 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 6R: POI 4



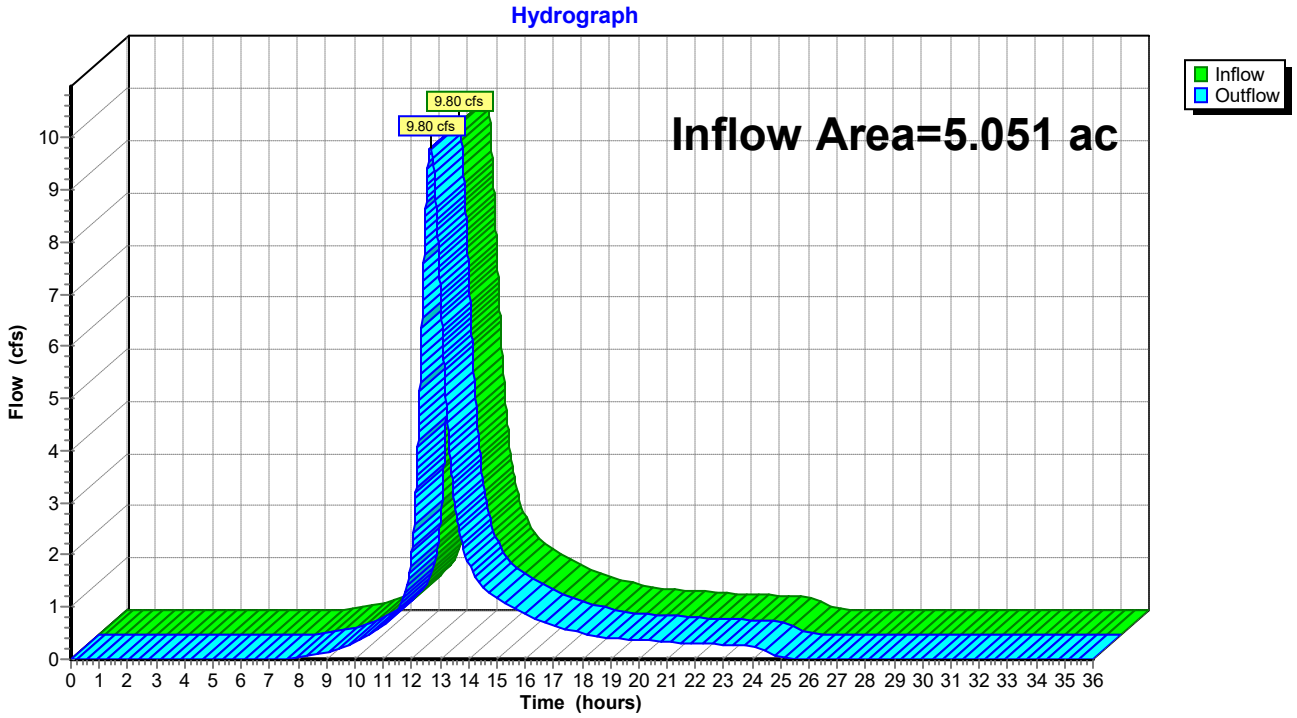
Summary for Reach 7A-R: 7A-R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.051 ac, 3.86% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 9.80 cfs @ 12.68 hrs, Volume= 1.516 af
Outflow = 9.80 cfs @ 12.68 hrs, Volume= 1.516 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 7A-R: 7A-R



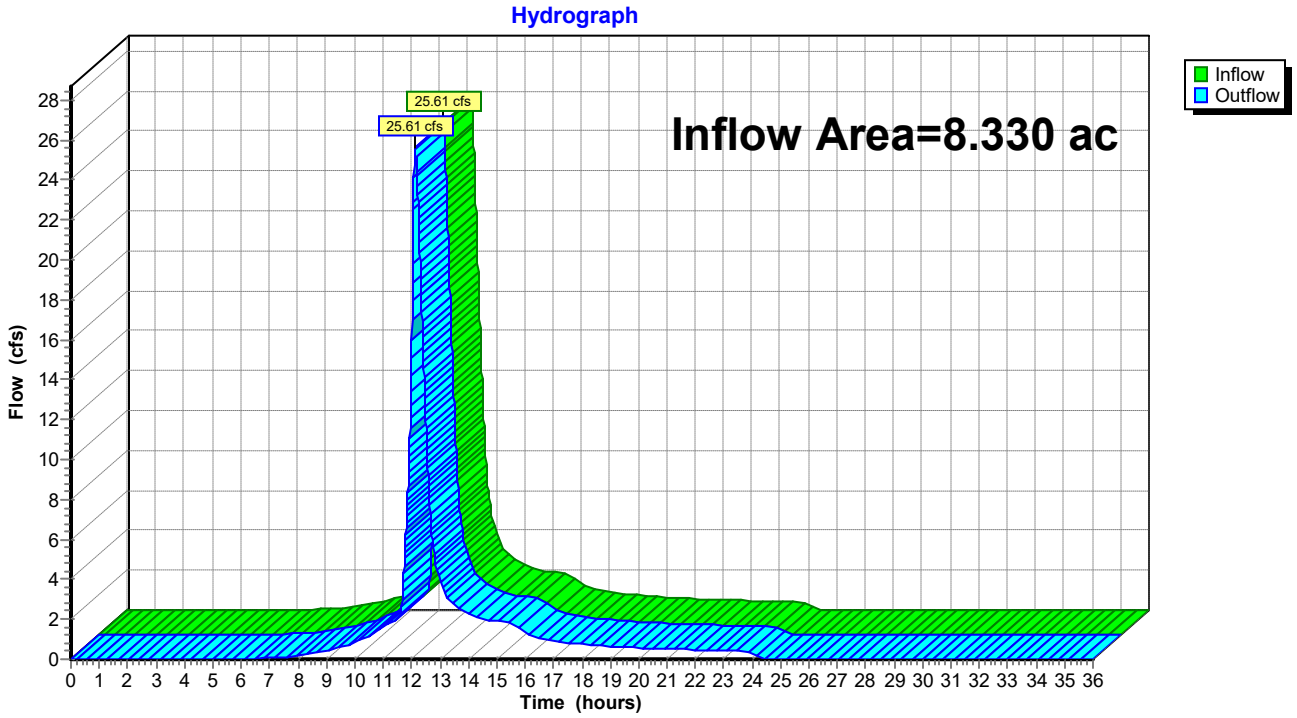
Summary for Reach 15R: FocalPoint

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.330 ac, 29.18% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af
Outflow = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 15R: FocalPoint



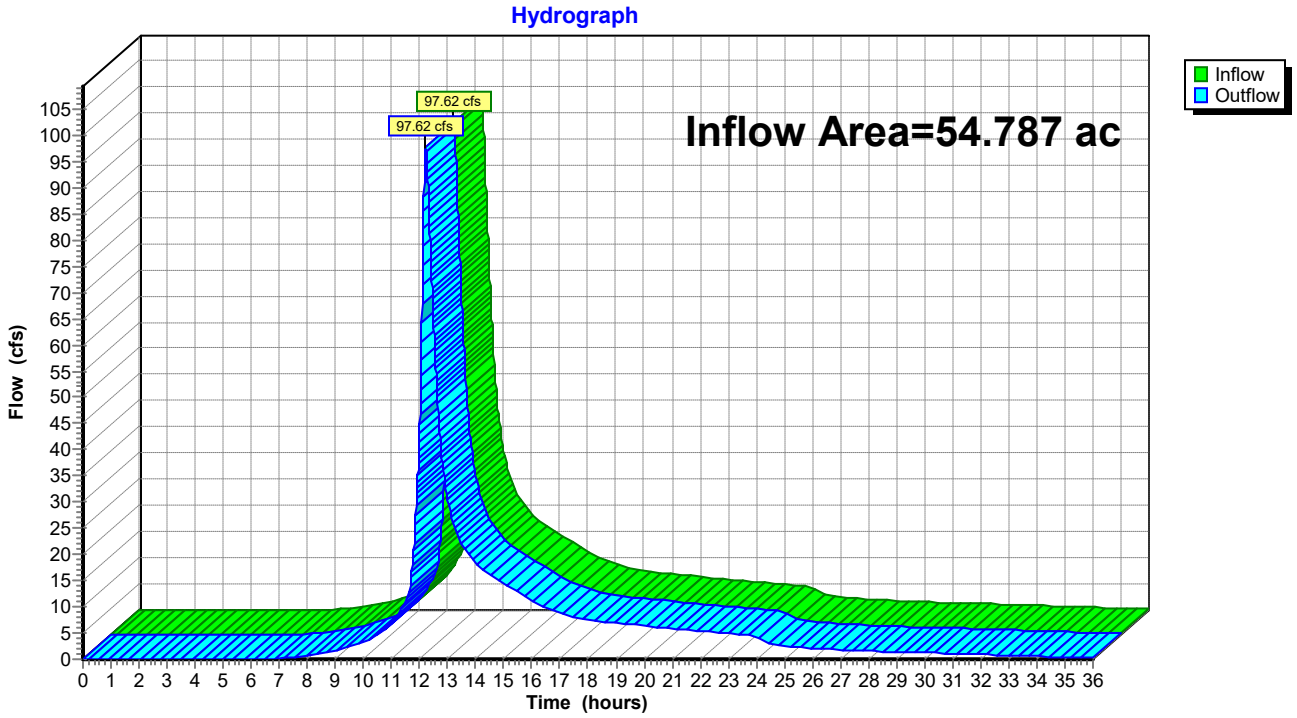
Summary for Reach 99R: POI 99

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 54.787 ac, 14.71% Impervious, Inflow Depth > 3.73" for 25-year event
Inflow = 97.62 cfs @ 12.22 hrs, Volume= 17.034 af
Outflow = 97.62 cfs @ 12.22 hrs, Volume= 17.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 99R: POI 99



Summary for Pond 1P: Pond 1

Inflow Area = 9.403 ac, 27.46% Impervious, Inflow Depth = 3.74" for 25-year event
Inflow = 30.10 cfs @ 12.12 hrs, Volume= 2.933 af
Outflow = 6.62 cfs @ 12.73 hrs, Volume= 2.833 af, Atten= 78%, Lag= 36.7 min
Primary = 6.62 cfs @ 12.73 hrs, Volume= 2.833 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 39.33' @ 12.73 hrs Surf.Area= 12,703 sf Storage= 56,750 cf

Plug-Flow detention time= 178.3 min calculated for 2.833 af (97% of inflow)
Center-of-Mass det. time= 158.6 min (976.9 - 818.3)

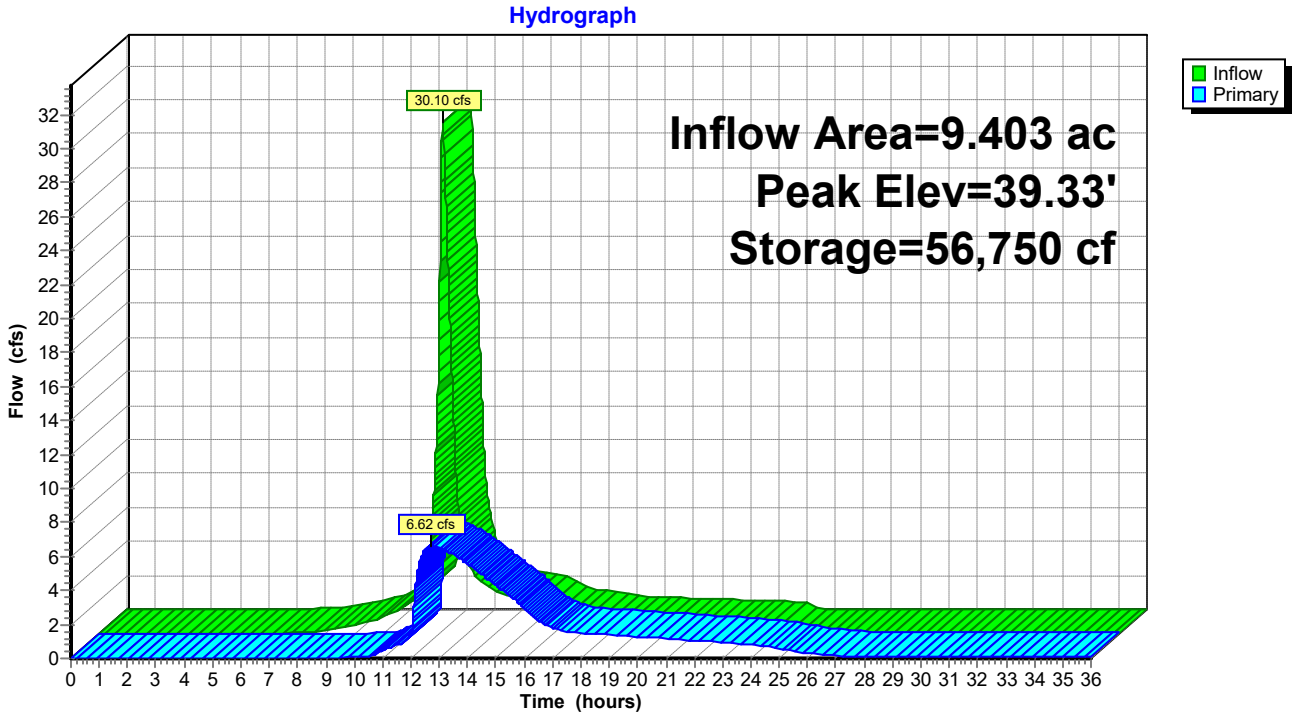
Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	65,572 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	5,606	0	0
33.75	6,330	4,476	4,476
34.00	6,575	1,613	6,089
35.00	7,600	7,088	13,177
36.00	8,685	8,143	21,319
37.00	9,825	9,255	30,574
38.00	11,021	10,423	40,997
39.00	12,273	11,647	52,644
40.00	13,582	12,928	65,572

Device	Routing	Invert	Outlet Devices
#1	Primary	32.90'	**15.0" Round 15" Culvert** L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.90' / 31.00' S= 0.0317 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	33.00'	**1.7" Vert. WQ Orifice** C= 0.600
#3	Device 1	33.95'	**6.0" Vert. 2- YR Quantity Orifice** C= 0.600
#4	Device 1	36.25'	**10.0" Vert. 10/25 - YR Quantity Orifice** C= 0.600
#5	Primary	39.40'	**15.0' long x 6.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=6.62 cfs @ 12.73 hrs HW=39.33' (Free Discharge)
- **1=15" Culvert** (Passes 6.62 cfs of 11.24 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.19 cfs @ 12.05 fps)
  - **3=2- YR Quantity Orifice** (Orifice Controls 2.14 cfs @ 10.90 fps)
  - **4=10/25 - YR Quantity Orifice** (Orifice Controls 4.28 cfs @ 7.86 fps)
- **5=Emergency Spillway** (Controls 0.00 cfs)

Pond 1P: Pond 1



Summary for Pond 2P: Pond 2

Inflow Area = 11.001 ac, 34.57% Impervious, Inflow Depth = 3.87" for 25-year event
Inflow = 39.99 cfs @ 12.11 hrs, Volume= 3.546 af
Outflow = 2.42 cfs @ 15.11 hrs, Volume= 3.310 af, Atten= 94%, Lag= 180.3 min
Primary = 2.42 cfs @ 15.11 hrs, Volume= 3.310 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 33.95' @ 15.11 hrs Surf.Area= 20,429 sf Storage= 93,084 cf

Plug-Flow detention time= 474.6 min calculated for 3.309 af (93% of inflow)
Center-of-Mass det. time= 439.5 min (1,251.8 - 812.3)

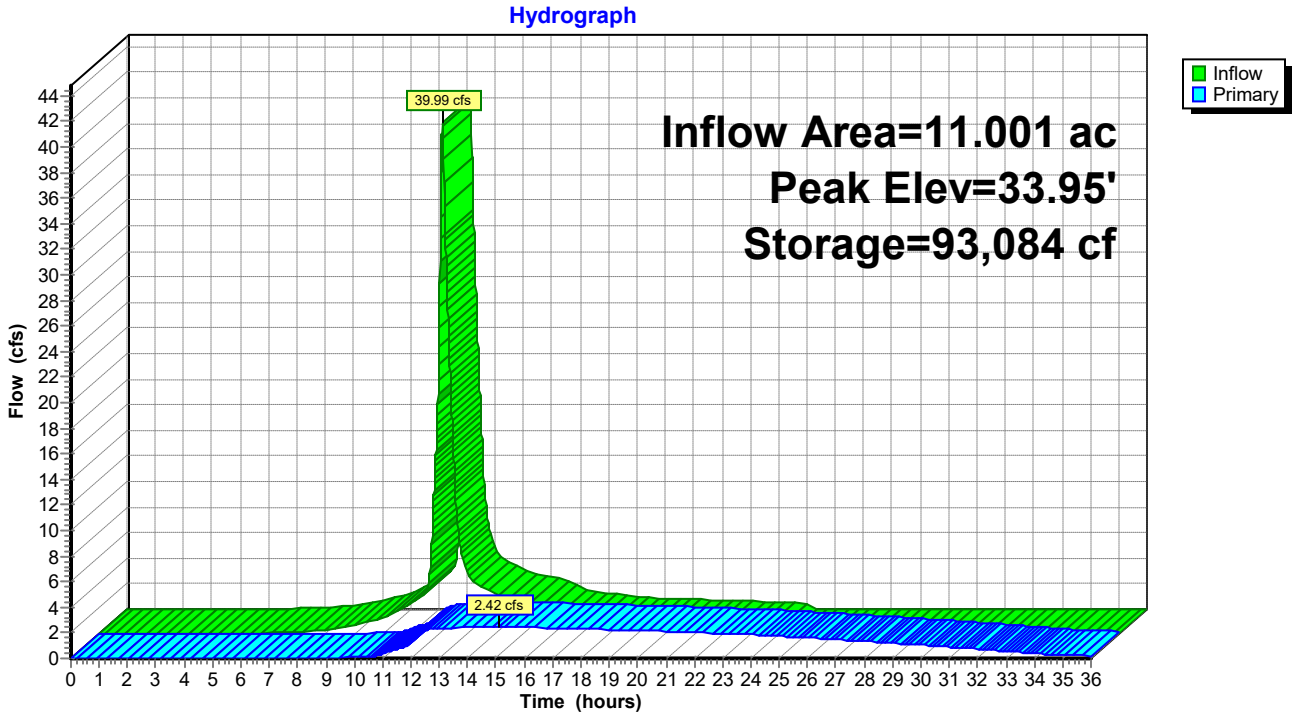
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	115,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	11,200	0	0
29.00	12,610	11,905	11,905
29.75	13,705	9,868	21,773
30.00	14,078	3,473	25,246
31.00	15,600	14,839	40,085
32.00	17,185	16,393	56,478
33.00	18,822	18,004	74,481
34.00	20,517	19,670	94,151
35.00	22,269	21,393	115,544

Device	Routing	Invert	Outlet Devices
#1	Primary	27.90'	**15.0" Round 15" Culvert** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 27.90' / 27.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	28.00'	**2.2" Vert. WQ Orifice** C= 0.600
#3	Device 1	28.70'	**6.0" Vert. Quantity Orifice** C= 0.600
#4	Primary	34.50'	**25.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.42 cfs @ 15.11 hrs HW=33.95' (Free Discharge)
- **1=15" Culvert** (Passes 2.42 cfs of 10.86 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.31 cfs @ 11.65 fps)
  - **3=Quantity Orifice** (Orifice Controls 2.11 cfs @ 10.76 fps)
- **4=Emergency Spillway** (Controls 0.00 cfs)

Pond 2P: Pond 2



Summary for Pond 3P: Pond 3

Inflow Area = 2.824 ac, 50.86% Impervious, Inflow Depth = 4.21" for 25-year event
Inflow = 7.66 cfs @ 12.09 hrs, Volume= 0.992 af
Outflow = 1.07 cfs @ 13.31 hrs, Volume= 0.914 af, Atten= 86%, Lag= 73.1 min
Primary = 1.07 cfs @ 13.31 hrs, Volume= 0.914 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 32.92' @ 13.31 hrs Surf.Area= 6,111 sf Storage= 17,211 cf

Plug-Flow detention time= 286.2 min calculated for 0.914 af (92% of inflow)
Center-of-Mass det. time= 239.6 min (1,113.4 - 873.8)

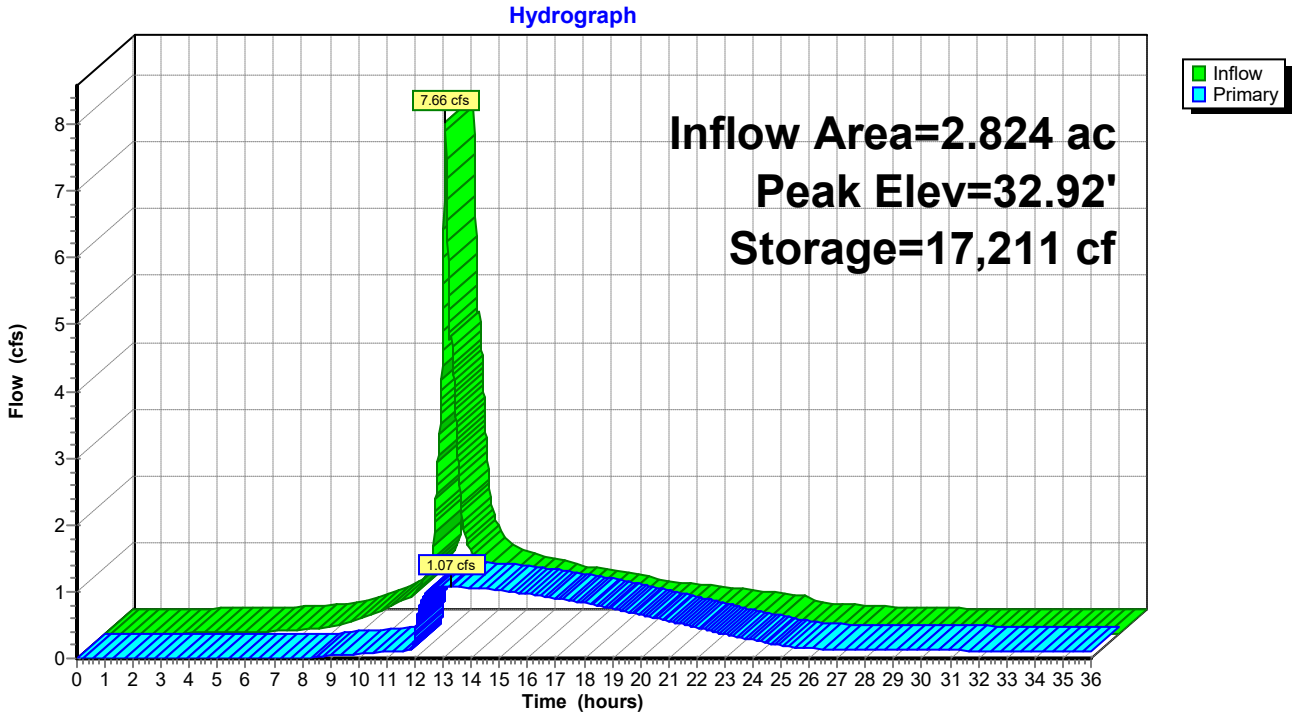
Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	32,088 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	3,000	0	0
30.00	3,515	3,258	3,258
30.85	4,220	3,287	6,545
31.00	4,350	643	7,188
32.00	5,240	4,795	11,983
33.00	6,185	5,713	17,695
34.00	7,190	6,688	24,383
35.00	8,220	7,705	32,088

Device	Routing	Invert	Outlet Devices
#1	Primary	29.25'	**15.0" Round 15" Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.25' / 29.00' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	29.10'	**2.0" Vert. WQ Orifice** C= 0.600
#3	Device 1	30.95'	**5.0" Vert. Quantity Orifice** C= 0.600
#4	Primary	34.00'	**15.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.07 cfs @ 13.31 hrs HW=32.92' (Free Discharge)
- **1=15" Culvert** (Passes 1.07 cfs of 8.14 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.20 cfs @ 9.23 fps)
  - **3=Quantity Orifice** (Orifice Controls 0.87 cfs @ 6.39 fps)
- **4=Emergency Spillway** (Controls 0.00 cfs)

Pond 3P: Pond 3



Summary for Pond 4P: WETLAND STORAGE

Inflow Area = 7.017 ac, 0.00% Impervious, Inflow Depth = 3.91" for 25-year event
Inflow = 25.91 cfs @ 12.17 hrs, Volume= 2.284 af
Outflow = 25.89 cfs @ 12.17 hrs, Volume= 2.284 af, Atten= 0%, Lag= 0.3 min
Primary = 25.89 cfs @ 12.17 hrs, Volume= 2.284 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.21' @ 12.17 hrs Surf.Area= 2,938 sf Storage= 496 cf

Plug-Flow detention time= 0.5 min calculated for 2.283 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (814.0 - 813.5)

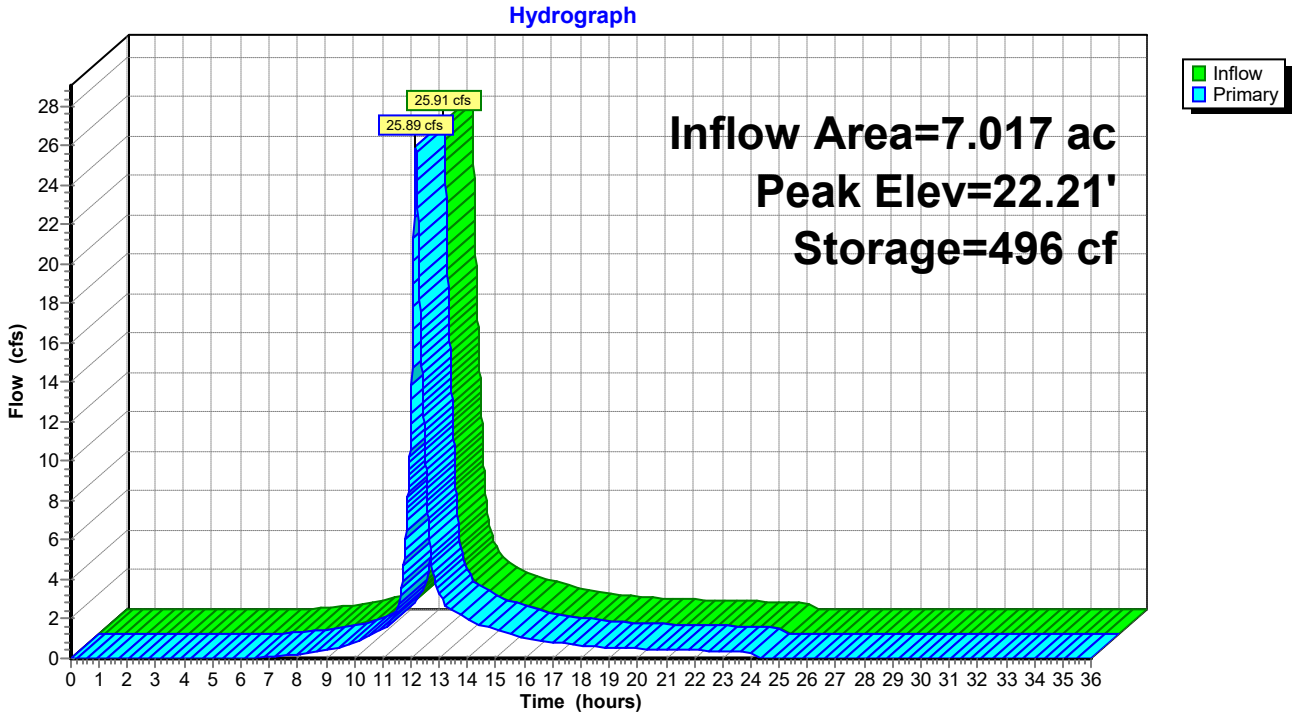
Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	15,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	1,777	0	0
23.00	7,298	4,538	4,538
24.00	15,446	11,372	15,910

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**100.0' long x 98.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=25.85 cfs @ 12.17 hrs HW=22.21' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 25.85 cfs @ 1.23 fps)

Pond 4P: WETLAND STORAGE



Summary for Pond 5P: 36" Culvert

Inflow Area = 5.051 ac, 3.86% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 10.27 cfs @ 12.58 hrs, Volume= 1.516 af
Outflow = 9.80 cfs @ 12.68 hrs, Volume= 1.516 af, Atten= 5%, Lag= 5.8 min
Primary = 9.80 cfs @ 12.68 hrs, Volume= 1.516 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 33.40' @ 12.68 hrs Surf.Area= 4,740 sf Storage= 3,196 cf

Plug-Flow detention time= 4.0 min calculated for 1.516 af (100% of inflow)
Center-of-Mass det. time= 4.0 min (852.7 - 848.7)

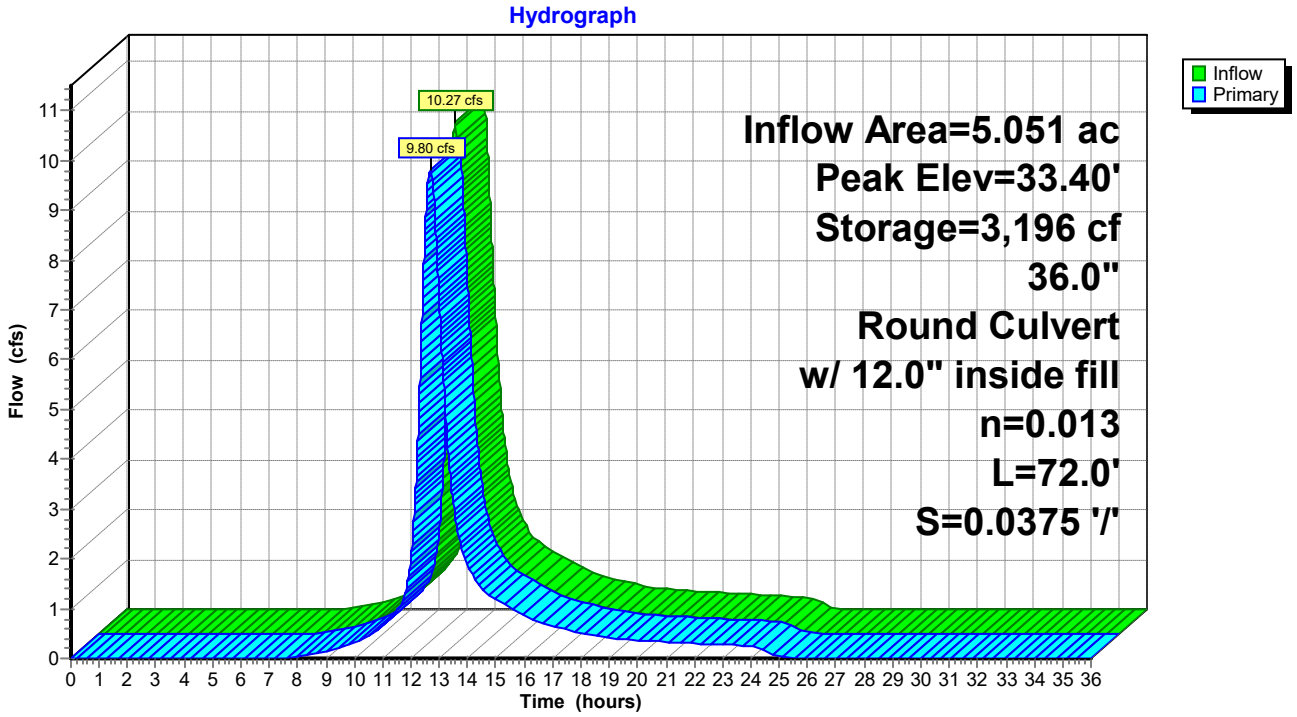
Volume	Invert	Avail.Storage	Storage Description
#1	32.20'	13,784 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.20	100	0	0
33.00	3,660	1,504	1,504
34.00	6,340	5,000	6,504
35.00	8,220	7,280	13,784

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	**36.0" Round 36" Culvert w/ 12.0" inside fill** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.20' / 28.50' S= 0.0375 '/' Cc= 0.900 n= 0.013, Flow Area= 5.01 sf

Primary OutFlow Max=9.80 cfs @ 12.68 hrs HW=33.40' (Free Discharge)
1=36" Culvert (Inlet Controls 9.80 cfs @ 2.80 fps)

Pond 5P: 36" Culvert



Summary for Pond 6.10P: Filterra 4x6

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.127 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-year event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 0.059 af
Outflow = 0.75 cfs @ 12.07 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.1 min
Primary = 0.16 cfs @ 11.67 hrs, Volume= 0.047 af
Secondary = 0.60 cfs @ 12.07 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 103.11' @ 12.07 hrs Surf.Area= 48 sf Storage= 33 cf

Plug-Flow detention time= 0.8 min calculated for 0.059 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (745.4 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	12 cf	**4.00'W x 6.00'L x 2.50'H Media/Stone** 60 cf Overall x 20.0% Voids
#2	102.25'	24 cf	**4.00'W x 6.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		65 cf	Total Available Storage

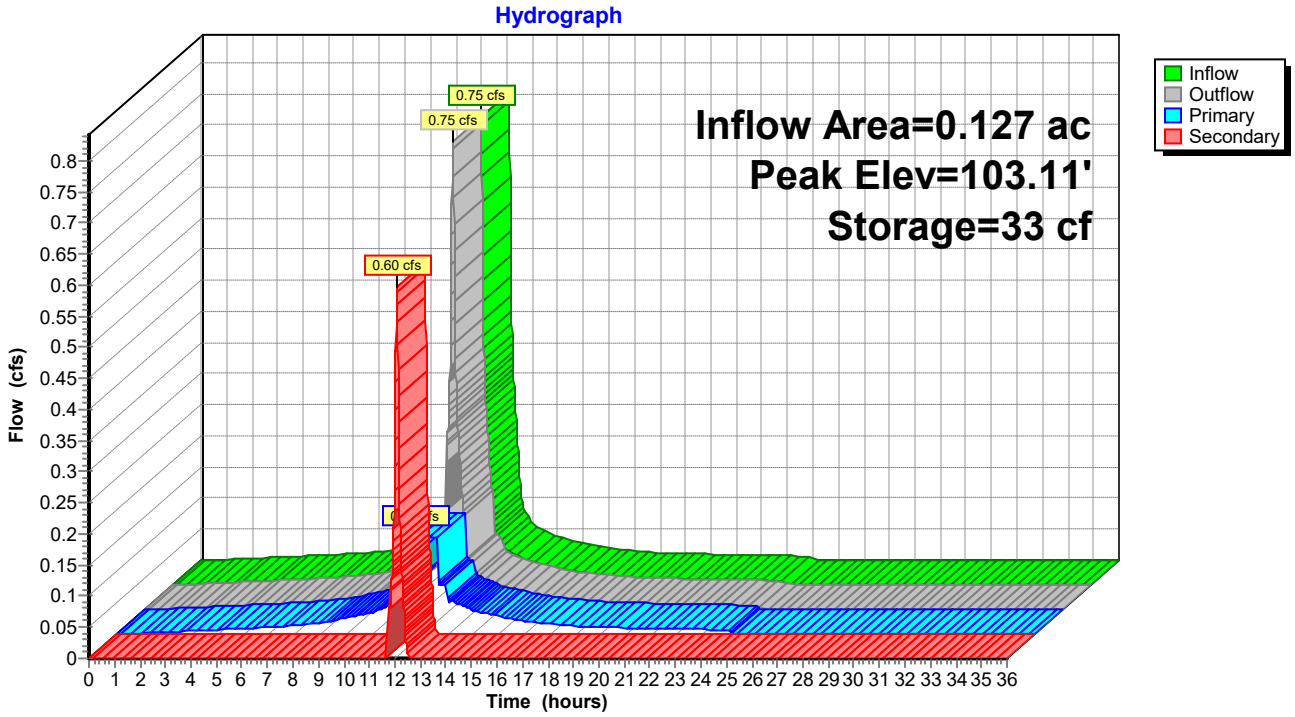
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 11.67 hrs HW=102.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.60 cfs @ 12.07 hrs HW=103.11' (Free Discharge)
↑—**2=CB** (Weir Controls 0.60 cfs @ 1.11 fps)

Pond 6.10P: Filterra 4x6



Summary for Pond 6.1P: VUSF 1

Inflow Area = 0.501 ac, 61.96% Impervious, Inflow Depth = 4.54" for 25-year event
Inflow = 2.17 cfs @ 12.15 hrs, Volume= 0.190 af
Outflow = 1.15 cfs @ 12.36 hrs, Volume= 0.185 af, Atten= 47%, Lag= 12.5 min
Primary = 1.15 cfs @ 12.36 hrs, Volume= 0.185 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 41.61' @ 12.36 hrs Surf.Area= 6,985 sf Storage= 2,857 cf

Plug-Flow detention time= 118.7 min calculated for 0.185 af (98% of inflow)
Center-of-Mass det. time= 104.8 min (898.9 - 794.1)

Volume	Invert	Avail.Storage	Storage Description
#1	36.50'	561 cf	**Cr. Stone (Prismatic)** Listed below (Recalc) 1,412 cf Overall - 8 cf Embedded = 1,404 cf x 40.0% Voids
#2	38.00'	47 cf	**Transition Gravel (Prismatic)** Listed below (Recalc) 471 cf Overall x 10.0% Voids
#3	38.50'	141 cf	**Soil Filter (Prismatic)** Listed below (Recalc) 1,412 cf Overall x 10.0% Voids
#4	40.00'	1,872 cf	**CPV (Prismatic)** Listed below (Recalc)
#5	41.50'	689 cf	**Berm (Prismatic)** Listed below (Recalc)
#6	37.00'	8 cf	**6.0" Round Pipe Storage** Inside #1 L= 40.0'
		3,319 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	941	0	0
38.00	941	1,412	1,412

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	941	0	0
38.50	941	471	471

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.50	941	0	0
40.00	941	1,412	1,412

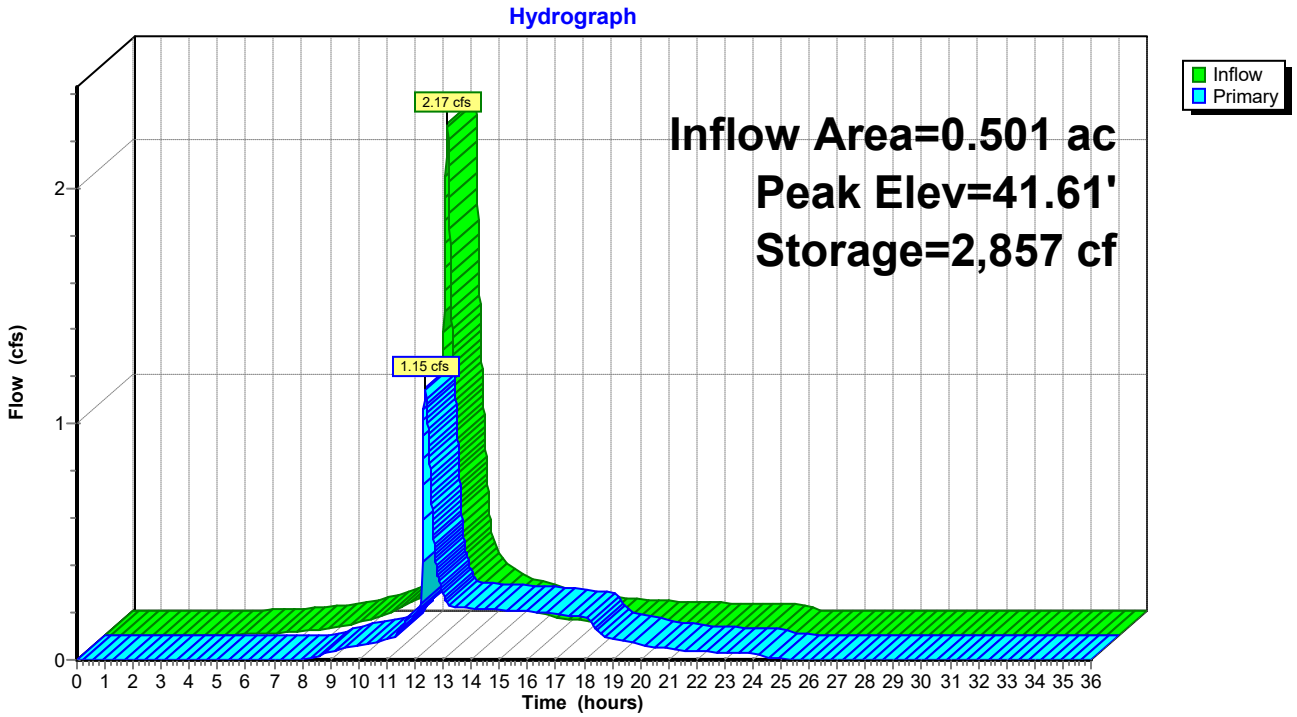
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	941	0	0
41.50	1,555	1,872	1,872

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.50	1,555	0	0
41.75	3,960	689	689

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**6.0" Round 6" Outlet** L= 5.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.85' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	41.50'	**24.0" x 24.0" Horiz. CB Overflow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	37.00'	**2.0" Vert. WQV** C= 0.600

Primary OutFlow Max=1.17 cfs @ 12.36 hrs HW=41.61' (Free Discharge)
└**1=6" Outlet** (Passes 1.17 cfs of 1.56 cfs potential flow)
└**2=CB Overflow** (Weir Controls 0.95 cfs @ 1.08 fps)
└**3=WQV** (Orifice Controls 0.22 cfs @ 10.24 fps)

Pond 6.1P: VUSF 1



Summary for Pond 6.2P: VUSF 2

Inflow Area = 0.186 ac, 24.80% Impervious, Inflow Depth = 3.31" for 25-year event
Inflow = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af
Outflow = 0.05 cfs @ 13.63 hrs, Volume= 0.051 af, Atten= 92%, Lag= 91.0 min
Primary = 0.05 cfs @ 13.63 hrs, Volume= 0.051 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 50.99' @ 13.63 hrs Surf.Area= 2,249 sf Storage= 1,067 cf

Plug-Flow detention time= 211.3 min calculated for 0.051 af (99% of inflow)
Center-of-Mass det. time= 204.3 min (1,028.9 - 824.6)

Volume	Invert	Avail.Storage	Storage Description
#1	46.50'	152 cf	**Cr. Stone (Prismatic)** Listed below (Recalc) 390 cf Overall - 11 cf Embedded = 379 cf x 40.0% Voids
#2	48.00'	13 cf	**Transition Gravel (Prismatic)** Listed below (Recalc) 130 cf Overall x 10.0% Voids
#3	48.50'	39 cf	**Soil Filter (Prismatic)** Listed below (Recalc) 390 cf Overall x 10.0% Voids
#4	50.00'	1,770 cf	**CPV (Prismatic)** Listed below (Recalc)
#5	51.50'	688 cf	**Berm (Prismatic)** Listed below (Recalc)
#6	46.75'	11 cf	**6.0" Round Pipe Storage** Inside #1 L= 57.0'
		2,672 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.50	260	0	0
48.00	260	390	390

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	260	0	0
48.50	260	130	130

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	260	0	0
50.00	260	390	390

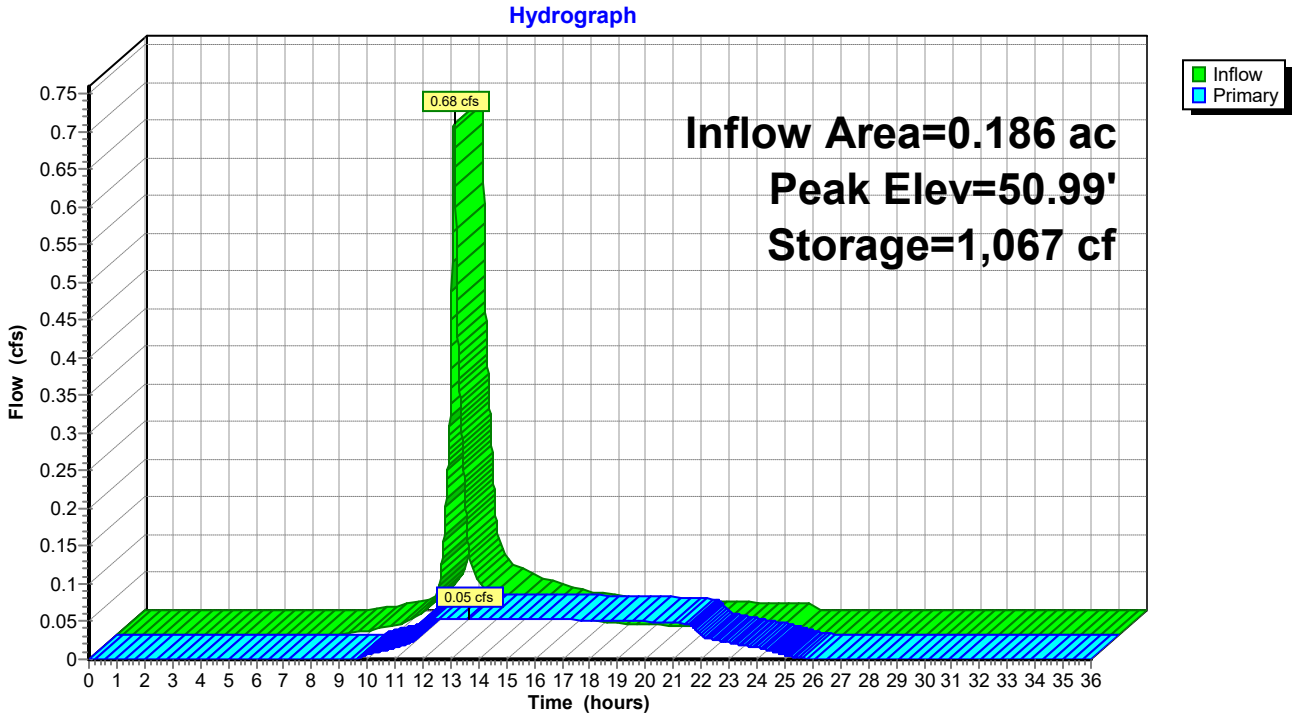
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	260	0	0
51.50	2,100	1,770	1,770

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.50	2,100	0	0
51.75	3,400	688	688

Device	Routing	Invert	Outlet Devices
#1	Primary	46.05'	**6.0" Round 6" Outlet** L= 5.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.05' / 46.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	51.50'	**6.0" Horiz. Fl Overflow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	46.75'	**1.0" Vert. WQV** C= 0.600

Primary OutFlow Max=0.05 cfs @ 13.63 hrs HW=50.99' (Free Discharge)
└**1=6" Outlet** (Passes 0.05 cfs of 1.62 cfs potential flow)
  ├**2=Fl Overflow** (Controls 0.00 cfs)
  └**3=WQV** (Orifice Controls 0.05 cfs @ 9.86 fps)

Pond 6.2P: VUSF 2



Summary for Pond 6.3P: VUSF 3

Inflow Area = 0.213 ac, 21.63% Impervious, Inflow Depth = 3.31" for 25-year event
Inflow = 0.73 cfs @ 12.13 hrs, Volume= 0.059 af
Outflow = 0.06 cfs @ 13.92 hrs, Volume= 0.059 af, Atten= 92%, Lag= 107.3 min
Primary = 0.06 cfs @ 13.92 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 51.01' @ 13.92 hrs Surf.Area= 2,568 sf Storage= 1,245 cf

Plug-Flow detention time= 234.3 min calculated for 0.059 af (100% of inflow)
Center-of-Mass det. time= 234.2 min (1,060.5 - 826.3)

Volume	Invert	Avail.Storage	Storage Description
#1	46.50'	164 cf	**Cr. Stone (Prismatic)** Listed below (Recalc) 420 cf Overall - 11 cf Embedded = 409 cf x 40.0% Voids
#2	48.00'	14 cf	**Transition Gravel (Prismatic)** Listed below (Recalc) 140 cf Overall x 10.0% Voids
#3	48.50'	42 cf	**Soil Filter (Prismatic)** Listed below (Recalc) 420 cf Overall x 10.0% Voids
#4	50.00'	2,033 cf	**CPV (Prismatic)** Listed below (Recalc)
#5	51.50'	741 cf	**Berm (Prismatic)** Listed below (Recalc)
#6	46.75'	11 cf	**6.0" Round Pipe Storage** Inside #1 L= 57.0'
		3,004 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.50	280	0	0
48.00	280	420	420

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0	0
48.50	280	140	140

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	280	0	0
50.00	280	420	420

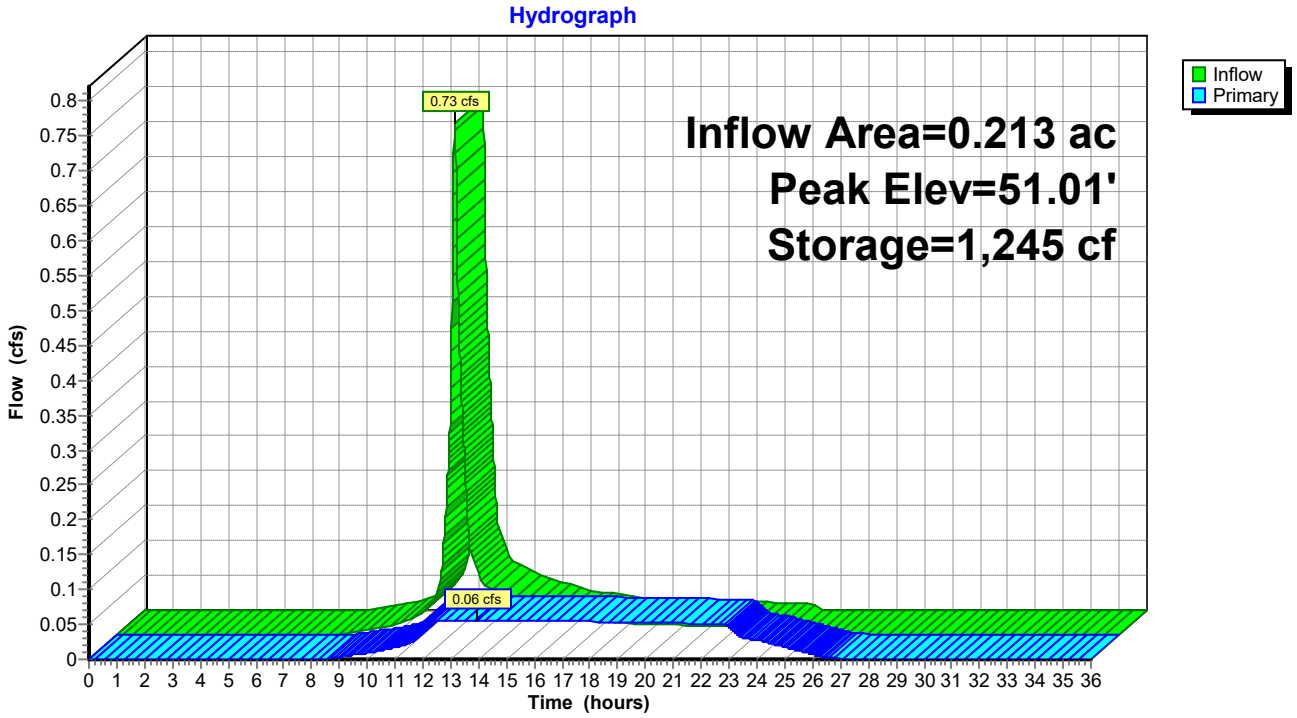
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	280	0	0
51.50	2,430	2,033	2,033

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.50	2,430	0	0
51.75	3,500	741	741

Device	Routing	Invert	Outlet Devices
#1	Primary	46.05'	**6.0" Round 6" Outlet** L= 5.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.05' / 46.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	51.50'	**6.0" Horiz. FI Overflow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	46.50'	**1.0" Vert. WQV** C= 0.600

Primary OutFlow Max=0.06 cfs @ 13.92 hrs HW=51.01' (Free Discharge)
└**1=6" Outlet** (Passes 0.06 cfs of 1.62 cfs potential flow)
  ├**2=FI Overflow** (Controls 0.00 cfs)
  └**3=WQV** (Orifice Controls 0.06 cfs @ 10.18 fps)

Pond 6.3P: VUSF 3



Summary for Pond 6.4P: VUSF 4

Inflow Area = 0.286 ac, 16.11% Impervious, Inflow Depth = 3.21" for 25-year event
Inflow = 0.91 cfs @ 12.16 hrs, Volume= 0.076 af
Outflow = 0.06 cfs @ 14.89 hrs, Volume= 0.076 af, Atten= 94%, Lag= 164.3 min
Primary = 0.06 cfs @ 14.89 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 51.04' @ 14.89 hrs Surf.Area= 3,575 sf Storage= 1,791 cf

Plug-Flow detention time= 346.3 min calculated for 0.076 af (100% of inflow)
Center-of-Mass det. time= 346.3 min (1,176.7 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	46.50'	201 cf	**Cr. Stone (Prismatic)** Listed below (Recalc) 518 cf Overall - 16 cf Embedded = 502 cf x 40.0% Voids
#2	48.00'	17 cf	**Transition Gravel (Prismatic)** Listed below (Recalc) 173 cf Overall x 10.0% Voids
#3	48.50'	52 cf	**Soil Filter (Prismatic)** Listed below (Recalc) 518 cf Overall x 10.0% Voids
#4	50.00'	2,884 cf	**CPV (Prismatic)** Listed below (Recalc)
#5	51.50'	938 cf	**Berm (Prismatic)** Listed below (Recalc)
#6	46.50'	16 cf	**6.0" Round Pipe Storage** Inside #1 L= 80.0'
		4,107 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.50	345	0	0
48.00	345	518	518

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	345	0	0
48.50	345	173	173

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	345	0	0
50.00	345	518	518

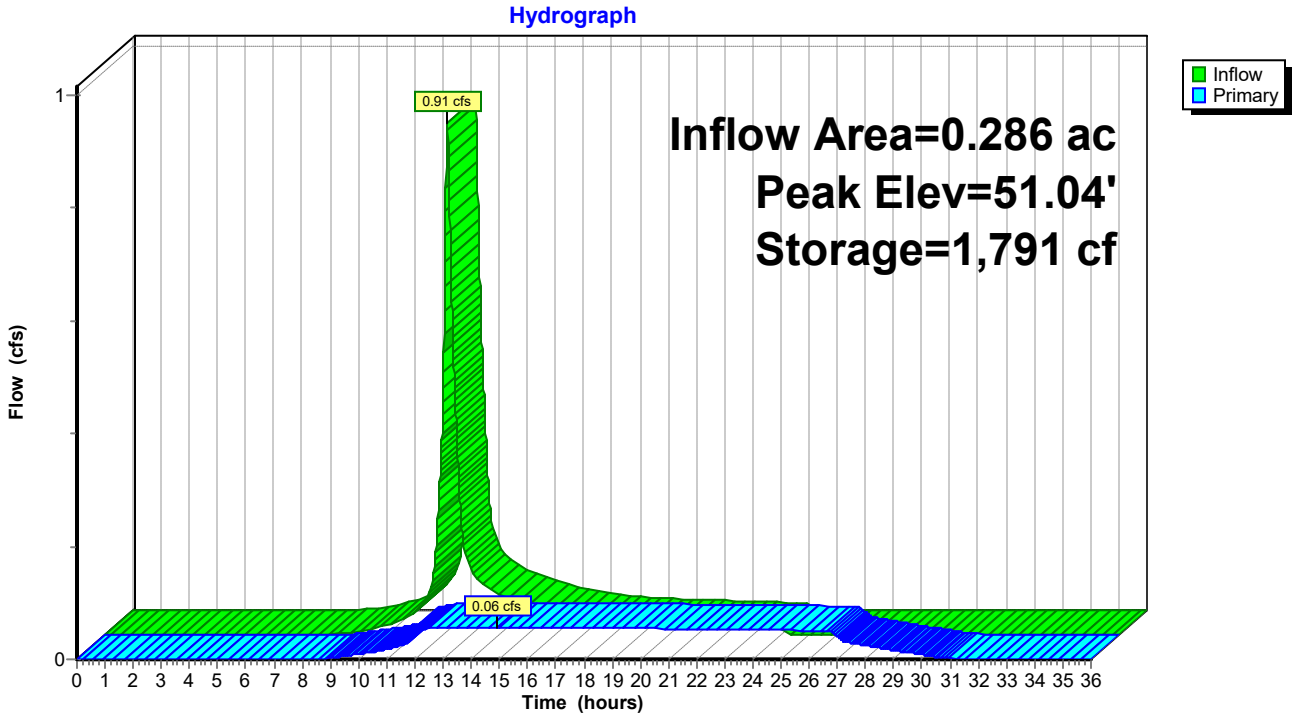
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	345	0	0
51.50	3,500	2,884	2,884

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.50	3,500	0	0
51.75	4,000	938	938

Device	Routing	Invert	Outlet Devices
#1	Primary	46.05'	**6.0" Round 6" Outlet** L= 5.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.05' / 46.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	51.50'	**6.0" Horiz. Fl Overflow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	46.50'	**1.0" Vert. WQV** C= 0.600

Primary OutFlow Max=0.06 cfs @ 14.89 hrs HW=51.04' (Free Discharge)
└─**1=6" Outlet** (Passes 0.06 cfs of 1.63 cfs potential flow)
  ├─**2=Fl Overflow** (Controls 0.00 cfs)
  └─**3=WQV** (Orifice Controls 0.06 cfs @ 10.22 fps)

Pond 6.4P: VUSF 4



Summary for Pond 6.5P: VUSF 5

Inflow Area = 0.133 ac, 34.71% Impervious, Inflow Depth = 4.22" for 25-year event
Inflow = 0.55 cfs @ 12.15 hrs, Volume= 0.047 af
Outflow = 0.05 cfs @ 13.23 hrs, Volume= 0.046 af, Atten= 91%, Lag= 65.0 min
Primary = 0.05 cfs @ 13.23 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 42.40' @ 13.23 hrs Surf.Area= 2,158 sf Storage= 957 cf

Plug-Flow detention time= 192.0 min calculated for 0.046 af (98% of inflow)
Center-of-Mass det. time= 178.2 min (981.7 - 803.6)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	120 cf	**Cr. Stone (Prismatic)** Listed below (Recalc) 315 cf Overall - 16 cf Embedded = 299 cf x 40.0% Voids
#2	39.50'	11 cf	**Transition Gravel (Prismatic)** Listed below (Recalc) 105 cf Overall x 10.0% Voids
#3	40.00'	32 cf	**Soil Filter (Prismatic)** Listed below (Recalc) 315 cf Overall x 10.0% Voids
#4	41.50'	1,969 cf	**CPV (Prismatic)** Listed below (Recalc)
#5	43.00'	677 cf	**Berm (Prismatic)** Listed below (Recalc)
#6	38.25'	16 cf	**6.0" Round Pipe Storage** Inside #1 L= 80.0'
		2,823 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	210	0	0
39.50	210	315	315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.50	210	0	0
40.00	210	105	105

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	210	0	0
41.50	210	315	315

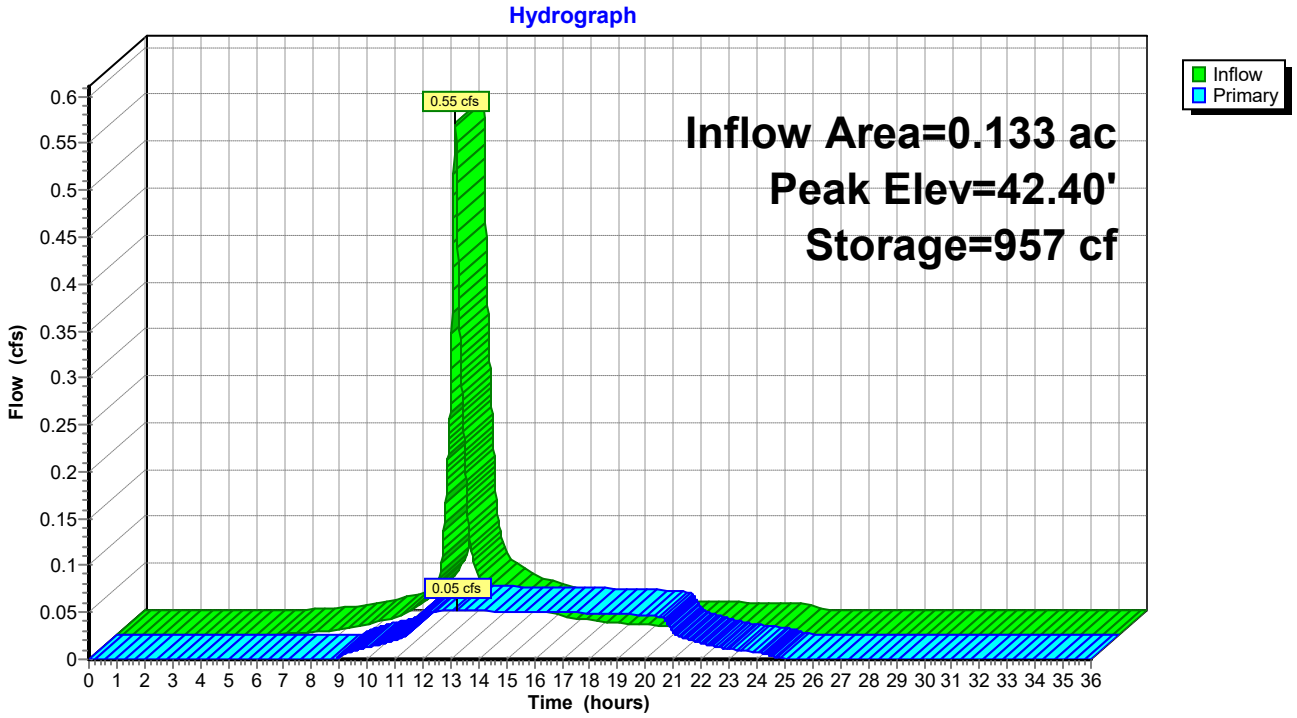
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.50	210	0	0
43.00	2,415	1,969	1,969

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	2,415	0	0
43.25	3,000	677	677

Device	Routing	Invert	Outlet Devices
#1	Primary	38.25'	**6.0" Round 6" Outlet** L= 80.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.25' / 37.75' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	43.00'	**6.0" Horiz. Fl Overflow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	38.50'	**1.0" Vert. WQV** C= 0.600

Primary OutFlow Max=0.05 cfs @ 13.23 hrs HW=42.40' (Free Discharge)
└**1=6" Outlet** (Passes 0.05 cfs of 1.12 cfs potential flow)
  └**2=Fl Overflow** (Controls 0.00 cfs)
  └**3=WQV** (Orifice Controls 0.05 cfs @ 9.45 fps)

Pond 6.5P: VUSF 5



Summary for Pond 6.6P: Filterra 4x8

Inflow Area = 0.221 ac, 90.90% Impervious, Inflow Depth = 5.33" for 25-year event
Inflow = 1.28 cfs @ 12.07 hrs, Volume= 0.098 af
Outflow = 1.28 cfs @ 12.07 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.1 min
Primary = 0.21 cfs @ 11.63 hrs, Volume= 0.073 af
Secondary = 1.07 cfs @ 12.07 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.17' @ 12.07 hrs Surf.Area= 64 sf Storage= 45 cf

Plug-Flow detention time= 1.2 min calculated for 0.098 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (758.9 - 758.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

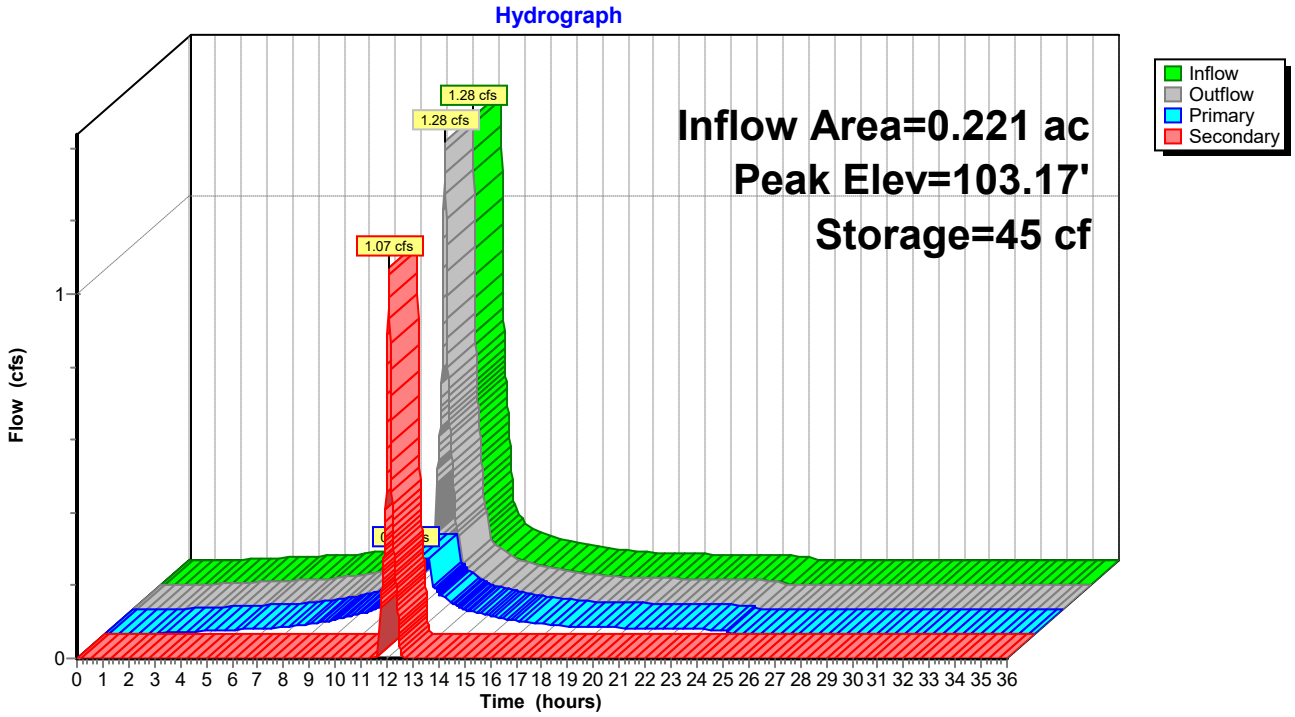
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.63 hrs HW=102.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.07 cfs @ 12.07 hrs HW=103.17' (Free Discharge)
↑—**2=CB** (Weir Controls 1.07 cfs @ 1.34 fps)

Pond 6.6P: Filterra 4x8



Summary for Pond 6.7P: Filterra 6x8

Inflow Area = 0.698 ac, 51.53% Impervious, Inflow Depth = 4.22" for 25-year event
Inflow = 3.19 cfs @ 12.11 hrs, Volume= 0.246 af
Outflow = 3.19 cfs @ 12.11 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.1 min
Primary = 0.31 cfs @ 11.52 hrs, Volume= 0.156 af
Secondary = 2.88 cfs @ 12.11 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.33' @ 12.11 hrs Surf.Area= 96 sf Storage= 76 cf

Plug-Flow detention time= 1.2 min calculated for 0.245 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (801.4 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		101 cf	Total Available Storage

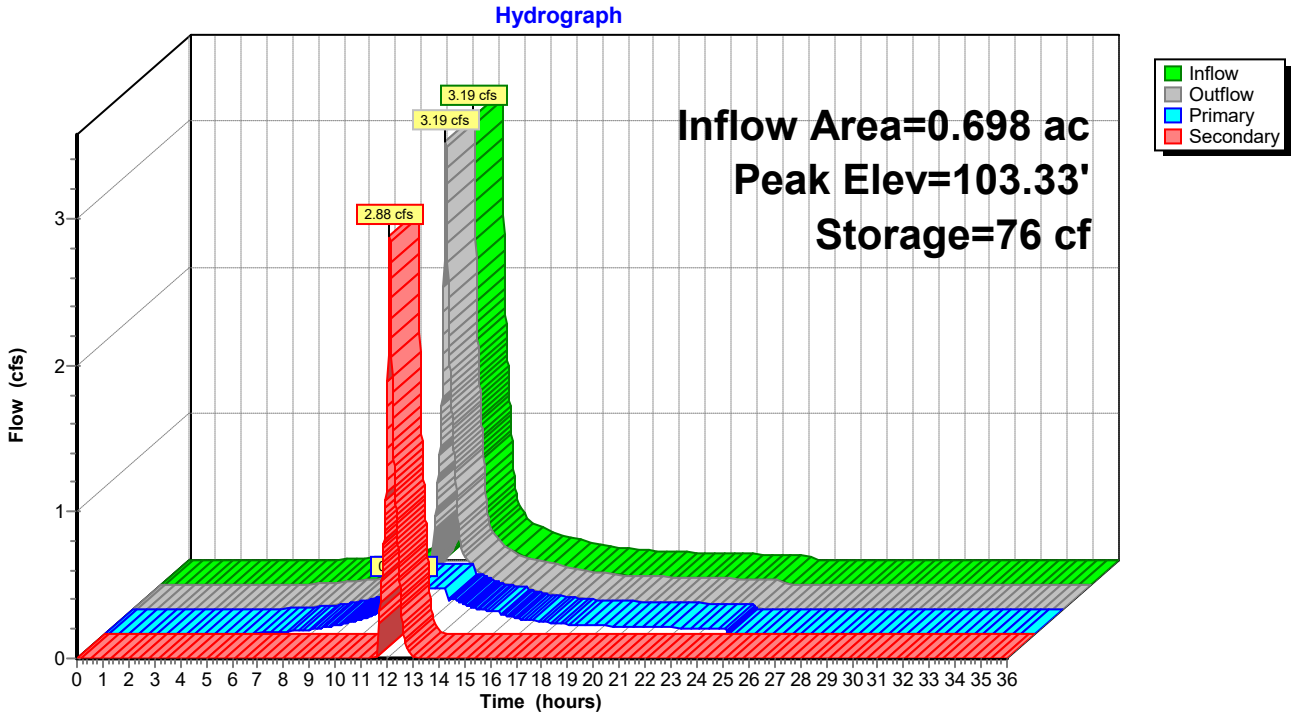
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.52 hrs HW=102.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=2.87 cfs @ 12.11 hrs HW=103.33' (Free Discharge)
↑—**2=CB** (Weir Controls 2.87 cfs @ 1.87 fps)

Pond 6.7P: Filterra 6x8



Summary for Pond 6.8P: Filterra 4x8

Inflow Area = 0.387 ac, 46.90% Impervious, Inflow Depth = 4.33" for 25-year event
Inflow = 1.82 cfs @ 12.10 hrs, Volume= 0.140 af
Outflow = 1.82 cfs @ 12.10 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.60 hrs, Volume= 0.092 af
Secondary = 1.61 cfs @ 12.10 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.22' @ 12.10 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= 1.2 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (798.0 - 797.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

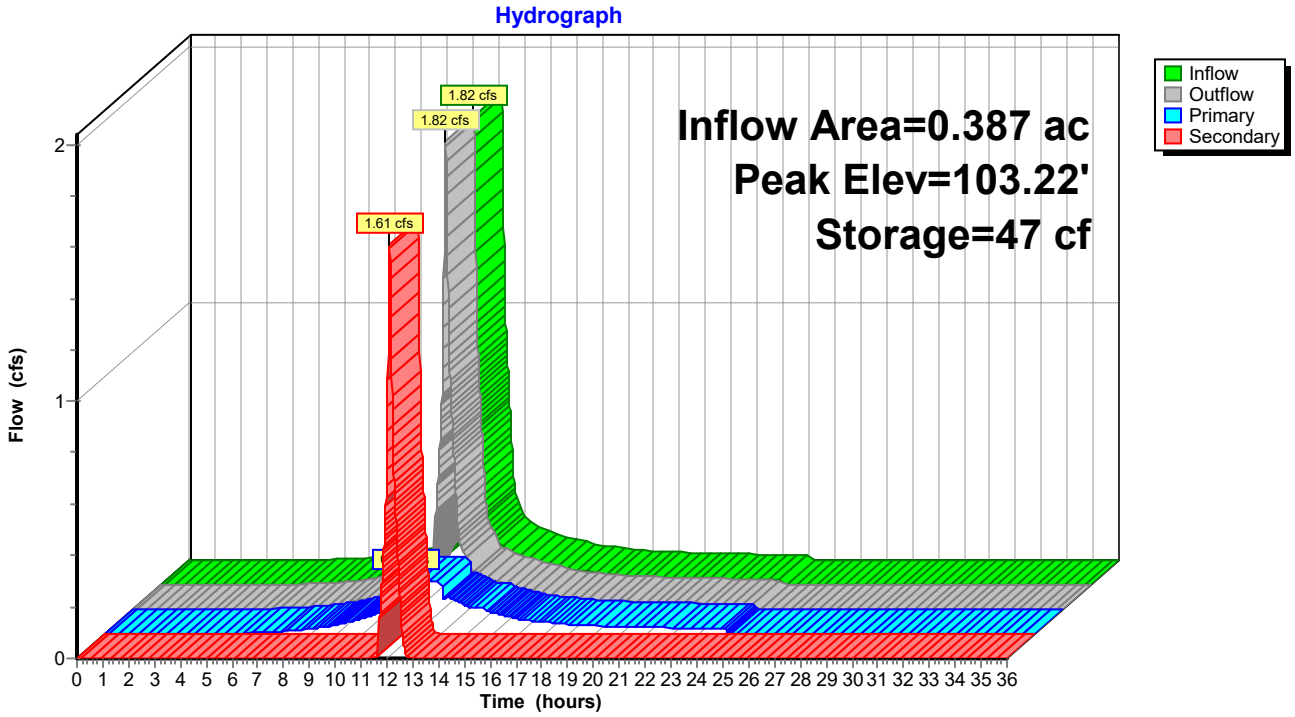
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.60 hrs HW=102.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.61 cfs @ 12.10 hrs HW=103.22' (Free Discharge)
↑—**2=CB** (Weir Controls 1.61 cfs @ 1.54 fps)

Pond 6.8P: Filterra 4x8



Summary for Pond 6.9P: Filterra 4x4

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-year event
Inflow = 0.45 cfs @ 12.04 hrs, Volume= 0.033 af
Outflow = 0.45 cfs @ 12.04 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.70 hrs, Volume= 0.028 af
Secondary = 0.35 cfs @ 12.04 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 103.08' @ 12.04 hrs Surf.Area= 32 sf Storage= 21 cf

Plug-Flow detention time= 0.8 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (743.7 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	8 cf	**4.00'W x 4.00'L x 2.50'H Media/Stone** 40 cf Overall x 20.0% Voids
#2	102.25'	16 cf	**4.00'W x 4.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		53 cf	Total Available Storage

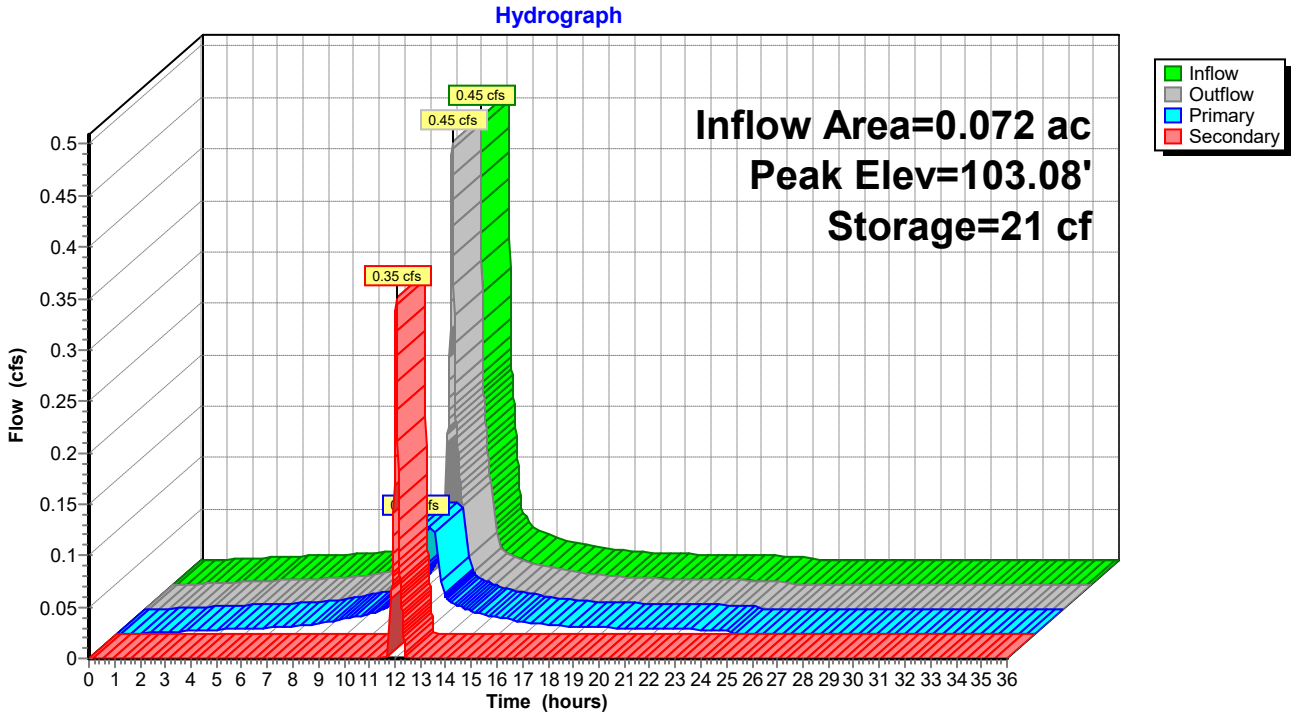
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 11.70 hrs HW=102.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.35 cfs @ 12.04 hrs HW=103.08' (Free Discharge)
↑—**2=CB** (Weir Controls 0.35 cfs @ 0.93 fps)

Pond 6.9P: Filterra 4x4



Summary for Pond FP11: FP-11

Inflow Area = 0.941 ac, 36.14% Impervious, Inflow Depth = 3.91" for 25-year event
Inflow = 3.21 cfs @ 12.21 hrs, Volume= 0.306 af
Outflow = 3.19 cfs @ 12.22 hrs, Volume= 0.306 af, Atten= 1%, Lag= 1.1 min
Primary = 0.23 cfs @ 11.26 hrs, Volume= 0.168 af
Secondary = 2.96 cfs @ 12.22 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.83' @ 12.22 hrs Surf.Area= 101 sf Storage= 421 cf

Plug-Flow detention time= 4.0 min calculated for 0.306 af (100% of inflow)
Center-of-Mass det. time= 4.0 min (820.2 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	45 cf	**3.00'W x 33.70'L x 2.25'H FocalPoint** 227 cf Overall x 20.0% Voids
#2	100.00'	531 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		576 cf	Total Available Storage

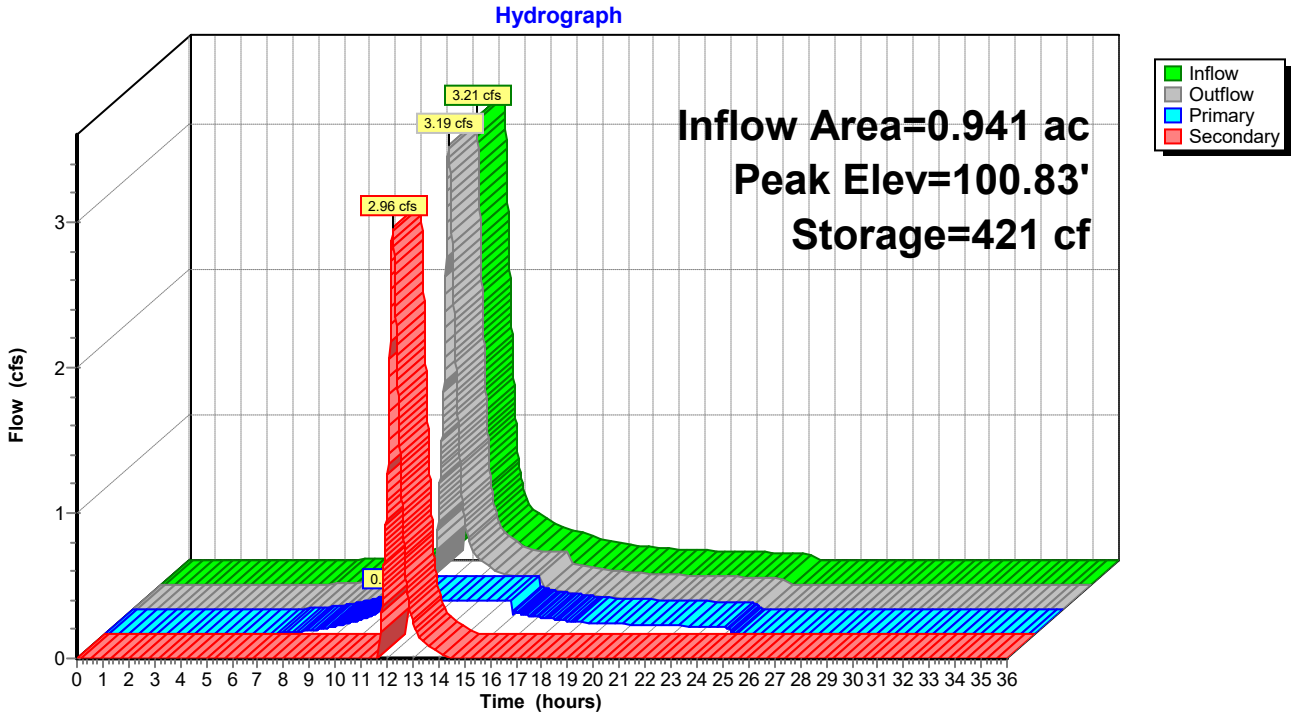
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	101	0	0
100.50	505	152	152
101.00	1,011	379	531

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.23 cfs @ 11.26 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=2.95 cfs @ 12.22 hrs HW=100.83' (Free Discharge)
2=Orifice/Grate (Weir Controls 2.95 cfs @ 1.89 fps)

Pond FP11: FP-11



Summary for Pond FP12: FP-12

Inflow Area = 0.118 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-year event
Inflow = 0.73 cfs @ 12.05 hrs, Volume= 0.055 af
Outflow = 0.73 cfs @ 12.06 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.3 min
Primary = 0.05 cfs @ 10.96 hrs, Volume= 0.035 af
Secondary = 0.68 cfs @ 12.06 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.62' @ 12.06 hrs Surf.Area= 20 sf Storage= 54 cf

Plug-Flow detention time= 2.8 min calculated for 0.055 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (746.3 - 743.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	9 cf	**3.00'W x 6.80'L x 2.25'H FocalPoint** 46 cf Overall x 20.0% Voids
#2	100.00'	107 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		116 cf	Total Available Storage

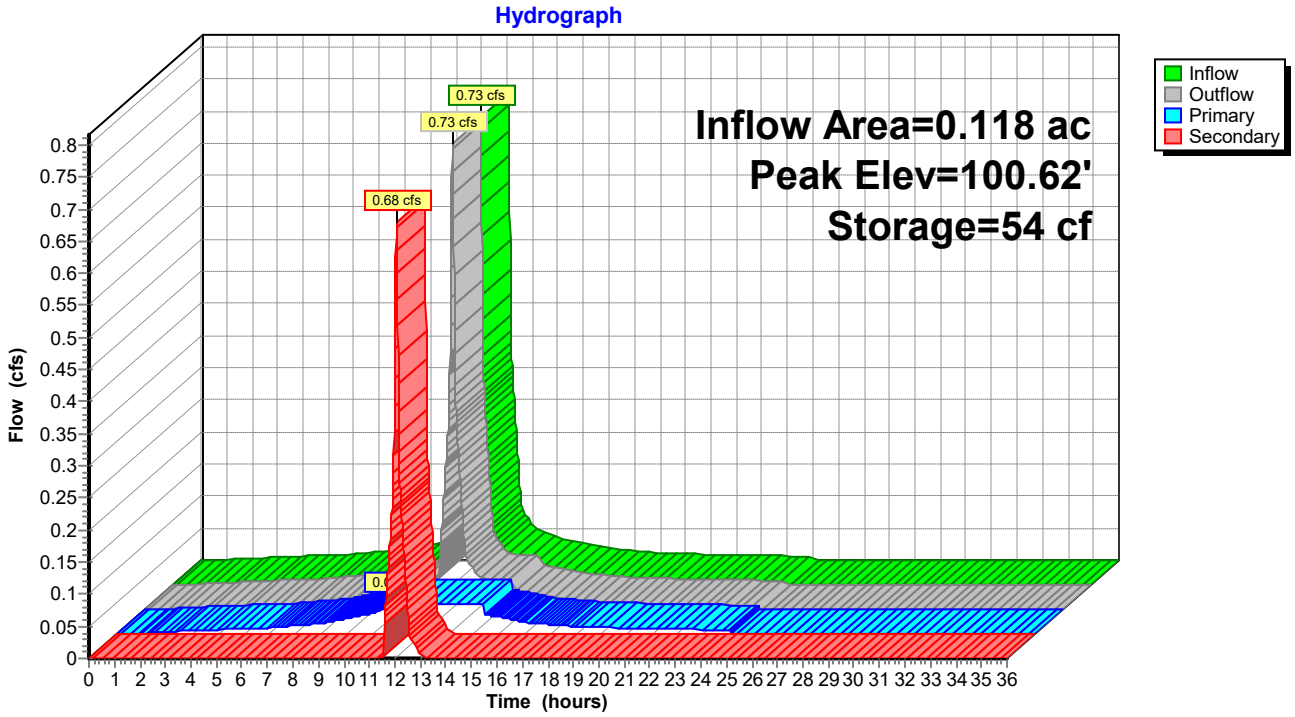
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	20	0	0
100.50	102	31	31
101.00	204	77	107

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.05 cfs @ 10.96 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.67 cfs @ 12.06 hrs HW=100.62' (Free Discharge)
2=Orifice/Grate (Weir Controls 0.67 cfs @ 1.15 fps)

Pond FP12: FP-12



Summary for Pond FP13: FP-13

Inflow Area = 0.493 ac, 45.97% Impervious, Inflow Depth = 4.11" for 25-year event
Inflow = 1.82 cfs @ 12.19 hrs, Volume= 0.169 af
Outflow = 1.81 cfs @ 12.20 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.6 min
Primary = 0.13 cfs @ 11.24 hrs, Volume= 0.095 af
Secondary = 1.68 cfs @ 12.20 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.73' @ 12.20 hrs Surf.Area= 58 sf Storage= 194 cf

Plug-Flow detention time= 3.7 min calculated for 0.169 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (813.1 - 809.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	26 cf	**3.00'W x 19.30'L x 2.25'H FocalPoint** 130 cf Overall x 20.0% Voids
#2	100.00'	304 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		330 cf	Total Available Storage

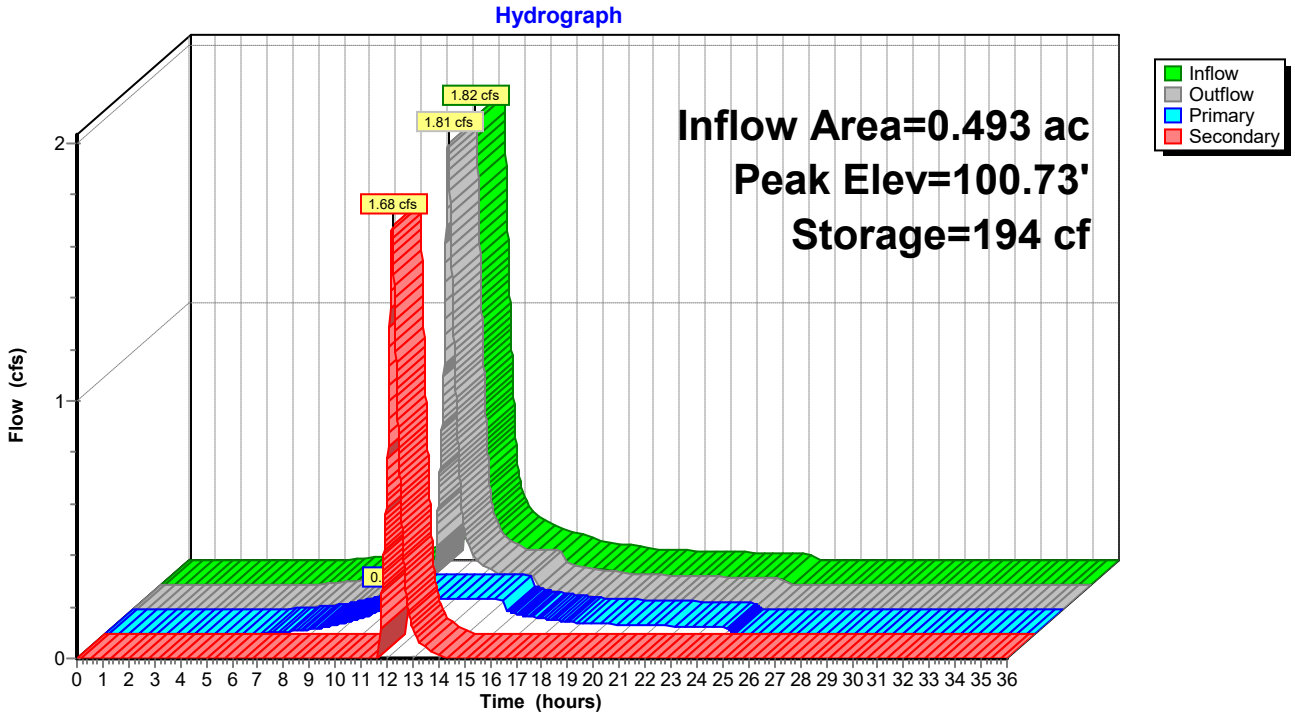
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	58	0	0
100.50	290	87	87
101.00	579	217	304

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.13 cfs @ 11.24 hrs HW=97.89' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Secondary OutFlow Max=1.67 cfs @ 12.20 hrs HW=100.73' (Free Discharge)
2=Orifice/Grate (Weir Controls 1.67 cfs @ 1.56 fps)

Pond FP13: FP-13



Summary for Pond FP14: FP-14

Inflow Area = 0.309 ac, 62.02% Impervious, Inflow Depth = 4.54" for 25-year event
Inflow = 1.47 cfs @ 12.11 hrs, Volume= 0.117 af
Outflow = 1.47 cfs @ 12.12 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.5 min
Primary = 0.10 cfs @ 11.10 hrs, Volume= 0.068 af
Secondary = 1.37 cfs @ 12.12 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.70' @ 12.12 hrs Surf.Area= 41 sf Storage= 130 cf

Plug-Flow detention time= 3.4 min calculated for 0.117 af (100% of inflow)
Center-of-Mass det. time= 3.4 min (794.6 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	19 cf	**3.00'W x 13.80'L x 2.25'H FocalPoint** 93 cf Overall x 20.0% Voids
#2	100.00'	217 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		236 cf	Total Available Storage

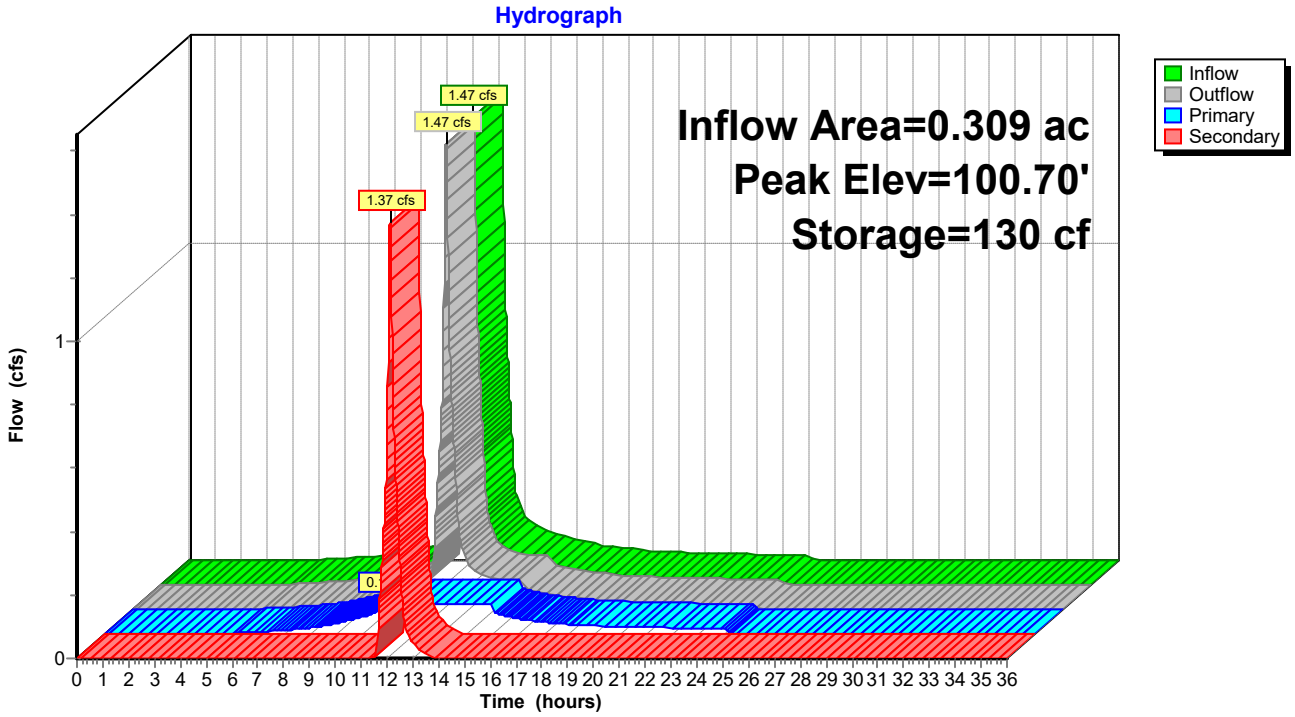
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	41	0	0
100.50	207	62	62
101.00	414	155	217

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.10 cfs @ 11.10 hrs HW=97.88' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=1.37 cfs @ 12.12 hrs HW=100.70' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 1.37 cfs @ 1.46 fps)

Pond FP14: FP-14



Summary for Pond FP15: FP-15

Inflow Area = 1.153 ac, 30.65% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 3.85 cfs @ 12.19 hrs, Volume= 0.356 af
Outflow = 3.80 cfs @ 12.21 hrs, Volume= 0.356 af, Atten= 1%, Lag= 1.4 min
Primary = 0.27 cfs @ 11.29 hrs, Volume= 0.194 af
Secondary = 3.53 cfs @ 12.21 hrs, Volume= 0.162 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.87' @ 12.21 hrs Surf.Area= 117 sf Storage= 529 cf

Plug-Flow detention time= 4.2 min calculated for 0.356 af (100% of inflow)
Center-of-Mass det. time= 4.2 min (824.8 - 820.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	53 cf	**3.00'W x 39.00'L x 2.25'H FocalPoint** 263 cf Overall x 20.0% Voids
#2	100.00'	614 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		667 cf	Total Available Storage

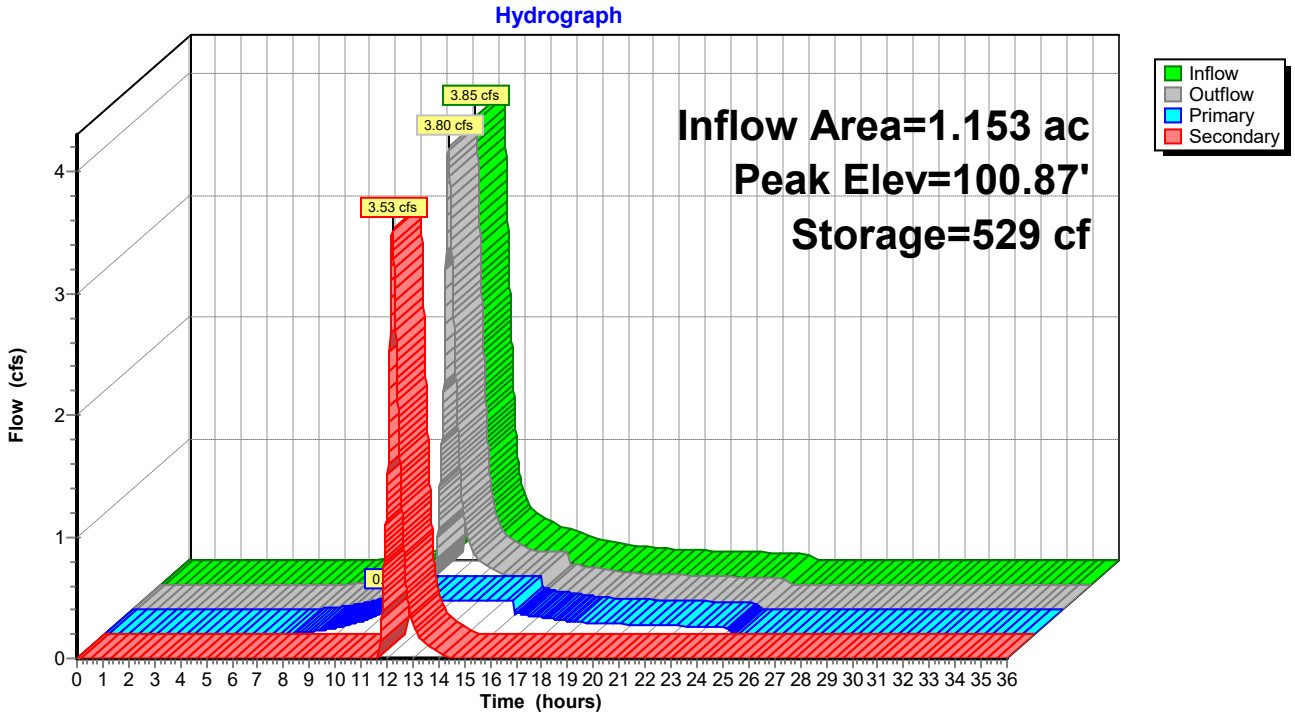
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	117	0	0
100.50	585	176	176
101.00	1,170	439	614

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.27 cfs @ 11.29 hrs HW=97.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.27 cfs)

Secondary OutFlow Max=3.53 cfs @ 12.21 hrs HW=100.87' (Free Discharge)
2=Orifice/Grate (Weir Controls 3.53 cfs @ 2.00 fps)

Pond FP15: FP-15



Summary for Pond FP16: FP-16

Inflow Area = 0.495 ac, 38.53% Impervious, Inflow Depth = 3.91" for 25-year event
Inflow = 2.18 cfs @ 12.10 hrs, Volume= 0.161 af
Outflow = 2.16 cfs @ 12.11 hrs, Volume= 0.161 af, Atten= 1%, Lag= 0.6 min
Primary = 0.13 cfs @ 11.17 hrs, Volume= 0.089 af
Secondary = 2.04 cfs @ 12.11 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.76' @ 12.11 hrs Surf.Area= 54 sf Storage= 195 cf

Plug-Flow detention time= 3.7 min calculated for 0.161 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (812.1 - 808.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	24 cf	**3.00'W x 18.10'L x 2.25'H FocalPoint** 122 cf Overall x 20.0% Voids
#2	100.00'	285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		310 cf	Total Available Storage

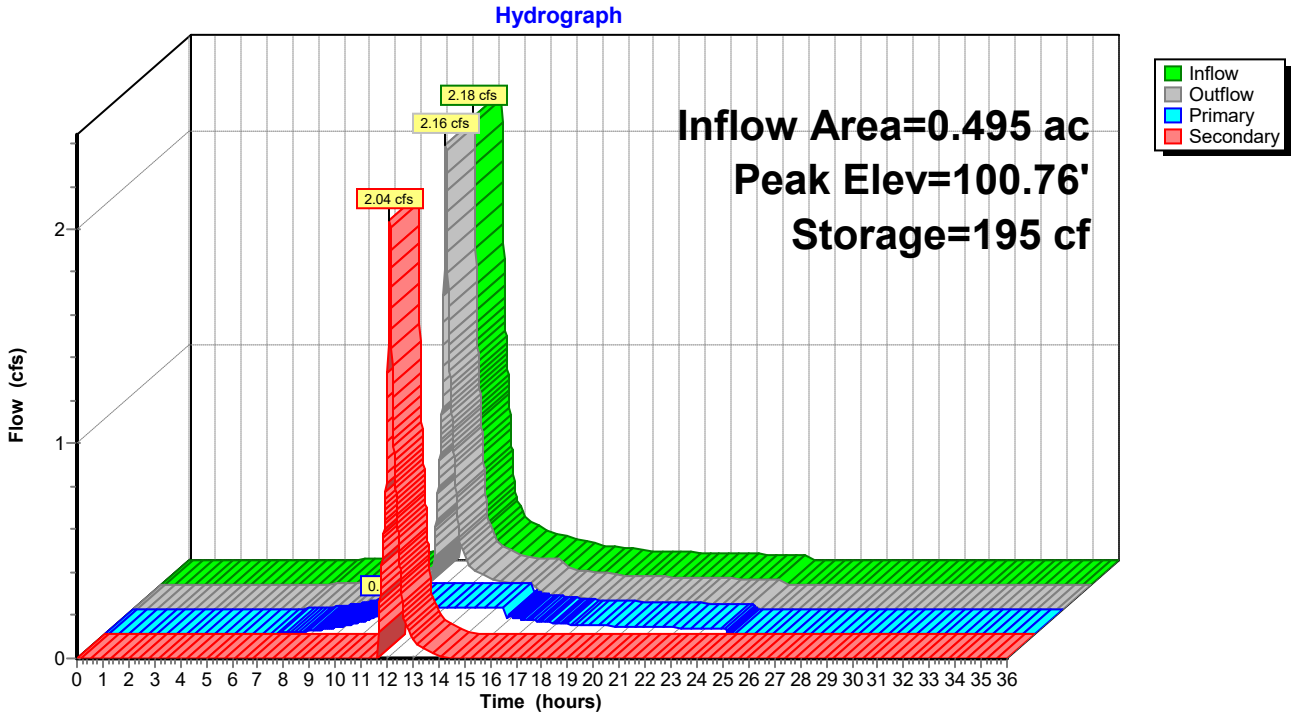
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	54	0	0
100.50	272	82	82
101.00	543	204	285

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.13 cfs @ 11.17 hrs HW=97.89' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Secondary OutFlow Max=2.03 cfs @ 12.11 hrs HW=100.76' (Free Discharge)
2=Orifice/Grate (Weir Controls 2.03 cfs @ 1.66 fps)

Pond FP16: FP-16



Summary for Pond FP17: FP-17

[93] Warning: Storage range exceeded by 0.74'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 2.569 ac, 19.58% Impervious, Inflow Depth = 3.31" for 25-year event
Inflow = 9.13 cfs @ 12.11 hrs, Volume= 0.708 af
Outflow = 10.02 cfs @ 12.11 hrs, Volume= 0.708 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 11.29 hrs, Volume= 0.380 af
Secondary = 9.49 cfs @ 12.11 hrs, Volume= 0.327 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 101.74' @ 12.11 hrs Surf.Area= 231 sf Storage= 1,318 cf

Plug-Flow detention time= 4.8 min calculated for 0.707 af (100% of inflow)
Center-of-Mass det. time= 4.8 min (830.0 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	104 cf	**4.00'W x 57.80'L x 2.25'H FocalPoint** 520 cf Overall x 20.0% Voids
#2	100.00'	1,214 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		1,318 cf	Total Available Storage

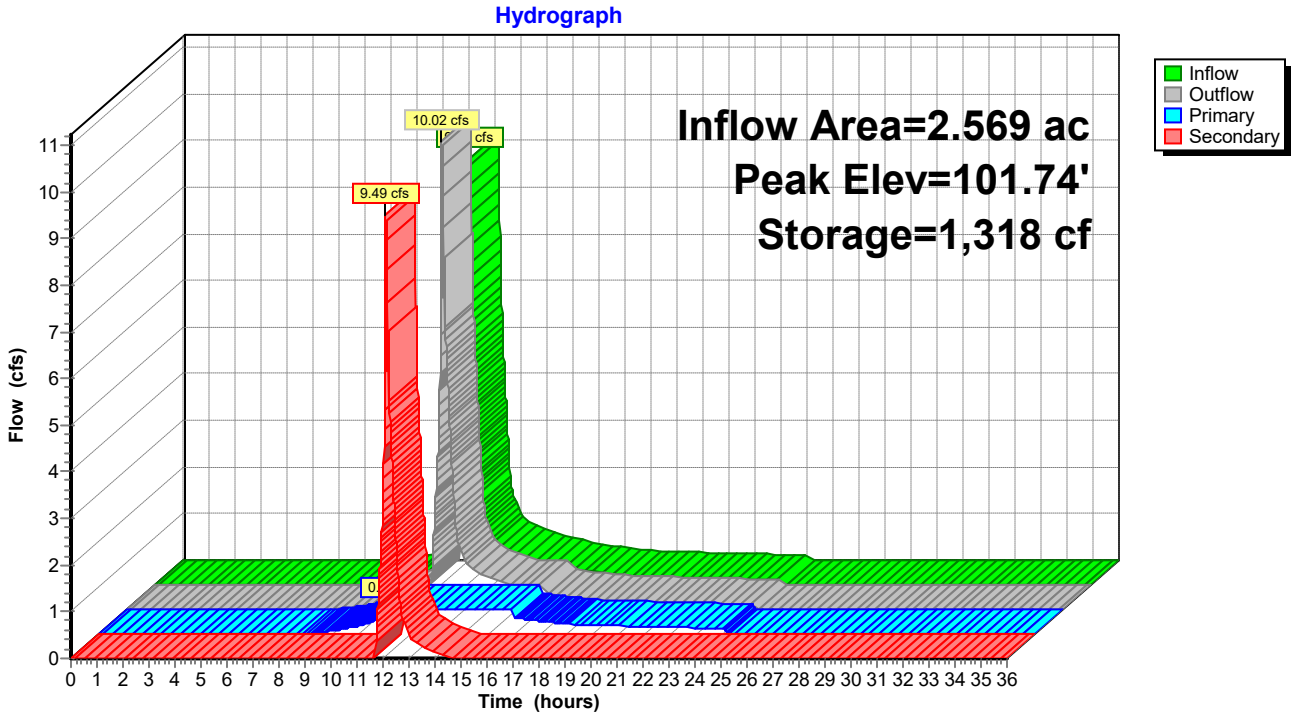
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	231	0	0
100.50	1,156	347	347
101.00	2,312	867	1,214

Device	Routing	Invert	Outlet Devices
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.54 cfs @ 11.29 hrs HW=97.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.54 cfs)

Secondary OutFlow Max=9.46 cfs @ 12.11 hrs HW=101.74' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 9.46 cfs @ 5.35 fps)

Pond FP17: FP-17



Summary for Pond FP18: FP-18

Inflow Area = 0.634 ac, 64.56% Impervious, Inflow Depth = 4.72" for 25-year event
Inflow = 3.20 cfs @ 12.10 hrs, Volume= 0.250 af
Outflow = 3.15 cfs @ 12.11 hrs, Volume= 0.250 af, Atten= 1%, Lag= 0.9 min
Primary = 0.20 cfs @ 10.99 hrs, Volume= 0.146 af
Secondary = 2.95 cfs @ 12.11 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.83' @ 12.11 hrs Surf.Area= 87 sf Storage= 362 cf

Plug-Flow detention time= 3.6 min calculated for 0.250 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (788.1 - 784.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	39 cf	**3.00'W x 29.00'L x 2.25'H FocalPoint** 196 cf Overall x 20.0% Voids
#2	100.00'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		496 cf	Total Available Storage

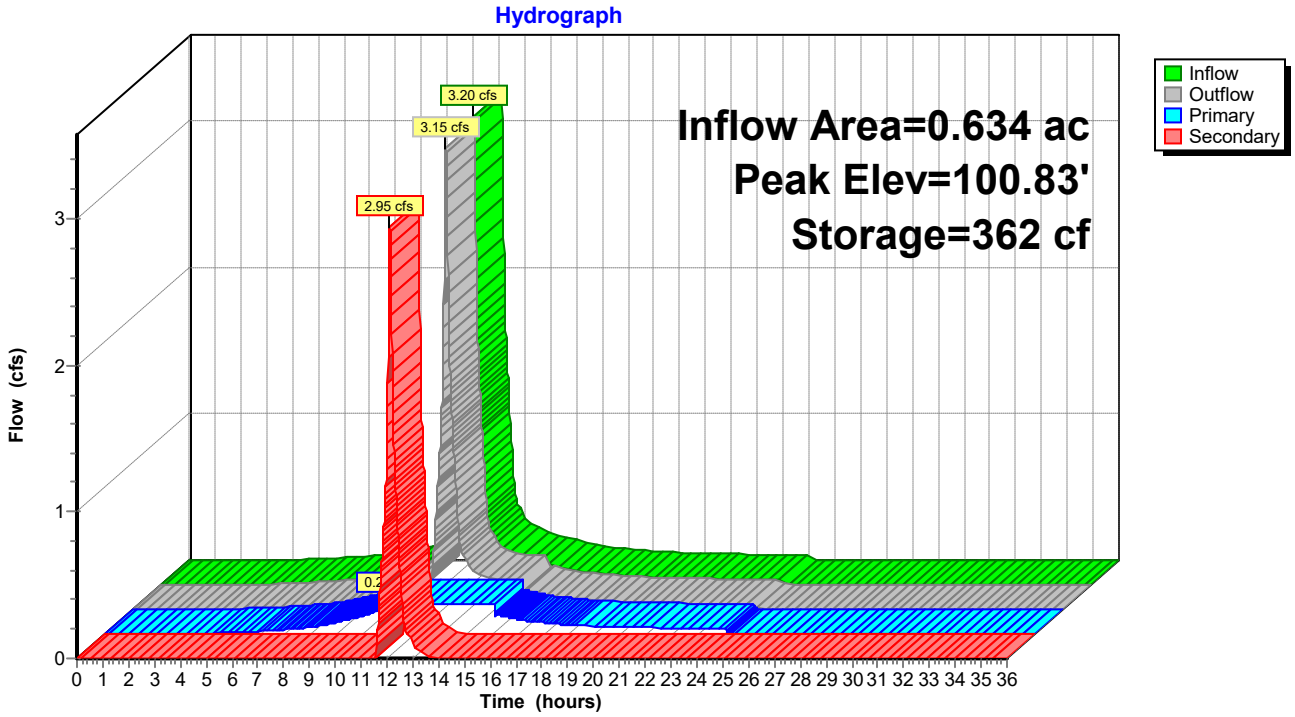
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	87	0	0
100.50	435	131	131
101.00	870	326	457

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.20 cfs @ 10.99 hrs HW=97.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.20 cfs)

Secondary OutFlow Max=2.94 cfs @ 12.11 hrs HW=100.83' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 2.94 cfs @ 1.88 fps)

Pond FP18: FP-18



Summary for Pond FP19: FP-19

Inflow Area = 0.441 ac, 68.90% Impervious, Inflow Depth = 4.76" for 25-year event
Inflow = 2.47 cfs @ 12.06 hrs, Volume= 0.175 af
Outflow = 2.44 cfs @ 12.07 hrs, Volume= 0.175 af, Atten= 1%, Lag= 0.7 min
Primary = 0.14 cfs @ 10.99 hrs, Volume= 0.103 af
Secondary = 2.30 cfs @ 12.07 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.78' @ 12.07 hrs Surf.Area= 62 sf Storage= 234 cf

Plug-Flow detention time= 3.4 min calculated for 0.175 af (100% of inflow)
Center-of-Mass det. time= 3.4 min (784.0 - 780.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	28 cf	**4.00'W x 15.60'L x 2.25'H FocalPoint** 140 cf Overall x 20.0% Voids
#2	100.00'	328 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		356 cf	Total Available Storage

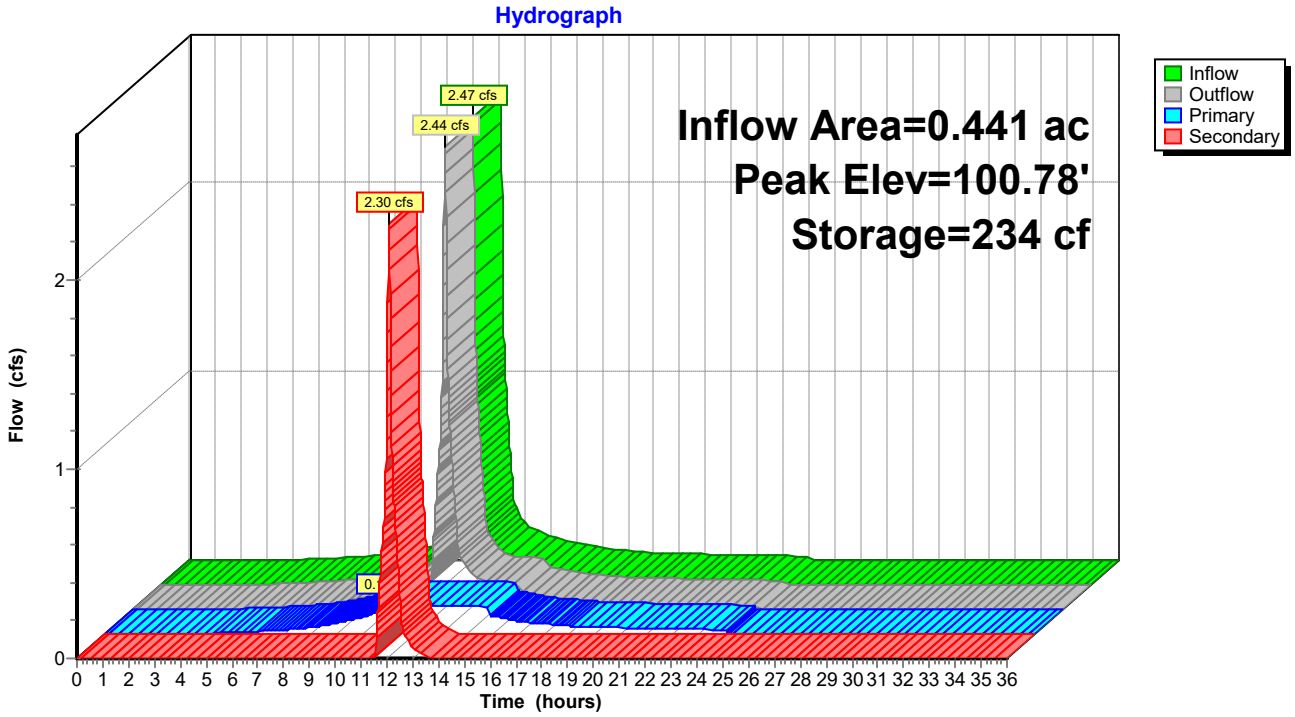
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	62	0	0
100.50	312	94	94
101.00	624	234	328

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.14 cfs @ 10.99 hrs HW=97.88' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Secondary OutFlow Max=2.29 cfs @ 12.07 hrs HW=100.78' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 2.29 cfs @ 1.73 fps)

Pond FP19: FP-19



Summary for Pond FP20: FP-20

Inflow Area = 1.038 ac, 26.11% Impervious, Inflow Depth = 3.50" for 25-year event
Inflow = 4.58 cfs @ 12.06 hrs, Volume= 0.303 af
Outflow = 4.45 cfs @ 12.08 hrs, Volume= 0.303 af, Atten= 3%, Lag= 1.0 min
Primary = 0.23 cfs @ 11.20 hrs, Volume= 0.165 af
Secondary = 4.22 cfs @ 12.08 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 100.92' @ 12.08 hrs Surf.Area= 101 sf Storage= 497 cf

Plug-Flow detention time= 4.2 min calculated for 0.303 af (100% of inflow)
Center-of-Mass det. time= 4.1 min (820.4 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	45 cf	**3.00'W x 33.50'L x 2.25'H FocalPoint** 226 cf Overall x 20.0% Voids
#2	100.00'	528 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		573 cf	Total Available Storage

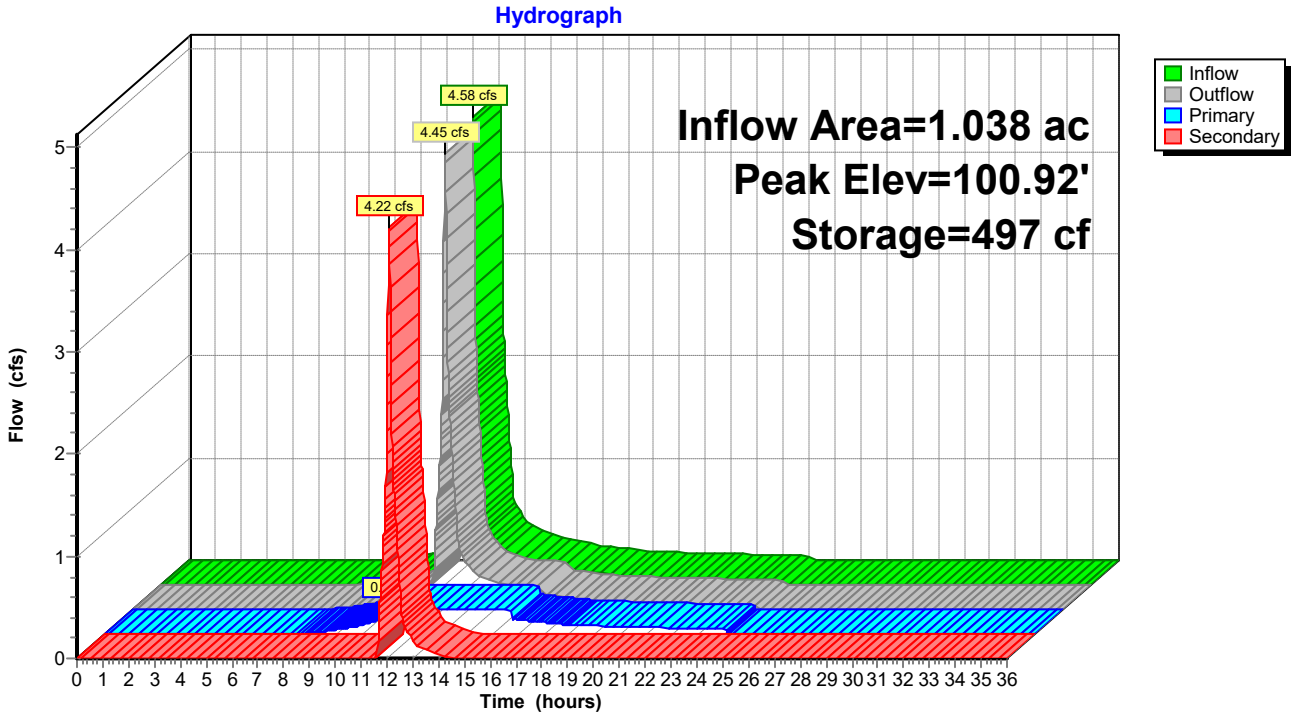
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	101	0	0
100.50	503	151	151
101.00	1,005	377	528

Device	Routing	Invert	Outlet Devices	
#1	Primary	97.75'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	100.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.23 cfs @ 11.20 hrs HW=97.89' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=4.21 cfs @ 12.08 hrs HW=100.92' (Free Discharge)
2=Orifice/Grate (Weir Controls 4.21 cfs @ 2.12 fps)

Pond FP20: FP-20



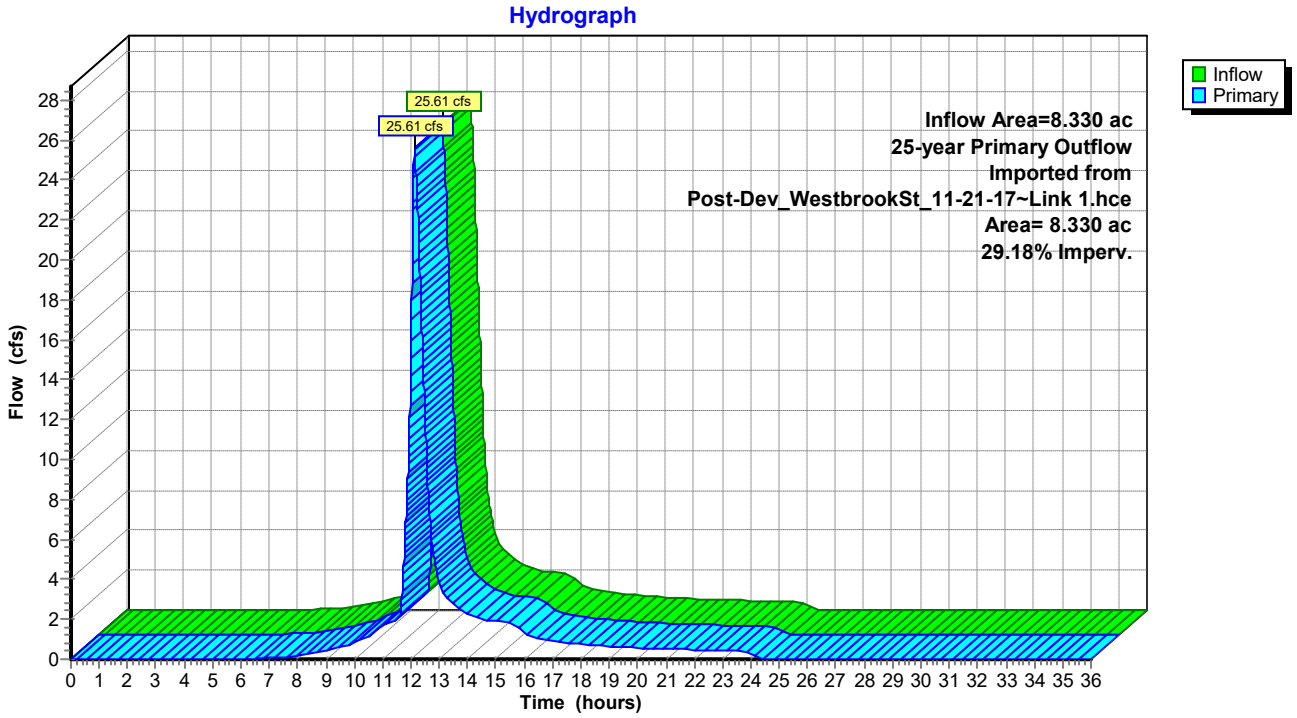
Summary for Link 1: POND 1

Inflow Area = 8.330 ac, 29.18% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af
Primary = 25.61 cfs @ 12.12 hrs, Volume= 2.565 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

25-year Primary Outflow Imported from Post-Dev_WestbrookSt_11-21-17~Link 1.hce

Link 1: POND 1



Section 13

Urban Impaired Stream Submissions

13. Urban Impaired Stream Submissions

The proposed project is not located within an urban impaired stream watershed.

Section 14

Basic Standards Submissions

ACORN
ENGINEERING, INC.

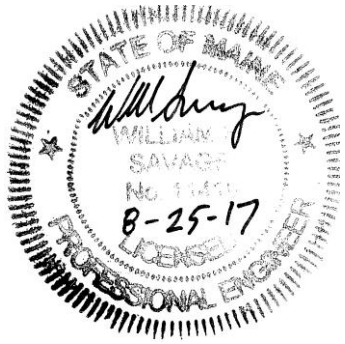
EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

Stroudwater Development Partners, LLC
1700 Westbrook st.
Portland, Maine 04101

Prepared By:

Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102



August 2017

INTRODUCTION

Acorn Engineering, Inc. has been retained by Stroudwater Development Partners, LLC to provide civil engineering services for the proposed single-family and townhouse development at 1700 Westbrook Street. The proposed project is to redevelop 55.3 acres of mainly farmland into a traditional single-family housing development. The proposed development includes 100 lots of which 98 are single family house lots, one planned unit residential lot and one open space lot.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended January 11, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2014.

1.0 EXISTING CONDITIONS

The proposed project site is located on Westbrook Street, adjacent to the Stroudwater River. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated June 16, 2017.

Abutting Uses:

- North R-1 Zone Residential
- West IL Zone Industrial – Low impact
- South OP Zone Office Park
- East R-1 Zone Residential

The majority of the site is pervious with dense overgrowth and some mature tree growth. The average grade, closer to Westbrook Street, is relatively flat. The surface drops off closer to the Stroudwater River, with signs of erosion throughout the change in elevation.

1.1 Existing Soils

Onsite soil information includes the following:

- Class B – High Intensity Soil Survey performed by Mark Hampton Associates.

Please refer to Section 11 for additional information.

The site is comprised of primarily Lamoine and Buxton soils which are classified as types C and D hydrologic soils, respectively. The areas where Lamoine has been identified, have been classified as somewhat poorly drained. The areas where Buxton has been identified, have been classified as moderately well drained.

Small parts of the site are comprised of Podunk soils which is characterized by moderately well drained soils. Permeability is moderately rapid to rapid.

Lastly, eight wetlands with Scantic soils exist on site which are poorly drained.

These existing soils were modeled in their respective hydrologic groups in both the pre and post conditions.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Lamoine	0.37	0.37
Buxton	0.49	0.49
Podunk	0.37	0.37
Scantic	0.49	0.49

The soil "K" values for the soils, listed above, indicate a moderate susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County and the USDA Soil Survey.

1.2 Existing Erosion Problems

There are signs of erosion on the south side of the parcel, where Lamoine soils have been identified.

1.3 Critical Areas

Critical areas that would require special attention during construction include, but are not limited to, the Stroudwater river and any exposed slopes.

1.4 Protected Natural Resource

There are eight wetlands on site. The proposed development is expected to impact 15,000 to 20,000 square-feet of wetland. A Tier 2 NRPA permit is forthcoming.

Additionally, a project description and copy of the development plans was sent to Maine Natural Areas Program (MNAP) and Maine Inland Fisheries and Wildlife (IF&W). MNAP did not find any rare botanical features within the project area. IF&W did not map any Essential or Significant Wildlife Habitats that would be directly affected by the proposed development.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches, or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public road ways.

2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 Sedimentation basin with a permanent outlet into Westbrook Street. Basin shall be installed before the ground is frozen and should be cleared of stumps, roots, brush, boulders, etc. Scarify the native soil and confirm that the soil has sufficient moisture for the first layer of fill. Contractor to construct overflow outlet or spillway (center minimum 6 inches lower than outer edges) within the embankment that is protected with geotextile fabric and riprap. Basin shall have a minimum depth of 2 feet. Stabilization of the embankments is critical and should be carried out though erosion control mix, riprap, or sand bags. The basin has been sized using the MDEP Erosion and Sediment Control BMP Manual's procedures. A 10-year storm in the pre-development condition was modeled. As a result, the required volume for the basin is approximately 450 cubic feet. Refer to the MDEP's Erosion and Sediment Control BMP Field Guide for a complete list of construction specifications.

2.1.5 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.6 Westbrook Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.7 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.8 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.9 Stormdrain inlet protection shall be provided to stormdrains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.10 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.

2.1.11 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.12 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.13 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.14 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-

winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has

not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75%

of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a "storm event". A "storm event" shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Sedimentation Basin

The sedimentation basin and outlet culvert shall be inspected and maintained during

construction. If embankments show signs of erosion or settlement, it will be necessary to repair or replace the erosion control device. Culvert should be checked for debris and other clogs. Inspect riprap outlet for signs of erosion and increase the length of the outlet apron if signs of erosion are present. In the spring, basin should be monitored for high flows of runoff.

6.3 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419

- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install sedimentation basins.
4. Commence installation of drainage infrastructure within Westbrook Street into the site.
5. Install all other erosion control devices as necessary throughout the remainder of this schedule.
6. Commence earthwork operations, associated with the roadway construction.
7. Commence installation of utilities.
8. Continue earthwork and grading to subgrade as necessary for construction.
9. Complete installation of drainage infrastructure, as well as other utility work.
10. Complete remaining earthwork operations.
11. Install sub-base and base gravels in paved areas.
12. Install paving, curbing and brickwork.
13. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
14. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete remove all temporary erosion control measures.
15. Touch up areas without a vigorous catch of grass with loam and seed.
16. Complete site signage and striping.
17. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.

Section 15

Groundwater

15. Groundwater

A. Narrative and Report

Location

See this section for a copy of a Bedrock and Surficial Geology map with the project location depicted.

Quantity

There will be no groundwater use or underground wastewater disposal. Potable water will be provided by Portland Water District.

Sources

The project will only generate normal household quantities of wastewater, solid waste, fuel and solvents. As the project will be serviced by municipal sewer, none of these items will be discharged into the groundwater.

Measures to Prevent Degradation

The majority of the impervious drainage areas associated with streets, drives and walkways are directed to stormwater management facilities designed to current DEP treatment standards.

B. Groundwater Protection Plan

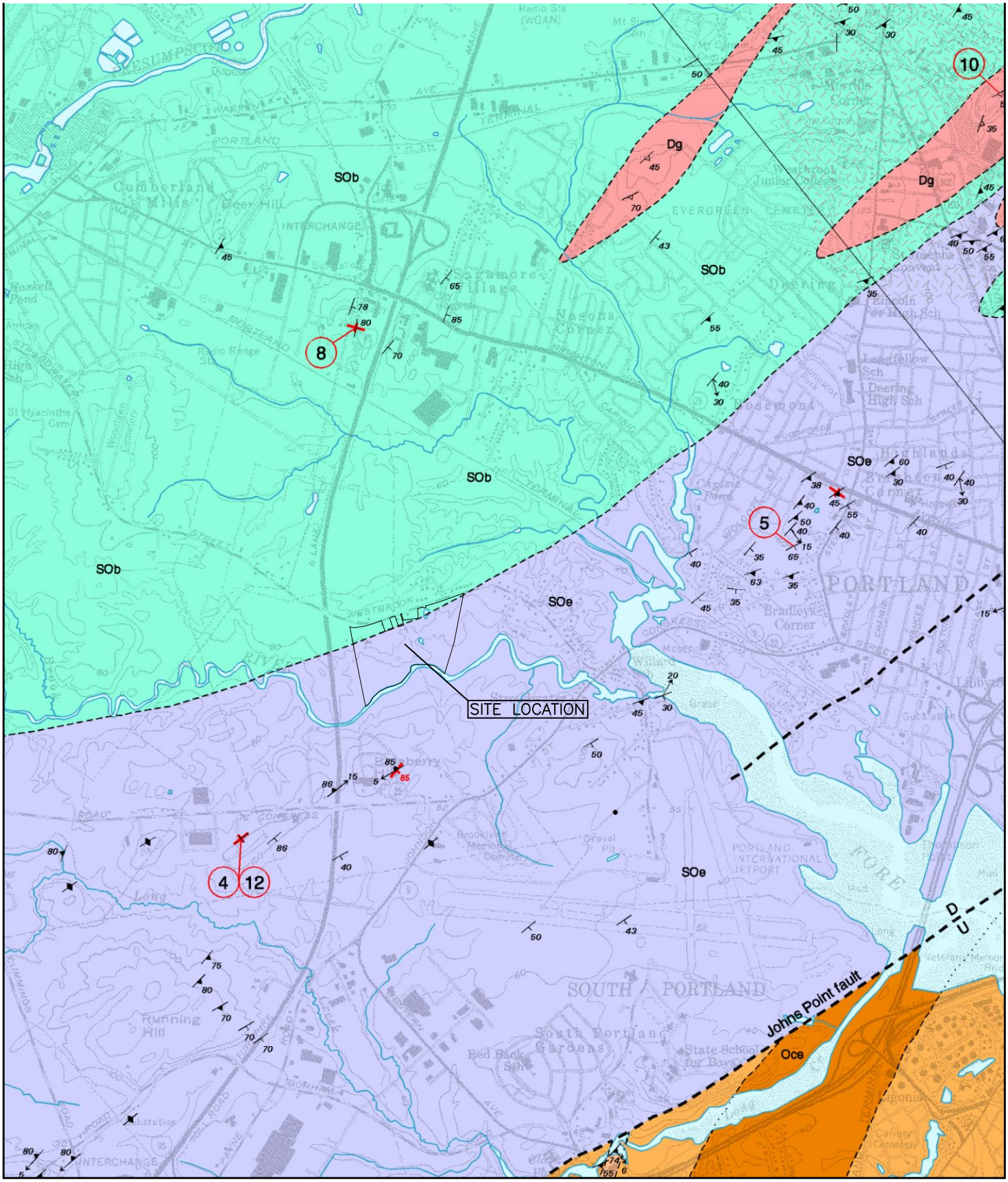
There are no development plans to store or use petroleum products, pesticides, herbicides, road salt, solvents, acids or other materials with the potential to contaminate groundwater.

C. Monitoring Plan

Not applicable

D. Monitoring Well Installation Report

Not applicable



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C-01

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JN:	1079
SCALE:	1"=2,400'
DESIGN BY:	ADG
DRAWN BY:	ADG
CHECKED BY:	WHS

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

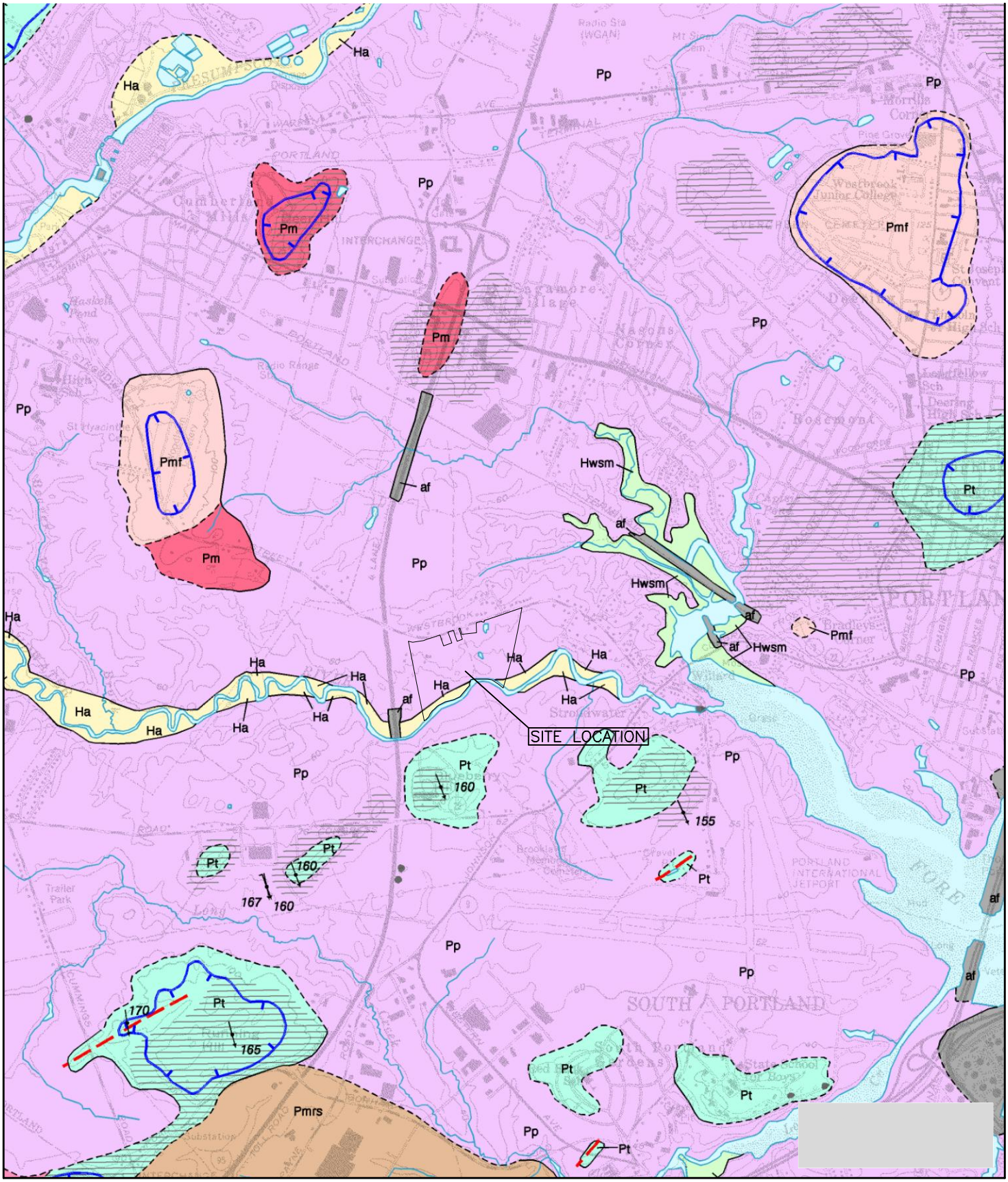
DRAWING NAME:
BEDROCK MAP

PROJECT NAME:
STROUDWATER PRESERVE

CLIENT:
STROUDWATER DEVELOPMENT PARTNERS, LLC

ISSUED FOR	BY DATE
SITE LAW	WHS 8/22/17
SLODA	WHS 8/22/17

REV. DATE



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C-02

FILE:	CIVIL
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DRAWN BY:	ADG
CHECKED BY:	WHS

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

DRAWING NAME:
SURFICIAL GEOLOGY MAP

PROJECT NAME:
STROUDWATER PRESERVE

CLIENT:
STROUDWATER DEVELOPMENT PARTNERS, LLC

ISSUED FOR	BY DATE
SITE LAW	WHS 8/22/17
SLODA	WHS 8/22/17
	REV. DATE

Section 16

Water Supply

16. Water Supply

A. Water Supply Method

The development will be serviced by the existing 8" municipal water within Westbrook St supplied by the Portland Water District. An ability to serve letter, from Portland Water District, is forthcoming.

B. Subsurface Wastewater Disposal

Not applicable. The development will be serviced by municipal sanitary sewer.

C. Total Usage

This project requires an estimated water supply of 38,250 gallons per day (gpd).

Section 17

Wastewater Disposal

17. Wastewater Disposal

A. On-Site Subsurface Wastewater Disposal System

The project will not be serviced by individual on-site sewage disposal systems. However, single-unit pumping stations will be included in the design.

B. Nitrate-Nitrogen Impact Assessment

Not applicable.

C. Municipal Facility or Utility Company Letter

An Ability to Serve Letter from the Department of Public Services is forthcoming. The Authorization letter will be issued after the City reviews the preliminary application. This process will occur upon the completion of the Site Law application.

D. Storage or Treatment Lagoons

Not applicable.

Section 18

Solid Waste

18. Solid Waste

A. Commercial Solid Waste Facility

The proposed residential development is expected to generate the following quantities of waste:

Construction Phase: Construction of the proposed development will require some clearing that will generate stumps and grubbing. Stumps and grubbing will be ground on site and the grindings will be incorporated into erosion control mix if possible. Any material not deemed to be inert by the Solid Waste Management Regulations will be source separated and disposed at a local construction material recycling facility.

Municipal Solid Waste: Municipal solid waste will be collected, via curb pick-up, by a private hauler. This company will be determined at a later time.

B. Off-Site Disposal of Construction/Demolition Debris

Any material not suitable for on-site disposal will be source separated and transferred by a licensed non-hazardous waste transporter to a local construction material recycling facility.

C. On-Site Disposal of Woodwaste/Land Clearing Debris

Stumps and grubbings will be chipped or ground on site. The grindings will be used for erosion control mulch whenever possible. Additionally, loam will be stored on site, per MaineDEP regulations.

D. Special or Hazardous Waste

Not applicable.

Section 19

Flooding

19. Flooding

A. Explanation of Flooding Impact

A comparison between the preliminary and post peak runoff flowrates can be found in Section 12.

B. Site Plan Showing 100-Year Flood Elevation

See Site Civil Drawings. Gino Giumarro – Verdanterra, LLC delineated and flagged the Normal High Water Line along the Stroudwater River on June 1st, 2017. The flags were located by the surveyor Titcomb Associates and Normal High Water Line was included within the Existing Conditions Plan.

C. Hydrology Analysis

Not applicable.

D. FEMA Flood Zone Map with Site Boundaries

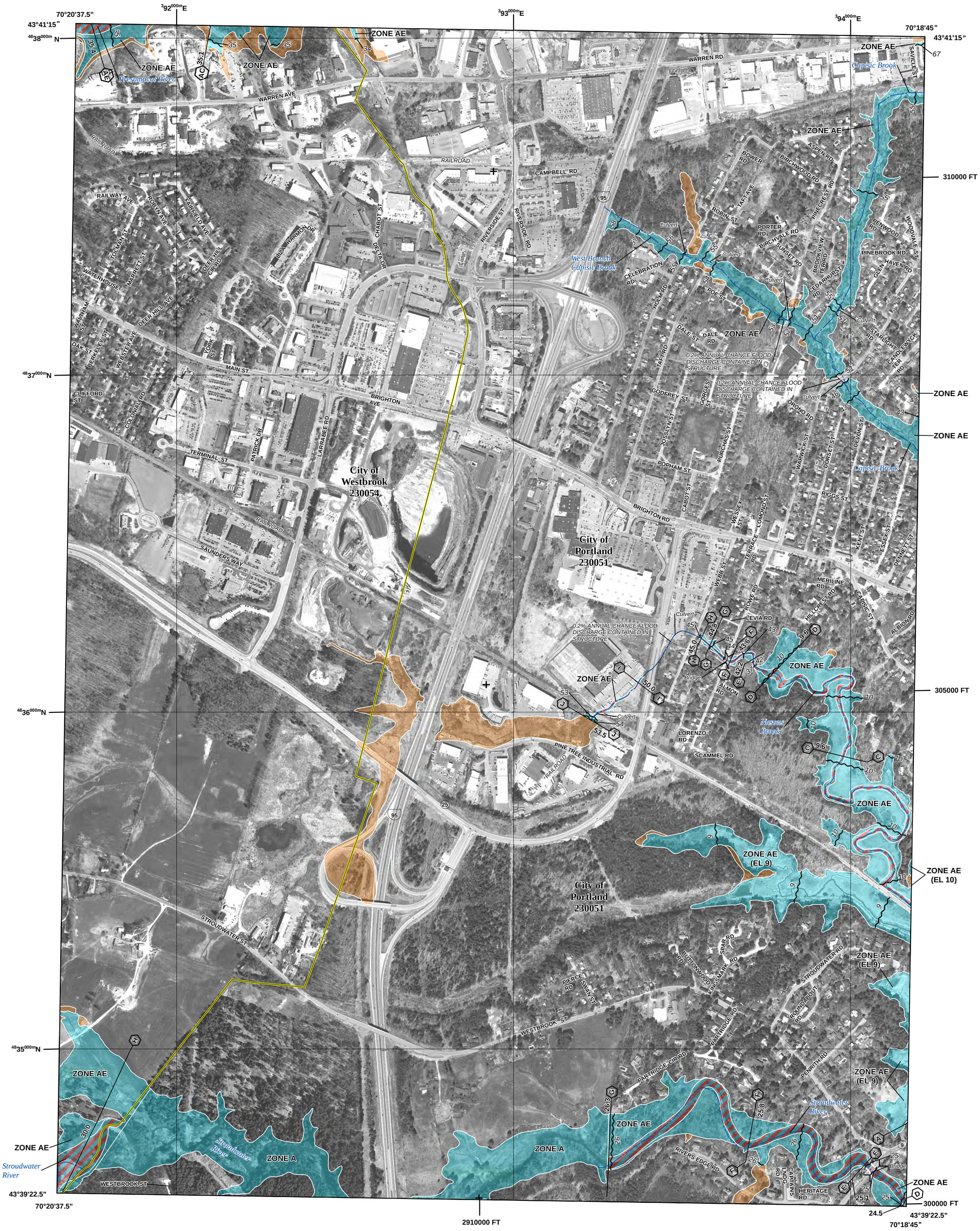
Attached is the FEMA flood map 23005C0687F dated April 14, 2017 which shows the site in Zone A. The map also shows the 100-year flood plain which runs along the Stroudwater River.

The development has been designed to be in accordance with the FEMA manual titled, Managing Floodplain Development in Approximate Zone A Areas a Guide for obtaining and developing base (100-Year) Flood Elevations.

In accordance with the Zone A Manual, the subdivision has been designed so all the lots are outside of the mapped A Zone (from 1998 map) to mitigate the need for a detailed study of the A Zone. The A Zone will reside in the within the open space, please refer to the attached Site Plan.

Additional Supporting information on why a detailed study is not required by FEMA. Utilizing the latest preliminary FIRM, which is scheduled to become effective summer 2018. The flood zone line clearly follows the 27 ft contour on the NAVD88 datum as shown in the Grading Plan. Using another FEMA approved method called the "simplified contour interpolation" utilizes the preliminary data to determine the Base Flood Elevation (BFE) (Refer pages III-7 and V-2 of Zone A Manual). As you can see in the attached Site Plan the house lots will remain outside the latest Flood Plain. The lowest basement level elevation will be at an approximate elevation of 38 ft or greater than 10' above the BFE.

Given the subdivision is in compliance with the FEMA approved methods for developing base 100-year flood plain elevations and the floodplain will reside within the Open Space lot provides the required documentation that the project meets Section 14 -450.7(c)(1) of Chapter 14.



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- E 18.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 — Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM provided in digital format by State of Maine, Maine office of GIS (MeGIS). This information was derived from MeGIS, dated 2012.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and FDTs may reflect stream channel distances that differ from what is shown on the map.

SCALE

N

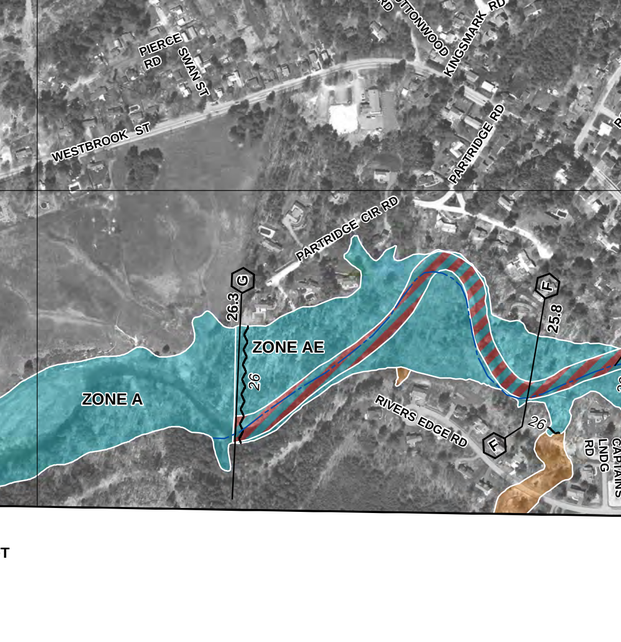
Map Projection:
NAD 1983 UTM Zone 19N;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 500 1,000 2,000 Feet

0 125 250 500 Meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

CUMBERLAND COUNTY, MAINE
All Jurisdictions

PANEL 0687 OF 0837

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
PORTLAND, CITY OF	230051	0687	F
WESTBROOK, CITY OF	230054	0687	F

REVISED PRELIMINARY 4/14/2017

VERSION NUMBER 2.3.2.1

MAP NUMBER 23005C0687F

EFFECTIVE DATE

Section 20

Blasting

20. Blasting

The project does not anticipate the need for blasting during construction.

Section 21

Air Emissions

21. Air Emissions

The proposed development is not anticipated to generate any point source air emissions other than chimneys serving individual home heating units. The project will also not produce any non-point source air emissions besides vehicular traffic. The estimated peak hour vehicle trips are not expected to be a significant source of air emission. Temporary emissions may occur during the construction of the project due to earth moving activities and construction equipment. These emissions are expected to be limited in nature and of short duration. Provisions for dust control, if needed during construction, have been included in the Erosion and Sediment Control Plan (See Section 14).

Section 22

Odors

22. Odors

Odor generation is expected to be insignificant and consistent with surrounding areas. Temporary limited odors may arise during construction as a result of construction equipment working on the site. This odor is short term and expected to be insignificant.

Section 23

Water Vapor

23. Water Vapor

The project is not anticipated to produce significant amounts of water vapor.

Section 24

Sunlight

24. Sunlight

The required building setbacks and restrictions on building height limits the potential to adversely impact sunlight access on abutting properties associated with this development proposal.

Section 25

Notices

25. Notices

A. Neighborhood Meeting

See Forms B and C attached. A neighborhood meeting will be held a minimum of 30 days after the preliminary application has been submitted.

B. List of Abutters

A list of abutters has been included in this Section.

Abutters List

Resident	Address	Map and Lot
Linda E. Paradis & Andrew D. Green	1714 Westbrook Street	246-A-4
Mary Davis & Stuart W. Tisdale Jr.	1666 Westbrook Street	248-A-4
Kevin A. Regan	1646 Westbrook Street	248-A-3
Jacqueline D. Day	1630 Westbrook Street	248-A-6
Bruce Harrington	1618 Westbrook Street	248-A-10
Stroudwater Christian Church	1498 Westbrook Street	256-A-1
Alina & Raymond Waterhouse	105 Patridge Circle	228-A-3
Maria Shabazz & Michael A. Scannell	125 Patridge Circle	228-A-4
William D. Dobrowioski	132 Patridge Circle	228-A-5

FORM B

PUBLIC NOTICE:
NOTICE OF INTENT TO FILE

Please take notice that

Stroudwater Development Partners, LLC, 62 Portland Road, Suite 25, Kennebunk ME

(*Name, Address and Phone # of Applicant*)

207-939-5432

is intending to file a Site Location of Development Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 481 thru 490 on or about

August 22, 2017

(Anticipated Filing Date)

The application is for

The redevelopment of a 55.3 acre lot into a traditional single-family housing development.

(Description of the Project)

at the following location:

1700 Westbrook Street, Portland ME

(*Project Location*)

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456. (Delete if not applicable.)

The application will be filed for public inspection at the Department of Environmental Protection's office in (*Portland, Augusta or Bangor*)(circle one) during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine.

(*Town*)

Written public comments may be sent to the regional office in Portland, Augusta, or Bangor where the application is filed for public inspection:

MDEP, Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103
MDEP, Eastern Maine Regional Office, 106 Hogan Road, Bangor, Maine 04401

FORM C

PUBLIC NOTICE FILING AND CERTIFICATION

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Site Location projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on _____.
Date

Approximately _____ members of the public attended the Public Informational Meeting.

_____ _____
Signature of Applicant or Authorized Agent Date

Section 26

Fire Department Letter

ACORN ENGINEERING, INC.

Assistant Chief Keith Gautreau
City of Portland Fire Department
380 Congress St.
Portland, ME 04101

August 17, 2017

Subject: Stroudwater Preserve – Fire Department Checklist

On behalf of Stroudwater Development Partners, LLC, the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant

   Stroudwater Development Partners, LLC
   62 Portland Road, Suite 25
   Kennebunk, ME 04043
   (207) 939-5432

2. Name, address, telephone number of architect

   Ryan Senatore (PRUD Design)
   565 Congress Street #304
   (207) 747-5159

   Proposed uses of any structures [NFPA and IBC classification]

   NFPA: Lodging and Rooming

   IBC: R-3

3. Square footage of all structures, including decks [total and per story]

   The square footage of the PRUD structures is proposed to be 22,400 square-feet. The square footage of all other structures is forthcoming.

4. Elevation of all structures

   Height of structures. All structures will be within the 35-ft. allowable height, per the City of Portland Zoning Ordinance.

5. Proposed fire protection of all structures

   Single Family homes will be sprinkled in compliance with NFPA 13D.

The Planned Unit Residential (PRUD) townhouse units will be sprinkled and in compliance with NFPA 13R.

6. Hydrant locations.

   There are two existing hydrants located near the project parcel. The location of these hydrants can be seen on the Utility Plan. All proposed fire hydrants will be spaced every 500 ft in accordance with the City of Portland Technical Manual, Section 3.2, City of Portland Code Chapter 10, Article IV and Portland Water District Standards.

7. Water main size and location

   An 8" water main is proposed within the development. The location of the water main can be found on the Utility Plan.

8. Access to all structures [min. 2 side]

   Access to the site is provided from Westbrook Street. The locations of these entrances can be seen on the Site Plan. All structures will have access on 2 sides.

9. A code summary referencing NFPA 1 and all fire department technical standards may be submitted with the Final Application, if required by the fire department.

Sincerely,

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.

Section 27

Conformity with Applicable Zoning Standards

27. Conformity with Applicable Zoning Standards

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-526 as well as the City of Portland Technical Manual, Chapter 14 Standards for Local Site Location of Development Review.

OVERVIEW

This project conforms with all applicable design standards of Section 14-526 as demonstrated in the following narrative

A. Transportation Standards

1. Impact on Surrounding Streets Systems:

   The project is projected to generate 100 or more cars during peak hour which qualifies it for a full review. The Traffic Movement Permit is under separate cover.

2. Access and Circulation

   a. Site Access and Circulation:

      This Project conforms with all applicable design standards of Section 14-526 as demonstrated in the following narrative.

      (i) All site access and internal circulation will be designed in accordance with the standards set forth in Section 1 of the Technical Manual.

      (ii) The proposed entrances are along Westbrook Street. The exact location of these entrances can be seen on the Site Plan.

      (iii) The site does not feature drive up services as mentioned in this requirement.

   b. Loading and Servicing:

      (i) The site has been designed with 14-foot travel lanes, with the exception of 11-foot travel lanes in the PRUD. These dimensions provide plenty of space and adequate turning radii for trucks and vehicles with trailers.

   c. Sidewalks:

      (i) The location of the proposed sidewalk along Westbrook Street can be seen on the Site Plan. The sidewalk is in accordance with Sections 14-498 and 14-499 of the City Code.

      (ii) There are currently no sidewalks within or along the project parcel.

(iii) The location of the proposed sidewalks can be seen on the Site Plan.

3. Public Transit Access:

   a. The proposed development is not allocated along an existing public transit route.

   b. A discussion with the Metro System is ongoing. The project parcel is on a major urban collector roadway. Space has been noted and designated as potential Metro bus station, refer to C-10 Subdivision Plan.

   c. A discussion with the Metro System is ongoing.

4. Parking:

   a. Location and Required Number of Vehicle Parking Spaces:

      (i) The internal roadways will be built to the City standard width of 28 ft. and allow for on street parking on one side of the roadway. There is potential for parking at the end of Old Westbrook Street pending conversations confirming the status of the area from City Planning Staff. Each PRUD unit will have an integral garage for parking.

      (ii) A parking study is not required.

      (iii) A parking analysis is not required.

      (iv) The parking dimensions are such that the plans are in conformance with the City of Portland Technical Manual.

      (v) All materials proposed materials can be found on the Details Sheet.

   b. Location and Required Number of Bicycle Parking Spaces:

      (i) Three (3) bicycle parking areas are proposed to be provided within the City ROW for a total of six (6) new spaces. Refer to C-10 Subdivision Plan for the parking locations.

   c. Motorcycle and Scooter Parking:

      (i) Not applicable.

   d. Snow Storage:

      (i) It is anticipated that snow will be stored along the roadway within the esplanade or 11-foot buffer between the curb face and property lines. Snow within the PRUD lot is to be stored along the sideslopes of the driveway, refer to C-10 Subdivision Plan for exact location.

(ii) Snow storage shall not be located where it interferes with the minimum parking requirements, pedestrian walkways, or stormwater management systems.

5. Transportation Demand Management (TDM):

   a. A TDM plan is not required for this project.

   b. A TDM plan is not required for this project

   c. A TDM plan is not required for this project

B. <u>Environmental Quality Standards</u>

1. Preservation of Significant Natural Features:

   a. The significant natural features that exist on site include eight (8) wetlands. The wetland impact is expected to be below 15,000 sf.

   b. The Stroudwater River will be preserved by applying the standards set forth by Chapter 500.

   c. An average 300-foot buffer will be preserved between the Stroudwater River and residential development.

2. Landscaping and Landscape Preservation:

   a. Landscape Preservation.

      (i) The disturbance of trees and vegetation will be limited. Refer to L-1 Landscape Plan for delineation of existing trees to remain.

      (ii) A minimum of 30% of existing trees ten inches DBH or greater within the setback area will be preserved.

      (iii) Measures will be taken to protect trees in accordance with Section 4 of the Technical Manual.

      (iv) A waiver is not requested.

      (v) A portion of the proposed parcel is within the shoreland zone. Measures will be taken to meet the requirements of Division 26, Shoreland Regulations.

   b. Site Landscaping.

(i) Landscaped Buffers:

(a) The development will be screened from public sidewalks.

(b) The project has 5,136 linear feet of frontage along Westbrook Street; per requirement, it is required that a minimum of six shrubs or shrub alternatives per 45 feet of frontage are planted. The requirement is met through a combination of landscaping within the setbacks and within the site and is described in greater detail on sheet L-1.

Additionally, all proposed parcels with have a minimum street frontage of 50-ft per the City of Portland Zoning Ordinance.

(c) Not applicable.

(d) Per requirement, all evergreen vegetated buffers will be provided and/or preserved where necessary to buffer the development from detrimental impacts of existing surrounding developments.

(ii) Parking Lot Landscaping:

(a) Not applicable.

(b) Not applicable.

(c) Not applicable.

(d) Not applicable

(e) Not applicable

(iii) Street Trees:

(a) Street trees or street tree alternatives per coordination with the City Arborist will be planted in accordance with Section 4 of the Technical Manual. For more information, refer to the Landscape Plan.

(b) Not applicable

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater

A site specific Stormwater Management Plan has been developed from the project to show compliance with Section 5 of the Technical Manual, including the basic, general, and flooding standards of MEDEP Chapter 500. Please refer to the Stormwater Management Plan for this information.

b. Refer to the Stormwater Management Report (Section 12) for this information.

c. The project is not located in a watershed of an urban impaired stream as listed by the MEDEP.

d. Not applicable

e. The development is not anticipated to pose a contamination risk to groundwater during or after construction. The project will be serviced by the public wastewater system.

f. The development will provide for adequate and sanitary disposal of sewage in accordance with Section 2 of the Technical Manual.

C. <u>Public Infrastructure and Community Safety Standards</u>

1. Consistency with City Master Plans:

   a. The project has been designed to be consistent with the City's Zoning Ordinance and off-site infrastructure.

   b. Not applicable

2. Public Safety and Fire Prevention:

   a. The site has been designed to promote safe and inviting public access. See Site Plan for more details.

   b. Adequate emergency access will be provided. The turning radii of the driveway are large enough to allow for emergency vehicles to enter and exit.

   c. Two fire hydrants are located along Westbrook Street. See Road Profile Plans for proposed hydrant locations. The hydrant within the PRUD lot is proposed to be private and maintained as such.

3. Availability and Adequate Capacity of Public Utilities:

   a. Portland Water District has confirmed that the existing watermain infrastructure within Westbrook Street has the capacity to serve the project; refer to the Utility Cover submission.

   b. The electrical service will be wired underground.

   c. The new sewer and stormwater infrastructure will meet the provisions of the Technical Manual.

   d. The project will be served by connection to the public sewer system.

   e. The sanitary sewer collection system meets all applicable sections of the

Technical Manual. The stormwater management system is designed to meet the standards of Chapter 500.

f. Solid waste will be picked up via curb pick-up except for within the PRUD lot; waste generated by the PRUD is to be handled via a private hauler.

g.

D. Site Design Standards

1. Massing, Ventilation and Wind Impact:

    a. The bulk, location and height of the proposed structures will not result in health or safety problems from a reduction in ventilation to abutting structures or changes to the existing wind climate.

    b. The bulk, location and height of the proposed structures shall minimize, to the extent feasible, any substantial diminution in the value or utility to neighboring structures under different ownership and not subject to a legal servitude in favor of the site being developed.

    c. All HVAC venting mechanisms will be directed away from public spaces and residential properties directly adjacent to the site.

2. Shadows:

    a. Not applicable

3. Snow and Ice Loading

    a. The structures will not distribute snow and ice onto adjacent properties.

4. View Corridors:

    a. The project site is located outside the Downtown Vision View Corridor Protection Plan.

5. Historic Resources:

    a. Correspondence and plan review with the Maine Historical Preservation Commission is ongoing. Final correspondence and acceptance of the project is to be submitted under separate cover once received.

6. Exterior Lighting:

    a. Site Lighting.

        (i) Exterior lighting will be designed to meet the requirements of Section 12 of the Technical Manual. Refer to C-10 Subdivision Plan and the project's

photometric plan for additional information on lighting type and location.

(ii) Any lighting that may adversely impact the abutting residential properties will feature house-side shielding.

b. Architectural and Specialty Lighting

(i) No architectural or specialty lighting is proposed.

(ii) No up-lighting is proposed.

c. Street Lighting.

(i) Street lighting will be designed to meet the requirements of Section 10 of the Technical Manual.

7. Noise and Vibration:

a. All HVAC systems will be designed to meet the requirements in of Section 14-526 of the Technical Manual.

8. Signage and Wayfinding:

a. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

(i) Not applicable.

(ii) Not applicable.

(iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

9. Zoning Related Design Standards:

a. The project will be designed to meet the design standards within the R-3 Residential Zone.

SPACE AND BULK STANDARDS

A summary of the required and proposed dimensional standards for the R-3 Residential Zone as described in Section 14-90 of the Land Use Ordinance:

	R-3 Zone	*Proposed*
Single Family House Lots		
Minimum Lot Size	6,500 SF	6,500 SF
Minimum Street Frontage	50'	50'
Front Yard	25'	25'
Rear Yard – Principal	25'	25'
Rear Yard – Accessory	5'	5'
Side Yard – 2 ½ Stories	16'	16'[1]
Side Yard – 2 Stories	14'	14'
Side Yard – 1 & 1 ½ Stories	8'	8'
Maximum Lot Coverage	35%	Max 35%
Minimum Lot Width[2]	65'	65'
Maximum Building Height	35'	< 35'
Maximum Accessory Height	18'	< 18'
Planned Residential Unit Development (PRUD)		
Minimum Lot Area Per Dwelling Unit	6,500 SF	6,500 SF
Maximum Number of Units Per Building (> 5 ac.)	6	5
Maximum Number of Units Per Building (< 2 ac.)	2	N/A
Maximum Length of Building without Garages	100'	N/A
Maximum Length of Building with Integral Garages	140'	140'
Minimum Building Setback from External Property Lines (> 4 Units Per Building)	35'	35'
Minimum Distance Between Buildings	16'	17.12'
Minimum Recreational Open Space Per Dwelling Unit	300 SF/DU = 7,500 SF	Min 300 SF
Minimum Contiguous Area of Recreational Use[3]	6,000 SF	6,105 SF
Minimum Width Recreational Use Area	50'	60.03'

[1] Side Yard as depicted on C-10, Site Plan.
[2]Distance parallel to the front of the building measured between side lot lines through that part of the principal building where the lot is narrowest.
[3]Area shall include one or more of the uses set forth in section 14-526 and the City of Portland Design Manual

Refer to Section 33 – Conformity with Land Use Ordinance PRUD for dimensional requirements and derivation of land areas.

Section 28

Utilities

28. Utilities

The Existing Conditions Survey developed by Titcomb Associates dated June 16, 2017 identified the following existing utilities within Westbrook Street and services within the property:

- Existing gas main located along Westbrook Street with no service to the existing household
- A series of existing overhead electrical, telephone, and cable services within the Westbrook Street right-of-way and an underground service to the existing household
- A cast iron watermain extending along Westbrook Street before terminating at the bridge over the Maine Turnpike; there is also a service to the existing household
- A 12" sewer main within Westbrook Street with no service to the site identified

The plan also identifies an existing utility easement granted to Portland Pipeline and two utility easements to Portland Water District that bisect the property. The existing utility easements are to remain and coordination will continue with both Portland Pipeline and Portland Water District to avoid conflict with the existing underground utilities.

The Department of Public Works has identified that there is an existing septic field within the site. The system is to be located and removed during construction as noted within the Construction Management Plan.

The house lots and PRUD lot are proposed to be serviced by a new water main, gas main, and underground electrical/telephone/cable primary within the road right-of-way. Each unit will be serviced by a low pressure sewer forcemain as well.

Ability to serve requests were sent out to Central Maine Power, Fairpoint Communications, Spectrum Cable, Portland Water District, and Unitil on June 8, 2017. A coordination letter was also sent to Portland Pipeline Company on August 30, 2017. The letters are as attached. Since the preliminary application submission, Central Maine Power, Fairpoint Communications, and Unitil have confirmed their ability to serve the project; their responses are also attached. Response from Spectrum will be submitted once received. Coordination with Portland Water District and Portland Pipeline is ongoing and the final application road profile plans reflect that coordination. Final acceptance of the plans is pending from both parties and will be submitted once received.

A coordination meeting was also held on August 17, 2017 between the project team and the Department of Public Works to review the design of the proposed sewer infrastructure within the site.

ACORN ENGINEERING, INC.

Spectrum Cable
Attn: Mark Pelletier
118 Johnson Road
Portland, Maine 04102

June 8th, 2017

Subject: Camelot Farms Development – 1700 Westbrook Street
Re: Existing and Potential Utility Services

Dear Mark:

On behalf of Camelot Holdings, LLC, we are inquiring on Spectrum's existing services and service potential for the proposed subdivision development project at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) currently zoned as R-1 Residential in Portland, Maine; the property is under City Council review for a zone change from R-1 Residential to a hybrid R-3 Residential and ROS, Recreation and Open Space zone. Based on preliminary concept design, it is anticipated that the site will be subdivided into upwards of 105 single-family housing lots with additional potential for Planned Residential Unit Development (PRUD) which would add to the overall dwelling unit count.

A preliminary boundary survey completed by Titcomb Associates in November 2016 located a series of overhead electrical services within the Westbrook right of way and an underground cable service to the existing single-family household.

Pending a successful zone change approval, we will be moving forward with the site utility layout design. In the interest of coordinating with Spectrum prior to starting the design process, we are requesting the following information on behalf of the client:

1. Any additional information, such as utility mapping within Westbrook Street and to the existing household.
2. Any easements for overhead services currently crossing the proposed development.
3. Spectrum's proposed infrastructure improvements within the project vicinity.
4. Spectrum's anticipated ability to serve the project given the existing infrastructure in Westbrook Street.

I have attached the preliminary existing conditions plan by Titcomb Associates dated 11/23/16 and the latest site concept plan assuming a successful R-3/ROS zone change; please note that the site plan is preliminary and conceptual and do not necessarily represent the final subdivision layout.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

ACORN ENGINEERING, INC.

Central Maine Power Company
Attn: Paul Duperre
162 Canco Road
Portland, Maine 04103

June 8th, 2017

Subject: Camelot Farms Development – 1700 Westbrook Street
Re: Existing and Potential Utility Services

Dear Paul,

On behalf of Camelot Holdings, LLC, we are inquiring on CMP's existing services and service potential for the proposed subdivision development project at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) currently zoned as R-1 Residential in Portland, Maine; the property is under City Council review for a zone change from R-1 Residential to a hybrid R-3 Residential and ROS, Recreation and Open Space zone. Based on preliminary concept design, it is anticipated that the site will be subdivided into upwards of 105 single-family housing lots with additional potential for Planned Residential Unit Development (PRUD) which would add to the overall dwelling unit count.

A preliminary boundary survey completed by Titcomb Associates in November 2016 located a series of overhead electrical services within the Westbrook right of way and an underground electrical service to the existing single-family household.

Pending a successful zone change approval, we will be moving forward with the site utility layout design. In the interest of coordinating with CMP prior to starting the design process, we are requesting the following information on behalf of the client:

1. Any additional information, such as utility mapping within Westbrook Street and to the existing household.
2. Any easements for overhead services currently crossing the proposed development.
3. CMP's proposed infrastructure improvements within the project vicinity.
4. CMP's anticipated ability to serve the project given the existing infrastructure in Westbrook Street.

I have attached the preliminary existing conditions plan by Titcomb Associates dated 11/23/16 and the latest site concept plan assuming a successful R-3/ROS zone change; please note that these plans are preliminary and conceptual and do not necessarily represent the final subdivision layout.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

CENTRAL MAINE POWER

September 5, 2017

Ms. Olivia Dawson, E.I.
C/O Acorn Engineering, INC.
PO Box 3372
Portland, Maine 04104

RE: Stroudwater Preserve, 1700 Westbrook Street, Portland

Dear Ms. Dawson,

This letter is to advise you Central Maine Power has sufficient single phase electrical capacity in the area to serve the subject project.

Once the project is accepted by the City of Portland, the owner will need to call our Customer Service Center at 1-800-565-3181 to sign up for a New Account and a SAP Work Request Order so we may provide an actual cost.

If you have any questions please feel free to call me at 828-2882.

Sincerely,

Paul DuPerre

Paul DuPerre
Energy Service Specialist

162 Canco Road, Portland, ME 04103
Telephone 800.750.4000, Fax 207.791.1026
cmpco.com

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ACORN ENGINEERING, INC.

Fairpoint Communications
Attn: Brian Bouchard
5 Davis Farm Road
Portland, Maine 04103

June 8th, 2017

Subject: Camelot Farms Development – 1700 Westbrook Street
Re: Existing and Potential Utility Services

Dear Brian:

On behalf of Camelot Holdings, LLC, we are inquiring on Fairpoint's existing services and service potential for the proposed subdivision development project at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) currently zoned as R-1 Residential in Portland, Maine; the property is under City Council review for a zone change from R-1 Residential to a hybrid R-3 Residential and ROS, Recreation and Open Space zone. Based on preliminary concept design, it is anticipated that the site will be subdivided into upwards of 105 single-family housing lots with additional potential for Planned Residential Unit Development (PRUD) which would add to the overall dwelling unit count.

A preliminary boundary survey completed by Titcomb Associates in November 2016 located a series of overhead electrical services within the Westbrook right of way and an underground cable service to the existing single-family household.

Pending a successful zone change approval, we will be moving forward with the site utility layout design. In the interest of coordinating with Fairpoint prior to starting the design process, we are requesting the following information on behalf of the client:

1. Any additional information, such as utility mapping within Westbrook Street and to the existing household.
2. Any easements for overhead services currently crossing the proposed development.
3. Fairpoint's proposed infrastructure improvements within the project vicinity.
4. Fairpoint's anticipated ability to serve the project given the existing infrastructure in Westbrook Street.

I have attached the preliminary existing conditions survey by Titcomb Associates dated 11/23/16 and the latest site concept plan assuming a successful R-3/ROS zone change; please note that the site plan is preliminary and conceptual and do not necessarily represent the final subdivision layout.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

5 Davis Farm Rd
Portland, ME 04103
207- 712-1063 Cell
207- 797-1098 Fax

June 12, 2017

To Whom It May Concern:

This letter is to inform that FairPoint Communications has the capacity and willingness to serve the proposed sub-division to be located at 1700 Westbrook St in Portland. FairPoint currently has aerial facilities along Westbrook St and has the ability to increase our facilities available at this location. Please do not hesitate to contact me with any questions.

Sincerely,

Brian M. Bouchard

FairPoint Outside Plant Engineer

Email: bbouchard1@fairpoint.com

Phone: 207-712-1063

ACORN ENGINEERING, INC.

Unitil Service Corp.
Attn: Bridget Mathers
376 Riverside Industrial Parkway
Portland, Maine 04103

June 8th, 2017

Subject: Camelot Farms Development – 1700 Westbrook Street
Re: Existing and Potential Utility Services

Dear Bridget,

On behalf of Camelot Holdings, LLC, we are inquiring on Unitil's existing services and service potential for the proposed subdivision development project at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) currently zoned as R-1 Residential in Portland, Maine; the property is under City Council review for a zone change from R-1 Residential to a hybrid R-3 Residential and ROS, Recreation and Open Space zone. Based on preliminary concept design, it is anticipated that the site will be subdivided into upwards of 105 single-family housing lots with additional potential for a Planned Residential Unit Development (PRUD) which would add to the overall dwelling unit count.

A preliminary boundary survey completed by Titcomb Associates in November 2016 located a gas main within the Westbrook right of way but no existing service to the single-family household. There is also a 50-foot easement owned by Portland Pipeline that bisects the property before crossing the Stroudwater River.

Pending a successful zone change approval, we will be moving forward with the site utility layout design. Although it is possible that natural gas will not be proposed in the final project design we are interested in exploring all service possibilities. Therefore, we are requesting the following information on behalf of the client:

1. Any additional information, such as utility mapping within Westbrook Street and to the existing household.
2. Any easements for underground services currently crossing the proposed development.
3. Unitil's proposed infrastructure improvements within the project vicinity.
4. Unitil's anticipated ability to serve the project given the existing infrastructure in Westbrook Street.

I have attached the preliminary existing conditions plan by Titcomb Associates dated 11/23/16 and the latest site concept plan assuming a successful R-3/ROS zone change; please note that the site plan is preliminary and conceptual and do not necessarily represent the final subdivision layout.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

June 9, 2017

Olivia Dawson
Design Engineer
Acorn Engineer, Inc.

Re: 1700 Westbrook Street, Portland Maine

Dear Olivia Dawson:

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that natural gas can be made available from our distribution system to serve your proposed project.

Any improvements to the existing distribution system necessary to provide this service, as well as the design of the gas system in the project itself will be established as the overall design and scope of your project progresses.

All work necessary to provide service will be performed in accordance with the Maine Public Utilities Commission requirements.

If you have any further questions or require additional information, please contact me directly at (207) 541-2536 or at harmon@unitil.com.

Sincerely,
Bridget Harmon
Business Development Representative
Unitil Corporation
(o) 207-541-2536 (f) 207-541-2586

ACORN ENGINEERING, INC.

Portland Water District
Attn: MEANS Department
225 Douglas Street
Portland, Maine 04104

June 8th, 2017

Subject: Camelot Farms Development – 1700 Westbrook Street
Re: Existing and Potential Utility Services

To Whom It May Concern:

On behalf of Camelot Holdings, LLC, we are inquiring on PWD's existing services and service potential for the proposed subdivision development project at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) currently zoned as R-1 Residential in Portland, Maine; the property is under City Council review for a zone change from R-1 Residential to a hybrid R-3 Residential and ROS, Recreation and Open Space zone. Based on preliminary concept design, it is anticipated that the site will be subdivided into upwards of 105 single-family housing lots with additional potential for Planned Residential Unit Development (PRUD) which would add to the overall dwelling unit count.

A preliminary boundary survey completed by Titcomb Associates in November 2016 located an existing water main within Westbrook Street and a Portland Water District easement (2198/386) with a 30-foot right of way that bisects the northeastern corner of the property.

Pending a successful zone change approval, we will be moving forward with the site utility layout design. In the interest of coordinating with PWD prior to starting the design process, we are requesting the following information on behalf of the client:

1. Any additional information, such as utility mapping within Westbrook Street; more specifically the location of the service, if any, to the existing household.
2. Any additional information on the PWD easement that bisects the site.
3. PWD's proposed infrastructure improvements within the project vicinity.
4. New flow data for adjacent hydrants.
5. PWD's anticipated ability to serve the project given the existing infrastructure in Westbrook Street.

I have attached the preliminary existing conditions plan by Titcomb Associates dated 11/23/16 and the latest site concept plan assuming a successful R-3/ROS zone change; please note that the site plan is preliminary and conceptual and do not necessarily represent the final subdivision layout.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

ACORN
ENGINEERING, INC.

Portland Water District - MEANS Department
Attn: Robert Bartels – Senior Project Engineer
225 Douglas Street
Portland, Maine 04104

October 23, 2017

Subject: Stroudwater Preserve – 1700 Westbrook Street
Re: Ability to Serve Follow-up

Dear Robert,

On behalf of Stroudwater Development Partners, LLC, I am following up on our previous conversations and your review of the preliminary Utility Plan and estimated design flows as sent from our office on August 30th. Per your request and mark-up of the preliminary plans, we have further developed the utility and road profile plans to reflect your revisions dated 9/7/17. We have also created an updated fixture count spreadsheet as well as tested the existing fire hydrants (3) along Westbrook Street for your records.

I have attached the four road profile plans dated 10/23/17 at 40-scale, the peak flow spreadsheet with separate single house lot and PRUD lot tabs, and the hydrant flow test performed on September 27-29. If the attached materials are sufficient for your continued project review, we would like to request a meeting with PWD to discuss the proposed utility design and infrastructure, with special focus on development within the existing PWD easement.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

Olivia Dawson

From: Robert Bartels <rbartels@pwd.org> on behalf of AMaP MEANS <means@pwd.org>
Sent: Wednesday, November 8, 2017 1:24 PM
To: William Savage; Olivia Dawson
Cc: Mike Barton (michael.corbett.barton@gmail.com); Gordon Johnson
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update
Attachments: PO - 1700 Westbrook St - Infrastructure Map - 2017.pdf

Will,

Thanks for the clarification. Yes, PWD has the capacity in the existing system to support the proposed water main extension within the development. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water mains near your site. It is possible to make a new connection into a public distribution water main only after proper review and approval by PWD; in no way shall this information be interpreted as PWD's approval of the proposed water system at this time.

We have a short week this week, let's put something on the schedule for early next week.

Thanks,

Robert Bartels
Senior Project Engineer
Portland Water District
Phone:
E-mail: rbartels@pwd.org
http://www.pwd.org

From: William Savage [mailto:wsavage@acorn-engineering.com]
Sent: Wednesday, November 08, 2017 10:31 AM
To: AMaP MEANS <means@pwd.org>; Olivia Dawson <odawson@acorn-engineering.com>
Cc: Mike Barton (michael.corbett.barton@gmail.com) <michael.corbett.barton@gmail.com>
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Good Morning Robert –

The submission is being made to the City for the subdivision/site plan standards outlining the following requirement is being met, specifically the capacity of the water mains within Westbrook St to serve the development. We understand PWD's of the distribution on-site is ongoing. At this time we are just looking for a letter stating PWD has the capacity to serve the development.

https://www.portlandmaine.gov/DocumentCenter/Home/View/1080

From Page 773

3. *Availability and Adequate Capacity of Public Utilities:*

14-773

of Portland
of Ordinances
14-526

Land Use
Chapter 14
Rev. 11-7-2016

a. The development shall not overburden sanitary sewers and storm drains, water lines, or other public infrastructure and utilities. Development shall provide adequate utility capacity and distribution network on-site and in connection to surrounding locations and facilities.

Please let Olivia and I know when you are available to meet this week to review the onsite internal design.

Thank-you,

- **Will**

B. 207.775.2655
C. 207.317.1884

From: Robert Bartels [mailto:rbartels@pwd.org] **On Behalf Of** AMaP MEANS
Sent: Friday, November 3, 2017 3:57 PM
To: William Savage <wsavage@acorn-engineering.com>; Olivia Dawson <odawson@acorn-engineering.com>
Cc: Mike Barton (michael.corbett.barton@gmail.com) <michael.corbett.barton@gmail.com>
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Will,

We are in the process of reviewing and marking up the plans right now. We'd be able to meet towards the latter part of next week to go over comments if that works for you.

In order for me to better understand your request of a formal letter for Tuesday, can you please elaborate on what submission is being made to the City and under what section of the Code of Ordinances.

Thanks,

Robert Bartels
Senior Project Engineer
Portland Water District
Phone:

E-mail: rbartels@pwd.org
http://www.pwd.org

From: William Savage [mailto:wsavage@acorn-engineering.com]
Sent: Friday, November 03, 2017 9:17 AM
To: Olivia Dawson <odawson@acorn-engineering.com>; AMaP MEANS <means@pwd.org>
Cc: Mike Barton (michael.corbett.barton@gmail.com) <michael.corbett.barton@gmail.com>
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Robert,

Thank-you for verbally confirming PWD's ability to serve letter the project, a formal letter would be appreciated by Tuesday 11/7/17 for our submission to the City. We understand that you are still reviewing the project internally and I would expect your ability to serve letter may be conditioned upon that premise.

Your teams input and visibility on PWD's requirements for Stroudwater Preserve is critical. At your earliest convenience the Team would like to schedule a meeting to review the project with you so that we can modify the plans as necessary.

Please let the Client (Mike Barton) or I know if you need anything to start your review process. Are you available to meet next week for a meeting?

- Will

B. 207.775.2655
C. 207.317.1884

From: Olivia Dawson
Sent: Wednesday, November 1, 2017 4:15 PM
To: AMaP MEANS <means@pwd.org>
Cc: William Savage <wsavage@acorn-engineering.com>
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Robert – Thanks for initiating the internal review process.

In the interim, would you be comfortable with issuing an ability to serve statement confirming that the existing 8" watermain within Westbrook St had the capacity to serve the proposed development? You had stated verbally that it shouldn't be an issue earlier this month but it would be beneficial for the application process to have a written statement to submit. We understand that the design has not been finalized nor accepted and will undergo an in depth internal review but for permitting we only need a confirmation on the existing utility's capacity. Essentially recognizing that the final design is a long lead item moving towards construction but still giving the City a form of assurance.

Feel free to give the office or my cell a call to discuss further.

Best,

- Olivia

B. 207.775.2655
C. 585.797.8780

From: Robert Bartels [mailto:rbartels@pwd.org] **On Behalf Of** AMaP MEANS
Sent: Monday, October 23, 2017 2:11 PM
To: Olivia Dawson <odawson@acorn-engineering.com>
Cc: William Savage <wsavage@acorn-engineering.com>
Subject: RE: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Thanks Olivia, I will start to look at the drawings and let you know what my comments are. This is a fairly large project with two connections to the existing main in Westbrook Street, so it will get a thorough review. When I have comments and everyone has had a chance to review, I'll set up a meeting.

Thanks,

Robert Bartels
Senior Project Engineer
Portland Water District
Phone:
E-mail: rbartels@pwd.org
http://www.pwd.org

From: Olivia Dawson [mailto:odawson@acorn-engineering.com]
Sent: Monday, October 23, 2017 11:34 AM
To: Robert Bartels <rbartels@pwd.org>
Cc: William Savage <wsavage@acorn-engineering.com>; AMaP MEANS <means@pwd.org>
Subject: Stroudwater Preserve - 1700 Westbrook St - Ability to Serve Update

Morning Robert,

On behalf of Stroudwater Development Partners, LLC, I have attached the latest utility and road profile plans (4) that incorporate the preliminary revisions sent along in September. I have also attached an updated fixture count spreadsheet and hydrant test per previous information requests.

Feel free to reach out with any questions or clarifications on the attached materials. We would also like to request a meeting with PWD and continue utility design coordination.

Thanks,

Olivia Dawson
Project Engineer

Licensed E.I. in Maine
Licensed E.I. in New York

Acorn Engineering, Inc
PO Box 3372
Portland, Maine 04104
www.acorn-engineering.com

B. 207.775.2655
C. 585.797.8780

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ACORN ENGINEERING, INC.

Portland Pipe Line Corporation/Montreal Pipe Line Limited
Attn: Kenneth P. Brown – Engineering Manager
30 Hill Street
South Portland, Maine 04016

August 30, 2017

Subject: Stroudwater Preserve – 1700 Westbrook Street
Re: Review of Applicable PPLC Construction Practices

Dear Ken,

On behalf of Stroudwater Development Partners, LLC, we are inquiring on PPLC's review of the proposed Stroudwater Preserve project development located at 1700 – 1714 Westbrook Street (Map, Book, Lot: 229-A-2, 246-A-3, 247-A-3, 248-A-9, 256-A-3, 246-A-6, 247-A-2, 245-B-5) and the project's compliance with applicable PPLC construction standards. It is our intention to propose a final layout that has been reviewed and be later accepted by PPLC prior to construction. Since our last correspondence on January 23rd, the property has been rezoned from R-1 Residential to a hybrid R-3 Residential/Recreational Open Space (ROS). The project proposes 98 single-family house lots, one planned residential unit development (PRUD) lot (25 units), and one open space lot for a total of 123 residential dwelling units.

Per the Existing Conditions Plan developed by Titcomb Associates, dated June 16, 2017, there is an existing 50-foot wide easement granted to PPLC (Book & Page 1655/294, 2954/772) for three pipelines that bisect the property before crossing the Stroudwater River. It is our understanding that the location of the pipelines and easement as shown on the plan developed by Titcomb are based on coordination with PPLC during the surveying process.

Based on previous conversations, the attached preliminary Site and Utility Plan has been designed to conform to the requirements and standards set by Figure 7-1, Construction Practices and Figure 7-2, Design of Projects. Per design guideline, new homes are to be constructed at least fifty feet from the pipelines and the single 28-foot roadway and five-foot sidewalk crossing is perpendicular to the pipelines. No underground utilities will bisect the pipelines except for the 6" curb underdrains that will be placed with minimum 36" of cover. It is anticipated that the 18" minimum vertical separation between the underdrains and pipelines and minimum four feet of cover over the pipelines will be maintained due to the proposed site regrading within the 50-foot easement; refer to the attached preliminary Grading & Drainage Plan and Roadway Profile for additional information. As noted on the road profile, it is anticipated that approximately six feet of fill will be added atop the existing pipeline.

On behalf of the client, we are requesting the following information:

1. Confirmation on the location and number of pipelines within the easement.
2. Any additional information PPLC may have regarding invert elevations and top of cover depths for the existing pipelines.
3. Review of the proposed roadway crossing layout and regrading within the easement.
4. PPLC's inspection requirements prior to and during the construction period.
5. PPLC's proposed infrastructure improvements within the project vicinity.

I have attached the Existing Conditions Plan by Titcomb Associates dated 6/16/2017 and the preliminary Site Plan, Utility Plan, and Grading & Drainage Plan dated 8/25/17 for your review.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

ACORN
ENGINEERING, INC.

Portland Pipe Line Corporation/Montreal Pipe Line Limited
Attn: Kenneth P. Brown – Engineering Manager
30 Hill Street
South Portland, Maine 04016

October 23, 2017

Subject: Stroudwater Preserve – 1700 Westbrook Street
Re: Project Utility Plan Update

Dear Ken,

Since my initial outreach on August 30, we have further developed the project utility and road profile plans and incorporated review and design elements from feedback received from other utilities and the City of Portland.

As we had discussed previously, the proposed 8" water main is now crossing the existing pipelines to maintain system redundancy per PWD request. The water main is to transition from ductile iron to a non-conductive material (DR14 C900) for 100 feet as centered over the pipelines. It is anticipated that proposed water main and stormdrain crossings will remain approximately six (6) feet above the existing pipelines. It is noted that the contractor is to coordinate any land disturbance within the utility easement with PPLC prior to starting construction. The pipeline to the south of the new roadway is also proposed to remain accessible for PPLC maintenance activities via a ten-foot wide lane.

I have attached the road profile plan (C-31) depicting the easement crossing dated 10/23/17 for your review.

Please do not hesitate to contact me or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

Olivia Dawson

From: Ken P. Brown <Ken.Brown@pmpl.com>
Sent: Friday, November 3, 2017 4:26 PM
To: Olivia Dawson
Cc: William Savage; Tom A. Hardison; Chris J. Gillies; Lindsey Ramsdell
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry (Portland Pipe Line Corporation right of way Parcel I-20)

Olivia -

This email is to confirm that Acorn Engineering is coordinating plans for Stroudwater Preserve with Portland Pipe Line Corporation (PPLC) regarding the proposed development near and crossing PPLC's pipelines and right of way, and that PPLC is in general agreement with the preliminary plans, pending a few items that we are discussing and pending any final revisions to the plans. This preliminary agreement is based on the latest drawing you have provided, Sheet C-21 - "Road Profile - 2", dated October 25, 2017 and marked "Final App - Not Issued for Construction."

We anticipate being able to provide a letter of authorization to the landowner for the work in and near our right of way when the plans are final and the remaining items have been resolved.

Thank you for coordinating this project with us in advance.

- Ken

Kenneth P. Brown, P.E.
Engineering Manager
Portland Pipe Line Corporation / Montreal Pipe Line Limited
30 Hill Street, South Portland, ME 04106
ken.brown@pmpl.com P 207.767.0449 C 207.233.6349

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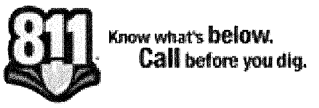

From: Olivia Dawson <odawson@acorn-engineering.com>
To: "Ken P. Brown" <Ken.Brown@pmpl.com>
Cc: William Savage <wsavage@acorn-engineering.com>
Date: 11/02/2017 03:35 PM
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

Ken –

I wanted touch base after the update last week:

We've since updated the attached plan to reflect the corrected field top of pipe cover, understanding that you have not yet confirmed the location of the 12" and 18" pipeline. With these corrections, would you be comfortable sending along a preliminary acceptance of the attached plan as we had discussed previously? Again, it does not necessarily reflect your final review but rather a document (whether an email or a more formal memo) that we can submit to the City of Portland to assure them that coordination

and review from PPLC is in the process.

Feel free to call me to clarify further.

Thanks,

- Olivia

B. 207.775.2655
C. 585.797.8780

From: Olivia Dawson
Sent: Tuesday, October 24, 2017 4:44 PM
To: 'Ken P. Brown' <Ken.Brown@pmpl.com>
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

Ken –

Quick question: Which pipe is the 12" v. the 18", i.e. which is closest to the Turnpike or easternmost/westernmost pipe?

Thanks,

- Olivia

B. 207.775.2655
C. 585.797.8780

From: Olivia Dawson
Sent: Monday, October 23, 2017 1:07 PM
To: 'Ken P. Brown' <Ken.Brown@pmpl.com>
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

Thanks for the clarification Ken. I'll update our plans accordingly and sent along the revised version.

Best,

- Olivia

B. 207.775.2655
C. 585.797.8780

From: Ken P. Brown [mailto:Ken.Brown@pmpl.com]
Sent: Monday, October 23, 2017 1:04 PM
To: Olivia Dawson <odawson@acorn-engineering.com>
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

Olivia -

Thank you for the updated drawing, I'll look at it shortly, but want to quickly correct the depth of cover over our pipelines, which I must have mis-communicated: The existing depth of cover is approximately 3 feet, not 6 feet as noted on the revised drawing.

6 feet came up in our previous conversation as the likely separation between your proposed roadway underdrain pipe and the top of our pipelines, because your underdrain pipe was proposed to be about 3 feet below the finished surface at the shoulder and the finished surface was proposed to be about 6 feet above the existing grade at the pipeline crossing.

For clarity, our field personnel measured 3'-3" of existing cover over the top of our two pipelines at the approximate location of the proposed road crossing center line, though I believe they did not find roadway stakes so they taped off from Westbrook Street to approximate the center line location. They measured varying existing depths of cover elsewhere, with measurements within the proposed roadway embankment ranging from 3'-3" to 3'-8" over the 18-inch diameter pipeline and 2'-5" to 3'-3" over the 12-inch diameter pipeline. They collected additional depth of cover readings on the lines to the south of the proposed roadway crossing, but those are outside the limits of proposed grading.

I don't think this correction will change your design, as there should still be adequate separation between our pipelines and the proposed water main and underdrains.

Thanks -

- Ken

ken.brown@pmpl.com P 207.767.0449 C 207.233.6349

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From: Olivia Dawson <odawson@acorn-engineering.com>
To: "Ken P. Brown" <Ken.Brown@pmpl.com>
Cc: William Savage <wsavage@acorn-engineering.com>
Date: 10/23/2017 12:12 PM
Subject: RE: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

---

Ken –

Since my initial outreach in August, we have updated and further developed the utility and road profile plans to incorporate both your review feedback and comments from PWD and the City of Portland. I have attached a cover letter summarizing the updates in addition to the road profile plan highlighting the PPLC easement crossing.

Feel free to reach out with any questions or clarifications on the attached materials.

Thanks,

- Olivia

B. 207.775.2655
C. 585.797.8780

From: Olivia Dawson
Sent: Wednesday, August 30, 2017 5:30 PM
To: 'Ken P. Brown' <Ken.Brown@pmpl.com>
Cc: William Savage <wsavage@acorn-engineering.com>
Subject: Stroudwater Preserve (1700 Westbrook) - Project Review Inquiry

Ken -

On behalf of Stroudwater Partners, LLC, Acorn Engineering, Inc. is reaching out to your office regarding PPLC's review of the proposed residential development project located at 1700 Westbrook Street in Portland; it is our intention to propose a layout that will be reviewed and later accepted by PPLC. The site was recently successfully rezoned and the project is moving forward with the Site Plan Application and review process with the City of Portland.

I have attached the Existing Conditions Plan by Titcomb Associates and a preliminary Site Plan, Utility Plan, Grading & Drainage Plan, and Roadway Profile from our office to accompany the formal cover letter. I reference our previous conversations within the letter as well.

Thanks in advance for your help and review,

Olivia Dawson
Project Engineer

Licensed E.I. in Maine
Licensed E.I. in New York

Acorn Engineering, Inc
PO Box 3372
Portland, Maine 04104
www.acorn-engineering.com

B. 207.775.2655
C. 585.797.8780

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[attachment "Stroudwater Preserve_Review Update_PPLC_10-23-17.pdf" deleted by Ken P. Brown/Portland/PMPL] [attachment "Stroudwater Preserve_Utility Plan-2_10-23-17.pdf" deleted by Ken P. Brown/Portland/PMPL]

Section 29

Written Request for Waivers

29. Waivers

The following is a list of known project related waivers:

Sidewalks – Per City of Portland Land Use Code Section 14-498.8.a. – sidewalks are required on both sides of the street. A waiver is requested for this standard to minimize impervious surfaces. The proposed plan includes bituminous sidewalks on one side of the street throughout the subdivision with sidewalks on both sides of the street at the two main entrances. Esplanades are proposed to be constructed in lieu of the second sidewalk to better manage stormwater runoff. Pedestrians will have adequate transportation routes through the use of the singular sidewalk, crosswalks, and the Portland Trails connection. It should also be noted that the additional side of sidewalks would also increase the site's overall wetland impacts by pushing the crossing developed area an additional five feet into the delineated wetlands.

A table summarizing the impervious surface and wetland impacts from a two-sidewalk system throughout the site is as follows:

		Total Impervious Surface (SF)
Required Two Sidewalk System		50,446
Proposed Single Sidewalk System	–	30,056
Total Impervious Surface Increase	**=**	**20,390**

		Total Wetland Impacts (SF)
Potential Two Sidewalk Wetland Impacts		15,350
Proposed Wetland Impacts	–	14,980
Total Increase in Wetland Impacts	**=**	**370**

Essentially not only would the added sidewalk increase the site's stormwater runoff from the impervious surfaces but also pushes the development from a Tier I NRPA Wetland Alteration Permit (< 15,000 sf) to a Tier II Permit (15,000 sf to 43,560 sf).

The greater Stroudwater Neighborhood also does not commonly have a two sidewalk and instead many residential roads have one sidewalk side or no sidewalks. A summary of the existing system is as follows:

Westbrook Street	Single Sidewalk
Swan & Pierce Street	No Sidewalk
Buttonwood Lane	No Sidewalk
Partridge Circle	No Sidewalk
Stroudwater Road	No Sidewalk
Penrith Road	No Sidewalk
Kingsmark Lane	Two Sidewalks
River's Edge	Single Sidewalk

The proposed single sidewalk layout was first addressed in a meeting with planning staff members Jeff Levine, Tuck O'Brien, and Barbara Barhydt on October 20, 2016, in which requesting a waiver was suggested. Therefore, dual sidewalks have been

provided at the entrances and singular sidewalks have been provided elsewhere throughout the development.

Section 30

Construction Management Narrative

30. Construction Management Plan

Project Address:

1700 Westbrook Street, Portland, Maine

Project Description:

The proposed project is the development of a conservation subdivision. 98 single-family house lots and a planned residential unit development (PRUD) with 25 dwelling units will be constructed with associated access roads and landscaping. Recreation trails will be incorporated into the project in conjunction with the Portland Trails. Additionally, an open space lot is to be created along the Stroudwater River to be conserved for public use. Stormwater management will be handled by a combination of tree box and detention pond BMP's as seen on the Grading & Drainage Plan, Sheet C-30. Utilities will be installed per the Utility Plan, Sheet C-20 including a sewer force main, underground electric and communication conduits, water supply lines, and natural gas. Portions of the existing wetlands are proposed to be filled in to facilitate the development per the associated NRPA permit. Owner/GC to review all reports and permits. Subcontractors to review all pertinent reports and permits prior to bidding or construction.

The project is proposed to be completed in three phases. The first phase will include the single-family development of the westerly section of the subdivision excluding the PRUD. The second phase will include the development of the PRUD. The third phase will include the development of the single-family development of the easterly section of the subdivision.

Project Team Summary:

Owner:	Stroudwater Development Partners, LLC
General Contractor (GC):	Stroudwater Development Partners, LLC
Subcontractors:	TBD
Civil/Site Engineer:	Acorn Engineering, Inc.

The Owner/GC and all subcontractors will work with the City of Portland and adjacent landowners to minimize any project impacts.

The Owner/GC will remain responsible for enforcement of and compliance with 1) all contract plans and specifications in their scope of work and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case for the duration of their work. These include all OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. Both the Owner/GC and any subcontractors will remain responsible for safeguarding the general public.

The Owner/GC shall review all permits and conditions associated with the project. Refer to the Civil/Site Plan Set, Sheet C-03 Construction Management & Erosion Control Plan for visual representation of the measures be taken during construction.

The following outline has been developed in accordance with the City of Portland Construction Management Plan General Template and shall be referenced by the Owner/GC during construction.

A. Construction Management Principles

The control of noise, vibrations, ground movement, truck traffic, and other construction related factors will be of utmost importance. Care shall be taken to minimize these effects in the best interest of neighbors and the general public. Owner/GC to ensure that work hours conform to the City of Portland's Ordinance.

B. Development Review of Construction Management Plan

Logistics and safety program shall be submitted at or prior to the preconstruction meeting with Phil DiPierro by the Owner/GC with all pertinent information required by the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Guarantees and fees will be paid at the time of the respective application. Sections 14-530 and 13-532 will be complied with and all necessary permits will be obtained prior to work.

1. Street Opening and Street Occupancy Permits:

Required permits regarding street opening and occupancy will be obtained from the Department of Public Works. The requests shall conform to the approved Construction Management Plan.

2. Blasting:

Although not anticipated, if blasting occurs, it shall conform to Article VIII. In Chapter 14 of the City Code and Section 3.7 in the City's Technical Manual.

3. Building Code:

Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

The Contractor will work closely with adjacent abutters, businesses, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. Communication in order to comply with all agreements, ordinances, and special permits will be of the utmost importance. Contractor contact information shall be posted on a sign on the construction fence along the Westbrook Street frontage. Additional signage necessary for communication shall be provided, but will be temporary and removed upon completion of the project. The contact information for the project personnel (Owner/GC) is:

Mike Barton, LEED AP
Stroudwater Development Partners, LLC
(207) 939-5432

Subcontractor information will be posted along the Westbrook Street frontage once contracted.

E. Construction Schedule

The Owner/GC shall submit a construction timeline at or prior to the preconstruction meeting with Phil DiPierro, City of Portland's Development Review Coordinator/Site Inspector. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit and City Code Section 25-129. Noise, dust and debris. Between September 1 and May 31 the following year, construction activities generating noise exceeding 50 decibels between the hours of 7 pm and 7 am of the following day within 500 feet of any buildings. From June 1 to August 31 construction activity may continue until 8 pm. No construction activity shall begin before 8 am on a Saturday, Sunday, or legal holiday. Extended hours or night work may be requested for special circumstances and street utility work due to the high traffic volume on Westbrook Street during the day. These requests will be subject to approval by the Public Works Authority.

The 55.3-acre site will be able to accommodate storing of construction items as well as space for delivery vehicles. Deliveries will be scheduled between the hours of 7 am to 5 pm.

The estimated timeframe of the proposed project is outlined below:

Projected Phase I Start Date:	Fall 2017
Projected Phase II Start Date:	Spring 2019
Projected Phase III Start Date:	Summer 2020
Projected Completion:	Spring 2022

F. Security

1. The Construction Management & Erosion Control Plan, Sheet C-03, depicts all proposed fencing, other barriers, and access gates (with knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site. Construction entrances per detail shall be installed.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*
3. Fire Safety Program: Prior to construction, an overall construction and demolition fire safety program shall be developed. Essential items to be emphasized include the following:
    - Good Housekeeping
    - On-site security
    - Installation of new fire protection systems as construction progresses
    - Preservation of existing systems during demolition
    - Organization and training of an on-site fire brigade
    - Development of a pre-fire plan with the local fire department
    - Rapid communication
    - Consideration of special hazards resulting from previous occupancies
    - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.

5. Temporary security lighting shall be shown on the Construction Management and Erosion Control Plan and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity In Public Streets

Construction activity in the public right-of-way shall be compliant with Chapter 25 Article VII of the City Code. At no time will it be permissible for construction activity including delivery vehicles to close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater

Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual. This will apply to the new connections within Westbrook Street.

3. Traffic Control Plans

Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. The contractor shall submit a satisfactory "Maintenance of Traffic" (MOT) plan prior to any street opening permit approval. This document shall contain all pertinent information from the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

The MOT will address the work required for utility connections in Westbrook Street. Traffic will be channelized utilizing drums and cones. Proper signage will be installed prior to and through the work zone. Alternating traffic will be controlled with flaggers. Trenches will be patched with pavement daily.

The MOT plan shall provide for the safe passage of the public through or along the construction work zone. It may be permissible to close Westbrook Street during utility connections and/or detour a mode of traffic when absolutely necessary for safety. All requests shall be subject to City approval. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic.
- Traffic Control signs shall not be placed where they would create any obstructions to bicycles or pedestrians.
- Flaggers will be utilized when necessary.

All existing modes of travel in the work zone area shall be accommodated if impacted by the

activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning and laying out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control, bicycle, and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow vehicle travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and/or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance in all capacities shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

1. Regular trash and debris shall be managed appropriately and its removal shall comply with all local, state, and federal regulations.
2. Street cleaning and sweeping shall be followed as outlined in the erosion and sedimentation control notes and report. Damage to the street shall be avoided and shall be the responsibility of the contractor.
3. Dust shall be controlled and shall comply with Section 25-129 and the erosion and sedimentation control notes, plan, and details.
4. Noise shall be controlled and shall comply with Section 17-18 and Section 25-129.
5. Rodent control shall be provided, if applicable, by a professional exterminator and shall be consistent with Chapter 22 of the City Code.
6. Snow and Ice Removal shall be provided. Pursuant to Section 25-173, the Contractor shall ensure a safe means of travel within the work zone by the following steps:
    a. Snow/ice removal shall commence automatically from 1" or greater of snow or ice.
    b. Remove snow as needed within the work zone, including parking spaces. Driveways and site lines shall not be blocked by piles of snow.
    c. Clear all walks and ramps within the work zone.
    d. Sand or salt as needed.
    e. Clear all basin or drainage to help snow melt.
    f. The above steps shall be carried out Sunday–Saturday including holidays.

I. Erosion & Sedimentation Control

1. The Contractor shall install all erosion and sedimentation controls as depicted on the

approved Construction Management & Erosion Control Plan, C-03, and the approved erosion and sedimentation control report prior to the pre-construction meeting for inspection by the City. The Contractor shall regularly inspect the control measures no less than weekly and after storm events (0.5" or more in 24 hours). Additionally, temporary and permanent stormwater management systems shall be inspected and maintained to ensure working order. The Contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspections by the City, Maine Department of Environmental Protection (MDEP) or the U.S. Environmental Protection Agency (EPA) upon request.

2. The permanent detention ponds per Sheet C-30 will function as temporary sedimentation basins during construction. Refer to the details as well as the Maine DEP Erosion and Sedimentation Control Field Guide for Contractors for more information.

3. Special attention shall be paid to the protection of the Stroudwater River and the wetlands on site. Two sediment barriers are proposed along the development limit and/or the undeveloped wetlands per Sheet C-03: a silt fence as well as an erosion control mix berm, both per detail, shall be installed to prevent sediment transport. At all other down-gradient limits of development, erosion control mix berm shall be installed as depicted on C-03.

4. Flagging of the wetlands to be undisturbed shall take place prior to construction and shall not be removed until all construction is complete.

5. The Contractor shall maintain all tree and landscaping preservation measures as depicted on the landscaping and construction management plans – Sheets L-1 and C-03, respectively.

6. Stored materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the preconstruction meeting with Phil DiPierro. Any open storage areas shall be shown on the plan.

2. Delivery Truck Holding Areas On-Site: Holding areas, if necessary, will have ample area to stand-by until needed. The majority of materials delivered to the site will be scheduled such that they are able to be off-loaded immediately. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets. If, for any reason, on-site holding of the trucks is not feasible, an off-site location must be designated and shown on the submitted plan referenced above in J.1.

3. All deliveries for materials shall comply with the City's noise requirements.

K. Parking During Construction

1. Adequate parking for construction workers shall be provided on the site or arrangements for off-street parking at an off-site location shall be provided. The parking arrangements are included on C-03. On-site parking for the contractor and subcontractors will occur within the vicinity of the current phase. Parking on either Westbrook Street or Old Westbrook Street will not be allowed.

2. Truck Routes and Volumes: The following quantities are estimated as part of all three phases:

    - Common Fill – TBD upon final surface analysis. Earthwork subcontractor(s) pit to project site.
    - Gravel & Stone – Approx. 8,250 CY. Earthwork subcontractor(s) pit to project site.
    - Hot Mix Asphalt – Approx. 3,500 Tons. Paving subcontractor(s) pit to project site.
    - Excess Site Soils (located in earthen sound berm) – TBD upon final surface analysis. Earthwork subcontractor(s) pit to project site.

The above quantities were developed excluding any pavement or structure development on the single-family lots.

L. Special Measures as Necessary

A pre-construction survey of adjacent properties interior subgrade and above grade accessible walls, ceilings, floors, and visible exterior as viewed from the grade level shall be conducted at a minimum for the abutting properties. Contractor shall coordinate and obtain permission from the owners for this survey. Photographs shall be taken at a minimum to assess any potential damage that may occur as a result of construction activities.

Section 31

Conformity with Applicable Shoreland Overlay Standards

31. Conformity with Applicable Shoreland Overlay Standards

The southernmost edge of the property resides along the Stroudwater River and is located within the Shoreland Overlay Zone; the Shoreland Overlay Zone applies to areas within 250 feet (horizontal distance) of the normal high-water line of any river. The normal high-water line was delineated by Gino Giumarro - Verdanterra, LLC on June 1, 2017 and then located by Titcomb Associates as noted in the Existing Conditions Plan dated June 16, 2017.

No residential development or roadways are proposed within 250 feet of the highwater mark including both the single-family and planned residential unit development (PRUD) units. Proposed structures will have a basement level elevation that is at least ten feet above 27 feet, the extent of the 100-year FEMA floodplain per the National Flood Insurance program, Preliminary Flood Insurance Rate Map (dated 4/14/2017), well above the required 1-foot minimum.

There are earthworking activities proposed between 75 – 250 feet of the river for construction of the site stormwater detention ponds. These activities are to comply with the City Zoning Ordinance standards.

General Site Plan Features: The Planning Board or planning authority will approve a site plan located within a shoreland zone if it finds that the following standards, in addition to the standards set forth in section 14-526, are met:

1. *The proposal will maintain safe and healthful conditions;*

   The proposed project will maintain and improve upon the existing conditions for the following reasons:

   - The elimination of untreated agricultural stormwater runoff into the Stroudwater River
   - Preservation of an undeveloped buffer between 250 – 500 feet of the river highwater mark (average 300 feet)

2. *The proposal will not result in water pollution, erosion, or sedimentation to surface waters;*

   The proposed project will not negatively impact the existing conditions for the following reasons:

   - Conformance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management standards.
   - All construction shall be in accordance the Maine DEP's Erosion & Sediment Control BMPs Manual, revised 2014 with the temporary and permanent erosion control measures outlined in the Erosion and Sedimentation Control Plan submitted by Acorn Engineering, Inc. for this project. Refer to Section 14, Basic Standards Submissions.

3. *The proposal will adequately provide for the disposal of all wastewater;*

   The proposed project will provide new sewer infrastructure to collect and convey domestic sewage to the existing municipal system within Westbrook Street.

4. *The proposal will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;*

   The proposed project will not adversely affect the existing conditions for the following reasons:

   - Conformance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management standards.
   - All construction shall be in accordance with the temporary and permanent erosion control measures outlined in the Erosion and Sedimentation Control Plan submitted by Acorn Engineering, Inc. for this project. Refer to Section 14, Basic Standards Submissions.
   - Refer to the Ecological Habitat Assessment Report within Section 7 for additional information regarding the existing site habitats

5. *The proposal will conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;*

   The proposed development will preserve an average 300-foot wide natural buffer along the Stroudwater River as accessed and protected via Public Access and Open Space Easements. Limited vegetation clearing activities for stormwater detention basins and low-impact neighborhood trail development will conform with the disturbance standards as noted in the Division 26, Shoreland Regulations (section 14-449).

6. *The proposal will protect archaeological and historic resources;*

   - The proposed project will not affect a designated landmark. The proposed project is not within a historic district or historic landscape district.
   - There are no known designated landmarks within 100 ft. The proposed project is not adjacent to or within 100 feet of a historic district or historic landscape district.
   - Per the Prehistoric Phase I Archeological Survey completed for portions of the project area below the 40-foot contour or within 100 yards of the Stroudwater River, all artifacts were recovered within the designated open space area to the south of the limit of development; this area is to remain undisturbed. A copy of the survey has been included in Section 8.

   Acorn Engineering, Inc. has also contacted the Maine Historic Preservation Commission to determine if there are any areas of historical, architectural, or archeological significance. A copy of the correspondence in located within Section 8.

7. *The proposal will not adversely affect existing commercial fishing or maritime activities;*

   The proposed project will maintain the existing pre-development flow conditions; therefore, the proposed project does not anticipate a greater adverse impact.

8. *The proposal will avoid problems associated with flood plain development and use; and*

   The project is not located within a special flood hazard area.

9. *The proposal is in conformance with the standards set forth in this section.*

   It is our understanding that the proposed project meets and exceeds the standards set forth within Division 26. Shoreland Regulations.

Att. ZK

Stroudwater Development Partners, LLC

62 Portland Rd, Suite 25
Kennebunk, ME 04043
(207) 939-5432
michael.corbett.barton@gmail.com

September 7, 2017

Dear Neighbor,

On behalf of Stroudwater Development Partners, LLC we are pleased to invite you to a neighborhood meeting to discuss our plans for the proposed project at 1700 Westbrook Street within the Residential, ROS, Zone in Portland. The project includes the development of a traditional single-family neighborhood with a townhouse development adjacent to the Maine Turnpike. Stroudwater Preserve includes ninety-eight single family house lots, one planned unit residential development (PRUD) lot that will include twenty-five townhomes, and twenty-four-acres of open space. The single-family house lots will range in size between 6,500 sf to 20,000 sf. The development will be accessed via two entrances from Westbrook Street.

The proposed project meets the development requirements as set by the City of Portland Land Use Ordinance.

Meeting Location:	Stroudwater Baptist Church, 1737 Congress St.
Meeting Date:	September 19th, 2017
Meeting Time:	6:00 PM

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list" be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions regarding the neighborhood meeting, please don't hesitate to call me at (207) 939-5432. We look forward to seeing you at the meeting.

Sincerely,

Michael Barton

Att. ZL

Stroudwater Preserve (1700 Westbrook Street)

Level III Site Plan & Subdivision Application

Neighborhood Meeting Certification

I, (Applicant/Consultant) hereby certify that a neighborhood meeting was held on **September 19th, 2017** at the **Stroudwater Baptist Church** at **6:00pm.**

I also certify that on **September 7th, 2017**, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,

_____ 09/09/2017 (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Neighborhood Meeting Sign-In Sheet
3. Neighborhood Meeting Minutes

ACORN ENGINEERING, INC.

Stroudwater Preserve - 1700 Westbrook Street
Level III Site Plan and Subdivision Application

Neighborhood Meeting Minutes

September 19th, 2017 6:00pm
Stroudwater Baptist Church

Design Team Attendees:

Mike Barton	Developer/Presenter
Will Savage	Civil Engineer/Presenter
Olivia Dawson	Civil Engineer/Note Taker

Approximate Start Time: 6:05pm

Presentation:

Mike Barton:

- Introduced the design team in attendance and reiterated how each of the members and companies are based in Portland
- Briefly reviewed the timeline of the project and the zone change that was passed on July 24th, 2017
    - Since the zone change, the design team has been working through the more technical aspects of the development
- Stated that the proposed plan that is to be presented tonight reflects a year of working with the neighborhood and City to find a collaborative solution
    - Emphasized that the goal of tonight was to receive feedback from the neighbors and address any concerns to the best of our ability
    - Encouraged neighbors to attend the upcoming Planning Board Workshop scheduled for October 4th
- Introduced Will Savage, the project civil engineer to address the site changes

At this time, a couple of questions were stated from the crowd. These questions/answers are included within the Q/A portion of the meeting minutes.

Will Savage:

- First emphasized that holding a neighborhood meeting was required by the City as part of the site plan approval process and that all the meeting minutes recorded by Olivia will be submitted to the City per requirement. Emphasized that a sign-in sheet was circulating around the room and urged that everyone should sign-in for the record.
- Discussed the existing conditions and uses of the site
    - Total of 55.3 acres which includes the acquisition of an approximately 10-acre lot adjacent to the site that is commonly known as the 'Turnpike Parcel'
    - Most of site consists of cleared, open fields used historically as a single-family homestead with pastureland
    - In recent years the pastureland has been used for cattle grazing up to the river's edge
- Reviewed natural resource and historical resource outreach to both state and federal entities completed to date
    - Maine Natural Areas Program did not find any rare botanical features within the project area.
    - Inland Fish & Wildlife did not map any Essential or Significant Wildlife Habitats that would be directly affected by the proposed project.
    - US Fish & Wildlife Service did not map any species would be directly affected by the proposed project.
    - An Ecological Habitat Assessment was conducted by Gino Giumarro (Verdanterra, LLC) on March 13, 2017; results of the report determined that there were no rare or unique botanical features, nor essential or significant wildlife habitat.
    - A Phase I Prehistoric Archaeological Survey Report, by Sarah Haugh – Tetra Tech dated, August 2017 was completed for the project area. The results of the Phase I Prehistoric Archaeological Investigation, determined there are no prehistoric archeological sited recorded within the project area.
    - Highlighted that the environmental/archaeological due diligence demonstrates how the entire 55.3 acres is prime land for development.
- Discussed the proposed changes to the site and how the project is anticipated to be phased
    - Traditional single-family neighborhood with a townhouse development adjacent to the Maine Turnpike for a total of ninety-eight (98) single family house lots, a PRUD lot, planned residential unit development, with five (5) buildings and twenty-five (25) units within the Turnpike Parcel, and one open space lot
    - Single-family house lots will remain sized between 6,500 sf, the minimum allowed in an R-3 Residential zone, and 20,000 sf
    - The zone change from R-1 to a combined R-3 and ROS, recreational open space zone, allows for smaller lots and greater flexibility to avoid wetland impacts and keep the development closer to Westbrook St and away from the river
- Reviewed the proposed utility layout and emphasized that all utilities within the development would be underground: power, telecommunications, gas, etc.
    - Ability to serve letters have been sent out to the respective utility companies
    - Noted that there will no longer be a pump station per loop but individual pump stations per house lot
        - Maintained by the homeowner's association
        - Allows for incremental pump stations that can be phased with the development

- Reviewed the proposed site grading
    - The proposed roadways are to start at the existing elevation on Westbrook St and then gradually slopes down to a low point, one per loop
    - The lots closest to Westbrook St will reflect the existing shallow grades towards Westbrook St
    - The first row of inner loop house lots is to be regraded to allow for a daylit basement on three lots and then gradually sloping to the site low point
    - A similar daylit cut is anticipated for the rear house lots that back to the new open space
- Discussed the proposed stormwater system that meets and exceeds the required levels of treatment and flood control for the City and MaineDEP.
    - Stormwater is proposed to be treated via proprietary stormwater planter boxes stationed throughout the site; similar to that of the Filterra system
    - Planter boxes will outlet to a detention basin, one detention basin per loop
    - The larger detention basin will double as a community skating rink in the winter; the proposed size at around 14,000 sf is comparable to a typical ice skating rink.
- Reviewed the new public open space that encompasses over 40% of the entire property to be used for passive recreational use and shared waterfront access
    - Compared the size of the new open space to existing City parks (noting that Greater than 100% represents how much greater the projects open space area):

Baxter Woods	75%
Deering Oaks Park	42%
Eastern Prom	34%
Stroudwater River Trails (directly across the river)	287%
Western Prom	125%

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- Emphasized that there is a ten-foot berm along the Turnpike property line with trees proposed across the top to mitigate traffic noise
    - Noted that the position of the PRUD buildings further mitigates the sound travel into the site
- Stated that there are landscaped buffers proposed along the Westbrook St frontage as well within the inner loops; buffers are to be deed protected
- Reviewed the project development to date and upcoming meetings
    - Preliminary site plan and subdivision application submitted to the City on 8/25/17
    - A Traffic Movement Permit has been submitted the Maine DOT and will require additional coordination and meetings with the City.
    - Planning Board Workshop is scheduled for 4:30pm on 10/4/17 but the time might be subject to change
- Reviewed the proposed landscape plan and renderings including the architectural PRUD layout and a section view of the site outlining the daylit basement house lots

Questions & Answers:

Please note that the following questions and answers were not recorded verbatim and aim to represent and summarize the actual questions, answers, and discussion that took place at the meeting.

Q: What is the proposed density of the landscaped buffers along Westbrook St? Will the landscaping screen the development? Can the developer increase the density of the buffer to screen the proposed back yards of the development?

A (Will): We can look into increasing the density of the plantings along Westbrook St so that the new homes are not visible from the street.

At this time Will suggested that the neighbors vote on if increased density was preferred: majority of attendees indicated that more plantings were preferred.

Q: Can you elaborate on the price of the house lots; will lots still start at $350,000?

A (Mike): Yes, we are anticipating a market rate base price of $350,000 with lots ranging between $350,000 - $450,000. Final prices will be dictated by the market.

Q: Has any thought gone or consideration gone into trailhead parking and where access to the public space is to be provided?

A (Will): The new internal development roadways are to be twenty-eight (28) feet wide per City standard which allows for parking on one side of the road. Access is provided anywhere in which the open space lot fronts the new roadway, which occurs in two locations, and along Westbrook St, another two locations for a total of four (4) public access points. There is also space at the end of Old Westbrook St for parking.

Q: Is there a crosswalk proposed across Westbrook St?

A (Will): We are proposing a new crosswalk across Westbrook St where the Fore River Sanctuary trail system dead ends; the crosswalk will connect the existing system with the new trails within the development. We are working with the project traffic engineer on if any other signaling components need to be implemented for this crossing from a safety perspective.

Q: It appears that the one entrance to the development has been moved; why was this new location being proposed?

A (Will): The intersection across from Swan St has remained as submitted during the zone change process but the second intersection, closer to the Turnpike, has been shifted to be further from the bridge and closer to the first intersection. Moving the intersection increases the sight distance from the Turnpike bridge while maintaining the required spacing between the new intersections.

Q: Where will school busses be picking up children within the development? It's possible that if busses stop within Westbrook St, it will contribute to the existing traffic congestion.

A (Mike): The exact location has not been finalized but we will consider traffic patterns during discussions with the City and school districts. It will be up to the school district whether or not the bus enters into the proposed public road network or picks up kids at Westbrook St.

Q: Can you elaborate on the buffer and screening provided along the Turnpike?

A (Will): We are proposing an 8 to 10-foot berm that will then be topped by additional trees. There is existing mature vegetation along the Turnpike and the berm would start where the vegetation ends and act to continue the natural barrier.

Q: Will the existing mature white pine trees along the property line abutting the Partridge St houses be cut down?

A (Will): The existing trees along the property line fence to the east of the property are proposed to remain.

Q: Can you elaborate further on the Westbrook St buffer: is the buffer only along those three lots?

A (Will): Yes, we are proposing a deed protected buffer between the back yards of three lots within the development and Westbrook Street (*referring to the Westbrook St buffer closest to the Old Westbrook St entrance).*

Q: Have you looked into using the existing single-family driveway as an entrance to the development?

A (Will): Proposing the intersection further down Westbrook St increases the sight distance between the entrance and Westbrook St traffic.

Q: Who will be responsible for the new stormwater infrastructure outside the proposed streets right of way?

A (Will): The new stormwater features outside the proposed streets right of way, including the detention basins, will be maintained under the homeowner's association.

Q: Who owns or who will own the new public green space?

A (Mike): The ownership and maintenance of this area is still on ongoing conversation between Portland Trails and the City of Portland Parks and Recreation Department.

Q: Are you proposing any sidewalks along Westbrook St?

A (Will): Yes, there is a proposed five-foot sidewalk proposed along the site frontage from Old Westbrook St to the proposed intersection with Swan St that will be built to City standard. There is an existing sidewalk on the opposite side of the street.

Q: Will the crosswalks have flashing lights or other safety features?

A (Will): The final location and structure of the new crosswalks will be determined during the traffic review of the project. Additional protection measures, such as lighting or signage, will be provided if required as a safety measure.

Q: Where is the existing single-family house within the abutting property?

A (Will): The house is visible in the aerial image along the west property line.

Q: Is there any way that a fence can be provided along the westernmost property line to screen the proposed development from the existing property? If not, the homeowner requested one.

A (Mike): We can definitely look into a solution and continue the conversation on providing screening.

Q: Will the PRUD have its own owner's association?

A (Will): Yes, the PRUD units will be subject to separate association documents which at this time is structed as a condo association.

Q: Can you clarify further on the site easements: who will manage this space?

A (Mike): As we mentioned before the ownership of the open space is still in discussion but the public access and open space easements have already been provided as a good faith effort during the zone change process with the City.

Q: Are you interested in and would support a bridge over the Stroudwater River?

A (Mike & Will): We are very much in support of a bridge and have been working with Portland Trails on the feasibility and construction of the structure. They currently have a design in the planning and permitting stage for a crossing closer to the Westbrook school further upstream. We are looking to continue the conversation on which crossing location makes most sense from dependents served and feasibility perspective.

Q: Are you proposing any additional pedestrian safety components along Westbrook St? Because it is such a high traffic area, I would be in support of seeing a barrier between the new sidewalk and the roadway.

A (Mike): We will look into providing additional safety elements within this section of Westbrook St.

Q: Where will the forty (40) parking spaces as indicated within the application be provided?

A (Will): Within the on-street parking within the new roadway network.

Q: Who will be responsible for trash pick-up: the city or the association?

A (Will): It is our understanding that the streets will be accepted by the City and the City will provide curb side pick-up services.

Q: Why are you proposing a low traffic bituminous surface for the new roadways within the site?

A (Will): The proposed surface and thickness is a City standard for local roads.

Q: Can you clarify on where you came up with the existing impervious surface as submitted on the application?

A (Will): Determining this area included intensive research of the site and is composed of gravel surfaces, pavement, rooftop, and foundation areas as identified from the existing conditions survey.

Q: There are overflow spillways and outlet control structures proposed within the stormwater detention basins. Will these be screened from view with landscaping?

A (Will): Due to the basin design and intention of the basin, no landscaping can be provided within the basin. Adding any of these features would decrease the effectiveness of the system.

Q: What are you proposing as a safety feature along the berm of the basins? Is there any chance of people or animals falling in?

A (Will): The proposed basins are designed to be what is known in the industry as 'dry ponds' versus the more commonly identified 'wet ponds'. Therefore, the basins will not be filled with water unless there is a larger stormwater event and will be dry in all other instances. For the detention basin that is proposed to double as an ice rink in the winter, boards are to be placed at the bottom of the basin to allow for upwards of six (6) inches of ice to accumulate for skating use. The skating pond detention basin was oversized to account for any loss of storage volume in the winter.

Q: Why have you selected the proposed orientation of the PRUD buildings? Is there any possibility of moving the buildings to other side of the driveway with the rear of the buildings to the open space?

A (Will & Mike): The proposed layout was selected based on the existing topography of the site but we can review the alternate location of the roadway and buildings to the opposite side with the Client.

Q: Are you proposing to cut down the existing stand of white pines along the Westbrook St frontage? Is there a concern on removing possible bat habitat? (*indicated to the trees located to the northeast corner of the property)*

A (Will): The existing trees will be removed during the allowed cutting season as defined by the regulatory agencies.

Q: How much right of way space will be affected by the new sidewalk? Will the existing house lots fronting Westbrook St be affected?

A (Will): The proposed sidewalks are to be five (5) feet wide per City standard and extend from the existing curb face. The new sidewalk is anticipated be built entirely within the existing City right of way property in addition to any roadway improvements. Roadway improvements and any associated widening will be subject to the consulting traffic engineer's discussions with the City.

Q: What would happen if the referendum is passed? Would you still build if the site changes back to R-1? Can you build all the way up to the river?

A (Mike & Will): The exclusionary zoning referendum is up for vote in November, if passed, would retroactively rezone the site back to the R-1 Residential Zone; this would take away the ROS designation adjacent to the Stroudwater River and allow for the entirety of the site to once again be developed. The FH Flexible Housing zone that was removed as part of the July 24th rezone would also be reintroduced allowing for manufactured housing to be built north of Westbrook Street, directly abutting the Fore River Sanctuary.

The subdivision development project would still move forward with a plan similar to the concept developed for the rezone application proposing around 84 single-family house lots. The proximity to the river limits how close the structures can be to the high-water level, at least 75 feet away, but the property lines can extend down to the river's edge, maintaining private access to the waterfront. No townhouses would be proposed but the two intersections as shown for this layout would remain in the same location.

Q: Are there any bus stops proposed for the site and will they be covered?

A (Mike): The development team had a meeting with Metro two weeks ago and are making efforts to plan for a new bus shelter location along our project frontage. Whether a new Metro route is extended down Westbrook St is at the discretion of Metro.

At this time, a board member of the Stroudwater Village Association made an announcement to the neighbors that were leaving prematurely that there was a meeting to be held that Thursday, September 21st (7pm) at the church to discuss a neighborhood plan with City Planning Staff.

Q: Are the existing landscaped islands within Westbrook St going to be removed? Will this project propose any additional speed protection improvements to Westbrook St?

A (Will): It is not proposed to remove the islands at this time. We will continue to work with the project traffic engineer, the City, and the Maine DOT to provide any traffic improvements that will contribute to the safety of Westbrook St.

Q: Can you walk me through how stormwater is being handled on site? What happened during larger storm events? Will the stormwater runoff still be treated during such events?

A (Will): The stormwater runoff from smaller rainfall events such as a one-inch, 24-hour storm will be directed along the curb face into a stormwater planter. The runoff then percolates through the soil and sand media of the planter box and oil/grease and other particulate matter is filtered through or absorbed by the planting. During larger storm events, the stormwater planter box will overflow and runoff will bypass the system to a catch basin structure that is directly down gradient of the planter box. However, this overflow runoff, essentially the runoff beyond the first initial inch, is much clearer than the stormwater first entering the planter box; the first inch of rainfall, in any storm, is the dirtiest and will be treated regardless of the final rainfall event size. Any overflow thus after requires less, if any, treatment. The runoff water is then conveyed via stormdrains to the detention ponds.

Q: Is there an example of this system being successfully designed next to a river?

A (Will): We have designed a number of stormwater treatment and detention systems similar to that of this site across Portland and a number of locations around the state. For this property, we are significantly treating above and beyond what is required by the City and the state.

Q: Is the abutting 1714 Westbrook St parcel zoned as R-3? So, the referendum would affect greater than 45-acres?

A (Will): The zone change passed in July, included the site with the Turnpike Parcel, the five properties along Westbrook St (including 1714 Westbrook St) as well as the portion of land zoned under the Flexible Housing Overlay zone across the street along the north side of Westbrook St.

Q: If the referendum passes, and the site returns to the R-1 zone, will you still move forward with the project?

A (Mike): Yes.

Q: Has there been any thought into designating a specific area for public parking such as along the PRUD driveway?

A (Will): There is no designated parking area besides the potential at the end of Old Westbrook St but we can look into providing a specific lot within or abutting the site.

Q: Do any of the new single-family house lots face Westbrook St.

A (Will): Yes, five (5) lots will face and be accessed via Westbrook St.

Q: Will the new lawns be treated with pesticides?

A (Mike): The City is currently working on outlining restrictions on pesticide use within the entire city as part of the Pesticide Task Force. As a development team, we are proposing to eliminate phosphorous-based pesticide use from within the site.

Q: How will the pesticide ban within the site be enforced? Will that ban be able to be changed?

A (Mike): It was our intention to include the pesticide ban language within the homeowners docs but we will continue to research and look into how the language is recorded and written so that the ban cannot be changed as easily.

Q: Will there be a reduction in lawn areas when comparing an R-1 vs. R-3 layout?

A (Will): One of the driving forces of the zone change, as emphasized during the application process was the fact that smaller, more compact house lots within the R-3 zone will have less impervious surface, due to less roadway infrastructure, and less total developed land and lawn area than an R-1 layout.

Q: Who is providing site landscaping for each house lot? Are there any protections proposed so that some groundcover and not only lawn space is incorporated into each property?

A (Mike): We will be incorporating site landscaping throughout the property and each house lot will need to meet the tree requirements. In addition, there is a proposed buffer within the center of each of the loop roads.

Q: Will you be building model homes? If so where will they be located?

A (Mike): We are anticipating having four to five different house kit options for each of the single-family house lots that range from single to two story units and different facade options available. A model home is planned to be built at the intersection closest to the Turnpike at one of the front most lots.

Q: It's my understanding that each PRUD unit will have a single-car garage but what about the single-family house lots?

A (Mike): There will be a mix of both single- and double-car garages that can be internal, split level, attached or detached depending on the lot configuration and grades.

Q: Will the new utilities for the Westbrook St house lots also be built underground? Will any existing poles and overhead lines such as the ones that connect to my house at 1714 Westbrook St be affected?

A (Will): All new services to the Westbrook St lots, including underground electrical, will be routed underground; no new overhead services are proposed. No overhead services and utility poles are anticipated to be removed at this time as well.

Q: How will the added traffic from the development, including introducing new busses to Westbrook St, be addressed?

A (Will): The traffic implications of the development are being reviewed by the project traffic engineer within the project's Traffic Movement Permit which is required by and will be reviewed by the City. The team traffic engineer will be at the Planning Board Workshop meeting to speak to the preliminary efforts and conversations regarding traffic. Additional efforts will be researched to help mitigate speeding concerns within Westbrook St as well.

Q: There is currently limited clearing of sidewalks during the winter and it appears that the City only clears the sidewalks up to a certain point from Congress St. How will you address the sidewalk clearing issue on the new site sidewalks? Will you be a voice of support on urging the City to ramp up their sidewalk clearing efforts in the Stroudwater Neighborhood?

A (Mike & Will): Per city ordinance, the sidewalks within the City right of way along the frontage of a lot are to be cleared by the owners of that property. However, this ordinance is not necessity effective and is currently being discussed with various advocacy groups within the City including PBPAC (Portland Bike and Pedestrian Advisory Committee). We can work on continuing the conversation with the City on making sure that additional efforts are made to keep the sidewalks clear during the winter.

Meeting concluded at approximately 7:45pm. The meeting started with approximately 33 participants and ended with 8-10 members of the public.

The abovementioned material was as interpreted and recorded from handwritten notes. Please note and relay any discrepancies or disputed information in the recorded minutes to the below address so that they can be reviewed, revised, and resubmitted as necessary.

Recorded by,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

odawson@acorn-engineering.com

Att. ZN

Stroudwater Preserve

Neighborhood Meeting Sign-In Sheet – September 19th, 2017

Please Print your Name and Address

1. Julie Kilborde 1543 Westbrook St Portland
2. Andy Green 1714 Westbrook St
3. Linda P. Green 1714 Westbrook St.
4. John Haslam 1729 Congress St.
5. Bruce Savage 42 Pierce Ave
6. Anne Savage 42 Pierce Ave.
7. Diane DiCenzo 54 Penrith Rd
8. Michael Archibald 126 Stroudwater Rd.
9. Holly Hoffman 1619 Westbrook St
10. Gloria Hodgdon 1629 Westbrook St
11. Lisa McLaughlin 30 Partridge Rd.
12. Angela Wheaton 30 Partridge Rd
13. Genie O'Brien 1376 Westbrook St.
14. Bill Dobrowolski 6 Partridge
15. Eric Griffin 42 Penrith
16. Christ Jones 33 Old Mast Rd.
17. Mark Moorhead 1653 Westbrook St
18. Warren Moorhead 1653 Westbrook St
19. Jacqueline Robinov 1655 Westbrook St.
20. Joan Beal 370 Old Mast Rd.
21. Sandy Beal 37 Old Mast Rd.
22. Elwood Howard 28 Roundabout Lane

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23. Emily Green 1533 Westbrook St.
24. Gerard's Anne Kiladjian 42 River's Edge DR.
25. Pamela Cormier 399 Old Brunswick Rd
26. Kathleen Stokes 15 OLD MAST RD 04102 Bath
27. Wendy + Michael Taylor 35 Butterwood Rd. 04102
28. Charlton Smith 85 River's Edge Dr. 04102
29. Ian Jacob 59 State St 04101
30. Kelly McDonald 45 Penrith Rd 04102
31. Mihku Anderson 1603 Westbrook St. 04102
32. Bob Chesebro 1353 Westbrook St
33. Jane Chesebro 1353 Westbrook St.
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Section 32

Stroudwater Preserve Homeowners' Association and Condominium Documents

After Recording Return To:
Jason G. Howe, Esq.
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

DECLARATION

OF

STROUDWATER PRESERVE HOMEOWNERS' ASSOCIATION WITH COVENANTS, RESTRICTIONS, AND CONDITIONS

This Declaration is made and executed by **STROUDWATER DEVELOPMENT PARTNERS, LLC**, a Maine limited liability company with a mailing address of 62 Portland Road, Suite 25, Kennebunk, Maine 04043 (the "Declarant"), for the purposes and upon the terms and conditions hereinafter set forth:

1. RECITALS. Declarant is the owner of certain lots of land, together with common areas and roadways, all as set forth below ("Premises"). The Declarant desires to provide for the preservation of the character and value of said community and to create an Association for the purposes of administering the Common Open Areas area of the Premises, and imposing and enforcing the covenants and restrictions herein set forth herein.

2. PROPERTY. The Property subjected to this Declaration consists of the property shown as Phase I and Phase III, collectively, on a Plan entitled "_____" by _____dated _____ recorded with the Cumberland County Registry of Deeds in Plan Book _____, at Page _____ (referred to hereinafter as "Plan", and the property depicted on said Plan may be referred to at times herein as "Premises").

3. ASSOCIATION. Initially the Association shall be a non-profit corporation entitled "Stroudwater Preserve Homeowners Association." The Association shall adopt By-laws for the operation of the Association whereby all lot owners shall be members of the Association. At some point in time, the members may opt to operate the Association as an unincorporated association subject to the restrictions and covenants set forth herein and pursuant to the Association's By-Laws.

4. PURPOSES AND POWER. The Association, whether incorporated or not, shall have all powers of a non-profit corporation organized pursuant to 13 M.R.S.A. section 13-B and is organized and will be operated for the purpose of administrating Common Open Areas, certain forced main water lines within the road right of way, any pump stations (but excluding individual pump grinders installed in each house, which remain the homeowner's individual responsibility, and to the extent not yet accepted by the City of Portland, the Roadways shown on the Plan,

including without limitation, maintenance and preservation of the same, and enforcement of all covenants and restrictions set forth herein. It shall have the power to enforce the terms, conditions and restrictions hereinafter set forth, including, without limitation, collecting and disbursing the assessments and charges as hereinafter provided and taking such other actions as are deemed necessary and proper to fulfill its purpose. It shall have the power to promulgate rules and regulations and to take such actions and fulfill such other purposes as voted by the members. Without limitation, the Association shall be responsible for providing the following services, the expenditures for which shall be chargeable as dues:

(a) Removal of snow from the common areas including, as necessary, without limitation, roadways (prior to city acceptance), and any common parking areas; and

(b) Maintenance and repair of roads and sidewalks until the same are accepted by the City; and

(c) Maintenance, as necessary, and enforcement of the Common Open Areas, as more particularly set forth herein and as shown on the Plan, unless and until the same are transferred to the City of Portland, or its designee/assignee; and

(d) Such other items as the Board of Directors of the Association may determine in their discretion.

5. DURATION. The Association shall commence its existence upon the execution hereof and shall remain in full force and effect whether incorporated or unincorporated, in perpetuity unless sooner terminated by vote of the members as set forth below.

6. MEMBERSHIP. Every person who is an owner of a lot shown on the Plan shall be a member of the Association. Acceptance of a deed to any lot or property on the Plan shall have the effect of making that person a member in the Association without regard to whether or not said membership is provided for specifically in the deed of conveyance. For purposes of this paragraph, owner of a lot on the Plan is not intended to include those parties who hold title merely as security for the performance of some obligation.

7. VOTING RIGHTS. The Association shall have one class of voting membership whether incorporated or not. Members shall be entitled to one vote for each Lot owned by that party. When more than one person holds ownership to a Lot, or if ownership is held in a manner other than as an individual, then only one vote shall be cast with respect to any said Lot, and the Association shall have the right to require that any Lot owner or owners execute and deliver to the Association a Certificate of Vote, which authorizes one party to cast said vote, which Certificate shall be conclusively binding upon all ownership interests in said Lot.

8. RESERVED DECLARANT RIGHTS. The Declarant shall hold and be considered the owner of all lots for purposes of allocating voting rights in and to the Association from the date of execution of this Declaration until the date which is the earlier of the sale of the 67th Lot, or 7 years after the date hereof (the "Declarant Control Period"). The Declarant may, at any time

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release said voting rights to some or all of the then current lot owners. The Declarant reserves the right to change any of the provisions hereof, including the covenants, restrictions, and conditions, without vote by lot owners during the Declarant Control Period.

9. BOARD OF DIRECTORS. During the Declarant Control Period, the Board of Directors shall have three members, all appointed by the Declarant. After the Declarant Control Period, the members may by a majority vote adopt By-laws which specify the operation on management details of the Association as set forth above, provided that until the sale of the last Lot by the Declarant, its successors or assigns, the Declarant shall be entitled to appoint two of the three members of the Board of Directors. Pursuant to the By-laws, the Association shall be governed by a Board of Directors consisting of three (3) members, all of which shall be Lot Owners. The initial Board of Directors after sale of the last Lot shall be by a majority vote of the Lot owners to the following terms: one for a one (1) year term, one for a two (2) year term, and one for a three (3) year term. Thereafter, the members of the Board of Directors shall consist of members elected by the majority vote of the membership as each term expires, it being understood that the term for a Director shall be 3 years, such that one director is up for election each year. Directors shall be elected at the annual meeting of the Members. The Board of Directors shall have full authority to take all actions necessary for the administration of the affairs of the Association and shall have all powers and duties to do all such actions and things as are necessary and proper to be done to effectuate the purposes hereof. Unless otherwise specified herein, the vote of the Board of Directors is binding upon all members of the Association. Any one member of the Board of Directors shall not have the power to bind the entire Board without consent of the rest of the Board of Directors. All members agree to indemnify and hold Board of Directors members harmless from any and all actions taken in good faith pursuant hereto.

10. BUDGET / ASSESSMENTS. The owners of Lots covenant and agree to pay as dues to the Association, such sums per year which are levied pursuant to an annual assessment or special assessment. The annual assessment shall be based upon a proposed budget which shall be reduced to writing by the Executive Board by January 15th of each year. The total amount of said budget shall be divided by the number of lots and each member shall be obligated to pay to the Association their assessment for total Lots owned on or before February 15th of each year. Failure of the Executive Board to promulgate or distribute a written budget shall not invalidate the Association's assessments to members. Regular annual assessments shall require a majority vote of Lot owners entitled to vote and Special Assessments shall require 75% majority of votes entitled to be cast. Both annual and special assessments are to be used for the accomplishment or fulfillment of the purposes and objectives of the Association as stated herein. All special assessments are due and payable within 30 days of receipt of the special assessment invoice.

11. LIEN FOR ASSESSMENTS. The assessments authorized hereunder or pursuant to any By-laws promulgated pursuant hereto shall be enforced solely by an action of the Directors, and shall be a charge on the lots shown on said Plan and shall be and constitute a continuing lien upon the lot of the member against whom, such assessments are levied, including any buildings or improvements thereon. If such assessments are not paid in a timely fashion then said sums shall be deemed delinquent and the Association shall, in any event, have the right to charge interest, fines, and late fees on said sums at such rate and in such amounts as determined by the

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Executive Board. Additionally, the Association shall be entitled to collect all costs of collection, including reasonable attorneys' fees, pursuant to the collection of any delinquent sums. In the event any sum assessable to a lot shall become delinquent, the Association may bring an action at law against the member obligated to pay the same or foreclose the lien against such member's lot or lots. Such foreclosure process shall be the same procedure as for foreclosure of a mortgage pursuant to Title 14 of M.R.S.A. which statutes are incorporated herein by reference.

12. ELIGIBLE MORTGAGE HOLDERS. An eligible Mortgage Holder shall be defined as any Mortgage Holder whose lien affects property shown on the Plan and who gives notice in writing to the Association by forwarding a copy of their mortgage instrument to the Association. The lien referenced above for delinquent assessments shall under no circumstances supersede the lien of an Eligible Mortgage Holder who has recorded their Mortgage instrument prior to the recording of a Notice of Lien. Every eligible Mortgage Holder shall be entitled to written notice of any delinquencies pertaining to the lot upon which they hold a Mortgage, but failure to so notify an eligible Mortgage Holder shall not invalidate the lien.

13. AMENDMENT. After the Declarant Control Period, and subject to the Reserved Declarant Rights, this Declaration shall be amended only by a written instrument and any amendment shall require a majority vote equal to or greater than seventy five percent (75%) of the votes entitled to be cast.

14. COVENANTS, RESTRICTIONS AND CONDITIONS. Premises are hereby subjected to and will be conveyed with the following covenants, conditions and restrictions, which shall be considered as real covenants running with the land, to be binding upon the within Grantor, its successors and assigns, and all Grantees, their heirs and assigns, and enforceable in law or equity by the within Grantor, its successors and assigns, the Association, or by the owner of any Lot within the subdivision of which the subject premises form a part:

a. That all sewerage and septic waste disposal shall be undertaken in conformity with applicable State and Local authorities.

b. When the construction of the buildings on the premises is once begun, work thereon must be prosecuted diligently and must be completed within a reasonable time. No building shall be occupied during construction, except in the case of an unfinished level to be completed at a later date.

c. No unsightly growths shall be permitted to remain on any part of the Premises and no refuse pile or unsightly inorganic objects shall be allowed to be placed or permitted to remain on any part of the Premise. Dead trees may be retained on the Premises if they are deemed to provide potential wildlife habitat.

d. No Owner of a Lot shall do or permit to be done, any act upon the Premises which may be or is, or may become, a nuisance or unreasonable interference with another Lot Owner.

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e. No Owner of a Lot shall do or permit anything to be done, any act upon the Premises which may be or is a part of the Common Open Areas except in conformity with the rules and regulations governing the Common Open Areas set forth herein.

f. All Owners agree and recognize that certain of the Common Open Areas are subject to certain easements benefitting the City of Portland, its successors, or assigns, and all members of the public. No owners shall interfere with, nor shall any Owner contravene, either the affirmative or restrictive covenants of any easement or other grant of right related to any Common Open Area or public right of way or open space easement.

g. Each Owner shall be solely responsible for the maintenance of any pump-grinder benefitting the Owner's Lot. In the event that two or more lots are benefitted by one such pump-grinder, then the Owners of each Lot shall split the cost of maintenance, repair, and/or replacement of such pump-grinders equally, pro-rata, based on the number of lots benefitted.

By acceptance of a deed to the Lot, the Grantee, its heirs, successors and assigns agree to be bound hereby. The aforesaid covenants and conditions shall run with the land. They are imposed upon these premises for the benefit of the remaining land of the Grantor, as well as for the benefit of any and all persons owning land shown on said plan and holding a deed with similar covenants or restrictions given or to be given by the Grantor, his successors and assigns; that in all future conveyances of land situated on the plan herein referred to will contain substantially similar restrictions; and it is further understood, covenanted and agreed that said restrictions, covenants and conditions are intended as equitable servitudes upon each and every parcel of land affected, and that the Grantee, its heirs, successors and assigns, shall have full right, in common with the Grantor, his successors and assigns, as well as the Association, to enforce the same, insofar as the same are enforceable, by any applicable legal process or in any other lawful manner. The erection and use of any structure or the occupation of the land hereby conveyed contra to these conditions and restrictions, or any part of them, shall be conclusively deemed a nuisance for which the Grantor, his successors and assigns, other Lot Owners, or the Association, may have remedy by due process of law or may, at its option, by its agents, enter and remove and abate such nuisance at the expense of the Grantee, its successors and assigns, without being responsible for trespass therefor. The Association shall have the power to levy fines for violations of the Covenants, Restrictions and Conditions.

15. COMMON OPEN AREAS. The Premises are hereby subjected to and will be conveyed subject to certain restrictions affecting Common Open Areas as shown on the Plan (which the plan may variously identify as "Open Space Easement," or "Open Space," or "Resource Protection Overlay Zone," or "Public Access Easement," or any of the like shown on the Plan). Common Open Areas are provided throughout the Premises. The Covenants contained within this Declaration and specifically set forth below provide for the protection of the Common Open Areas.

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a. Responsibility to Maintain and Protect Common Open Areas. It shall be the responsibility of the Association to maintain and enforce, to the extent necessary, the protective covenants of the Common Open Areas on that land which is retained by the Association, unless and until the City of Portland, its successor or assigns, or a certain non-profit having the right to maintain any public access agrees to take on such maintenance and enforcement responsibility. Any individual Lots which include Common Open Areas shall be encumbered by an Open Space Easement which shall contain a recitation of the Declaration of Restrictions as part of the deed description and said Lot Owners shall be bound by said restrictions and encumbrances.

b. Restrictions on Common Open Areas. After the Declarant Control Period, and unless the owner of the Common Open Areas, or any successors or assigns, obtains the prior written approval from all parties holding rights thereto, the Common Open Areas must remain undeveloped. The use of the Common Open Areas is hereby limited as set forth herein:

i) No soil, loam sand, gravel, concrete, rock or other mineral substance, refuse trash, vehicle bodies or parts, rubbish, debris, junk, waste, pollutants, or other fill material may be placed, stored, or dumped on the Common Open Areas, nor may the topography of the area be altered or manipulated in any way;

ii) Any removal of trees or other vegetation within the Common Open Area must be limited to the following must be expressly approved by the owner of the Common Open Area.

iii) No building or other temporary structure may be constructed, placed, or permitted to remain on the Common Open Area except for a sign, utility pole, or fence.

iv) No trucks, cars, dirt bikes, ATV's, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted within or upon the Common Open Area without the express written consent of the owner of the Common Open Area.

v) Any activity or use of the Common Open Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Common Open Area must be approved in advance. Prior approval may be obtained if the alterations or changes do not impede the buffer capability of the Common Open Area or if adequate and appropriate alternative means of buffering are provided.

c. Enforcement. The Association may enforce any of the Restrictions set forth in this section.

d. Binding Effect. The Restrictions set forth herein shall be binding upon any present or future owner of the Common Open Area. If the Common Open Area is at any time owned by more than one owner, each owner shall be bound by the foregoing

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restrictions to the extent that any of the Common Open Area is included within such owner's property.

16. MISCELLANEOUS:

a. Conflict. If any provision of this Declaration, the Bylaws or the rules and regulations of the Association, or any section, sentence, clause, phrase, or word herein or therein, or the application thereof in any circumstances be judicially held in conflict with any applicable laws, including, but not limited to, the subdivision approval, then the laws shall be deemed controlling; but the validity of the remainder of this Declaration, the Bylaws and rules and regulations of the Association, and the application of any such provision, section, clause, phrase, or word in other circumstances shall not be affected thereby.

b. Interpretation.

i) The captions herein are inserted only as a matter of convenience and for reference, and in no way define, limit or describe the scope of this Declaration or the intent of any provisions hereof.

ii) The use of the singular number in this Declaration shall be deemed to include the plural, the plural the singular, and the use of any one gender shall be deemed applicable to all genders.

iii) No provision contained in this Declaration shall be deemed to have been abrogated or waived by reason of any failure to enforce the same irrespective of the number of violations or breaches that may occur.

iv) The use of words such as "herein" or "hereunder" shall refer to this entire Declaration and not merely the section, paragraph or provision in which such words appear.

c. Invalidity. If any term, covenant, provision, phrase or other element of this Declaration, the Bylaws, any deed to a parcel, or the rules and regulations of the Association is held to be invalid or unenforceable for any reason whatsoever, such holdings shall not affect, alter, modify, or impair in any manner, any other term, covenant or provision, phrase or other element of such documents.

d. Municipal Ordinances. This Declaration is independent of any requirements or restrictions imposed by the Ordinances of the City of Portland. Nothing in this Declaration relieves any person of any obligation to comply with such ordinances. The City of Portland has no authority or responsibility to enforce the provisions of this Declaration. However, it has the authority to require maintenance of those items set forth on the approved Plan, which shall be the duty of the Association to maintain. These items are generally set forth in Paragraph 15.

e. Notices. Any notice required or given pursuant to this Declaration to the Association or to any Lot owner may be delivered to any Association director or officer or to such Lot owner respectively either by delivering it in person, by sending it to his/her Lot by first-class

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mail, postage prepaid, or by delivering it to the Lot by hand, or as otherwise permitted by the Bylaws.

f. Amendment. Any provision contained within this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owner of the Common Open Area and the Homeowners Association.

g. Effective Provisions of Declaration. Each provision of this Declaration and any agreement promise, covenant, and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon title to the Common Open Areas.

h. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

IN WITNESS WHEREOF, Stroudwater Development Partners, LLC, have caused this instrument to be executed as of this _____ day of _____, 2017.

Stroudwater Development Partners, LLC

_____ _____

WITNESS By: J. Hillary Rocket, Jr., its Manager
Thereunto Duly Authorized

STATE OF MAINE
COUNTY OF YORK _____, 2013

Then personally appeared before me the above-named J. Hillary Rocket, Jr., in his capacity as Manager of the said Stroudwater Development Partners, LLC, and acknowledged the foregoing instrument to be the free his act and deed, and thereby, the free act and deed of said company.

_____
Notary Public
Print Name:
My Commission Expires: _____
Official Seal or Notary Stamp:

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BYLAWS

OF

STROUDWATER PRESERVE HOMEOWNERS' ASSOCIATION

ARTICLE I

Definitions

Section 1. "Association" shall mean and refer to the Stroudwater Preserve Homeowners Association, a non-stock, non-profit corporation organized and existing under the laws of the State of Maine.

Section 2. "Common Areas" or "common open area" shall mean and refer to any Association Property as shown on the subdivision plan entitled "_____" by _____, dated _____, recorded in the Cumberland Registry of Deeds in Plan Book _____, Page _____, and any amendments thereto, together with any real property transferred or owned by the Association. Without limitation, these areas may include the streets and ways or other improvements shown on the said plan provided that any may, in the future, be transferred to the City of Portland.

Section 3. "Declaration" shall mean and refer to the Declaration of Stroudwater Preserve Homeowners' Association with Covenants, Conditions, and Restrictions, dated _____, recorded in the Cumberland Registry of Deeds in Book _____, Page _____, , and Exhibit A attached thereto, as the same may be amended from time to time (the "Declaration").

Section 4. An "Owner" or "Member" shall mean and refer to each owner (whether an individual person or persons, corporation, partnership or other legal entity) of record of a lot subject to the Declaration, but shall not mean and refer to an owner of record, whose only interest in such lot or parcel of land is as mortgagee under a real estate mortgage as security for the performance of an obligation, until and unless such owner shall have commenced proceedings under the laws of the State of Maine to foreclose such mortgage and shall have delivered a certificate to this effect to the Secretary of the Association. Any Owner which is made subject to the terms of the Declaration shall also be a Member.

ARTICLE II

Location

The principal office of the Association shall be located in the City of Portland, in the County of Cumberland and State of Maine. The registered office of the Association shall be located c/o Bergen & Parkinson, LLC, 62 Portland Road, Suite 25, Kennebunk, ME 04043. Jason G. Howe, Esq. shall serve as agent for service of process on the Association at the address.

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ARTICLE III

Membership and Voting Rights

Section 1. Each Owner as designated in Article I, Section 4, shall be a Member of the Association.

Section 2. During the Declarant Control Period, as set forth in the Declaration, the Declarant shall appoint the Board of Directors, and shall take all such action as needed on behalf of the Association, it being understood that reasonable assessments against the Lots shall nonetheless be payable by the Owers of said Lots during the Declarant Control Period.

Section 3. After the Declarant Control Period, as set forth in the Declaration, the Association shall have one classes of voting membership, with one vote allocable per lot, regardless of the number of Owners or nature of ownership of the said Lot.. When more than one person holds an interest in any lot, all such persons shall be members of the Association for purposes of attending and participating in meatings, it nonetheless being understood that each Lot is only allocated one vote at such meetings. The vote for such lot shall be exercised as the owners so determine and certify, to the Association, in advance of said meeting, failing which, the member or members owning such lot shall not be entitled to vote.

Section 4. The rights of membership are subject to the payment of assessments levied by the Association, the obligation of which assessments is imposed against each Owner and becomes a lien upon the lot against which such assessments are made as provided by ARTICLE IV hereof. No Member may be released from any obligations of membership by non-payment or other default under the Declaration, and membership shall be automatic and run with the ownership of a lot.

ARTICLE IV

Financing of Association – Assessments

Section 1. Assessment. The principal method of financing the operations of the Association shall be by assessment of Lots, as payable by that Lot's Members. Each Member, by the acceptance of the deed for a Lot, shall be deemed to covenant and agree, whether or not it shall be expressed in such deed or in any other conveyance, to pay assessments to the Association with no profit to accrue to the Association. The assessments shall be for (a) annual assessments or charges; and (b) special assessments for capital improvements, such assessments to be established and collected as hereinafter provided.

Section 2. Purpose of Assessments. Assessments shall be used for the purpose of providing funds for the common expenses, maintenance, repair, replacement, administration, operation and improvement of the lots and the Common Areas, and other reasonably necessary costs as determined solely by the Board of Directors, including:

(a) the cost and management of snow removal, if not publicly provided;

(b) maintenance, repair and replacement of the roads as shown on the plan, which roads shall remain private until or unless the roads are made public, as well as all electrical and telephone cables, water, sewer and drainage pipes, equipment and facilities located in the Common Areas;

(c) capital reserves for the installation, repair, replacement or removal and discontinuance (as the case may be) of any common facilities or any improvements to the Property; and

(d) care and maintenance, on an as-needed basis, of any and all detention or retention areas on the plan not part of a public road or right of way;

(e) the operation of the Association;

(f) maintenance, repair and replacement electrical and telephone cables, water, sewer and drainage pipes, equipment and facilities serving the lots not otherwise maintained by the City of Portland or public utilities; and

(g) such other common benefits on such terms as the Directors may determine from time to time.

Section 3. Special Assessments for Capital Improvements. In addition to the assessments authorized above, the Association may levy, in any assessment year, a special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the Common Area, including fixtures and personal property related thereto, provided that any such assessment shall have the assent of two-thirds of the votes of each class of members who are voting in person or by proxy at a meeting duly called for this purpose.

Section 4. Date of Commencement of Assessments. The assessments provided for herein shall commence as to all lots on the first day of the month following the issuance of a Certificate of Occupancy for a lot or two years after the date a lot was first conveyed by the Declarant to any other party, whichever shall first occur. The Board of Directors shall fix the amount of the assessment against each lot on an annual basis, at least thirty (30) days in advance of the start of each calendar year. Written notice of the annual assessment shall be sent to every Owner subject thereto. The due dates shall be established by the Board of Directors. The Association shall, upon demand, and for a reasonable charge, furnish a certificate signed by an officer of the Association setting forth whether the assessments on a specified lot have been paid. A properly executed certificate of the Association as to the status of assessments on a lot is binding upon the Association as of the date of its issuance.

Section 5. Method of Assessment. Each assessment shall be based on ownership of a lot in the Association with the determination of the Board of Directors as to the method to be used for each such assessment to be final and conclusive.

Assessments shall be established based on estimated annual expenditures of the Association. A proposed budget shall be prepared sixty (60) days in advance of each fiscal year and shall be mailed to Members thirty (30) days in advance of the budget meeting. The budget shall be presented to the Members for their review and comment, provided that the adoption of the final budget shall be the responsibility of the Board of Directors.

Section 6. Payment of Assessments. Each Member shall pay to the Association or its authorized representative (1) on the first day of each month, or on such other date that the Board of Directors may determine in writing, one-twelfth (1/12th) of the Assessment, assessed on an annual basis; and (2) all special assessments and any other sums duly levied pursuant to these

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Bylaws, including all interest thereon and charges for late payment thereof and legal fees and other costs of collection thereof, and fines, penalties and fees as provided by these Bylaws, on the first day of the next month which begins more than ten (10) days after delivery to the Member of notice of such special assessment or levy or such other date that the Board of Directors may determine in writing. If for any reason the Association shall revise the annual budget of the Association whereby the Assessments, or any component thereof may be increased, then commencing on the first day of the first month subsequent to the adoption of such revised budget each Member shall pay to the Association or its authorized representative such revised annual Assessment.

Section 7. Failure to Pay Assessments. If any Member shall fail to pay any assessment levied by the Association within sixty (60) days from the due date specified by the Association, the Association shall file a notice of such nonpayment with the Cumberland County Registry of Deeds, and from and after the time a notice of such failure to pay is recorded, in the office of the Register of Deeds for Cumberland County, the Association shall have a lien against the Member's lot for the amount due and not paid, plus interest at the rate of eighteen percent (18%) per annum from the specified due date to the date of payment thereof and all costs and expenses of collection, including reasonable attorneys' fees. Such lien shall be at all times junior to any first mortgage to or owned by a financial institution and may be foreclosed by the Association in the same manner as residential real estate mortgages may be foreclosed under the laws of the State of Maine. Failure to file any such notice shall not invalidate the lien herein or relieve any obligation to pay.

Section 8. Membership Rights. If any Member shall fail to pay any assessment levied by the Association within thirty (30) days from the due date specified by the Association, the membership rights and privileges of such Member may be suspended by the Board of Directors for such period during which any such assessment shall remain unpaid. Upon subsequent payment of such assessment, with interest (if any) as specified in Section 7 above, the membership rights and privileges of such Member shall be automatically restored.

ARTICLE V

Board of Directors

Section 1. During the Declarant Control Period, the affairs of the Association shall be managed by a Board of Directors appointed by the Declarant. After the Declarant Control Period, the affairs of the Association shall be managed by a Board of not less than three (3) and not more than five (5) Directors who shall be members of the Association, and who shall hold office until the election of their successors, all as set forth in the Declaration.

Section 2. Vacancies in the Board of Directors shall be filled by a vote of the majority of the remaining Directors. Any such appointed Director shall hold office until his successor is elected by the Members, who may make such election at the next annual meeting of the Members or at any special meeting duly called for that purpose.

ARTICLE VI

Election of Directors

Section 1. Directors shall be elected, and shall serve, as set forth in the Declaration.

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ARTICLE VII

Powers and Duties of the Board of Directors

Section 1. The Board of Directors shall have the power:

(a) To call special meetings of the Members whenever it deems necessary and it shall call a special meeting at any time upon written request of one-fourth (1/4) of the voting membership as provided in Section 2 of ARTICLE XIII hereof.

(b) To appoint and remove at pleasure all officers, agents and employees of the Association, prescribe their duties, fix their compensation and require of them such security or fidelity bond as it may deem expedient. Nothing contained in these Bylaws shall be construed to prohibit the employment of any Member, Officer or Director of the Association in any capacity whatsoever.

(c) To establish, levy and assess, and collect the: assessments or charges referred to in ARTICLE IV hereof.

(d) To adopt and publish rules and regulations governing the use of the Common Areas and the personal conduct of the Members and their guests thereon.

(e) To exercise for the Association all powers, duties and authorities vested in or delegated to the Association under Maine law, except those reserved to the Members.

Section 2. It shall be the duty of the Board of Directors:

(a) To cause to be kept a complete record of all its acts and corporate affairs and to present a statement thereof to the Members at the annual meeting of the Members or at any special meeting when such is requested in writing by one-fourth (1/4) of the voting membership, as provided in Section 2 of ARTICLE VIII hereof.

(b) To supervise all officers, agents and employees of the Association, and to see that their duties are properly performed.

(c) To maintain a list of each and every Owner of a lot and of assessments applicable to each lot which shall be kept in the office of the Association and shal1 be open, during reasonable business hours, to inspection by any Member.

(d) To send written notice of each assessment to each Owner of a lot subject thereto.

(e) To issue, or cause an appropriate officer to issue, upon demand by any Member a certificate setting forth whether any assessment has been paid.

ARTICLE VIII

Directors Meetings

Section 1. The Board of Directors shall meet at such times and places as it may determine.

Section 2. Meetings of the Board of Directors shall be held when called by any officer of the Association or by any two Directors after not less than three (3) days' notice to each Director.

Section 3. The majority of the Board of Directors shall constitute a quorum thereof.

ARTICLE IX

Other Committees

Section 1. The Board of Directors may, by resolution or resolutions, passed by a majority of the whole Board, designate one or more other committees, each committee to consist of two or more of the Directors of the Association, which, to the extent provided in said resolution or resolutions or in these Bylaws, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Association, and may have power to authorize the seal of the Association to be affixed to all papers which may require it. Such committee or committees shall have such name or names as may be stated in these Bylaws or as may be determined from time to time by resolution adopted by the Board of Directors.

The Committees shall keep regular minutes of their proceedings and report the same to the Board when required.

ARTICLE X

Officers

Section 1. The officers of the Association shall be a President, a Secretary, a Treasurer and a Clerk. The President shall be a member of the Board of Directors.

Section 2. The officers shall be chosen by a majority vote of the Directors.

Section 3. All officers shall hold office during the pleasure of the Board of Directors.

Section 4. The President shall preside at all meetings of the Members and of the Board of Directors, shall see that orders and resolutions of the Board of Directors are carried out, and shall sign all notes, leases, mortgages, deeds and other written instruments (except checks for the disbursement of funds of the Association).

Section 5. The Secretary shall be ex officio the Secretary of the Board of Directors, shall record the votes and keep the minutes of all proceedings in a book to be kept for that purpose. He or she shall record in a book to be kept for that purpose the names of all Members of the Association together with their addresses as registered by such Members.

Section 6. The Treasurer shall receive and deposit in appropriate corporate bank accounts all monies of the Association and shall disburse such funds as directed by resolution of the Board of Directors. The Treasurer shall sign all notes and checks of the Association, provided that such notes shall also be signed by the President.

Section 7. The Treasurer shall keep proper books of account of all financial transactions of the Association. He or she shall prepare an annual budget and an annual balance sheet and operating statement and shall present the same to the membership at its regular annual meeting.

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Section 8. The Board of Directors, at its discretion, may appoint such other officers or agents as it may deem advisable, and prescribe the powers and duties thereof.

ARTICLE XI

Meetings of Members

Section 1. The regular annual meeting of the Members shall be held on the second Saturday of September at Seven O'clock (7:00) in the P.M., Eastern Daylight Time, in Portland, Maine.

Section 2. Special meetings of the Members for any purpose may be called at any time by the President, the Secretary or the Treasurer, or by the Board of Directors, or upon written request of the Members who have a right to vote one-fourth (1/4) of all of the votes of the entire membership.

Section 3. Notice of all meetings shall be given to the Members by the Secretary. Notice may be given to each Member either personally, or by sending a copy of the notice through the mail, postage thereon fully prepaid, to the address appearing on the books of the Association. The Association may also authorize the use of e-mail for the giving of notice. Each Member shall register his or her address with the Secretary, and notices of meetings shall be mailed to him or her at such address. Notice of any regular or special meeting shall be mailed at least six (6) days in advance of the meeting and shall set forth the nature of the business to be transacted.

Section 4. Unless specific provision is made in these Bylaws for a different assent of the voting Members as a whole or by class, all matters coming before the membership at the annual meeting or at special meetings shall be carried by the assent of a majority of the votes of all voting Members who are voting in person or by proxy.

Section 5. Unless specific provision is made in these Bylaws for a different quorum on special matters of the membership as a whole or by class, the presence at any meeting of Members entitled to cast, or of proxies entitled to cast, in the aggregate one-third (1/3) of the total votes of the membership shall constitute a quorum for any action governed by these Bylaws.

Section 6. The act of the majority of Members present at any legal meeting at which a quorum is present shall constitute an act of the Association.

ARTICLE XII

Proxies

Section 1. At all meetings of members, each Member may vote in person or by proxy.

Section 2. All proxies shall be in writing and filed with the Secretary. No proxy shall extend beyond a period of eleven (11) months, and every proxy shall automatically cease upon any Member ceasing to be the Owner of a lot.

ARTICLE XIII

Insurance and Related Matters

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The Board of Directors of the Association may, but need not, obtain comprehensive public liability insurance in such amounts as it shall deem desirable, insuring each lot, the Association and Board of Directors, or any of them, from liability in connection with the Common Areas. Each Owner, at his or her own cost, shall be responsible for his insurance on the lot and additions and improvements thereto and decorations and furnishings, personal property therein and stored elsewhere on the property, and personal liability to the extent not covered by the liability insurance provided by the Association.

ARTICLE XIV

Books and Paper

Section 1. The books, records and papers of the Association shall at all times, during reasonable business hours, be open to the inspection of any Member.

ARTICLE XV

Corporate Seal

Section 1. The Association need not have a seal.

ARTICLE XVI

Amendments

Section 1. These Bylaws may be amended, at a regular or special meeting of the Members, by a vote of a majority of the Members, provided that those provisions of these Bylaws which are governed by the Articles of Incorporation of this Association may not be amended except as provided in the Articles of Incorporation or applicable law. Further, these Bylaws shall not be amended in a way that conflicts with the said Declaration, as the same may be amended from time to time, and in the event of any conflict between these Bylaws, the Articles of Incorporation, and the Declaration, the terms of the Declaration shall control.

Section 2. In the case of any conflict between the Articles of Incorporation and these Bylaws, the Articles of Incorporation shall control.

Dated: _____

STROUDWATER DEVELOPMENT PARTNERS, LLC

By:_____
(Print) _____
Its Manager

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After Recording Return To:
Jason G. Howe, Esq.
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

Space Above This Line For Recording Data

DECLARATION OF CONDOMINIUM

STROUDWATER PRESERVE CONDOMINIUM

This Declaration is filed pursuant to the Maine Condominium Act (the "Act") Title 33, Chapter 31, M.R.S.A. (Section 1601-101, et. Seq.), which statute is incorporated herein by reference, by **STROUDWATER DEVELOPMENT PARTNERS, LLC**, a Maine limited liability company, having a mailing address of 62 Portland Road, Suite 25, Kennebunk, Maine 04043 ("Declarant"), as the owner in fee simple of the real estate described herein.

ARTICLE I
CREATION OF CONDOMINIUM

1. The Declarant hereby submits to the provisions of the Act the real estate situated at or about 1700 & 1714 Westbrook Street, Portland, Maine, hereinafter described in Schedule A attached hereto and made a part hereof (the "Property"). For general reference only, the Premises described in Exhibit A is also generally shown as "Phase II" on a certain "Site Plan Stroudwater Preserve" by Acorn Engineering, Inc. The Property is subject to and shall have the benefit of all easements, rights of way and matters affecting title described or referred to in **Exhibit A** or in the surveys and/or plans to which reference is hereafter made.

2. The Premises subject to this Declaration of Condominium are specific to that property shown on the condominium plan (the "Plat") prepared by Acorn Engineering, Inc. entitled "_____" and the Units and Limited Common Elements, if any, are shown on the Condominium Plans ("Plans") attached thereto, which Plat and Plans are recorded herewith in the Cumberland County Registry of Deeds in **Condominium File _____** (at times referred to herein collectively as "Plans").

3. The Premises are subject to and/or benefitted by:

a.) All of the rights, conditions, easements, covenants, restrictions and reservations contained in and created by this Declaration and the By Laws of the Association, or depicted or described on the Plats and Plans, including, without limitation, the Reserved Declarant Rights.

b.) All matters set forth appearing of record at the Cumberland County Registry of Deeds as applicable to this Condominium.

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c.) The Maine Condominium Act.

4. The name of the Condominium shall be the "Stroudwater Preserve Condominium". The unit owners' association shall be known as "Stroudwater Preserve Condominium Association" (the "Association"). The terms used in the Declaration or the Bylaws of the Association (the "Bylaws") or in the Plat and the Plan shall generally have the meanings specified in the Condominium Act except as otherwise defined herein. To the extent any conflict exists, the terms and definitions set forth in this Declaration shall control.

5. Declarant hereby creates _____ (____) units in total, whereby each unit shall be as shown on the Plats and Plans.

6. Each present and future owner, tenant, occupant and mortgagee of a Unit shall be subject to and shall comply with the provisions of the Act, and with the covenants, conditions and restrictions as set forth in the Condominium Documents of the deed to such Unit; provided that nothing contained herein shall impose upon any tenant or Eligible Mortgage Holder of a Unit any obligation which the Act or one or more of such documents, or both, make applicable only to Unit Owners (including, without limitation, the obligation to pay assessments for Common Expenses). The acceptance of a deed or mortgage to any Unit, or the entering into of a lease or the entering into occupancy of any Unit shall constitute an agreement that the provisions of the Act and the covenants, conditions and restrictions set forth in the Condominium Documents and the deed to such Unit are accepted and ratified by such grantee, mortgagee or tenant. All of such provisions shall be covenants running with the land and shall bind any person having at any time any interest or estate in such Unit, as though such provisions were recited and stipulated at length in each and every deed, conveyance, mortgage or lease thereof.

7. The Condominium shall be administered by the Association in accordance with the Condominium Documents, the Act, and the By-Laws for the Association which are incorporated herein by reference. The Association shall be operated by and through its Board of Directors (which may be variously called the "Executive Board" or "Board of Directors").

ARTICLE II
DEFINITIONS

The terms hereinafter defined shall have the meanings as hereinafter set forth. Any term not defined herein shall have the meaning accorded it by the Act.

1. "Allocated Interests" means the undivided interests in the Common Elements, the Common Expenses Liability and votes in the Association allocated to each Unit.

2. "Association" or "Unit Owners Association" means the Unit Owners Association of Stroudwater Preserve Condominium which is known as "Stroudwater Preserve Condominium Association", but may be designated by a different name at the option of the Declarant (if within the Declarant Control Period), or the Board of Directors.

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3. "Building" means any permanent structure used or occupied now or hereafter constructed on the Property.

4. "By-Laws" or "ByLaws" means the document having that name and providing for the governance of the Association, pursuant to the Act, as such document may be amended from time to time.

5. "Common Elements" means all portions of the Condominium other than the Units, or in some cases, other than the Limited Common Elements, all as shown on the Plat and Plans.

6. "Common Expenses" means expenditures made by or financial liabilities of the Association together with any allocations to reserves.

7. "Common Expense Liability" means liability for Common Expenses allocated to each Unit pursuant to Section 1602-107 of the Act.

8. "Condominium" means Stroudwater Preserve Condominium, as the same is created and by this Declaration, the By-Laws and the rules and regulations developed thereunder.

9. "Condominium Documents" includes the Declaration, Plat, Plan, By-Laws and Rules and Regulations.

10. "Declarant" means Stroudwater Development Partners, LLC, a Maine limited liability company.

11. "Declarant Control Period" means a period ending on the earlier of: (a) the date which is seven years after the date of the first conveyance of a unit to a person other than a declarant (or successor declarant), or; (b) the date which is 60 days after conveyance of 75% of the units to unit owners (other than a successor Declarant), all as set forth in 1603-103(d) of the Act.

12. "Development Rights" means those rights set forth in 1602-105(8) of the Act.

13. "Eligible Mortgage Holder" means the holder of a recorded first mortgage on a Unit which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefor, which notice shall state the mortgagee's name and address, the Unit owner's name and address, and the identifying number of the Unit, and shall state that the mortgage is a recorded first mortgage.

14. "Executive Board" (which may be called the "Board of Directors") means the body designated in the By-Laws to act on behalf of the Association.

15. "Limited Common Elements" means those portions of the Common Elements allocated by the Declaration and the Act for the exclusive use of one of the Condominium Units, or to more than one, but fewer than all, Condominium Units. Limited Common Elements are as

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shown on the Plat and Plans or as described herein or by the Act, if any.

16. "Percentage Interest" means the undivided interest in the Common Elements appurtenant to a Unit, as set forth on **Exhibit B** attached hereto.

17. "Regular Assessment" means the Unit Owner's share of the anticipated Common Expenses, allocated by Unit, for the Association's fiscal year as reflected in the budget adopted by the Executive Board for such year.

18. "Rules and Regulations" means such rules and regulations as adopted by the Association or the Executive Board from time to time with respect to the use of all or any portion of the Property.

19. "Special Assessment" means a Unit Owner's share of any assessment made by the Executive Board in addition to the Regular Assessment.

20. "Special or Reserved Declarant Rights" means those rights set forth in 1601-103(25) of the Act.

21. "Unit" or "Condominium Unit" means a physical portion of the Condominium described herein and in the Plans designated for separate ownership or occupancy.

22. "Unit Owner" means the person, entity or trust who owns a Unit.

ARTICLE III
DESCRIPTION OF CONDOMINIUM

The Plat and Plans show the layout, location, Unit numbers and dimensions of Units of the Condominium, and the Plat and Plans are supplemented by this Declaration and the Act for the defining and creation of boundaries and elements of the Condominium and Units. Each Unit shall consist of an area which is roughly _____ Sq/Ft, more or less, consisting on two floors, and all fixtures, finishes, and other building material as further described herein. There shall be two Units per Building, and two Buildings on the property, for a total of four units. All buildings are of wood frame and masonry construction and consist of masonry, wood, metal glass and other manmade and natural products. Acceptance of a deed to a Unit shall constitute a waiver of minor discrepancies in the Plat and Plans, if any, and the Condominium.

ARTICLE IV
ALLOCATION OF COMMON ELEMENT INTERESTS AND BOUNDARIES, VOTE AND UNIT BOUNDARIES

1. Percentage Interest. Each Unit in the Condominium is allocated an undivided interests in the Common Elements and in the Common Expenses of the Association equal to the Percentage Interest set forth in Exhibit B.

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2. Vote. During the Declarant Control Period, the Declarant shall be entitled to cast all votes of the Condominium Units. Thereafter, votes shall be allocated in accordance with the respective percentage common element interests.

3. Unit Boundaries. "Unit" means a physical portion of the condominium consisting of the area encompassed by the footprint of each building at the Finished Floor Elevation as shown on the Plan. The "Finished Floor Elevation" shall be the elevation of the lowest finished floor depicted on the Plan as the Footprint. The "Vertical Boundary" shall be the vertical plane formed by extending the perimeter of the Footprint of the Unit, including steps or decks upwards to the intersection of the Upper Horizontal Boundary and downwards to the intersection with the Lower Horizontal Boundary. The "Lower Horizontal Boundary" shall be a plane even with the Unfinished Floor Elevation such that a right (90°) angle is formed with the Footprint of the Vertical Boundary. The "Upper Horizontal Boundary" shall be a horizontal plane or planes located just below the rafters and roof of the building in which the Unit is located. For the avoidance of doubt, the Unit shall be "slab up," "studs-in," and "roof/joist down," such that all finished surfaces, including flooring, sheetrock, ceiling coatings, and the like, are within the Unit.

4. All perimeter doors and windows, and all wallboard, finished wall coverings, paint, finished flooring and any other materials constituting any part of the finished surfaces of the walls and ceilings are part of said Unit. All space, stairways, interior partitions and other fixtures and improvements within the boundaries of a Unit shall be deemed to be part of that Unit. If any chute, flute, ducts, wire conduit, bearing wall, bearing column, stairway, or any other fixture lies partially within and partially outside the designated boundaries of a Unit, any portion thereof serving only that Unit is a limited common element allocated solely to that Unit, and any portion thereof serving more than one Unit or any portion of the common elements is a part of the common elements.

5. Each Unit Owner shall be responsible for the maintenance, repair and replacement of all portions of his Unit, and any Limited Common Element allocable thereto, including the decks, patios, and all expenses associated therewith shall be paid by the individual Unit Owner – or in the case of Limited Common Elements benefitting fewer than all Units, by the Units benefitted thereby, and shall not be a Common Expense. If any Unit Owner fails to properly maintain a Unit, or any Limited Common Element allocable thereto, the association shall have the right to repair or maintain said Unit and the cost thereof shall be assessed against the Unit Owner.

6. The provisions of Section 1602-112 of the Act shall govern relocation of boundaries between any two Units. The subdivision of a Unit into two or more units is prohibited.

ARTICLE V
COMMON ELEMENTS AND LIMITED COMMON ELEMENTS

1. Common Elements**.** Common Elements shall mean those portions defined as such pursuant to §1602-102(1) of the Act, except as provided otherwise herein, or as identified and

designated as Common Elements on the Plats and Plans. Each Unit will be conveyed together with its respective undivided interest in the Common Elements, if any, as shown on the Plat and the Plan and as hereinafter set forth and will have the benefit of the right to use the Common Elements in common with others entitled thereto as provided by the bylaws (the "Bylaws") adopted by the Association and any rules and regulations which may be adopted by the Association.

a. The Common Elements consist of all portions of the Property, other than the Units and generally consist of the land, the grounds, any other utility lines running through a Unit which serve more than one Unit, the Common Elements or another Unit.

b. Each Unit and the Common Elements shall have an easement for encroachments established under Section 1602-114 of the Act.

c. Common Elements shall also include those parts of the Property described in the Act or the Plat and the Plan as being Common Elements. Common Elements shall include, but not be limited to, Limited Common Elements – it being understood that Article IV may allocate certain payment responsibilities to a particular Unit or Units.

d. All roads, sidewalks, general parking areas not allocated to a certain Unit as a Limited Common Element thereto, and all areas not otherwise allocated as a part of the Unit or a Limited Common Element are part of the Common Elements.

e. The water, sewer, Stormwater runoff, water treatment, water pump stations are Common Elements.

f. All other utilities, and all conduits, piping, or other means of conveyance therefor or containment thereof, which benefit all of the Units are Common Elements.

g. The Association shall be responsible to include all costs and expenses of the repair, maintenance, and replacement of the Common Elements in the Condominium Budget.

2. Limited Common Elements. Generally all portions of the Common Elements appurtenant to each Unit are allocated to each Unit in accordance with the boundaries as set forth in the Plat and the Plan. All porches, water, sewer or other utility lines, water heaters, electrical circuit breaker boxes, and other fixtures designed to serve a single Unit but not a defined part of the Unit are Limited Common Elements allocated exclusively to that Unit. Limited Common Elements shall also include those parts of the Property described in the Act or the Plat and the Plan as being Limited Common Elements.

Each Unit owner shall have the exclusive use of the Limited Common Elements appurtenant to his or her Unit and shall be solely responsible for all maintenance, repair and upkeep thereof in good condition and repair so as to maintain an appearance consistent with the appearance of the Units and other Common Elements. A Unit owner shall have no maintenance responsibility with respect to the Limited Common Elements appurtenant to another Unit.

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The Association shall not be liable for the maintenance, repair or upkeep of any Unit or the Limited Common Elements. The Association may act on behalf of the Unit Owners in arranging for the maintenance and repair of the Units and Limited Common Elements if the Owners so elect.

ARTICLE VI
EASEMENTS, RIGHTS AND RESERVATIONS

1. Utilities, Pipes and Conduits. Each Unit Owner shall have the right in common with the other Unit Owner to use all pipes, wires, well, well shaft, septic leach fields, ducts, cables, conduits, public utility lines, septic system, and other Common Elements serving his Unit and located in the other Unit or in the Common Elements or Limited Common Elements. Each Unit shall be subject to the rights in favor of the Unit Owner to use the pipes, well and well shafts, ducts, septic lines, cables, wires, conduits, public utility lines and other Common Elements located in such Unit serving the other Unit. The Association shall have the right to grant to third parties such utility easements as shall be deemed reasonable by the Association in connection with the supply of utility services to the Units and/or the Common Elements.

2. Ingress and Egress. Each Unit Owner shall have a means of ingress to and egress from the Premises, the Common Elements and the adjoining public street. Each Unit Owner shall have the exclusive use of the driveway appurtenant to his Unit, and the driveway appurtenant to each Unit shall be considered a part of each Unit as depicted on the Plat and Plan. The Executive Board shall not establish any rule or regulation depriving any Unit owner of reasonable ingress to and egress from his Unit, the Premises, Common Elements and Limited Common Elements, and the adjoining roadways are not a part of the Condominium, but Unit owners shall have a non-exclusive easement over, under, and on it for ingress, egress and utilities.

3. Condominium Association and Executive Board Access**.** Declarant reserves in favor of itself during the Declarant Control Period, and thereafter, for the Association, Executive Board and its officers, agents, employees, and the managing agent (if any) and every other person authorized by the Executive Board the irrevocable right and easement to have access to each Unit as may be necessary for the inspection, maintenance, repair or replacement of any of the Common Elements, if any, and Limited Common Elements therein or accessible therefrom or the making of any addition or improvements thereto; or the making of repairs to any Unit, the Common Elements or the Limited Common Elements if such repairs are reasonably necessary for public safety or to prevent damage to the Unit, the Common Elements or the Limited Common Elements; or the abating of any violation of law, orders, rules or regulations of the Association or of any governmental authority having jurisdiction thereof. In case of any emergency, such right of entry shall be immediate whether or not the Unit Owner is present at the time. The Declarant, during the period of Declarant Control and the Association thereafter shall have the right to grant permits, licenses and easements over and through the Common Elements for utilities, and other purposes reasonably necessary or useful for the proper maintenance and operation of the Condominium.

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4. Encroachments**.** Each Unit shall have an easement to the extent necessary for structural support over any other Unit and the Common Elements, if any, and Limited Common Elements, if any. Each Unit, the Common Elements and the Limited Common Elements shall be subject to an easement for structural and lateral support to the extent necessary in favor of any other Unit. If any portion of the Common Elements or Limited Common Elements hereafter encroaches upon any Unit, or if any Unit hereafter encroaches upon any other Unit or upon any portion of the Common Elements or Limited Common Elements, as a result of settling or shifting of the buildings or other than as a result of the purposeful or negligent act or omission of the Owner of the encroaching Unit, or of the Association in the case of encroachments by the Common Elements or Limited Common Elements, a valid easement appurtenant to the encroaching Unit, Common Element or Limited Common Element for the encroachment and for the maintenance of the same shall exist for so long as the encroachment shall exist. In the event that a Unit is partially destroyed as a result of fire or other casualty, there shall exist, if and when that Unit is rebuilt, over portions of the Common Elements, Limited Common Elements, or upon any other Unit, such easements as are reasonably necessary in order to rebuild said damaged Unit.

5. Common Element Easement in Favor of Unit Owners**.** All Common Elements and Limited Common Elements shall be and are hereby made subject to the following easements in favor of the Units benefited; provided that the installation, repair, maintenance, use, removal or replacement of any such item does not unreasonably interfere with the use of any part of the Common Elements, adversely affect either the thermal or acoustical character of the building or impair or structurally weaken the Unit:

a. For the installation, repair, maintenance, use, removal and/or replacement of pipes, ducts, heating systems, electrical, telephone and other communication wiring and cables and all other utility lines and conduits which are a part of or serve any Unit and which pass across or through a portion of the Common Elements.

b. For the installation, repair, maintenance, use, removal and/or replacement of lighting fixtures, electrical receptacles, panel boards and other electrical installations which are a part of or serve any Unit but which encroach into a part of any Common Elements adjacent to such Unit.

7. Declarant's Reserved Rights. _____TBD_____
_____.

ARTICLE VII
USE AND OCCUPANCY OF UNITS AND COMMON ELEMENTS - RESTRICTIONS THEREOF.

1. Each Unit shall be used for single-family residential purposes and are restricted to residential use, including residential activities engaged in by Unit owners, members of the Unit owners' immediate family, and the guests and other authorized occupants, licensees and visitors of the Unit owners. Notwithstanding the foregoing, a Unit Owner my use a Residential Unit for

the purpose of a home office, provided, that any such use complies with all applicable state and local laws and ordinances, that such use is consistent with the Condominium Documents.

2. Condominium Units may not be further subdivided or combined by sale, lease, or otherwise.

3. The following covenants and restrictions apply to the Units, Limited Common Elements, and Common Elements, if any, so long as they comply with the regulatory constraints set forth above:

a. No Unit Owner shall permit or suffer anything to be done or kept on the Condominium which will increase the rate of insurance on the Condominium or on the contents thereof.

b. No Unit Owner shall obstruct or interfere with the rights of other occupants or annoy them by unreasonable noise or otherwise.

c. No Unit Owner shall commit or permit any nuisance or commit or suffer an immoral or illegal act to be committed anywhere in or upon the Condominium.

d. No Unit Owner shall cause or permit any noxious odors to emanate from any portion of the Condominium.

e. No Unit Owner shall use the Common Elements or Limited Common elements for any activity that would obstruct or deter ingress and egress by other Unit Owners of guests, customers, invitees or patrons.

f. No trash, rubbish or other offensive or materials degrading in appearance shall be allowed to exist on the Units, Limited Common Areas or Common Areas.

g. No fires or other open flames shall be permitted on the Units or Limited Common Elements (including Decks). Gas Grills may be used by the Unit Owners for outside cooking on the decks, but no open fires, including charcoal grills may be used.

h. No Unit Owner shall interfere with any easement right to which the Condominium, or the Association, is subject, including, without limitation, any public access easement or open space easement encumbering any portion of the Property.

4. Without limitation, the Association shall be responsible for providing the following services, the expenditures for which shall be a Common Expense:

a. Removal of snow from the shared driveway, sidewalks, and all exterior parking spaces;

b. Maintenance and repair of all Common Elements, including landscaping, as needed. ;

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c. Collection and removal of refuse and rubbish from the Condominium, including, at the discretion of the Declarant (during the Declarant Control Period), or of the Association thereafter, placement of waste receptacles and/or dumpsters within the Common Elements; and

d. Water service, electricity and sewer service to the extent not separately assessed.

e. Annual premium for the Master Condominium Insurance Policy.

f. Shared cost of water and sewer charges, all pump stations, all rainwater or runoff management devices or structures.

The Unit Owners may agree by majority vote at the Annual Meeting to take care of these services individually, as the same relate to certain Limited Common Elements, by mutual consent in which case there shall be no common fee charge for the same.

5. No Unit Owner may alter the exterior appearance of the Unit or Limited Common Elements, the Common Elements (including without limitation any fire rated barrier or structural support) or any other portion of the Premises located outside a Unit without the prior written consent of the Declarant (during the Declarant Control Period), or thereafter, of Board of Directors.

6. Reasonable rules and regulations, not in conflict with the provisions of this Declaration and the By-Laws of the Association, concerning the use and enjoyment of the Property, may be promulgated from time to time by the Association or the Executive Board. In the event of any conflict between the Rules, By-Laws, and Declaration, the Declaration shall control, followed by the Bylaws, in order of priority.

ARTICLE VIII
BUDGET, COMMON EXPENSES, ASSESSMENTS AND ENFORCEMENT

1. Budget Ratification Vote**.** During the Declarant Control Period, the Declarant shall set the Budget. After the Declarant Control Period, the Executive Board of the Condominium Association shall propose a budget for the Condominium, which budget shall be submitted to the Association members for ratification. At the budget ratification meeting, all Unit Owners must approve the proposed budget, in which case, it shall be adopted.

2. Regular Assessments. All Common Expense assessments made in order to meet the requirements of the Association's annual budget shall be deemed to be adopted and assessed on an annual basis payable in equal monthly installments and shall be due and payable in advance on the first day of each calendar month.

3. Other Assessments. In addition to the annual budget, or as part thereof, the

Association has full authority to propose a reserve fund of working capital, and to make special assessments. Any special assessment or establishment of a reserve fund need not be submitted to the members of the Association for approval, but rather need only be approved by the Executive Board. These funds and assessments shall be due and payable as and when the Executive Board of the Association determines.

4. Fines. The Board of the Association shall have the authority to impose fines for violation of the Declaration, By-Laws or Rules and Regulations.

5. Interest/Cost of Collection. Any assessment or duly imposed fine not paid within ten (10) days of the due date shall bear interest at a rate established by the Association which shall not exceed eighteen percent (18%). The Unit Owner shall be obligated to pay all costs of collection of assessments, fines and interest, including reasonable attorney's fees.

6. Lien. All unpaid assessments, fines, costs of collection and interest shall constitute a lien on the Unit/Unit Owner against which such assessment and levy is made which lien may be enforced in accordance with the Maine Condominium Act.

7. Subordination of Certain Charges. Any fees, charges, late charges, fines and interest which may be levied by the Executive Board pursuant to the Act, shall be subordinate to the lien of a first mortgage recorded before or after the date on which the assessment sought to be enforced becomes delinquent. The foreclosure of such mortgages shall extinguish a subordinate lien for common charges. The entire unpaid share of the common expenses or assessments by the Association chargeable to such Unit, that become due prior to the foreclosure, shall become common expenses collectible from all owners of a Unit. Such foreclosure shall not release the delinquent Unit owners from personal liability to the Association for unpaid common expenses.

8. Surplus. Any surplus funds of the Association remaining after payment of, or provision for Common Expenses, including provisions for a working capital fund and/or reserve fund, shall be held by the Association and placed into the capital fund and/or reserve fund.

9. Separate Taxation. It is understood that real estate taxes are to be separately taxed to each Unit Owner for his Unit and his corresponding percentage of ownership in the common elements, as provided in the Act.

10. Utilities. Each Unit Owner shall pay for his or her own telephone, electricity and other utilities which are separately metered or billed to each user by the respective utility company. Utilities which are not separately metered or billed shall be treated as part of the common expenses. Notwithstanding the foregoing, the Unit Owners may agree to pay all charges and assessments pertaining to their respective Units directly, and not implement an annual budget for the Association or charge and assess Common Expenses.

ARTICLE IX
RIGHTS OF ELIGIBLE MORTGAGE HOLDERS

1. An "Eligible Mortgage Holder" means the holder of a recorded first mortgage on a

Unit which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefor, which notice shall state the mortgagee's name and address, the Unit Owner's name and address, and the identifying number of the Unit, and shall state that the mortgage is a recorded first mortgage.

2. The Association shall send reasonable prior written notice by prepaid United States mail to Eligible Mortgage Holders of the consideration by the Association of the following circumstances or proposed actions:

a. Any condemnation loss or any casualty loss which affects a material portion of the Condominium or any Unit on which there is a first mortgage held, insured or guaranteed by such Eligible Mortgage Holder.

b. Any delinquency in the payment of assessments for Common Expenses or any other charges owed by an Owner of that Unit, or any other default in the performance or payment by such Unit Owner of any obligation under this Declaration, the By-Laws or any Rules and Regulations of the Association, which delinquency or other default continues for a period of sixty (60) days.

c. Any lapse, cancellation or material modification of any insurance policy or fidelity bond maintained by the Association.

d. The proposed use of any proceeds of property insurance required to be obtained and maintained by the Association pursuant to the By-Laws for purposes other than repair, replacement and restoration of the Condominium substantially in accordance with this Declaration, the By-Laws, the Plat and Plans and original elevations thereof, and original building plans and specification.

e. The adoption by the Executive Board of any proposed budget, and the date of the meeting of Unit Owners scheduled to consider ratification of such proposed budget, and a summary of such proposed budget.

f. Any proposed action which under the Act would require the consent of a specified percentage of Eligible Mortgage Holders.

g. The termination of the Condominium.

h. A change in the Allocated Interests appurtenant to any Unit or a change in the boundaries of a Unit.

i. The merger or consolidation of the Condominium with another Condominium.

j. The conveyance or subjection to a security interest of any portion of the Common Elements.

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3. In the event of any proposed actions described in this Article IX, Subsection 2, paragraphs (d), (g), (h), (i), or (j), any Eligible Mortgage Holder shall have the right but not the obligation in place of the Unit Owner to cast the votes allocated to that Unit or give or withhold any consent required of the Unit Owner for such action by delivering written notice to the Association with a copy to the Unit Owner prior to or at the time of the taking of the proposed action, which notice shall be sent by certified or registered prepaid United States mail, return receipt requested, or by delivery in hand. Failure of the Eligible Mortgage Holder to so exercise such rights within thirty (30) days from receipt of any such notice shall constitute a waiver thereof and shall not preclude the Unit Owner from exercising such right. In the event of any default described in Article IX Subsection 2. (b) above, the Eligible Mortgage Holder shall have the right but not the obligation to cure such default. In addition, an eligible Mortgage Holder, or its representative, shall have the right to attend Association and Executive Board meetings for the purposes of discussing the matters described in Article IX 2., (d), (e) and (g) through (j).

Failure to comply with the requirements set forth above shall in no way invalidate otherwise proper actions of the Association and the Executive Board.

ARTICLE X
ASSOCIATION/EXECUTIVE BOARD

1. The Association shall be the governing body for the Unit owners with respect to the administration of the Property as provided by the Act, this Declaration and the Bylaws. The Association shall elect officers as provided in the Bylaws.

2. Each Unit owner and/or owners shall be a member of the Association. Membership shall be appurtenant to the Units, and the transfer of title to a Unit shall automatically transfer the regular membership appurtenant to that Unit to the transferee or transferees. A transfer pursuant to a mortgage, however, shall not transfer membership until foreclosure is final and all redemption periods are passed, or a transfer to a mortgagee in lieu of foreclosure.

3. The provisions of this Declaration and the Bylaws and the rights and obligations established thereby shall be deemed to be covenants, running with the land, so long as the Property remains subject to the provisions of the Act and shall inure to the benefit of and be binding upon each and all of the Unit owners and their respective heirs, representatives, successors, assigns, purchasers, lessees, grantees and mortgagees. By the recording or the acceptance of a deed conveying a Unit or any interest therein, or any ownership interest in the Property whatsoever, the person to whom such Unit or interest is conveyed shall be deemed to accept and agree to be bound by and subject to all of the provisions of the Act, this Declaration, and the Bylaws.

4. In any voluntary conveyance of a Unit, it shall be the duty of the seller to furnish the buyer with a copy of this Declaration, the Association Bylaws and rules and regulations as they may from time to time be amended. The Declarant or the Association shall make available to Unit owners, prospective purchasers, lenders and the holders, insurers and guarantors of the first mortgage on any Unit, current copies of the Declaration, Bylaws and other rules and

regulations governing the Condominium, and other books, records and financial statements of the Association. This requirement may be satisfied by making the documents available for inspection upon request during normal business hours or under other reasonable circumstances. If copies are requested, the Declarant or Association may, but shall not be obligated to, make them available at a reasonable charge.

5. During Declarant Control Period, the initial Executive Board of the Association shall consist of three (3) members to be appointed by the Declarant. The members so appointed may be removed and replaced from time to time by Declarant at Declarant's sole discretion. No later than the earlier of (i) sixty (60) days after the conveyance of seventy percent (70%) of the Units to third-party purchasers for value, or (ii) seven (7) years from the date the first Unit is sold to a good faith purchaser for value (and not to a successor Declarant), the Unit Owners shall elect an Executive Board consisting of not fewer than three (3), but no more than seven (7) members with each member being a Unit Owner, or, if the Unit Owner is a trust, LLC, Partnership, Corporation, or the like, then an individual having a beneficial interest in an entity, trust, or the like of the Unit Owner.

6. The Executive Board shall possess all of the duties and powers granted to the Executive Board by the Act, including the right to may make reasonable rules and regulations regarding the Units and all other elements of the Condominium.

7. Limited Liability of the Executive Board. The members of the Executive Board:

a. Shall not be liable for any injury or damage to persons or property caused by the natural elements or by another Unit Owner or person on the Premises, or resulting from electricity, gas, water, rain, dust or sand which may leak or flow from the outside or from any part of the Units, or from any of its pipes, drains, conduits, appliances, or equipment, or from any other place unless in each such instance such injury or damage has been caused by the Executive Board members' willful misconduct or gross negligence;

b. Shall not be liable to the Unit Owners as a result of the performance of the Executive Board members' duties, for any mistake of judgment, negligent or otherwise, except for the Executive Board members' own willful misconduct or gross negligence;

c. Shall have no personal liability in contract to a Unit Owner or any other person or entity under any agreement, check, contract, deed, lease, mortgage, instrument or transaction entered into by them on behalf of the Executive Board or the Association in the performance of the Executive Board members' duties;

d. Shall not be liable to a Unit Owner, or such Unit Owner's tenants, employees, agents, customers or guests, for loss or damage caused by theft of or damage to personal property left by such Unit Owner or his tenants, employees, agents, customers or guests in a Unit, or in or on the Common Elements or Limited Common Elements, except for the Executive Board members' own willful misconduct or gross negligence;

e. Shall have no personal liability in tort to a Unit Owner or any other person or entity, direct or imputed, by virtue of acts performed by or for them, except for the Executive Board members' own willful misconduct or gross negligence in the performance of their duties; and

f. Shall have no personal liability arising out of the use, misuse or condition of the premises, or which might in any other way be assessed against or imputed to the Executive Board members as a result of or by virtue of their performance of their duties, except for the Executive Board members' own willful misconduct or gross negligence.

8. Indemnification. Each member of the Executive Board, in his or her capacity as an Executive Board member, officer or both, shall be indemnified by the Association against all expenses and liabilities, including attorneys' fees, reasonably incurred by or imposed upon him or her in connection with any proceeding in which he may become involved by reason of his being or having been a member and/or officer of the Executive Board, or any settlement of any such proceeding, whether or not he is an Executive Board member, officer or both at the time such expenses are incurred, except in such cases wherein such Executive Board member and/or officer is adjudged guilty of willful misconduct or gross negligence in the performance of his duties; provided that, in the event of a settlement, this indemnification shall apply only if and when the Executive Board (with the affected member abstaining if he is then an Executive Board member) approves such settlement and reimbursement as being in the best interests of the Association; and provided further that indemnification hereunder with respect to any criminal action or proceeding is permitted only if such Executive Board member and/or officer had no reasonable cause to believe his conduct was unlawful. The indemnification by the Unit Owners set forth in this Article shall be paid by the Association on behalf of the Unit Owners and shall constitute a Common Expense and shall be assessed and collectible as such. Such right of indemnification shall not be deemed exclusive of any other rights to which such Executive Board members and/or officer may be entitled as a matter of law or agreement or by vote of the Unit Owners or otherwise.

9. Defense of Claims. Complaints brought against the Association, the Executive Board or the officers, employees or agents thereof in their respective capacities as such, or the Condominium as a whole, shall be directed to the Executive Board of the Association, which shall promptly give written notice thereof to the Unit Owners and the holders of any mortgages on Units and such complaints shall be defended by the Association. The Unit Owners and the holders of mortgages on Units shall have no right to participate in such defense other than through the Association.

ARTICLE XI
INSURANCE COVERAGE

1. General Coverage. With respect to each Unit and the Common Elements, the Association shall maintain insurance against loss or damage by fire and such other hazards as are covered under Standard Extended Coverage Provisions and all other perils customarily covered for similar types of properties, including those covered by the standard "all risk" endorsement, for an amount sufficient to avoid the application of any co-insurance provision, and as may be

further specified by the Bylaws. The proceeds of such insurance shall be used for the reconstruction of the Units and Limited Common Elements or shall be otherwise disposed of in accordance with the provisions of this Declaration and the Act; and the policies shall contain the standard mortgage clause, provided, however, that the rights of the mortgagee of a Unit under any standard mortgage clause endorsement to such policies shall be subject to the provisions in the Act with respect to the application of insurance proceeds to the reconstruction of the Units. Each Unit owner shall indemnify and save harmless the Association from any liability, claim, loss, damage, expense, action or cause of action relating to or out of such owner's respective Unit and its appurtenant Limited Common Elements.

2. Power of Attorney. The Association is hereby irrevocably appointed as attorney-in-fact for each Unit Owner and for each lien holder or other lien upon a Unit and for each owner of any other interest in the Property for the purpose of purchasing and maintaining insurance *including:* the collection and appropriate disposition of the proceeds thereof; the negotiation of losses and execution of releases of liability; the execution of all documents; and the performance of all other acts necessary to accomplish such purpose.

3, Insurance Trustee. The Association shall, on behalf of the Association, act as Insurance Trustee. The duty as Insurance Trustee shall be to receive, hold or otherwise properly dispose of proceeds of insurance designated in the Insurance Trust Agreement in trust for Unit Owners and lien holders as their interests may appear.

4. Types and Amounts. Commencing not later than the time of the first *conveyance* of a Unit to a Person other than the Declarant, the Association shall, to the extent reasonably available, obtain and maintain the types and amounts of insurance set forth below. Except as otherwise provided, the premiums for all such insurance policies shall be a Common Expense.

If the insurance described below is not reasonably available, the Association shall cause notice of that fact to be hand delivered or sent pre-paid by United States mail to all Unit Owners, and the Association may carry any other insurance it deems appropriate to protect the Association or the Unit Owners.

The policies carried pursuant to Paragraphs 5 and 6 must provide that: (i) each Unit Owner is an insured person under the policy with respect to liability arising out of his interest in the Common Areas and Open Space; (ii) the insurer waives its right to subrogation under the policy against any Unit Owner; (iii) no act or omission by any Unit Owner, unless acting within the scope of his authority on behalf of the Association, will void the policy or be a condition to recovery under the policy; and (iv) if at the time of a loss under the policy there is other insurance in the name of a Unit Owner covering the same risk covered by the policy, the Association's policy provides primary coverage.

5. Hazard Insurance shall have an endorsement for extended coverage, or such other fire and casualty insurance as the Association may determine provides equal or greater protection for the Unit Owners and their mortgagees, insuring against all risks of direct physical loss and extended coverage perils. Such hazard insurance shall provide coverage of the Common Areas and Open Space, including fixtures and buildings service equipment and common personal

property and supplies belonging to the Association. Such insurance shall, if so required by the Federal National Mortgage Association and if and to the extent reasonably available, also cover fixtures, equipment and other personal property inside a Unit if such fixtures, equipment or personal property are financed by a mortgage purchased by the Federal National Mortgage Association. If such insurance is so provided, the Association shall require such Unit Owner to pay the additional cost incurred by the Association in so insuring such Unit Owner's fixtures, equipment or other personal property. Such hazard insurance shall insure against all risks of direct physical loss commonly insured against, including those covered by the standard "all risk" endorsement. If such hazard insurance no longer becomes available in the future, the Association shall obtain such comparable insurance as is then available. The amount of any such hazard insurance obtained pursuant to this Section shall be equal to the full insurable replacement value of the insured property, without deduction for depreciation (i.e., one hundred percent (100%) of current "replacement cost" exclusive of land, foundation, excavation and other items normally excluded from coverages, but including all Building service equipment), with an "agreed amount endorsement" or its equivalent, if available, or an "inflation guard endorsement", if available, and construction code endorsements, if applicable and to the extent required by the Federal National Mortgage Association. Notwithstanding the foregoing, in no event shall the aggregate amount of the insurance obtained be less than the amount of the initial principal sum of all Eligible Mortgages in effect from time to time.

a. Such hazard insurance shall afford protection against at least the following:

(i) loss or damage by fire and other perils normally covered by the standard extended coverage endorsement;

(ii) all other perils which are customarily covered with respect to projects similar in construction, location and use, including all perils normally covered by the standard "all risk" endorsement, where such is available;

(iii) such other risks as the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation may require by reason of their holding one or more Mortgages.

(iv) Such hazard insurance policy may, at the option of the Association, contain a "deductible" provision in an amount to be determined by the Association but not to exceed five thousand dollars ($5,000.00).

6. Comprehensive Liability Insurance policies shall contain:

a. provisions for medical payments insurance, insuring the Association; the Unit Owners, in their capacity as Unit Owners and Association members and any managing agent retained by the Association, against any liability to the public or to other Unit Owners, their tenants or invitees, for death, bodily injury and property damage relating in any way to the ownership, operation, maintenance and/or use of the Common Areas and Open Space, and any part thereof, and any other areas under the Association's supervision.

b. Limits of liability shall be at least One Million Dollars ($1,000,000.00) covering all claims for death, personal injury and/or property damage arising out of a single occurrence.

c. Coverage under this policy shall include legal liability arising out of lawsuits related to employment contracts of the Association.

7. Fidelity Bond Insurance. Coverage under this policy shall include loss of money or other property by dishonest or fraudulent acts of employees in an amount not less than the maximum funds in custody of the Association or management agent or sum equal to three month's assessments on all Units plus reserve funds, whichever is greater with Association named as obligee.

8. Other Insurance. The Association may carry any other insurance it deems appropriate to protect the Association or the Unit Owners; the premium of which shall be assessed as a Common Expense.

9. Required Provisions. Insurance obtained by the Association shall be in accordance with the following provisions:

a. All policies shall be written with a company licensed to do business in the State of Maine and, for the Hazard Insurance Policy, such company must hold a rating of Class VI or better by Best's Insurance Reports (or a rating of Class V, provided it has general policy holders rating of at least "A"), or by an equivalent rating bureau should Best's Insurance Reports cease to be issued.

b. Exclusive authority to adjust losses under policies hereafter in force on the Property shall be vested in the Association or its authorized representative.

c. With respect to the insurance policies issued to the Association and covering all or any part of the Property, the Association shall endeavor to cause such policies to provide that:

(i) the enforceability of such policies is not affected by any waiver of subrogation as to any and all claims against the Association, any managing agent, the Unit Owners and their respective tenants, employees, agents, customers and guests, such subrogation being hereby waived;

(ii) such policies cannot be canceled, invalidated or suspended by means of the conduct of any one or more Unit Owners, all defenses based upon co-insurance or acts of the insured being waived by the insurer, and in no event may cancellation, material modification invalidation or suspension for any reason be effected without at least ten (10) days' prior written notice to the Association, any Insurance Trustee, each Unit Owner and all holders of Mortgages whose names and addresses are on file with the insurer;

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(iii) such policies cannot be canceled, invalidated or suspended on account of the conduct of any officer or employee of the Association or of any managing agent without a prior demand in writing that the Association or any managing agent, as the case may be, cure the defect within a reasonable period of time;

(iv) any "no other insurance" clause in such policies shall not prohibit Unit Owners from obtaining insurance on their individual Unit provided such insurance policy conforms with the requirements of this Article.

(v) the name of the insured under each policy required pursuant to this Article shall be stated in form and substance substantially as follows: DAY ROAD CONDOMINIUM OWNERS ASSOCIATION, for the use and benefit of the individual owners, of the Units contained in the “Day Road Condominium". The policies may alternatively be issued in the name of an authorized representative of the Association, including any Insurance Trustee, or any successor to such Trustee, for the use and benefit of the individual owners.

(vi) loss payable under each policy required pursuant to this Article shall be in favor of the Association or the Insurance Trustee, as a trustee for each Unit Owner and each such owner's Mortgagees as their interests may appear. Policies shall contain the standard mortgage clause, or equivalent endorsement (without contribution) or shall otherwise be endorsed to fully protect all Mortgagees' Interests. If the Federal National Mortgage Association holds one or more Mortgages, the policies must name as mortgagee either the Federal National Mortgage Association or the servicers for the Mortgages it holds; such servicer's name shall be followed by the phrase "its successors and assigns."

(vii) coverage may not be prejudiced by: (1) any act or negligence of one or more Owners of Units when such act or neglect is not within the control of the Association; or (2) any failure of the Association to comply with any warranty or condition regarding any portion of the Property over which the Association has no control.

(viii) all policies of property insurance shall provide that, despite any provisions giving the insurer the right to elect to restore damage in lieu of a cash settlement, such options shall not be exercisable without the prior written approval of the Association.

(ix) insurance coverage obtained and maintained by the Association pursuant to the requirements of this Article may not be brought into contribution with insurance purchased by Unit Owners or their mortgagees.

(x) insurance coverage obtained and maintained by the Association pursuant to the requirements of this Article shall provide that no assessment may

be made against Mortgagees or may become a lien on the mortgaged Premises superior to the lien of any Mortgagees.

10. Each Unit Owner may obtain additional insurance at his own expense; provided, however, that: (i) such policies shall not be invalidated by the waivers of subrogation contained in the condominium documents; and (ii) no Unit Owner shall be entitled to exercise his right to maintain insurance coverage in such a way as to decrease the amount which the Association may realize under any insurance policy which the Association may have in force on the Property at any particular time.

11. The Association shall have the power to require all Unit Owners to carry such types of insurance on their Units as the Association may reasonably require, including, without limitation, insurance on all portions of the Unit.

ARTICLE XIII
EMINENT DOMAIN

If part of the Common Elements shall be taken or condemned by any authority having the power of eminent domain, the Association shall notify the Owners and Eligible Mortgage Holders of the Unit affected and shall represent the Unit Owners in any condemnation proceedings or in negotiations, settlements and agreements with the condemning authority, and the portion of the award attributable to the Common Elements taken shall be paid to the Association for the use and benefit of the Unit Owners and their Mortgagees as their interests may appear. The Association shall divide any portion of the award not used for any restoration or repair of the remaining Common Elements among the Unit Owners and their Mortgagees, as their interests may appear, in proportion to their Allocated Interests in the Common Elements prior to such taking or condemnation, but the portion of the award attributable to the acquisition of any Limited Common Element shall be equally divided among the Owners of the Units to which such Limited Common Element was allocated at the time of such taking or condemnation and their Mortgagees, as their interests may appear. Each Unit Owner appoints the Association as attorney-in-fact for the purposes described in this Section. Notwithstanding anything to the contrary in this Article, lien holders of any Unit, Common Element or Limited Common Element, shall have a lien on any such awards in order of priority of their respective liens.

ARTICLE XIV
AMENDMENT AND TERMINATION

Except to the extent expressly permitted or required by the Act and subject to provisions for the Commercial Units, above, this Declaration may be amended by a vote or by written approval of the Unit owners of Units to which at least seventy five percent (75%) of the votes in the association are allocated and written approval from eligible mortgage holders, as defined in the Act, representing at least seventy five percent (75%) of the votes allocated to Units that are subject to eligible first mortgages. The Condominium may not be terminated except by agreement of Unit Owners representing one hundred percent (100%) of the votes in the Association.

ARTICLE XV

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Dispute Resolution

Each Unit Owner shall be governed by, and shall comply with all of the terms of the Declaration, these Bylaws, the Rules and Regulations and the Act, as any of the same may be amended from time to time, and the Master Homeowners' Declaration.

1. Administrative Appeal and Hearing Procedure. No Unit Owner shall have the right to object, challenge, commence any suit at law or in equity or take any other action under any act, power or authority now in force or hereafter to be enacted except after following such procedures as are established in this Paragraph and as may be established by the Executive Board by rule or regulation consistent with the provisions of this Paragraph. The Executive Board shall hear appeals from Unit Owners from (a) the determinations by the Executive Board on alleged violations of the Condominium Documents (other than violations with respect to assessment obligations) and (b) the enactment of rules and regulations of the Association. The Executive Board shall hold a hearing on any such appeal within thirty (30) days after the receipt by the Executive Board of a formal notice of appeal from a Unit Owner. A decision shall be issued in writing by the Executive Board within ten (10) days after the conclusion of the hearing. In hearings before the Executive Board all parties shall be entitled to be represented by counsel. Unless the internal remedies provided by this Paragraph and such rules and regulations as may be promulgated by the Executive Board shall be expressly waived by the Association, or the Association fails or refuses to act after being requested in writing to do so, no action at law or in equity shall be commenced by any Unit Owner until such internal remedy is pursued to exhaustion. Any action by a Unit Owner against any other Unit Owner or resident or the Association arising out of any term, covenant or condition contained in the Condominium Documents or any rule or regulation made pursuant thereto shall be subject to the same procedures.

2. Noncompliance. Subject to prior compliance with the procedures established herein, the failure of a Unit Owner to comply with the Declaration, these Bylaws and the rules and regulations of the Association shall entitle the Association and Executive Board to the remedies provided herein and in the Act, none of which shall be exclusive of any other remedies:

a. Mediation. In the event a dispute shall arise between the parties to this Agreement and is not resolved by the Administrative Appeal process, then the parties agree to participate in at least four hours of mediation in accordance with the Mediation Procedures of a selected Mediator, which mediation shall occur in Kennebunk, Maine. This mediation procedure shall occur within ten (10) business days of one party notifying the other of a dispute. The parties agree to equally split the costs of mediation which shall not exceed $2,500 total. If one party incurs costs greater than $1,250, then such additional costs will be at the sole expense of that party.

b. Suits. If a dispute is not resolved by the Administrative Appeal Process or Mediation then failure to comply with the terms of the Declaration, Bylaws and the rules and regulations adopted pursuant thereto, as the same may be amended from time to time, shall entitle the Association or any aggrieved Unit Owner to sue for the recovery of damages or for injunctive relief, or both. Such relief shall not be exclusive of other

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remedies provided by law.

c. Costs and Attorney's Fees. In any proceeding arising because of an alleged failure of a Unit Owner to comply with the terms of the Declaration, Bylaws or rules and regulations adopted pursuant thereto, the Executive Board, if the prevailing party, shall be entitled to recover the costs of the proceeding and reasonable attorney's fees.

ARTICLE XVI
GENERAL PROVISIONS

1. Headings. The headings used in this Declaration and the table of contents, if any, are inserted solely as a matter of convenience for the readers of this Declaration and shall not be relied upon or used in construing the effect or meaning of any of the provisions of this Declaration.

2. Severability. The provisions of this Declaration shall be deemed independent and severable, and the invalidity or unenforceability of any provision or portion thereof shall not affect the validity or enforceability of any other provision or portion hereof unless such deletions shall destroy the uniform plan of development and operation of the condominium project which this Declaration is intended to create.

3. Applicable Law. The Declaration shall be governed and construed according to the laws of the State of Maine.

4. Interpretation. The provisions of this Declaration shall be liberally construed in order to create a uniform plan for development and operation of the Condominium. In the case of any conflicting provisions, the Act shall control over this Declaration; the Act and this Declaration over the By-Laws; and the Act, this Declaration and the By-Laws over the Association's Rules and Regulations.

5. Effective Date. This Declaration shall become effective when it is recorded.

6. Notices**.** Notice of matters affecting the Condominium shall be given to Unit Owners in writing and shall be deemed to have been given if delivered personally or sent by United States mail, postage prepaid or if notification is of a default or lien, then by registered or certified mail, return receipt requested, postage prepaid, to a Unit Owner at the address which the Unit Owner shall designate in writing and file with the Secretary of the Association, or if no address is designated, at the address of the Unit. If a Unit is owned by more than one person, each such person who so designates an address in writing to the Secretary shall be entitled to receive all notices hereunder. All notices to the Association shall be directed to the office of the Association as listed with the records of the Secretary of State for the State of Maine.

7. Obligation to Complete. Except as required by the Act, nothing contained in the Declaration or Plat and Plans do, or shall be deemed to, impose upon the Association or any successor, any liability or obligation to build, construct or provide any buildings, amenities or

other improvements to the Premises.

[Space Intentionally Left Blank - Signature Page Follows]

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IN WITNESS WHEREOF, the undersigned has caused this Declaration to be executed as of this _____ day _____, 20____.

STROUDWATER DEVELOPMENT PARTNERS, LLC

_____
Witness

By:_____
Name: _____
Title: Manager, thereunto duly authorized

STATE OF MAINE
York County, ss.

Dated _____

Personally appeared before me the above-named _____, acting in his capacity as the manager of Stroudwater Development Partners, LLC, a Maine limited liability company, and acknowledged the foregoing instrument to be his free act and deed duly authorized in said capacity.

Before me,

_____
Notary Public / Attorney at Law
[SEAL]

DRAFT

Att. ZP

RYAN SENATORE **ARCHITECTURE**

October 10, 2017

Caitlin Cameron
Urban Designer
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: Stroudwater Preserve Street - PRUD Design Narrative

The proposed buildings to be part of the Planned Residential Unit Development (PRUD) at Stroudwater Preserve consist of five attached single family townhome structures.

These buildings have been designed in accordance with item h.1.b which describes the design guidelines for PRUD buildings. The proposed buildings are designed to compliment the existing Architectural fabric of the existing neighborhood, utilizing gable roof forms and front porches. These elements are prevalent in the neighborhood and define a larger New England vernacular Architectural style. The proposed buildings use these elements as well as projecting and recessing facade geometry to scale the facades and break down the massing of the structures. The 4' projecting gable bay rhythm occurs at a 14' interval along the facade, much less than the 40' maximum length indicated by the guideline, to create an active and articulated facade. The height of the building is scaled to the neighborhood fabric by the use of projecting bays, porches and facade materials. The exterior materials consist of clapboard and panel siding with trim frames to create a variety of textures. The siding transitions from clapboard to panel siding at the third level to help scale the facade vertically. The buildings also utilize contrasting colors to scale the facade both vertically and horizontally.

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101

In summary, the design of the PRUD buildings is derived from the Vernacular Architecture that exists in the neighborhood, we have used color, texture, massing and rhythm as tools to scale the project and integrate it into the existing neighborhood fabric.

Feel free to contact me with any questions regarding the above.

Sincerely,

Ryan Senatore, AIA LEED AP

Principal

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101

Section 33

Conformity with Land Use Ordinance - PRUD

Conformity with Land Use Ordinance - PRUD

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-90 last revised 9-5-2012.

SECTION 14-90: Dimensional Requirements

This project conforms with all applicable design standards of Section 14-90 as demonstrated in the following narrative

(a)

8. The proposed gross area is 7.21 acres, which exceeds the three (3) acre minimum. As defined in Section 14-47, the gross area is the square footage of land area excluding areas of special flood hazard. Additionally, an area of special flood hazard is defined as the land in the flood plain having a one (1) percent or greater chance of flooding in any given year as specifically identified in the Flood Insurance Study cited in section 14-450.3. There are no areas of special flood hazard within the proposed PRUD lot.

(b) Per the City of Portland Land Use Ordinance, the minimum lot area per dwelling unit is proposed to be sixty-five hundred (6,500) square-feet of net land area. As defined in Section 14-47, the net area is the gross area minus existing watercourses, wetlands, and slopes of twenty-five (25) percent or greater. See Table 1 for derivation of net land area.

Table 1: Derivation of Net Land Area

Total Lot Area			*314,240 s.f.*	*7.21 ac.*
Total Areas of Special Flood Hazard	(1)	User Defined	0 s.f.	0 ac.
Gross Land Area	**(2)**	**Total Lot Area – (5)**	**314,240 s.f.**	**7.21 ac.**
Total Watercourse Area	(3)	User Defined	0 s.f.	0 ac.
Total Wetlands Area	(4)	User Defined	14,387 s.f.	0.33 ac.
Total Area of Slopes > 25%	(5)	User Defined	0 s.f.	0 ac.
Net Land Area	**(6)**	**= (2) – (3) – (4) – (5)**	**299,853 s.f.**	**6.88 ac.**

(h)

1. The proposed project includes one (1) PRUD lot of five (5) or more acres. Each of the five (5) buildings, within the lot, will have five (5) units, which is within the maximum six (6) units per building requirement.

2. The proposed PRUD lot is 7.21 acres.

(i) The proposed average number of units per building, within the PRUD, is five (5) units, which is equal to the maximum allowable for lots five (5) acres or greater.

(j) The proposed buildings, within the PRUD, include integral garages on the first level. Per requirement, buildings are one hundred forty (140) feet long.

(k)

1. There are no proposed buildings with three (3) or fewer dwelling units.

2. All buildings containing four (4) or more dwelling units, within the PRUD, are thirty-five (35) feet from the PRUD property lines.

(l) All PRUD buildings are at least sixteen (16) feet apart.

(m) Reserved.

(n) The proposed lot open space will be used for passive recreational use as described in the City of Portland Design Manual including, but not limited to, a community garden, interactive stormwater BMP garden or landscaped feature, walking trails, etc. The recreational open space is proposed to be fifty (50) feet from the dwelling units and is accessible from the front yards. Per dimensional requirement, the space will also be at least fifty (50) feet wide for the majority of the space. See Table 2 for a breakdown of the proposed recreational open space.

Table 2: Minimum Recreational Open Space & Allowable Unit Summary

Minimum Lot Area per Dwelling Unit	(7)	Requirement	6,500 s.f.
Minimum Contiguous Open Space per PRUD Lot	(8)	Requirement	6,000 s.f.
Minimum Recreation Open Space Per Unit	(9)	Requirement	300 sf / unit
Minimum Total Recreation Open Space	(10)	= (14) × (9)	7,500 sf
Proposed Open Space Within First Loop	(11)	User Defined	6,000 sf
Proposed Open Space Within Portland Trails Easement	(12)	User Defined	43,875 sf (1.00 ac.)
Maximum Allowable PRUD Units	**(13)**	$= \frac{(\mathbf{6}) - (\mathbf{8}) - (\mathbf{12})}{(\mathbf{7})}$	**38 Units**
Proposed Number of PRUD Units	**(14)**	**User Defined**	**25 Units**

(o) No habitable space in the PRUD is proposed below grade, however basement garages are proposed for all five buildings.

Section 34

Stormwater Maintenance Agreement

A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

ACORN ENGINEERING, INC.

DRAFT OF STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENTS

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DRAFT OF STORMWATER DRAINAGE
SYSTEM MAINTENANCE AGREEMENT – HOME OWNERS ASSOCIATION

IN CONSIDERATION OF the subdivision plan approval granted by the Planning Board of the City of Portland to the proposed 1700 Westbrook Street Redevelopment Project shown on the Subdivision Plan recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the "Plan") and associated Grading & Drainage Plan (Sheet C-31, C-32), dated _____ prepared by Acorn Engineering, Inc. of P.O. Box 3372, Portland, ME 04104 dated and pursuant to a condition thereof, Stroudwater Development Partners, LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 62 Portland Road, Suite 25, Kennebunk, Maine 04043, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order Detention Basins 1 and 2, and associated infrastructures outside the right-of-way (ROW), as identified on the Grading & Drainage Plans (Sheet C-31 and C-32) and on the Stormwater Exhibit, EX-B attached hereto as **Exhibit B** and in strict compliance with the approved Stormwater Inspection & Maintenance Plan and Stormwater Maintenance and Inspection Log, dated 11/21/17, copies attached as **Exhibit A and C** respectively and Chapter 32 of the Portland City Code.

The City of Portland will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order all Focalpoints, catch basins and storm drains within the ROW as shown on the Stormwater Exhibit, EX-B attached hereto as **Exhibit B** and in strict compliance with the approved Stormwater Inspection & Maintenance Plan and Stormwater Maintenance and Inspection Log, dated 11/21/17, copies attached as **Exhibit A and C** respectively and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance and Inspection Log in the forms attached as **Exhibit C**. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property and abutters thereto; further, that the said City of Portland or said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system, including but not limited to the detention basins, and other drainage structures thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall not confer upon the City of Portland or any other person the right to utilize said stormwater system for public use or for the development of any other property, and the Owner shall bear no financial responsibility by virtue of this Agreement for enlarging the capacity of said system for any reason whatsoever.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the subdivision and/or site plan most recently and formally approved by the Planning Board of the City of Portland.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Works and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this Agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and

liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the Agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings or residential units and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax rol1s on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 2017.

Stroudwater Development Partners, LLC
A Maine limited liability company

_____
Michael Barton, Manager

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named Michael Barton, Manager of Stroudwater Development Partners, LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

Exhibit A: Stormwater Inspection & Maintenance Plan

Exhibit B: Stormwater Exhibit

Exhibit C: Stormwater Maintenance and Inspection Log

ACORN
ENGINEERING, INC.

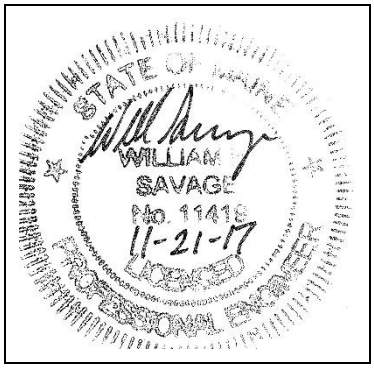
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

Stroudwater Development Partners, LLC
62 Portland Road, Suite 25
Kennebunk, Maine 04043

Prepared By:

Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102



November 2017

RESPONSIBLE PARTY

The owner, Stroudwater Development Partners, LLC, and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Works prior to June 30th.

The following is an example of a qualified stormwater professional that the association may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert. #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert. #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

OPERATION AND MAINTENANCE ACTIVITY

Detention Ponds:

The maintenance of the detention ponds shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 3 – Detention Basins for Flooding Control.

- The inlet and outlet of the basin should be checked periodically to ensure that flow structures are not blocked by debris. Inspections should be conducted monthly during wet weather conditions (March to November). Flow structures should be easily accessible for inspection and the removal of debris blockage during storm conditions.
- Embankments should be maintained to preserve their integrity as impoundment structures, including: mowing, control of woody vegetation, rodent, and outlet maintenance and repair. Basins should be mowed no more than twice a year during the growing season to maintain maximum grass heights less than 12 inches. All accumulated trash and debris should be removed.

Storm Drains:

The storm drain shall be annually inspected for the presence of accumulated sediment or debris. Any sediment shall be removed as required.

- The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Inspect and legally dispose of accumulated sediment and debris within the storm drains between basins. Liquids must be decanted on-site and returned to the catch basin.

FocalPoints:

The maintenance for the FocalPoints shall be in accordance with the attached "FocalPoint Operations & Maintenance" document. Additionally, the downstream catch basins and drainage manholes shall be inspected to confirm the structures are operation properly.

- Dig out silt (if any) and mulch and remove trash and foreign items.
- After removal of mulch and debris, measure distance from the top of the FocalPoint HPMBS engineered media soil to the flow line elevation of the adjacent overflow conveyance. If this distance is greater than that specified on the plans (typ. 6"-12"), add media (not top soil or other) to recharge to the distance specified.
- Mulch should be replaced with aged, double shredded hardwood mulch with fines removed.
- The plant should be replaced if dead or dying. If the plant is alive, prune as necessary to encourage growth in the correct directions.
- The area around the unit should be cleaned. All debris should be disposed of correctly.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
CCatchh Basins	X			X
Detention Ponds	X		X	X
Storm Drains		X		X
FocalPoints	X		X	X

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Detention Ponds:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	**Inspect In Spring**	**Inspect In Fall**	**Inspect As Necessary**		**Maintenance Requested (Date)**	**Maintenance Completed (Date)**	**Summary of Maintenance Required**
Inlets, Outlets, Culverts & Storm Drains							
Inlet and outlet are free of obstruction, accumulated sediment and debris	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Embankments maintained: Mowing, control of woody vegetation, rodent control and outlet maintenance and repair	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Outlet control structure is free of debris and orifices are flowing freely	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☑	☑	☐	☐ Yes ☐ No ☐ N/A			Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

STORMWATER PIPE:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	**Inspect In Spring**	**Inspect In Fall**	**Inspect As Necessary**		**Maintenance Requested (Date)**	**Maintenance Completed (Date)**	**Summary of Maintenance Required**
Inlets, Outlets, Culverts & Storm Drains							
Pipe/culvert is free of obstruction, accumulated sediment and debris	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Pipe inlet and outlet is free of obstruction, accumulated sediment and debris	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Pipe/culvert, inlet and outlet is free of collapses and structural damage	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Outlet and inlet are properly conveying stormwater and no erosion is visible	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☑	☑	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

FocalPoint Systems:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents - FocalPoint	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Inlets, Outlets, Culverts & Storm Drains							
Inspection and cleaning of FocalPoint and surrounding area	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Removal of debris and trash	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Replace mulch	☑	☑	☐	☐ Yes ☐ No ☐ **N/A**			
Inspection of plant	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☑	☐	☐ Yes ☐ No ☐ N/A	`		
Photographs of most recent site inspection are included	☑	☑	☐	☐ Yes ☐ No ☐ N/A			Photographs are attached.
Additional Comments:							

FocalPoint

BIOFILTRATION SYSTEMS

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS)

Operations & Maintenance

ACF ENVIRONMENTAL

Customer Focused, Environmentally Committed

GENERAL DESCRIPTION

The following general specifications describe the general operations and maintenance requirements for the FocalPoint® High Performance Modular Biofiltration System (HPMBS). The system utilizes physical, chemical and biological mechanisms of a soil, plant and microbe complex to remove pollutants typically found in urban stormwater runoff. The treatment system is a fully equipped, modular, constructed in place system designed to treat contaminated runoff.

Stormwater enters the FocalPoint® HPMBS, is filtered by the High Flow Biofiltration Media and passes through to the underdrain/storage system where the treated water is detained, retained or infiltrated to sub-soils, prior to discharge to the storm sewer system of any remaining flow.

Higher flows bypass the FocalPoint® HPMBS via a downstream inlet or other overflow conveyance. Maintenance is a simple, inexpensive and safe operation that does not require confined space entry, pumping or vacuum equipment, or specialized tools. Properly trained landscape personnel can effectively maintain FocalPoint® HPMBS by following instructions in this manual.

BASIC OPERATIONS

FocalPoint® is a modular, high performance biofiltration system that often works in tandem with other integrated management practices (IMP). Contaminated stormwater runoff enters the biofiltration bed through a conveyance swale, planter box, or directly through a curb cut or false inlet. Energy is dissipated by a rock or vegetative dissipation device and is absorbed by a 3-inch layer of aged, double shredded hardwood mulch, with fines removed, (when specified) on the surface of the biofiltration media.

As the water passes through the mulch layer, most of the larger sediment particles and heavy metals are removed through sedimentation and chemical reactions with the organic material in the mulch. Water passes through the biofiltration media where the finer particles are removed and numerous chemical reactions take place to immobilize and capture pollutants in the soil media.

The cleansed water passes into the underdrain/storage system and remaining flows are directed to a storm sewer system or other appropriate discharge point. Once the pollutants are in the soil, bacteria begin to break down and metabolize the materials and the plants begin to uptake and metabolize the pollutants. Some pollutants such as heavy metals, which are chemically bound to organic particles in the mulch, are released over time as the organic matter decomposes to release the metals to the feeder roots of the plants and the cells of the bacteria in the soil where they remain and are recycled. Other pollutants such as phosphorus are chemically bound to the soil particles and released slowly back to the plants and bacteria and used in their metabolic processes. Nitrogen goes through a variety of very complex biochemical processes where it can ultimately end up in the plant/bacteria biomass, turned to nitrogen gas or dissolves back into the water column as nitrates depending on soil temperature, pH and the availability of oxygen. The pollutants ultimately are retained in the mulch, soil and biomass with some passing out of the system into the air or back into the water.

DESIGN AND INSTALLATION

Each project presents different scopes for the use of FocalPoint® HPMBS. To ensure the safe and specified function of this stormwater BMP, Convergent Water Technologies and/or its Value Added Resellers (VAR) review each application before supply. Information and design assistance is available to the design engineer during the planning process. Correct FocalPoint® sizing is essential to optimum performance. The engineer shall submit calculations for approval by the local jurisdiction when required. The contractor and/or VAR is responsible for the correct installation of FocalPoint® HPMBS units as described in approved plans. A comprehensive installation manual is available at www.convergentwater.com.

FocalPoint
BIOFILTRATION SYSTEMS

MAINTENANCE

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons for maintenance include:

- Avoid legal challenges from your jurisdiction's maintenance enforcement program.
- Prolong the lifespan of your FocalPoint® HPMBS.
- Avoid costly repairs.
- Help reduce pollutant loads leaving your property.

Simple maintenance of the FocalPoint® HPMBS is required to continue effective pollutant removal from stormwater runoff before any discharge into downstream waters. This procedure will also extend the longevity of the living biofiltration system. The unit will recycle and accumulate pollutants within the biomass, but may also subjected to other materials entering the surface of the system. This may include trash, silt and leaves etc. which will be contained above the mulch and/or biofiltration media layer. Too much silt may inhibit the FocalPoint's® HPMBS flow rate, which is a primary reason for system maintenance. Removal of accumulated silt/sediment and/or replacement of the mulch layer (when specified), is an important activity that prevents over accumulation of such silt/sediment.

When to Maintain?

Convergent Water Technologies and/or its VAR includes a 1-year maintenance plan with each system purchased. Annual included maintenance consists of two (2) scheduled maintenance visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated for full operation. Full operation is defined as when the site is appropriately stabilized, the unit is installed and activated (by VAR), i.e., when mulch (if specified) and plantings are added.

Activation should be avoided until the site is fully stabilized (full landscaping, grass cover, final paving and street sweeping completed). Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands. The fall visit helps the system by removing excessive leaf litter.

A first inspection to determine if maintenance is necessary should be performed at least twice annually after storm events of greater than (1) one inch total depth (subject to regional climate). Please refer to the maintenance checklist for specific conditions that indicate if maintenance is necessary.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required. Regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the VAR/Maintenance contractor and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the VAR/Maintenance contractor of any damage to the plant(s), which constitute(s) an integral part of the biofiltration technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance of the FocalPoint® HPMBS to the VAR/Maintenance contractor (i.e. no pruning or fertilizing).

EXCLUSION OF SERVICES

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant(s) in the FocalPoint® HPMBS.

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the VAR/Maintenance contractor maintenance contract. Should a major contamination event occur, the Owner must block off the outlet pipe of the FocalPoint® (where the cleaned runoff drains to, such as drop-inlet) and block off the point where water enters of the FocalPoint® HPMBS. The VAR/Maintenance contractor should be informed immediately.

MAINTENANCE VISIT SUMMARY

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of FocalPoint® HPMBS and surrounding area
2. Removal of debris, trash and mulch
3. Mulch replacement
4. Plant health evaluation (including measurements) and pruning or replacement as necessary
5. Clean area around FocalPoint® HPMBS
6. Complete paperwork, including date stamped photos of the tasks listed above.

MAINTENANCE TOOLS, SAFETY EQUIPMENT AND SUPPLIES

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes.

MAINTENANCE VISIT PROCEDURE

Inspection of FocalPoint® HPMBS and surrounding area

Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

- Standing Water yes | no
- Is Bypass Inlet Clear? yes | no
- Damage to HPMBS System yes | no
- to Overflow conveyance yes | no

Removal of Silt / Sediment / Clay

Dig out silt (if any) and mulch and remove trash & foreign items.

- Silt / Clay Found? yes | no
- Cups / Bags Found? yes | no
- Leaves? yes | no
- Volume of material removed _____ (volume or weight)

Removal of debris, trash and mulch

After removal of mulch and debris, measure distance from the top of the FocalPoint® HPMBS engineered media soil to the flow line elevation of the adjacent overflow conveyance. If this distance is greater than that specified on the plans (typ. 6" - 12"), add media (not top soil or other) to recharge to the distance specified.

- Distance to media surface to flow line of overflow conveyance (inches) _____
- # of Buckets of Media Added _____

Mulch Replacement

Most maintenance visits require only replacement mulch (if utilized) which must be, aged, double shredded hardwood mulch with fines removed. For smaller projects, one cubic foot of mulch will cover four square feet of biofiltration bed, and for larger projects, one cubic yard of mulch will cover 108 square feet of biofiltration bed. Some visits may require additional FocalPoint® HPMBS engineered soil media available from the VAR/Contractor.

- Add double shredded, aged hardwood mulch which has been screened to remove fines, evenly across the entire biofiltration media bed to a depth of 3".
- Clean accumulated sediment from energy dissipation system at the inlet to the FocalPoint® HPMBS to allow for entry of trash during a storm event.

Plant health evaluation and pruning or replacement as necessary

Examine the plant's health and replace if dead or dying.
Prune as necessary to encourage growth in the correct directions

- Height above Grate (feet) _____
- Width at Widest point (feet) _____
- Health alive | dead
- Damage to Plant yes | no

Clean area around FocalPoint® HPMBS

- Clean area around unit and remove all refuse to be disposed of appropriately.

Complete paperwork

- Deliver Maintenance Report and photographs as appropriate.
- Some jurisdictions may require submission of maintenance reports in accordance with approvals.
- It is the responsibility of the Owner to comply with local regulations.

FocalPoint

BIOFILTRATION SYSTEM

FocalPoint Warranty

Seller warrants goods sold hereunder against defects in materials and workmanship only, for a period of (1) year from date the Seller activates the system into service. Seller makes no other warranties, express or implied.

Seller's liability hereunder shall be conditioned upon the Buyer's installation, maintenance, and service of the goods in strict compliance with the written instructions and specifications provided by the Seller. Any deviation from Seller's instructions and specifications or any abuse or neglect shall void warranties.

In the event of any claim upon Seller's warranty, the burden shall be upon the Buyer to prove strict compliance with all instructions and specifications provided by the Seller.

Seller's liability hereunder shall be limited only to the cost or replacement of the goods. Buyer agrees that Seller shall not be liable for any consequential losses arising from the purchase, installation, and/or use of the goods.

Maintenance Checklist

Element	Problem	What To Check	Should Exist	Action
Inlet	Excessive sediment or trash accumulation	Accumulation of sediment or trash impair free flow of water into FocalPoint	Inlet free of obstructions allowing free flow into FocalPoint System	Sediments or trash should be removed
Mulch Cover	Trash and floatable debris accumulation	Excessive trash or debris accumulation.	Minimal trash or other debris on mulch cover	Trash and debris should be removed and mulch cover raked level. Ensure that bark nugget
Mulch Cover	Ponding of water on mulch cover	Ponding in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils	Stormwater should drain freely and evenly over mulch cover.	Contact VAR for advice.
Plants	Plants not growing, or in poor condition	Soil/mulch too wet, evidence of spill. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact VAR for advice.
Plants	Plant growth excessive	Plants should be appropriate to the species and location of FocalPoint		Trim/prune plants in accordance with typical landscaping and

DRAFT OF STORMWATER DRAINAGE
SYSTEM MAINTENANCE AGREEMENT – CONDOMINIUM ASSOCIATION

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed 1700 Westbrook Street Redevelopment Project shown on the Subdivision Plan recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the "Plan") and associated Grading & Drainage Plan (Sheet C-33), dated _____ prepared by Acorn Engineering, Inc. of P.O. Box 3372, Portland, ME 04104 dated and pursuant to a condition thereof, Stroudwater Development Partners, LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 62 Portland Road, Suite 25, Kennebunk, Maine 04043, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order Filterra systems, vegetated underdrained soil filters, Detention Basin 3, and other drainage structures as identified on the Grading & Drainage Plan (Sheet C-33) and on the Stormwater Exhibit, EX-B attached hereto as **Exhibit B** and in strict compliance with the approved Stormwater Inspection & Maintenance Plan and Stormwater Maintenance and Inspection Log, dated 11/21/17, copies attached as **Exhibit A and C** respectively and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance and Inspection Log in the forms attached as **Exhibit C**. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property and abutters thereto; further, that the said City of Portland or said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair,

or replace said stormwater system, including but not limited to the Filterra systems, vegetated underdrained soil filters, detention basin, and other drainage structures thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall not confer upon the City of Portland or any other person the right to utilize said stormwater system for public use or for the development of any other property, and the Owner shall bear no financial responsibility by virtue of this Agreement for enlarging the capacity of said system for any reason whatsoever.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the subdivision and/or site plan most recently and formally approved by the Planning Board of the City of Portland.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Works and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this Agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the Agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings or

residential units and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax rol1s on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 2017.

Stroudwater Development Partners, LLC
A Maine limited liability company

_____
Michael Barton, Manager

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named Michael Barton, Manager of Stroudwater Development Partners, LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

Exhibit A: Stormwater Inspection & Maintenance Plan

Exhibit B: Stormwater Exhibit

Exhibit C: Stormwater Maintenance and Inspection Log

ACORN
ENGINEERING, INC.

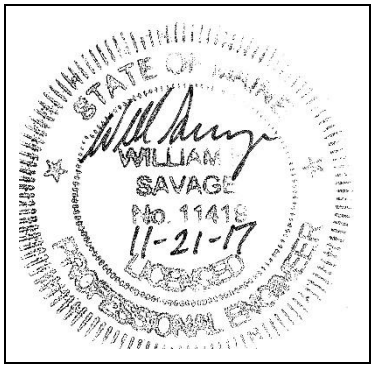
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

Stroudwater Development Partners, LLC
62 Portland Road, Suite 25
Kennebunk, Maine 04043

Prepared By:

Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102



November 2017

RESPONSIBLE PARTY

The owner, Stroudwater Development Partners, LLC, and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Works prior to June 30th.

The following is an example of a qualified stormwater professional that the association may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert. #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert. #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

OPERATION AND MAINTENANCE ACTIVITY

Vegetated Underdrained Soil Filter (VUSF)

The maintenance of the VUSF shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 7.1 – Grassed Underdrained Soil Filters.

- The soil filter shall be inspected after every major storm within the first year to ensure the filter area is draining within a 48-hour period and no less than a 24-hour period, and that the grass is establishing. Thereafter, the filter should be inspected at least once every six months to ensure that is draining within a 48-hour period following a one-inch storm or greater.
- Soil filter modification shall occur if the filter bed is draining in less than 24 hours. The top six inches of the filter shall be replaced with six inches of loam, per the most recent Maine DEP specification. Soil filter replacement shall be replaced with fresh material on a yearly basis.
- The filter area shall not be fertilized unless it is absolutely necessary.
- Weeding to limit growth of plants besides the grass will likely be necessary.
- If desired, mowing shall only occur by a handheld weed-wacker or push mower and should be mowed no more than two times per growing season to maintain grass heights of no less than six inches.
- Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

Filterras:

The maintenance for the Filterra's shall be in accordance with the attached "Filterra Maintenance Steps". Additionally, the downstream catch basins and drainage manholes shall be inspected to confirm the structures are operation properly.

- Inspect the presence of accumulated sediment or debris any sediment shall be removed. The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Sediment shall be removed when accumulation is within 6 inches of the outfall pipe invert. Legally dispose of accumulated sediment and debris from the bottom of the basin, inlet grates, and inflow channels to the basin.
- If the basin outlet is designed with a hood to trap floatable materials (e.g. Snout), check to ensure watertight seal is working.

Detention Pond:

The maintenance of the detention ponds shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 3 – Detention Basins for Flooding Control.

- The inlet and outlet of the basin should be checked periodically to ensure that flow structures are not blocked by debris. Inspections should be conducted monthly during wet weather conditions (March to November). Flow structures should be easily accessible for inspection and the removal of debris blockage during storm conditions.
- Embankments should be maintained to preserve their integrity as impoundment structures, including: mowing, control of woody vegetation, rodent, and outlet maintenance and repair. Basins should be mowed no more than twice a year during the growing season to maintain maximum grass heights less than 12 inches. All accumulated trash and debris should be removed.

Storm Drains:

The storm drain shall be annually inspected for the presence of accumulated sediment or debris. Any sediment shall be removed as required.

- The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Inspect and legally dispose of accumulated sediment and debris within the storm drains between basins. Liquids must be decanted on-site and returned to the catch basin.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Vegetated Underdrained Soil Filter	X	X		X
Filterras	X			X
Detention Pond	X		X	X
Storm Drains		X		X
CCatchh Basins	X			X

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Detention Ponds:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	**Inspect In Spring**	**Inspect In Fall**	**Inspect As Necessary**		**Maintenance Requested (Date)**	**Maintenance Completed (Date)**	**Summary of Maintenance Required**
Inlets, Outlets, Culverts & Storm Drains							
Inlet and outlet are free of obstruction, accumulated sediment and debris	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Embankments maintained: Mowing, control of woody vegetation, rodent control and outlet maintenance and repair	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Outlet control structure is free of debris and orifices are flowing freely	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☑	☑	☐	☐ Yes ☐ No ☐ N/A			Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

STORMWATER PIPE:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	**Inspect In Spring**	**Inspect In Fall**	**Inspect As Necessary**		**Maintenance Requested (Date)**	**Maintenance Completed (Date)**	**Summary of Maintenance Required**
Inlets, Outlets, Culverts & Storm Drains							
Pipe/culvert is free of obstruction, accumulated sediment and debris	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Pipe inlet and outlet is free of obstruction, accumulated sediment and debris	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Pipe/culvert, inlet and outlet is free of collapses and structural damage	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Outlet and inlet are properly conveying stormwater and no erosion is visible	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☑	☑	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Vegetated Underdrained Soil Filter:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Inlets, Outlets, Culverts & Storm Drains							
Soil filters retain the design volume for a drain down time greater than 24-hours and less than 48-hours	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Permeability is between 0.38 and 0.75 in/hr for the VUSF	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
There is no erosion evident on site	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Filter area in VUSF is property grassed, showing no bare spots	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Site is free of unwanted vegetative growth	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Filter bed and embankment grass height is no less than 6". Mowing occurs less than 2 times a season	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
The field inlet grates are free of debris and are in good working condition	☑	☑	☐	☐ Yes ☐ No ☐ N/A			

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Dripline filter BMP is free of debris and weeds within the reservoir course	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Outlet pipes and catch basin are free of debris and sediment	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☑	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Filterra Systems:		
Location: 1700 Westbrook Street, Portland, ME 04102	**Latitude:**	43.658294°N
	Longitude:	-70.32915° W
Description of Located Point: Recorded Construction Documents - Filterra	**Inspector:**	
	Date of Inspection:	
	Weather Conditions:	
Days since last precipitation:	**MEDEP Permit #**	N/A
Quantity of last precipitation (in):	**Design Drawings:**	YES

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Inlets, Outlets, Culverts & Storm Drains							
Inspection and cleaning of Filterra and surrounding area	☑	☐	☐	☐ Yes ☐ No ☐ N/A			
Removal of debris and trash	☑	☐	☐	☐ Yes ☐ No ☐ N/A			
Replace mulch	☑	☐	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☑	☐	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☑	☐	☐	☐ Yes ☐ No ☐ N/A			Photographs are attached.
Additional Comments:							

CONTECH®
ENGINEERED SOLUTIONS

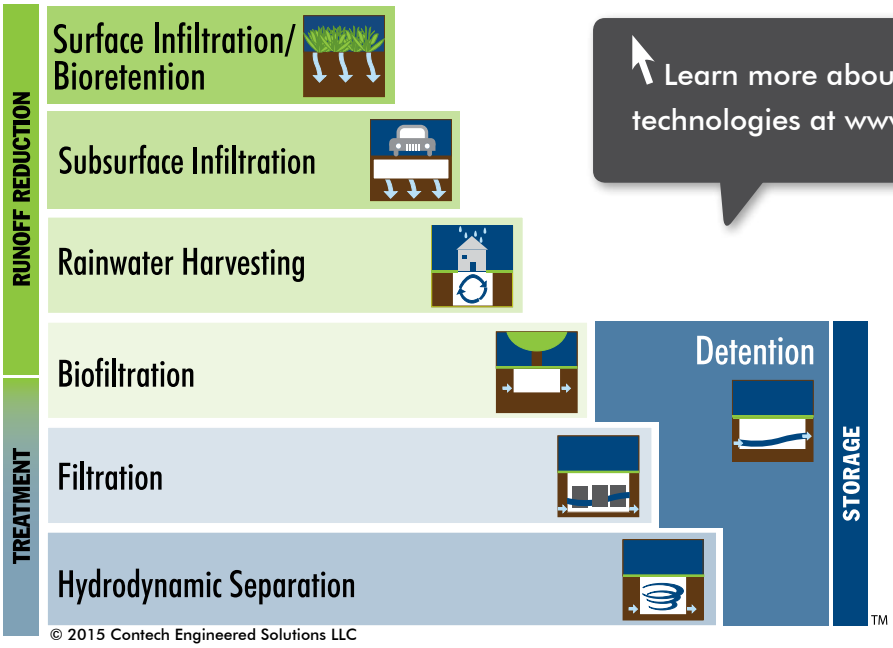
Filterra® Bioretention System

Solutions Guide

Stormwater Solutions from Contech

Selecting the Right Stormwater Solution Just Got Easier...

It's simple to choose the right stormwater solution to achieve your goals with the Contech Stormwater Solutions Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a treatment best management practice (BMP) for the balance. Finally, select a detention system to address any outstanding downstream erosion.



Learn more about all of our stormwater technologies at www.ContechES.com/stormwater

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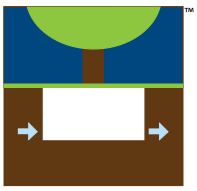
Low Impact Development Site Planner

The Low Impact Development (LID) Site Planner is a free, web-based tool intended to guide you in preliminary selection of the most effective and likely to be approved stormwater control measures that are technically feasible given known site constraints. To utilize this tool, visit www.conteches.com/lidsiteplanner

Benefits of the tool include:

- A fast, easy-to-use tool that follows a Low Impact Development design approach consistent with regulations that prioritize Green Infrastructure.
- Helps minimize the cost and delay of redesigns by prompting users to consider a wide range of common site constraints early in the design process.
- Captures specific site conditions precluding the use of infeasible BMPs.
- Allows flexibility to select flow through treatment controls where runoff reduction is not feasible.
- Provides a summary report with links to design guides, standard details, and specifications for stormwater management approaches that are likely to be feasible and approved on the project.

Bioretention as a Stormwater Management Strategy



Filtration and Biological Treatment in One System

Stormwater management regulations such as Low Impact Development (LID) and Green Infrastructure (GI) have proliferated throughout the United States.

Implementing LID and GI in urban environments is challenging, as they often require a large footprint. That doesn't mean LID/GI is not possible, it just means the solution may take a more engineered form. Contech has addressed this need by developing a unique solution – the Filterra Bioretention System.

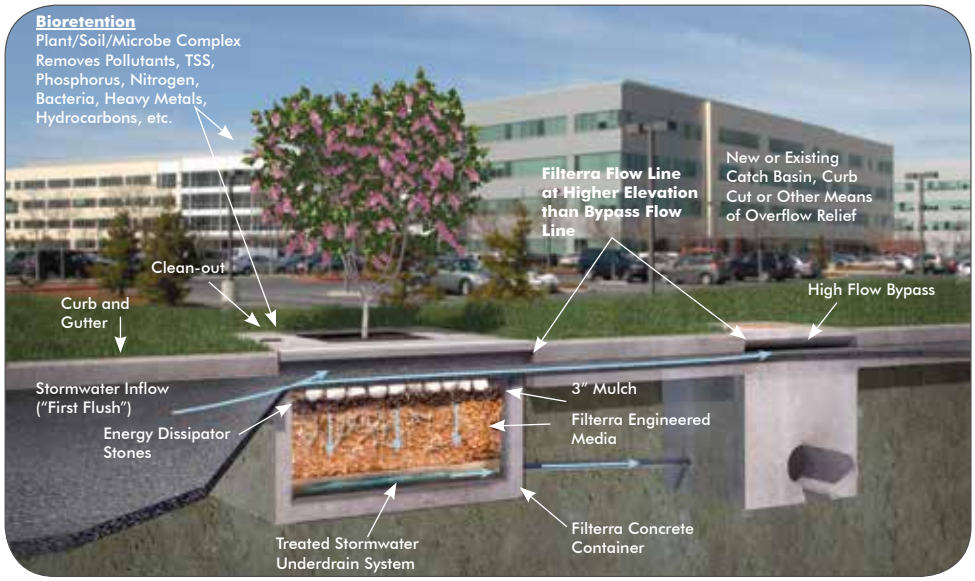
What is Filterra?

Filterra is an engineered biofiltration device with components that make it similar to bioretention in pollutant removal and application, but has been optimized for high volume/flow treatment in a compact system. Its small footprint allows Filterra to be used on highly developed sites such as commercial parking lots, residential streets, parking lots, and urban streetscapes. Filterra is adaptable and can be used alone or in combination with perforated pipes or chambers to optimize runoff reduction.

How The Standard Offline Filterra Systems Works

Stormwater runoff enters the Standard Offline Filterra system through a curb-inlet opening and flows through a specially designed filter media mixture contained in a landscaped modular container. The biofiltration media captures and immobilizes pollutants; some of these pollutants are then decomposed, volatilized and incorporated into the biomass of the Filterra system's micro/macro fauna and flora. Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged. The Standard Offline Filterra system utilizes a downstream catch basin or curb inlet for bypass flows allowing for the shallowest profile and most flexible design of any of the Filterra configurations.

In areas where runoff reduction and infiltration are mandated or desirable, Filterra can be paired with other Contech products such as ChamberMaxx or an Urban Green Rainwater Harvesting system to provide even greater alignment with LID/GI goals.



Learn more at www.ContechES.com/filterra

Filterra® Features & Benefits

- **Regulatory Compliance** – Multiple third-party field tests confirmed Filterra meets regulatory requirements for pollutant removal under TAPE, TARP, and NJCAT testing.
- **Value** – Filterra offers a cost effective stormwater treatment system featuring easy installation and simple maintenance.
- **Aesthetics** – Landscaping enhances the appearance of your site making it more attractive while removing pollutants.
- **Flexible** – Multiple sizes and a variety of configurations available to meet site-specific needs.
- **Versatile** – Filterra is ideal for both new construction and urban retrofits, as well as:
  - » Streetscapes
  - » Urban settings
  - » Parking lots
  - » Roof drains
  - » Roadways
  - » Residential subdivisions
- **Easy Installation** – Delivered on-site, ready to lift and place.
- **Activation** – Performed by Contech-certified providers to ensure effective performance from the start.
- **Maintenance** – Simple and safe (no confined space access), and the first year of maintenance is included with the purchase of every system.

Third-party field testing confirmed Filterra meets regulatory requirements for pollutant removal under nationally recognized TAPE, TARP, and NJCAT testing protocols.

Additional Filterra® Configurations

Filterra is offered in multiple configurations to meet site specific needs. These additional configurations make Filterra a versatile yet effective stormwater BMP with a low life-cycle cost.

Filterra Internal Bypass – Curb

The Filterra Internal Bypass – Curb incorporates a curb inlet treatment chamber and internal high flow bypass in a single structure. This eliminates the need for a separate bypass structure and enables placement on grade or in a "sag" or "sump" condition.

Filterra Internal Bypass – Pipe

The Filterra Internal Bypass – Pipe treats stormwater runoff from rooftops or other sub-grade sources such as area drains. Higher flows bypass the biofiltration treatment system via an overflow/bypass pipe.

Filterra Street Tree

The Filterra Street Tree accommodates trees larger than the standard small-medium-sized trees used in standard Filterra units. These larger trees can provide benefits to site landscape designs on canopy cover, tree count, or percentage of green area.

Filterra Sedimentation Chamber

The Filterra Sedimentation Chamber includes a pre-treatment chamber that provides settling for debris and sediment, meeting water quality volume temporary hold requirements in some jurisdictions.

Filterra Bioscape®

The Filterra Bioscape system available with or without the concrete vault provides an option for larger drainage areas where standard Filterra is not feasible. Contech provides activation and maintenance services to ensure quality and ease of Filterra component placement.

Learn more at www.ContechES.com/filterra

Filterra® Media – Proven Pollutant Removal

At the heart of the Filterra system is Filterra engineered biofiltration media; a specified gradation of washed aggregate and organic material homogeneously blended under strict quality controlled conditions. Using data from independent, third-party studies including the University of Virginia (TARP), Herrera Environmental Consultants (TAPE), Terraphase Engineering (NJCAT), North Carolina State University (TAPE & TARP) and Geosyntec Consultants, the filter media has been optimized to operate under high flow rates while maintaining pollutant removal performance. Filterra media is tested for hydraulic functionality, fertility, and particle size distribution to ensure uniform performance.

Filterra media also supports a vegetation component consisting of grasses, shrubs, or trees that assist with the adsorption of pollutants through biological uptake/storage and pollutant consumption by microbes within the plant root zone.

MEASURED POLLUTANT REMOVAL PERFORMANCE			
Pollutant	**Median Removal Efficiency**	**Median Effluent Concentration (mg/L)**	**Third Party Reference Studies**
Total Suspended Solids	86%	3.3	UVA 2006, Herrera 2009, Herrera 2014, NC State 2015
Total Phosphorus (TAPE)	70%	0.05	Herrera 2014, NC State 2015
Total Nitrogen	34%	0.54	NC State 2015
Total Copper	55%	0.004	UVA 2006, Herrera 2009
Dissolved Copper	43%	0.003	Herrera 2009
Total Zinc	56%	0.04	UVA 2006, Herrera 2009, NC State 2015
Dissolved Zinc	54%	0.1	Herrera 2009
Total Petroleum Hydrocarbons	87%	0.71	Herrera 2009

Information above is based on results from third party field studies following industry recognized protocols such as TAPE and TARP. Relevant studies are noted for each pollutant, and corresponding data was aggregated to provide realistic and repeatable performance expectations.

Some jurisdictions recognize higher removal rates - see your Contech Stormwater Consultant for performance expectations.

Filterra media has been **optimized** to operate under high flow rates while maintaining pollutant removal performance.

Filterra® – Regulatory Approvals

Based on more than 20 years of research and development, testing and field monitoring, Filterra's performance has been recognized by some of the nation's most significant regulatory agencies, including the states of Washington, Virginia, Maryland and New Jersey, the District of Columbia, the Texas Commission on Environmental Quality and the Atlanta (GA) Regional Commission, and the City of Portland (OR). Highlights regarding these approvals include:

- Granted ESD (Environmental Site Design) status by the state of Maryland Department of the Environment (MDE).
- GULD-approved for ALL pollutants of concern with the state of Washington Department of Ecology (WA-Ecology) with (2) TAPE field tests.
- Multiple third-party nationally recognized field/lab tests completed: (1) TARP, (2) TAPE, (1) NJCAT and (1) NC-DENR.

Filterra® – In the Field

We make it easy! The Filterra system is delivered to the job site with all components except vegetation and mulch.

Filterra – Installation

- Contractor off-loads top and vault separately.
- Set vault to grade on 6" compacted stone, install piping, backfill, set top.
- Leave protective throat plate and tree grate covers in place.

Filterra – Activation

- Contractor completes and returns Activation Checklist paperwork.
- Vegetation selection guidance based on your climate zone.
- Contech-certified providers conduct on-site activation with installation of mulch and plant vegetation.

Filterra – Maintenance

- The first year of maintenance is included with every system.
- Maintenance is low-cost, low-tech and simple:
  - » Remove trash, sediment, and mulch.
  - » Replace with a fresh 3" layer of mulch.
  - » Can be completed by landscape contractor.
  - » No confined space entry.

The **first year of maintenance** is **included** with the purchase of every Filterra system.

Learn more at www.ContechES.com/filterra

Next Steps

Dig Deeper

Find all the information you need at www.ContechES.com, including field and laboratory test results, approvals, brochures, design guides, standard details and specifications within the product section of our site.

Connect with Us

We're here to make your job easier – and that includes being able to get in touch with us when you need to. www.ContechES.com/localresources.

While you're there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

Start a Project

If you are ready to begin a project, contact your local representative to get started. Or you can check out our design toolbox for all our online resources at www.ContechES.com/startaproject.

Links to Stormwater Design Tools:

To use the Land Value Calculator, visit: www.ContechES.com/lvc

To use the Design Your Own Detention System tool, visit: www.ContechES.com/dyods

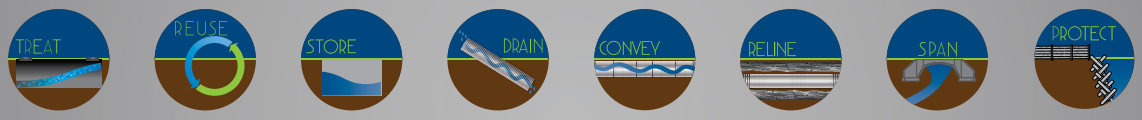
To use the Design Your Own Hydrodynamic Separator tool, visit: www.ContechES.com/dyohds

To use the Rainwater Harvesting Runoff Reduction Calculator tool, visit: www.ContechES.com/rwh-calculator

To use the Low Impact Development Site Planner tool, visit: www.ContechES.com/lidsiteplanner

CONTECH® ENGINEERED SOLUTIONS

COMPLETE SITE SOLUTIONS



STORMWATER SOLUTIONS

Helping to satisfy stormwater management requirements on land development projects

- Stormwater Treatment
- Detention/Infiltration
- Rainwater Harvesting
- Biofiltration/Bioretention

PIPE SOLUTIONS

Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness

- Corrugated Metal Pipe (CMP)
- Steel Reinforced Polyethylene (SRPE)
- High Density Polyethylene (HDPE)
- Polyvinyl Chloride (PVC)

STRUCTURES SOLUTIONS

Providing innovative options and support for crossings, culverts, and bridges

- Plate, Precast & Truss bridges
- Hard Armor
- Retaining Walls
- Tunnel Liner Plate

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Filterra Brochure 3M 11/16

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CONTECH® ENGINEERED SOLUTIONS

filterra® Bioretention Systems
A Growing Idea in Stormwater Filtration

Filterra® Maintenance Steps

1. Inspection of Filterra and surrounding area

2. Removal of tree grate and erosion control stones

3. Removal of debris, trash and mulch

4. Mulch replacement

5. Clean area around Filterra

6. Complete paperwork and record plant height and width

Contech has created a network of Certified Maintenance Providers (CCMP's) to provide maintenance on Filterra systems. To find a CCMP in your area please visit www.conteches.com/maintenance

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Section 35

Traffic Impact Study

A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

TRAFFIC IMPACT STUDY

FOR

PROPOSED

STROUDWATER PRESERVE

Residential Subdivision

Prepared For: Stroudwater Development Partners, LLC

Prepared By: William J. Bray, P.E.

October, 2017

INTRODUCTION

Stroudwater Development Partners, LLC are proposing a residential subdivision on the existing Camelot Farms property located on outer Westbrook Street in the City of Portland. The present development plan proposes 99 single-family house lots and 25 multi-family units on the 55.3-acre parcel of land. Access to the proposed subdivision will be provided with construction of two proposed roadways that will be offered for public street acceptance. The most easterly street connection will intersect Westbrook Street directly opposite existing Swan Street and the second street access intersects Westbrook Street approximately 950-feet westerly.

The purpose of this study is to examine existing traffic conditions in the general vicinity of the proposed project, estimate the total number of site trips generated by the project, and make a determination as to whether the existing transportation system can safely accommodate the added traffic demand generated by the project.

EXISTING CONDITIONS

Existing Traffic: Manual turning movement counts were conducted at the following intersections on the dates noted in 2016:

1. Swan Street @ Westbrook Street - Thursday, October 20, 2016
2. Congress Street @ Westbrook Street - Thursday, October 27, 2016

All entering traffic at both intersections was recorded in 15-minute intervals between the hours of 7:00 and 9:00 AM and between 3:00 and 6:00 PM (Copies of the field data summary sheets are attached). From a summary of the data a peak hour of traffic was determined for both study intersections. The established peak hour of traffic and the total entering volume of traffic recorded at each location is noted as follows:

Westbrook Street @ Swan Street [October 20, 2016]
AM Peak Hour (7:15 to 8:15 AM) = Total entering traffic = 773
PM Peak Hour (4:00 to 5:00 PM) = Total entering traffic = 803

Congress Street @ Westbrook Street [October 27, 2016]
AM Peak Hour (7:30 to 8:30 AM) = Total entering traffic = 2,630
PM Peak Hour (4:30 to 5:30 PM) = Total entering traffic = 3,191

Supplemental traffic data was collected at the Congress Street/Westbrook Street intersection during the month of October 2017 (October 18, 2017) during both peak travel periods to affirm the appropriateness of the traffic data collected in 2016. The determined peak hours and the total volume of traffic recorded during both peak periods is presented as follows:

Congress Street @ Westbrook Street [October 18, 2017]
AM Peak Hour (7:30 to 8:30 AM) = Total entering traffic = 2,541
PM Peak Hour (4:30 to 5:30 PM) = Total entering traffic = 2,937

Traffic data collected in 2016 for the Congress Street/Westbrook Street intersection in the AM peak hour is approximately 4% greater than the data collected in 2017 and the traffic data recorded in the afternoon peak hour in 2016 is nearly 10% greater than the data collected in 2017. Accordingly, Traffic Solutions has determined that the earlier traffic data presents an accurate assessment of the peak traffic volumes at both study intersections.

Traffic data collected during the month of October requires an adjustment to reflect "*peak*" travel conditions during the summer months of July and August. MaineDOT provides factors for adjusting traffic data collected during other periods of time. MaineDOT utilizes highway classifications of I, II, or III for all State and Local roadways. Group I roadways are defined as urban roadways or those roads that typically see commuter traffic

and experience little fluctuation from week to week throughout the year. Group II roadways or arterial roads are those that see a combination of commuter and recreational traffic and; therefore, experience moderate fluctuations during the year. Group III roads or recreational roadways are typically used for recreational purposes and experience significant seasonal fluctuations. MaineDOT has designated both Westbrook and Congress Street as Group I roadways, which require the collected traffic data to be adjusted by a factor of approximately 1.08. Figure 1 illustratively depicts the estimated 2016 AM and PM design hour traffic conditions at both study intersections.

TRAFFIC ACCIDENTS

Existing Safety Trends: The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2014 through 2016) crash data for the section of Westbrook Street (Congress Street to Westbrook City Line), a distance of 1.27 miles. Their report is summarized in Table 1, as follows, and attached as an appendix to the report:

Table 1
2014 -2016 Traffic Accident Summary
(Westbrook Street)

Location	Total Crashes	Critical Rate Factor
1. Westbrook Street @ Stroudwater Road	1	0.29
2. Westbrook Street @ Penrith Road	1	0.28
3. Westbrook Street @ Congress Street	30	0.92
4. Westbrook Street btw. Swan Street and Westbrook City Line	5	0.33
5. Westbrook Street btw. Swan Street and Buttonwood Ln.	2	0.31
6. Westbrook Street btw. Penrith Rd. and Congress Street	7	1.06

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

The roadway safety audit shows that there are no high crash locations reported for the full length of Westbrook Street, a distance of 1.27 miles. MaineDOT's safety report clearly shows that the intersection of Congress Street/Westbrook Street does not meet their criteria as a high crash location, yet, the number of crashes is significant enough to warrant further detailed review of conditions within the intersection. Detailed vehicle collision diagrams were prepared for each of the 30 reported vehicle crashes to establish existing crash patterns. A copy of the vehicle collision diagram prepared for the intersection is attached as an appendix to the report. Twenty-three (23) of the thirty reported accidents were "*rear-end*" crashes occurring on Congress Street, with eighteen (18) of the 23 reported on the northbound approach. The majority of the crashes (roughly 60%) occurred during either the morning or afternoon peak commuter hours.

SITE TRAFFIC

Site Trip Generation: Trip generation for the residential subdivision was determined based upon trip tables presented in the seventh edition of the Institute of Transportation Engineers "**TRIP GENERATION**" handbook. The ITE publication provides numerous land-use categories and the average volume of trips that are generated by each category. The following trip rates were used to calculate the trip generation of the proposed project:

Land Use #210 – Single-Unit Detached Housing
AM Peak Hour = 0.75 trips per dwelling unit
PM Peak Hour = 1.01 trips per dwelling unit

Land Use #220 - Apartment
AM Peak Hour = 0.51 trips per dwelling unit

PM Peak Hour = 0.62 trips per dwelling unit

The following Table 2 presents the determination of peak hour trip generation for the proposed residential subdivision:

Table 2

Peak Hour Trip Generation
Stroudwater Preserve Subdivision

Proposed Use	Number of Units	AM Peak Hour Trips	PM Peak Hour Trips
Single-Family Homes	99	74	100
Apartments	25	13	16
TOTAL	**124**	**87**	**116**

Site Trip Distribution: The Institute of Transportation Engineers "**TRIP GENERATION**" handbook provides the following directional distribution rates for each of the site-specific land use categories during both defined peak hour time periods:

Land Use #210 – Single-Unit Detached Housing = AM Peak - 25% enter/75% exit
= PM Peak - 63% enter/37% exit

Land Use #220 – Apartment = AM Peak - 20% enter/80% exit
= PM Peak - 65% enter/35% exit

Table 3, as follows, presents the directional distribution patterns of the peak hour traffic generated by the proposed residential subdivision:

Table 3
Site Trip Distribution Patterns
Stroudwater Preserve Subdivision

Proposed Use	Total Trips		AM Peak Hour		PM Peak Hour	
	AM Peak	PM Peak	Entering Trips	Exiting Trips	Entering Trips	Exiting Trips
Single-family Homes	74	100	18	56	63	37
Apartment	13	16	3	10	10	6
TOTAL	**87**	**116**	**21**	**66**	**73**	**43**

Site Trip Composition: Trips generated by the proposed residential subdivision are assumed to be "*new*" or "*primary*" trips.

Site Trip Assignment: A travel model that replicates existing traffic patterns recorded for Swan Street was used in assigning vehicle trips generated by the proposed residential subdivision to the Westbrook Street corridor. The directional assignment percentages applied are presented as follows:

AM Peak Hour = 80% east/20% west
PM Peak Hour = 85% east/15% west

Figure 2 is a line diagram that depicts the assignment of the site generated traffic for both "*peak*" time periods.

FUTURE TRAFFIC

Annual Growth: The Traffic Impact Study has been prepared based upon a projected build-out year of 2023. MaineDOT's historical traffic data for the sections of both Westbrook and Congress Streets in the Stroudwater neighborhood would suggest the appropriateness of zero growth in annual traffic for the corridor. However, to ensure a conservative assessment of traffic impact, the 2016 design hour traffic volumes were increased by an annual growth rate of 1% per year to approximate future 2023 design hour traffic conditions. Figure 3 presents the estimated 2023 design hour traffic forecasts for the study intersections.

Other Development Traffic: Traffic generated by projects that have been approved by the Local Planning Board and/or the Maine Department of Transportation, yet are not opened, must be included in the estimate of pre-development traffic. Peak hour trips generated by the following projects were appropriately considered in developing an estimate of Other Development trips:

1. *The Dirigo Plaza Project*
2. *Northland Enterprises, LLC Office Development*
3. *Portland International Jetport Future Expansion*
4. *JCA Community Center*

Figure 4 provides an assignment of the trips generated by the noted projects through the study intersections.

2023 Pre-Development Traffic: 2023 Pre-Development traffic forecasts were prepared for the study intersections by combining the estimated 2023 design hour traffic forecasts depicted on Figure 3 with the Other Development trips presented on Figure 4. Figure 5 presents the 2023 pre-development traffic forecasts for the study intersections.

2023 Post-Development Traffic: 2023 Post-Development traffic forecasts were prepared for the study intersections by combining the 2023 Pre-Development travel forecasts illustrated on Figure 5 with the estimated site generated trips highlighted on Figure 2. Figure 6 presents the estimated 2023 post-development traffic forecasts for the study intersections.

MOBILITY ANALYSIS

Capacity analyses of both 2023 Pre- and Post-Development traffic conditions were performed utilizing the Synchro and SimTraffic computer models. Levels of Service rankings are similar to the academic grading system, where an "A" is very good with little delay and "F" represents very poor conditions.

The following tables present the relationship between delay and Level of Service for both signalized and unsignalized intersections:

Level of Service Criteria for Signalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Intersection capacity of the Congress Street/Westbrook Street signalized intersection was assessed based on existing intersection geometry, traffic signal phasing, and timing improvements most recently completed by the City for the projected pre-development condition. Forecast travel conditions for the 2023 post-development traffic condition were analyzed again based upon existing intersection geometry and recent traffic signal phasing improvements and optimization of signal timings currently operating at the intersection. The results of the separate capacity analyses are presented in the following Table 4:

Table 4
Signalized Intersection Level of Service Summary
Congress Street @ Westbrook Street
(2023 Pre- and Post-Development Travel Conditions)

	2023 Pre-Development				2023 Post-Development			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection/Approach	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS
Congress Street @ Westbrook Street								
- Congress Street NB	27 sec.	C	47 sec.	D	31 sec.	C	51 sec.	D
- Congress Street SB	92 sec.	F	64 sec.	E	59 sec.	E	67 sec.	E
- Westbrook Street EB	108 sec.	F	184 sec.	F	105 sec.	F	73 sec.	E
- Westbrook Street WB	55 sec.	D	72 sec.	E	68 sec.	E	68 sec.	E
Overall Intersection	**78 sec.**	**E**	**69 sec.**	**E**	**63 sec.**	**E**	**61 sec.**	**E**

The Congress Street/Westbrook Street intersection is projected to operate overall at Level of Service E travel conditions under both 2023 pre-and post-development travel conditions. Overall intersection delay values of 69 plus seconds are expected under the forecast 2023 pre-development travel conditions. Traffic signal timing optimization improvements applied in completing the 2023 post-development level of service assessment demonstrates the overall benefits of future timing adjustments at the intersection. Vehicle delay is reduced to values less than 2023 pre-development conditions during both peak hour study time periods.

The following Table 5 summarizes the results of the capacity analyses completed for the unsignalized intersections at Westbrook Street and Swan Street and the proposed westerly subdivision street intersection with Westbrook Street.

Table 5
Level of Service Summary
2023 Pre- and Post-Development Conditions

	2023 Pre-Development				2023 Post-Development			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection/Approach	**Delay (sec.)**	**LOS**	**Delay (sec.)**	**LOS**	**Delay (sec.)**	**LOS**	**Delay (sec.)**	**LOS**
1. Westbrook Street/Swan Street (3-way intersection)								
- Westbrook Street EB	1 sec.	A	1 sec.	A	n/a	n/a	n/a	n/a
- Westbrook Street WB	1 sec.	A	4 sec.	A	n/a	n/a	n/a	n/a
- Swan Street	10 sec.	A	9 sec.	A	n/a	n/a	n/a	n/a
Overall Intersection.	**1 sec.**	**A**	**1 sec.**	**A**	**n/a**	**n/a**	**n/a**	**n/a**
2. Westbrook Street/Subdivision East Access/Swan Street								
- Westbrook Street EB	n/a	n/a	n/a	n/a	3 sec.	A	1 sec.	A
- Westbrook Street WB	n/a	n/a	n/a	n/a	1 sec.	A	1 sec.	A
- Swan Street SB	n/a	n/a	n/a	n/a	9 sec.	A	11 sec.	B
- Subdivision East Access NB	n/a	n/a	n/a	n/a	9 sec.	A	6 sec.	A
Overall Intersection	**n/a**	**n/a**	**n/a**	**n/a**	**2 sec.**	**A**	**1 sec.**	**A**
3. Westbrook Street/Subdivision West Access								
- Westbrook Street EB	n/a	n/a	n/a	n/a	1 sec.	A	1 sec.	A
- Westbrook Street WB	n/a	n/a	n/a	n/a	1 sec.	A	3 sec.	A
- Subdivision West Access NB	n/a	n/a	n/a	n/a	10 sec.	A	2 sec.	A
Overall Intersection	**n/a**	**n/a**	**n/a**	**n/a**	**1 sec.**	**A**	**5 sec.**	**A**

Each of the three unsignalized study intersections highlighted in the preceding table are expected to operate at the "*best*" level of service (Level of Service A) experiencing very minimal overall intersection delay.

VEHICLE SIGHT DISTANCE

The Maine Department of Transportation's Highway Entrance and Driveway Rules, require the following sight distances for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	305
40	**360**
45	425
50	495
55	570

The MaineDOT determines the minimum allowable sight distances for any highway entrance based upon the posted speed limits presented in the preceding table. Westbrook Street across the full frontage of the proposed development parcel is posted at 35mph, which requires a minimum unobstructed sightline of 305 feet.

Traffic Solutions completed an additional step to determine the appropriateness and adequacy of MaineDOT's minimum sight distance requirement for Westbrook Street. A vehicle speed study was conducted on Westbrook Street on Wednesday, October 18 between the hours of 10:00 AM and 1:00 PM to establish the 85th percentile speed (design speed of traffic) in both directions of travel on Westbrook Street. The technician collecting the speed data was stationed in the intersection throat of Old Westbrook Street at Westbrook Street. A total of one-hundred (100) speed samples were gathered for each direction of travel. Copies of the speed data is attached as an appendix to the report. The calculated 85th percentile speeds for Westbrook Street are: 42 mph eastbound and 40 mph westbound.

Accordingly, Traffic Solutions recommends that the minimum allowable sightline distance at both proposed street intersections should be based upon a travel speed of 40mph, which requires an unobstructed sightline of 360-feet.

The following directional distances were measured at both proposed street intersections with Westbrook Street:

Proposed East Street Intersection
Left = 925 feet
Right = 740 feet
Proposed West Street Intersection
Left = 550 feet
Right = 925 feet

The sightline measurements recorded at each proposed street intersection meet and exceed, by a considerable margin, the minimum allowable distance for a travel speed of 40mph.

AUXILIARY LANE WARRANT ANALYSIS

The Maine Department of Transportation has published a warrant for auxiliary left-turn lanes in their December 2004 Highway Design Manual. The warrants are predicated upon the volume of two-way traffic traveling on the designated highway and the volume of left-turning vehicles. Figure 8-19 (Posted Speed Limit of 40 mph) from MaineDOT's referenced design manual was used in conducting the analysis (A copy of the chart with the superimposed traffic values is attached as an appendix to the report). An analysis was completed to determine if predicted "*build*" left-turn entry volumes to both proposed subdivision streets from the westbound approach of Westbrook Street meet MaineDOT's design guidelines for a dedicated left-turn lane. The traffic values applied in conducting the analyses and the results are presented in the following Table 6:

Table 6
Left-Turn Warrant Assessment
Westbrook Street at Subdivision Entrance(s)

Lane Warrant Values	Easterly Subdivision Entrance		Westerly Subdivision Entrance	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Va (Advancing Volume)	249	763	247	737
Vo (Opposing Volume)	756	308	725	291
Left-Turn Percentage	2%	3%	4%	5%
Warrant Status	**Warrant Not Met**	**Warrant Not Met**	**Warrant Not Met**	**Warrant Marginally Met**

The auxiliary lane warrant analysis shows that projected "*build*" travel conditions at the most easterly subdivision entrance (opposite Swan Street) do not satisfy the warrant requirements for an exclusive left-turn entry lane to the proposed subdivision. Projected left-turn entry movements through the second or most westerly subdivision entrance in the PM peak hour are somewhat greater than conditions forecast for the easterly entrance and, as a result, the warrants for left-turn treatment are marginally satisfied. The left-turn lane warrants are likely only satisfied with completion of the final or third development phase of the proposed subdivision.

PEDESTRIAN LINKAGE(S)

The connectivity and safety of pedestrian circulation, both internal and external to the proposed Stroudwater Preserve subdivision, were carefully considered and accounted for in the development of final design plans for the proposed residential project. Pedestrian sidewalks are proposed within the proposed subdivision roadway system and along the southside of Westbrook Street from roughly Old Westbrook Street intersection to the proposed subdivision entrance located opposite Swan Street. The proposed design plans feature three pedestrian crossings of Westbrook Street with the first location located near the Old Westbrook Street intersection that connects the Portland Trails Fore River Sanctuary Trail System across Westbrook Street. The second pedestrian crossing is proposed near the Portland Pipeline's "50" easement providing connection to the proposed trail system along the Stroudwater River. The third and final pedestrian crossing of Westbrook Street is proposed at the most easterly subdivision entrance street opposite Swan Street that connects the proposed subdivision to residential properties located along Swan Street etc.

The first proposed street crossing located at Old Westbrook Street and the third location located opposite Swan Street will be designed meeting the City's high-level crossing standard that includes an installation of rectangular rapid flashing beacons, channelization improvements, and "*piano*" style crosswalk markings. The middle pedestrian crossing will be designed with "*piano*" style crosswalk marking only.

SUMMARY

1. The proposed 124 residential units can be expected to generate a total of 87 vehicle trips during the AM peak hour and 116 trips in the afternoon peak hour. Twenty-one (21) trips in the AM peak hour and seventy-three (73) trips in the PM peak hour will enter the subdivision and the remaining trips (66 trips AM peak hour and 43 trips PM peak hour) will exit the subdivision.

2. The three-year (2014 through 2016) roadway safety audit completed for the 1.27-mile section of Westbrook Street (Westbrook City Line to Congress Street) shows the frequency of reported traffic crashes at each reviewed street intersection and road section is below MaineDOT's criteria for identification of a High Crash Location. MaineDOT's road safety data shows a very high number of vehicle crashes (30 crashes in the three-year study time) have been reported at the Congress Street/Westbrook Street intersection, although the intersection is not considered a high crash location. At the request of the City, additional review of the intersection was completed with the preparation of detailed vehicle collision diagrams for each reported accident. The results of the detailed study concluded that nearly all (23 of the 30 crashes) of the reported collisions were "*rear-end*" crashes occurring on either Congress Street approaches. Eighteen (18) of the twenty-three vehicle crashes were reported for the northbound approach and the remaining five crashes located on the southbound approach. A review of prevailing conditions on the northbound approach would suggest that the sightline of motorists in the northbound travel lane is severely restricted limiting their view window of the traffic signals controlling the intersection. This very simple improvement would potentially provide additional distance for approaching motorists to stop before striking a vehicle already stopped in the intersection.

3. The Congress Street/Westbrook Street signalized intersection is projected to operate overall at Level of Service E under forecast 2023 Pre- and Post-development traffic conditions. Expected vehicle delay values in excess of 69 seconds will occur in both peak hour time periods under pre-development traffic loadings. The

projected 2023 post-development travel condition was tested incorporating optimized traffic signal timing changes to the intersection operation. The analysis demonstrates that an improvement in overall intersection delay can be achieved with minor adjustments in traffic signal timing. Overall vehicle delay is reduced to approximately 60 seconds in both peak hour time periods and the intersection can be expected to operate near Level of Service D travel conditions. Recommended traffic signal programming changes to the Congress Street at Westbrook Street intersection will be implemented under the direction of the City's Traffic Engineer at the conclusion of the final phase of development within the Stroudwater Preserve subdivision.

4. Traffic operations at both proposed street intersections with Westbrook Street will operate at the "*best*" level of service (Level of Service A) under forecast 2023 Post-development travel conditions.

5. The Maine Department of Transportation has published a warrant for auxiliary left-turn lanes in their December 2004 Highway Design Manual. The warrants are predicated upon the volume of two-way traffic traveling on the designated highway and the volume of left-turning vehicles. The auxiliary lane warrant analysis shows that projected "*build*" travel conditions at the most easterly subdivision entrance (opposite Swan Street) do not satisfy the warrant requirements for an exclusive left-turn entry lane to the proposed subdivision. Projected left-turn entry movements through the second or most westerly subdivision entrance in the PM peak hour are somewhat greater than conditions forecast for the easterly entrance and, as a result, the warrants for left-turn treatment are marginally satisfied. The left-turn lane warrants are likely only satisfied with completion of the final or third development phase of the proposed subdivision. A re-assessment of the auxiliary left-turn lane warrants will be performed prior to the commencement of the final phase of development within the proposed subdivision. If measured conditions warrant left-turn treatment at the proposed westerly street intersection the City will be consulted to determine the appropriate level of left-turn treatment for the proposed entrance.

6. Sightline measurements recorded at the centerline of both proposed subdivision street intersections at Westbrook Street exceed MaineDOT's non-mobility highway standard of 305 feet for a posted speed limit of 35mph. The assessment of sight distance was further evaluated based upon the measured 85th percentile roadway speeds (road design speed) on Westbrook Street. Roadway travel speeds were directionally recorded with radar equipment and a summarization of that data shows the 85th percentile speeds are slightly greater (40 mph) than the posted speed limit of 35mph. Vehicle sightline measurements determined for both directions of travel on Westbrook Street are adequate for roadway speeds in excess of 50 mph based upon the MaineDOT's highway standards.

7. Three pedestrian crossings of Westbrook Street are proposed with development of the proposed Stroudwater Preserve subdivision. Proposed crossings are planned at the Old Westbrook Street/Westbrook Street, Westbrook Street at the Portland Pipeline utility easement, and a third location is proposed at existing Swan Street. The first and third crossings will be constructed with the installation of rectangular rapid flashing beacons, channelization improvements, and "*piano*" key crosswalk markings. The City will be consulted to establish the final level of improvement at each location. The middle pedestrian crossing will include required "*piano*" key crosswalk markings only.

Portland: Westbrook & Swan
Thursday October 20, 2016
Sunny with some clouds
Count By: Dawn-Marie Fahey

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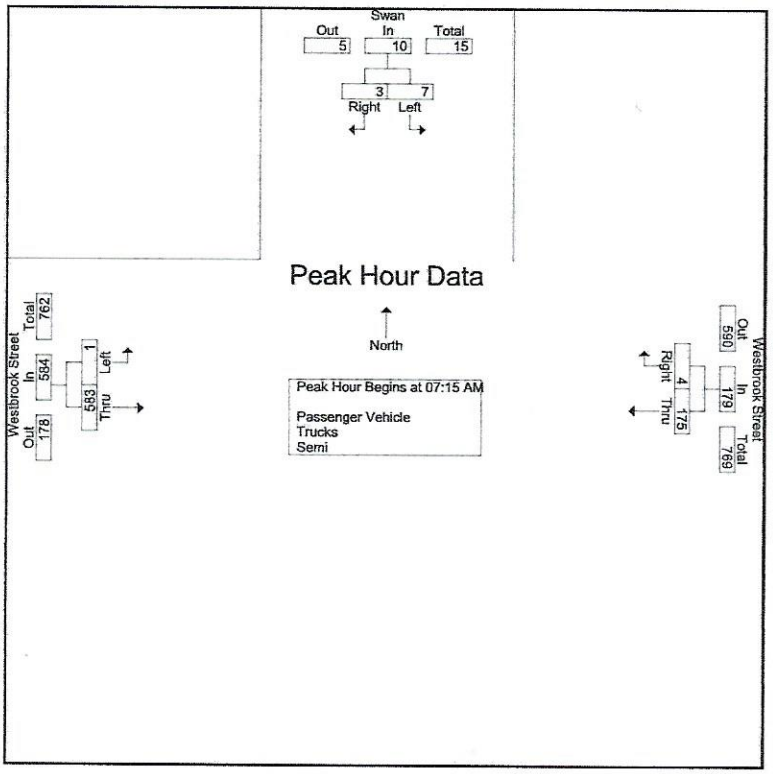
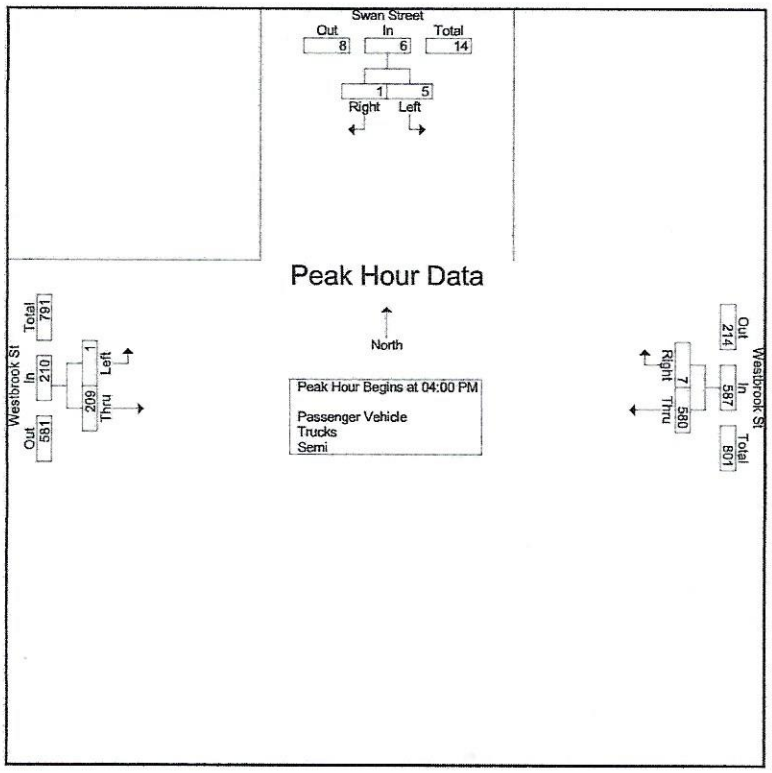
Start Date : 10/20/2016
Page No : 6



Portland: Westbrook & Swan
Thursday October 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Westbrook & Swan PM 10201
Site Code : 01102016
Start Date : 10/20/2016
Page No : 6



Portland Westbrook & Congress
Thursday October 27, 2016
Cloudy
Count By: Dawn-Marie & Patrick

File Name : Portland Westbrook & Congress Merge 7-9 10271
Site Code : 00192716
Start Date : 10/27/2016
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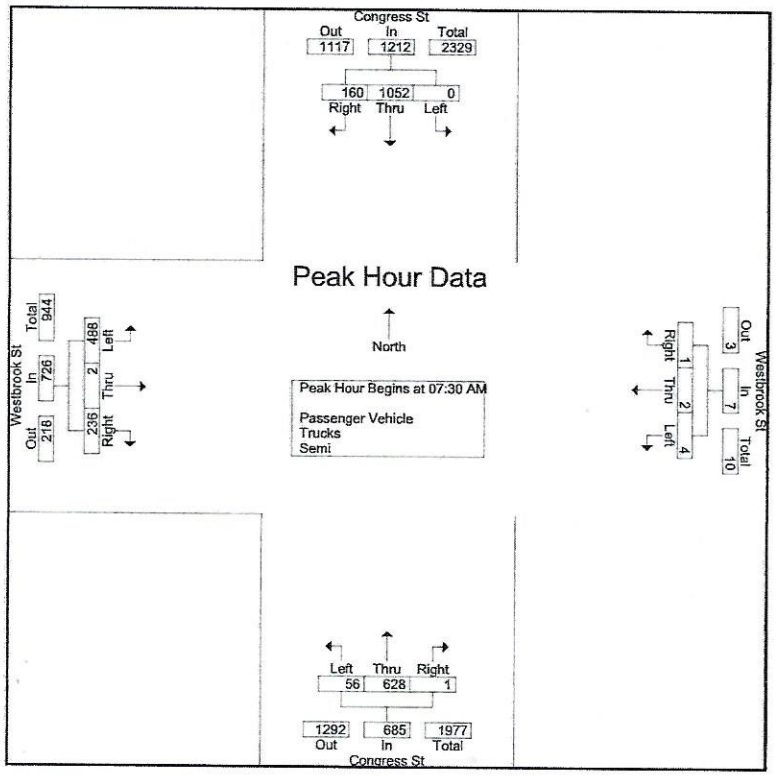

Portland Westbrook & Congress PM
Thursday October 27, 2016
Rain
Count By: Dawn-Marie & Patrick

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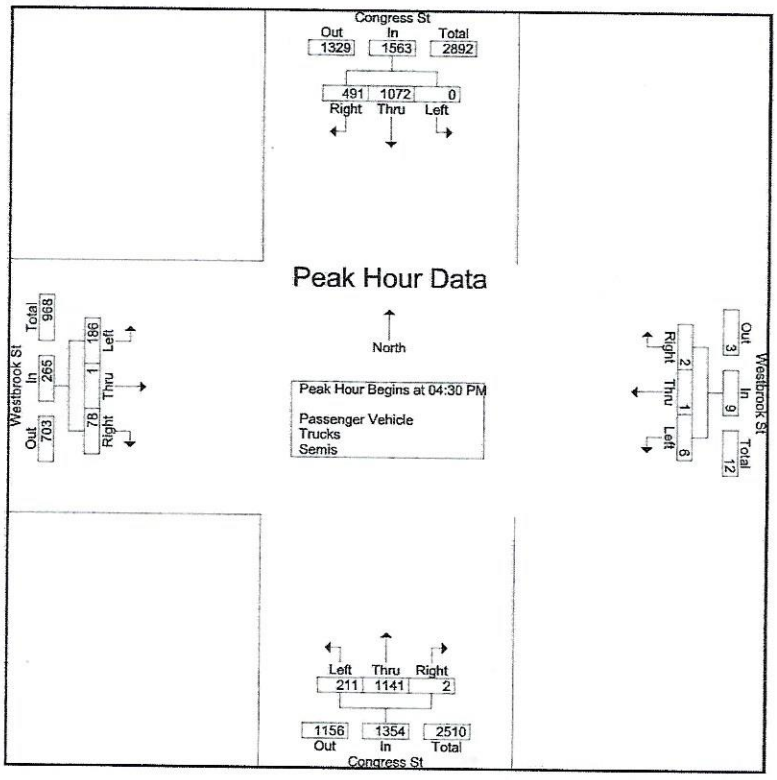
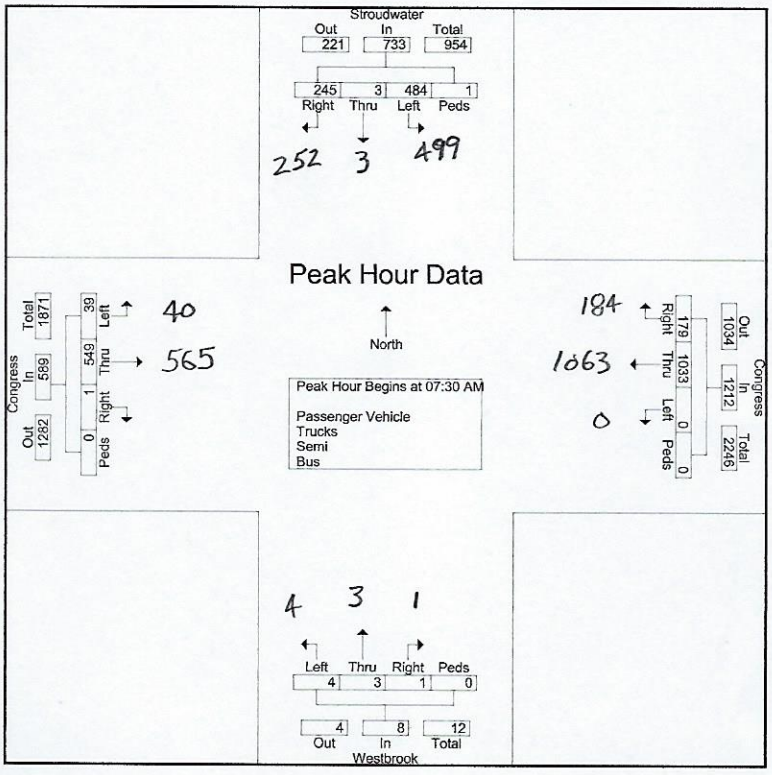


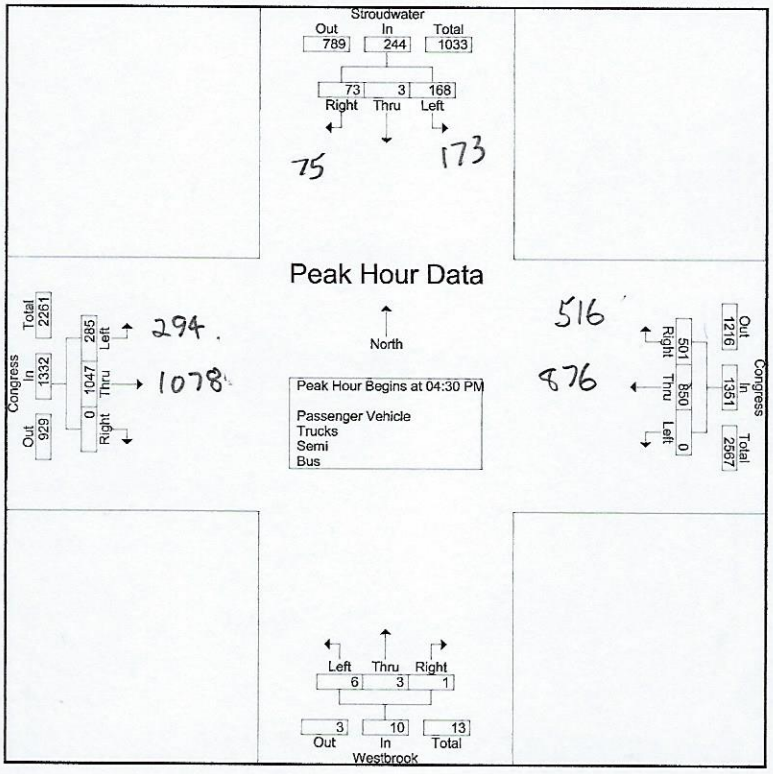
Portland: Congress, Westbrook & Stroudwa
Wednesday October 18,2017
Sunny
Count By: Dawn-Marie & James

File Name : Portland Congress & Westbrook AM 101817
Site Code : 21018172
Start Date : 10/18/2017
Page No : 6



Portland:Westbrook, Congress & Stroudwat
Wednesday October 18, 2017
Sunny
Count By: Dawn-Marie & James

File Name : Portland Congress & Westbrook PM 101817
Site Code : 41018174
Start Date : 10/18/2017
Page No : 6



2937

3191

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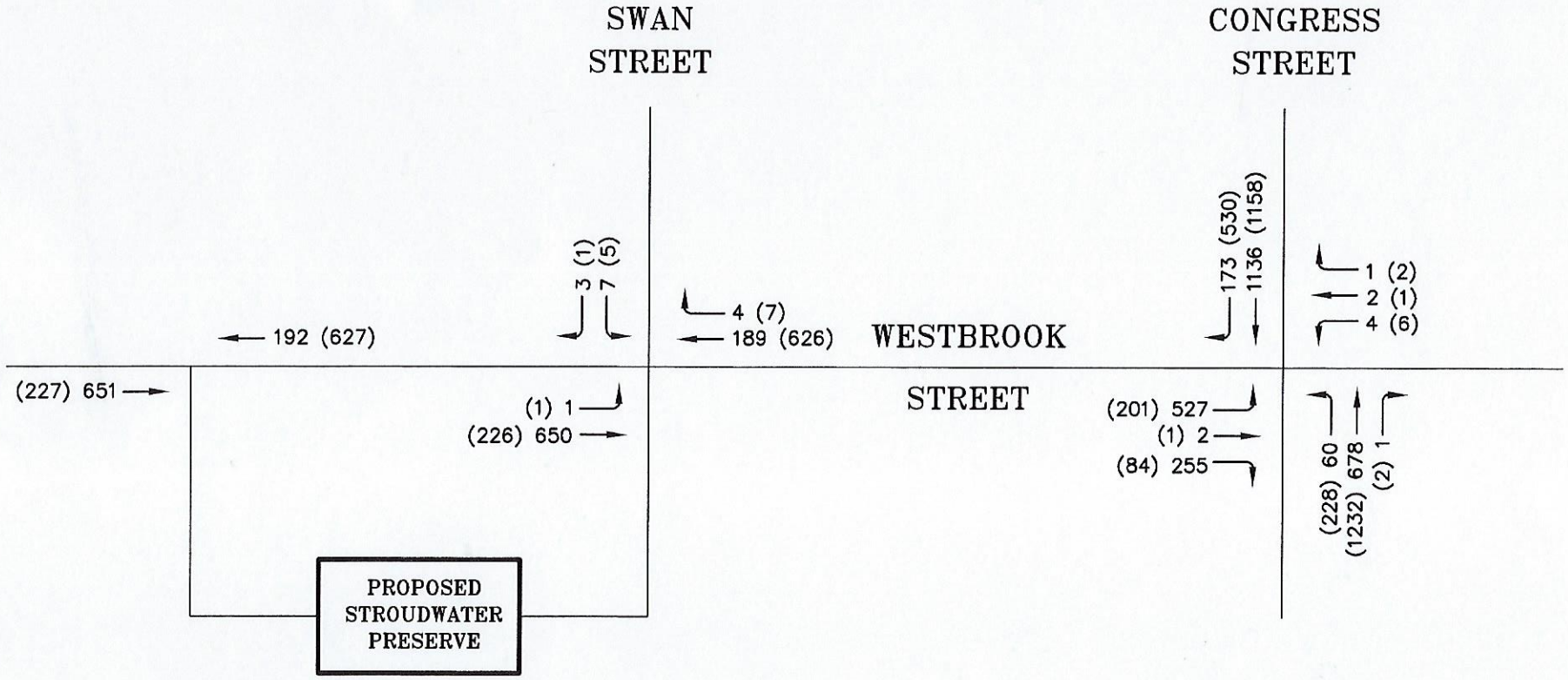


LEGEND

XX = AM PEAK HOUR

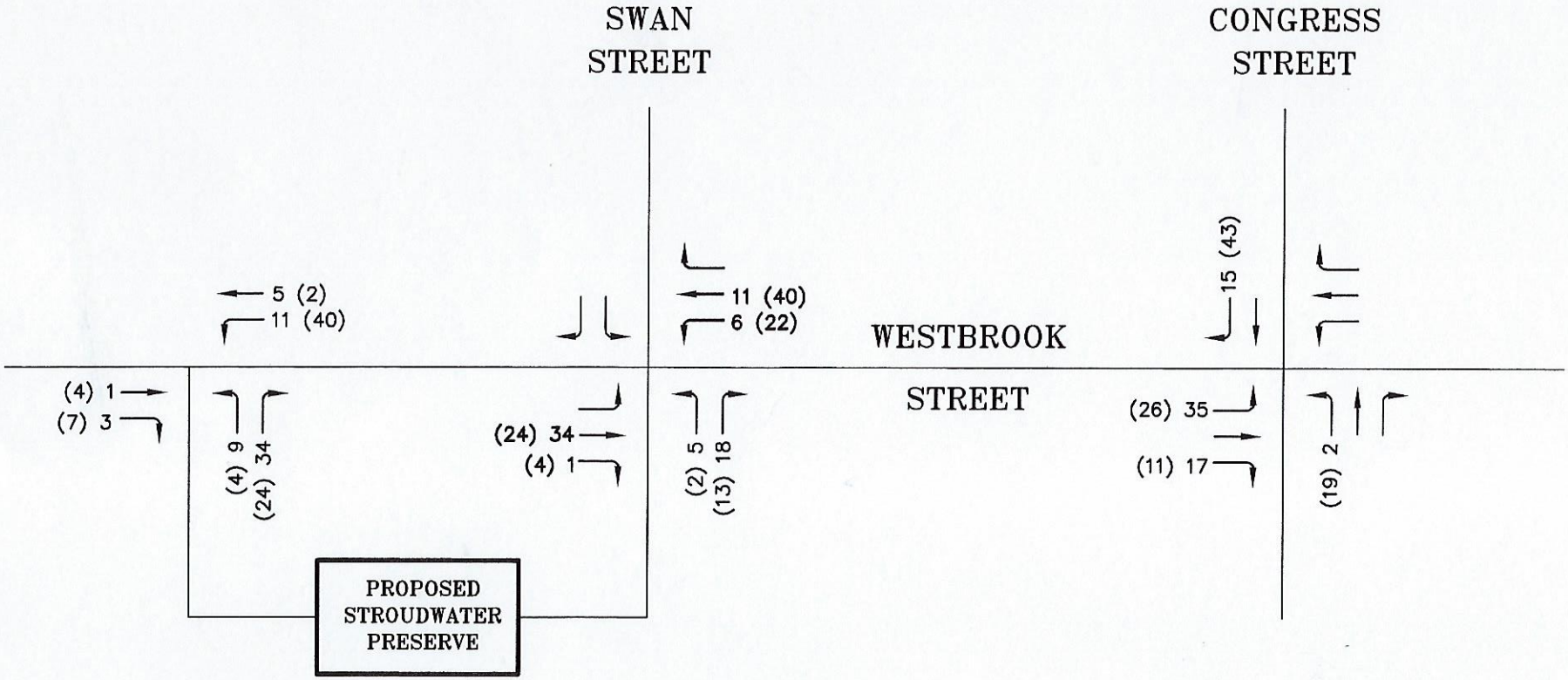
(XX) = PM PEAK HOUR

2016 DESIGN HOUR TRAFFIC

FIGURE 1

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\STROUDWATER PRESERVE\PLANSET\STROUDWATER PRESERVE.DWG

Project Name and Location: STROUDWATER PRESERVE, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: OCTOBER, 2017 — FIGURE: 1	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

SITE TRIP ASSIGNMENT

FIGURE 2

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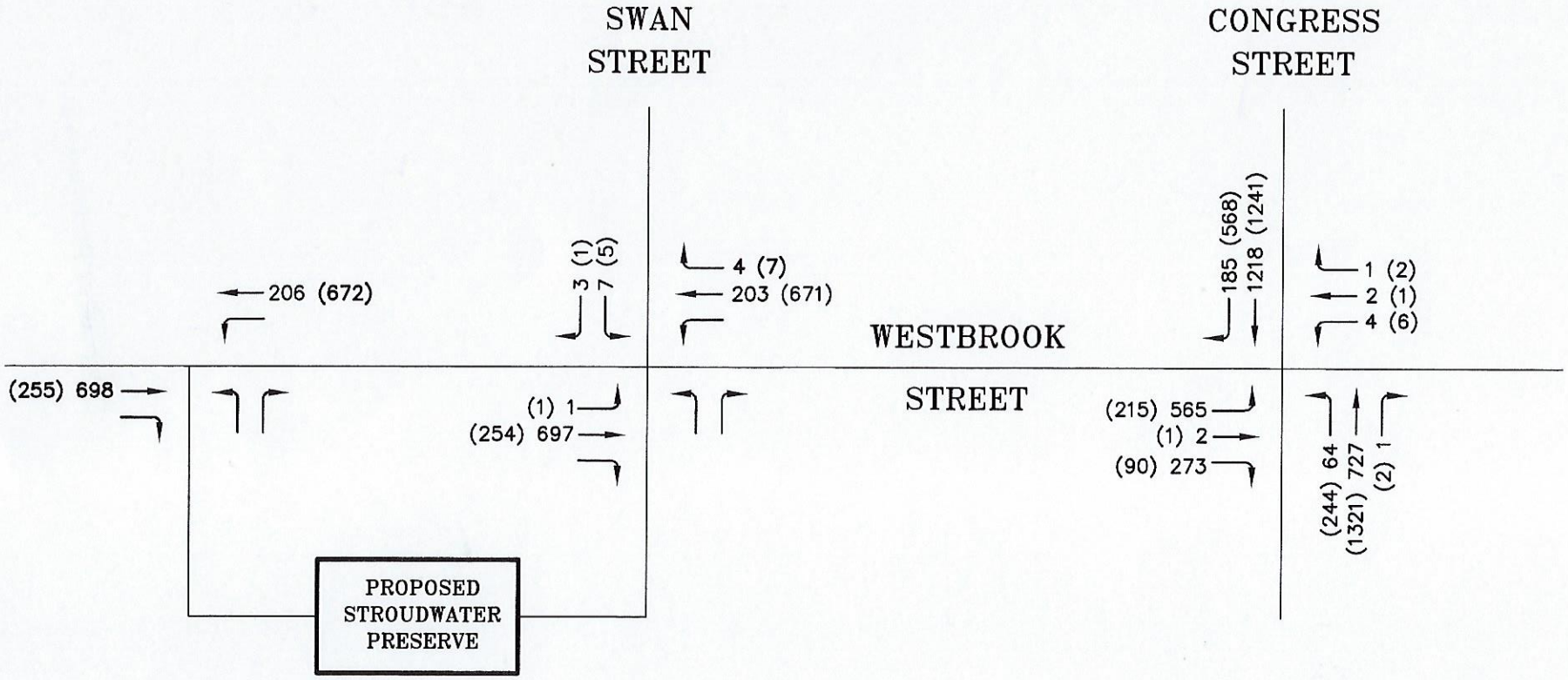
Project Name and Location: STROUDWATER PRESERVE, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: OCTOBER, 2017 — FIGURE: 2	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

2023 DESIGN HOUR TRAFFIC

FIGURE 3

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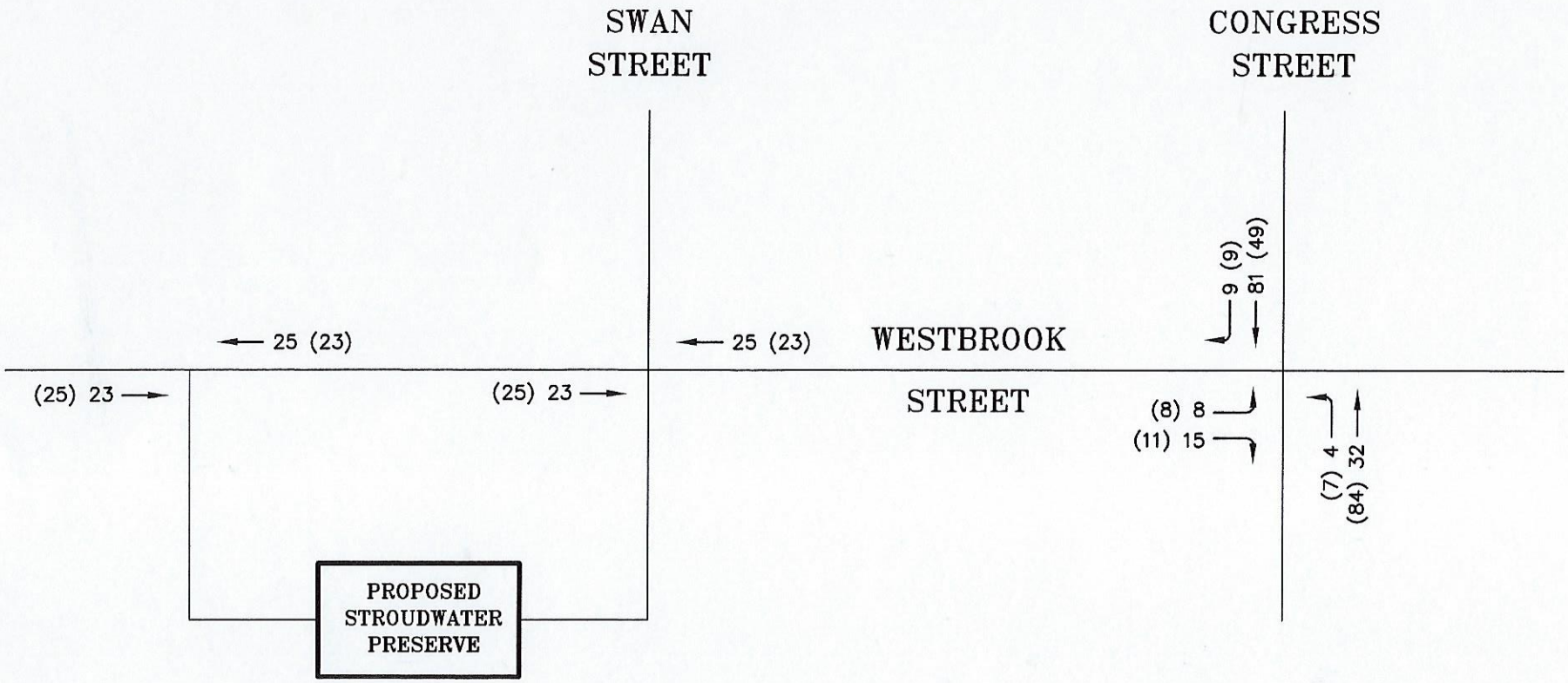
Project Name and Location: STROUDWATER PRESERVE, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: OCTOBER, 2017 — FIGURE: 3	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

OTHER DEVELOPMENT TRAFFIC

FIGURE 4

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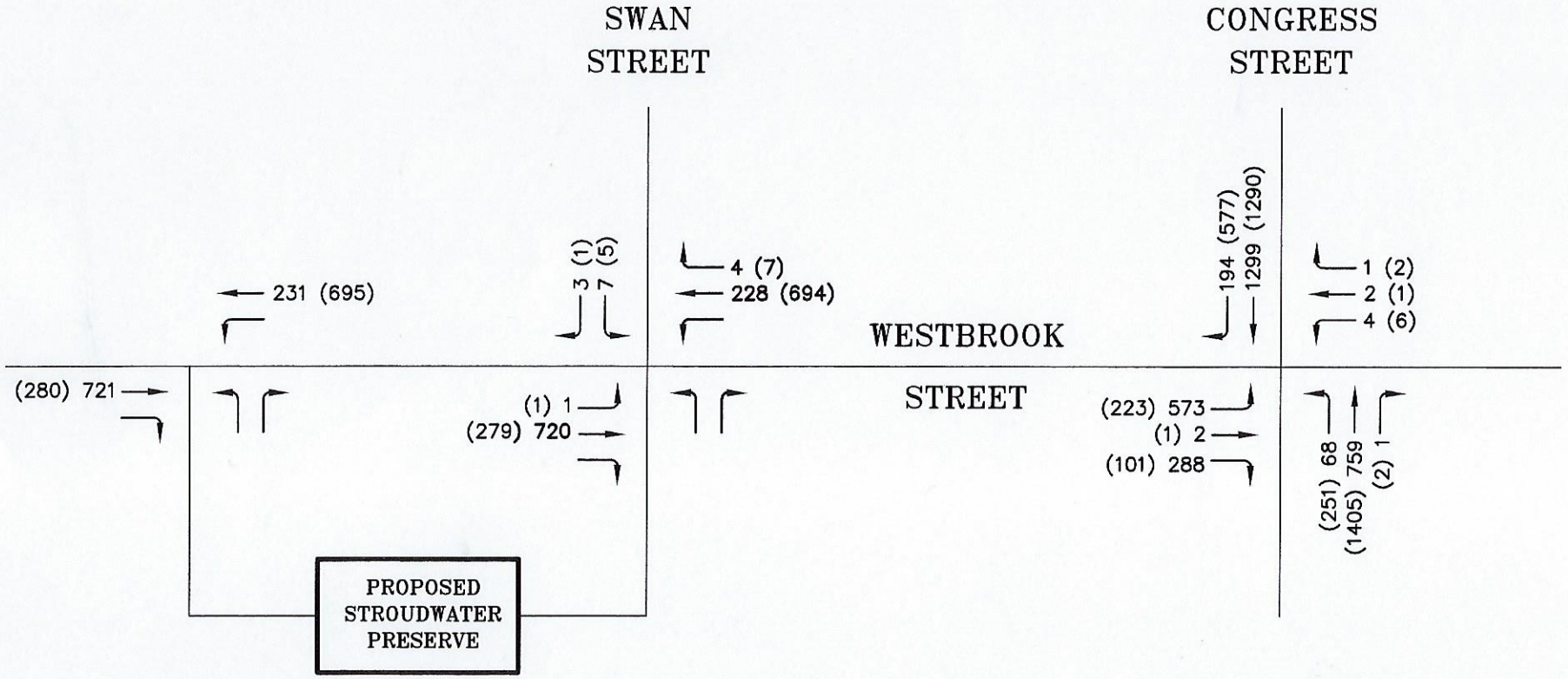
DATE: OCTOBER, 2017 FIGURE: 4	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

2023 PRE-DEVELOPMENT TRAFFIC

FIGURE 5

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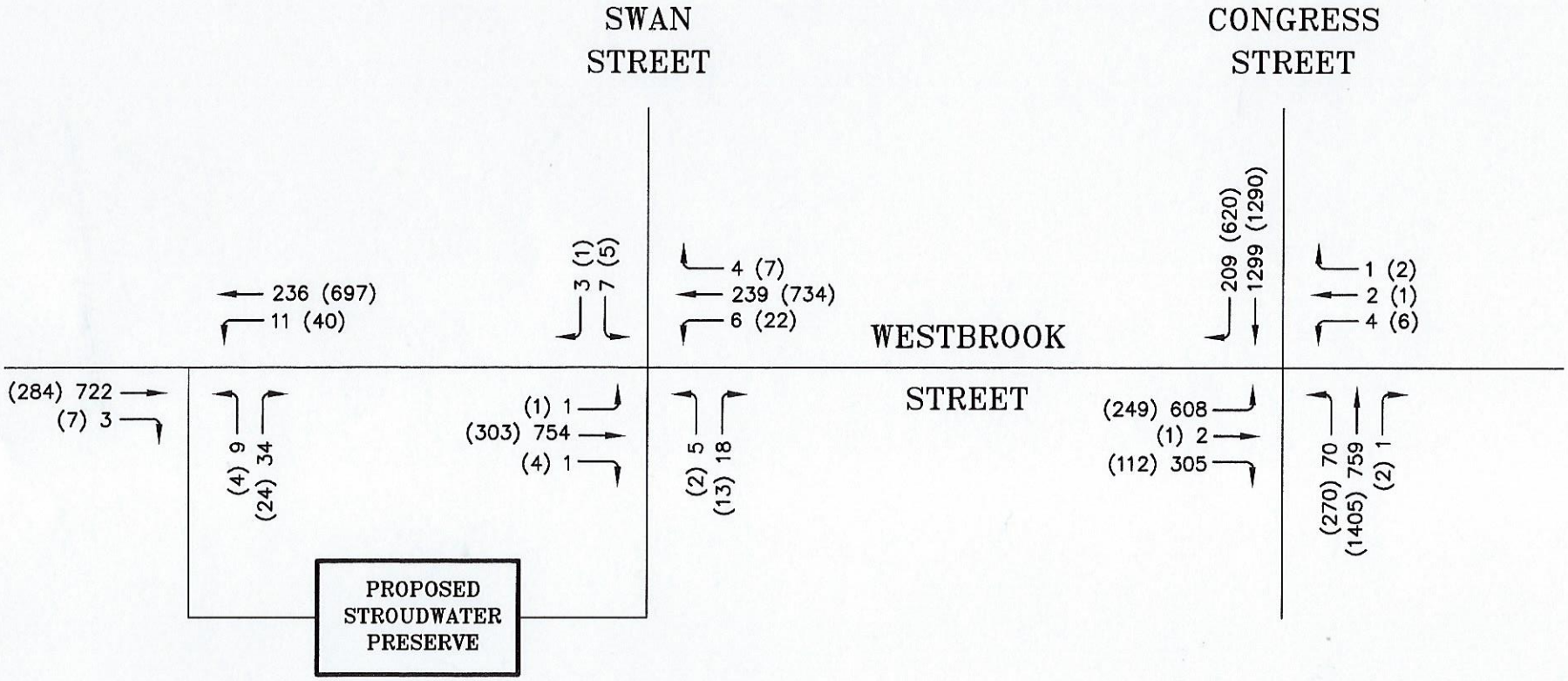
Project Name and Location: STROUDWATER PRESERVE, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: OCTOBER, 2017 FIGURE: 5	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

2023 POST-DEVELOPMENT TRAFFIC

FIGURE 6

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Project Name and Location: STROUDWATER PRESERVE, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: OCTOBER, 2017 — FIGURE: 6	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730

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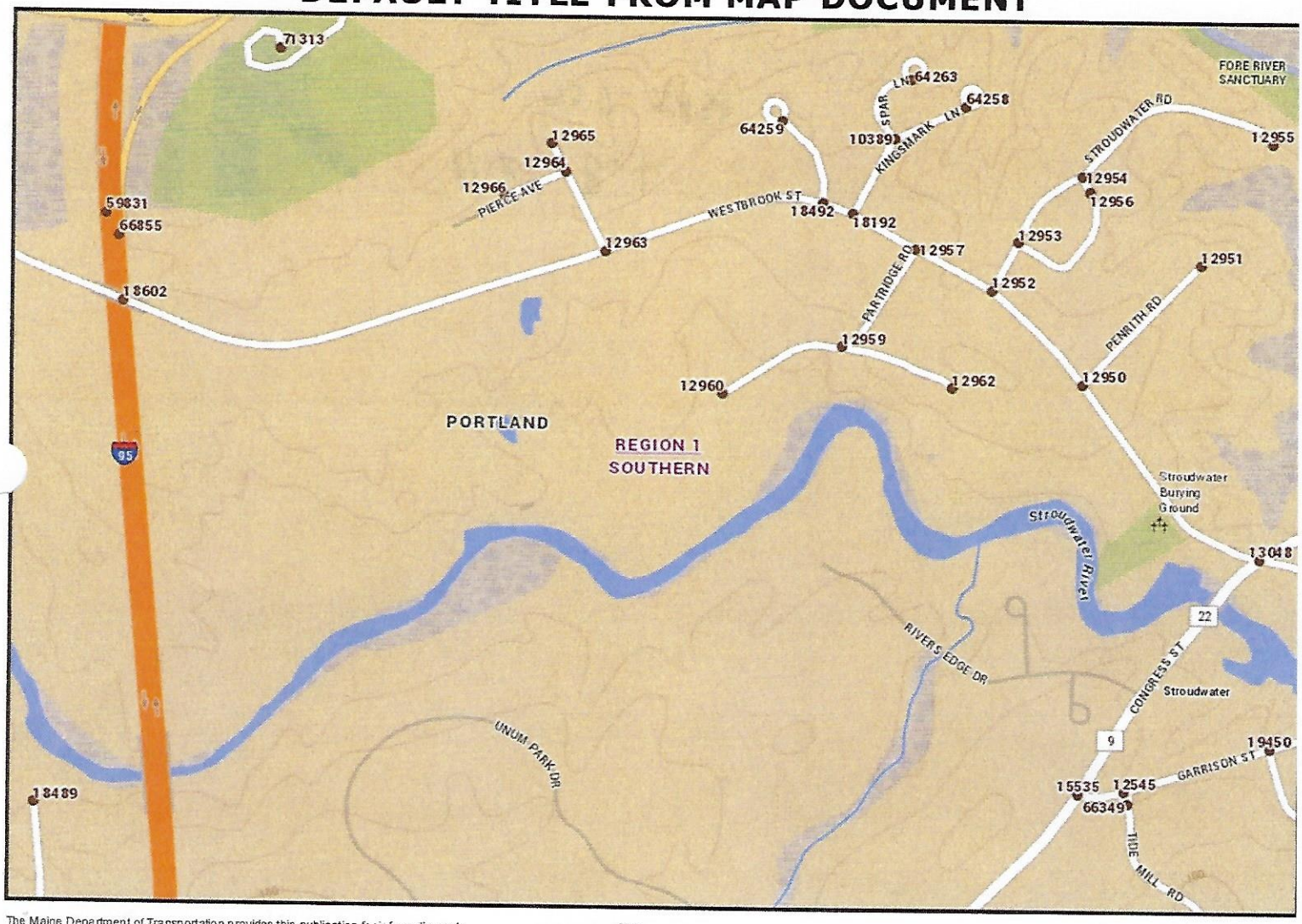

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0.2 Miles

1 inch = 0.14 miles

Date: 10/18/201
Time: 7:06:12 AM

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☐ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Westbrook St

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0560784** Start Node: **15060** Start Offset: **0** ☐ **Exclude First Node**

End Node: **13048** End Offset: **0** ☐ **Exclude Last Node**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
15060	0560784 - 0	TL Portland Westbrook	2	0	0	0	0	0	0	0.0	2.707	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
12963	0560784 - 0.60	Int of SWAN ST, WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.713	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
18492	0560784 - 0.79	Int of BUTTONWOOD LN WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.747	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
18192	0560784 - 0.82	Int of KINGSMARK LN WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.769	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12957	0560784 - 0.88	Int of PARTRIDGE RD WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.781	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12952	0560784 - 0.95	Int of STROUDWATER RD WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.884	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12950	0560784 - 1.06	Int of PENRITH RD, WESTBROOK ST	2	1	0	0	0	0	1	0.0	2.910	0.11	0.41	0.00
												Statewide Crash Rate:	0.14	
13048	0560784 - 1.27	Int of CONGRESS ST WESTBROOK ST	9	31	0	0	1	7	23	25.8	10.806	0.96	1.08	0.00
												Statewide Crash Rate:	0.71	
Study Years: 3.00		**NODE TOTALS:**		32	0	0	1	7	24	25.0	30.317	0.35	0.50	0.71

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
12963	15060	3119195	0 - 0.60	0560784 - 0	0.60	2	7	0	0	2	0	5	28.6	0.01599	145.95	315.64	0.00
Int of SWAN ST, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12963	18492	3119196	0 - 0.19	0560784 - 0.60	0.19	2	5	0	0	0	0	5	0.0	0.00519	321.25	410.42	0.00
Int of SWAN ST, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
18192	18492	3120115	0 - 0.03	0560784 - 0.79	0.03	2	1	0	0	0	1	0	100.0	0.00082	404.59	648.83	0.00
Int of KINGSMARK LN WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12957	18192	187566	0 - 0.06	0560784 - 0.82	0.06	2	0	0	0	0	0	0	0.0	0.00164	0.00	551.29	0.00
Int of PARTRIDGE RD WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12952	12957	3099870	0 - 0.07	0560784 - 0.88	0.07	2	0	0	0	0	0	0	0.0	0.00193	0.00	529.29	0.00
Int of STROUDWATER RD WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12950	12952	3106230	0 - 0.11	0560784 - 0.95	0.11	2	0	0	0	0	0	0	0.0	0.00320	0.00	464.35	0.00
Int of PENRITH RD, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12950	13048	3106231	0 - 0.21	0560784 - 1.06	0.21	2	5	0	0	0	1	4	20.0	0.00601	277.10	395.55	0.00
Int of PENRITH RD, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
Study Years: 3.00				**Section Totals:**	1.27		18	0	0	2	2	14	22.2	0.03479	172.46	271.60	0.63
				Grand Totals:	1.27		50	0	0	3	9	38	24.0	0.03479	479.05	407.91	1.17

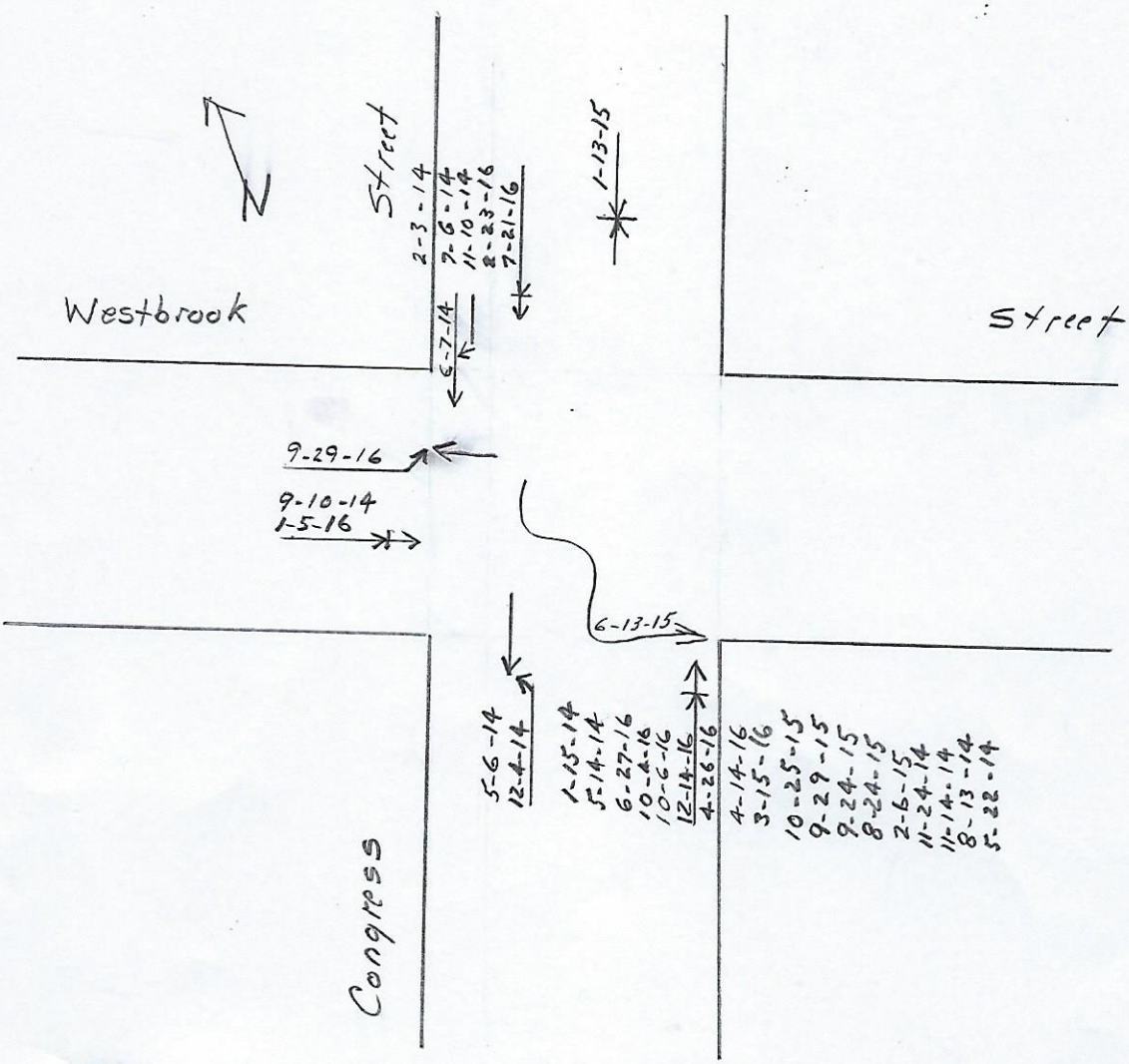
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Congress St. @ Westbrook St.

TOWN Portland NODE NO(S) 13048

YEARS REVIEWED DATE PREPARED 10/16/17



CRITICAL RATE FACTOR EQUIV. PROP. DAMAGE ACC/YEAR ACC/MEV

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH–SANDED
4. ICE/PACKED SNOW–SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH–NOT SANDED 9. ICE–PKD. SNOW–NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS – HUMAN

1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER–NO PASSING 7. IMPROPER PASS–OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION–DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED–WINDSHIELD GLASS
19. VISION OBSCURED–SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

– VEHICULAR

41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE, BACKING, FIXED OBJECT, HEAD ON, OVERTURN, PARKED VEHICLE, PEDESTRIAN, REAR END, SIDE SWIPE, TURNING MOVE, CHANGE LANE, OUT OF CONTROL, FATAL ACCIDENT, VEHICLE (MOVING), BICYCLE, ANIMAL, SLED

WEATHER

C = CLEAR
SL = SLEET
F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON–INCAPACITATING
C = POSSIBLE INJURY

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

LOCATION Congress Street @ Westbrook Street

TOWN Portland NODE NO(S) _____

YEARS REVIEWED _____ DATE PREPARED 10-16-17

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
16-3811	12-14-16	12:23				1	2	2	4	
16-3091	10-6-16	18:44					4	1	4	
16-3059	10-4-16	15:29				1	2	1	4, 19	
16-3008	9-29-16	16:00			1		2	1	2	
16-2257	7-21-16	15:25					2	1	4	
16-1955	6-27-16	15:52					2	1	4	
16-1244	4-26-16	16:37					2	1	4	
16-1150	4-14-16	17:42					2	1	4	
16-846	3-15-16	14:03				1	2	2	4	
16-652	2-23-16	7:32					2	1	4	
16-25	1-5-16	7:43					2	1	4	
15-3581	10-25-15	14:00					2	1	4	
15-3271	9-29-15	14:50					2	1	4	
15-3214	9-24-15	16:30					2	1	4	
15-2869	8-24-15	17:48					5	1	4	
15-2029	6-13-15	00:43					4	2	3	
15-592	2-6-15	8:12				2	2	SLUSH	4	
15-178	1-13-15	16:48					5	1	6	
14-3585	12-4-14	19:05					4	1	2	
14-3465	11-24-14	14:19					2	2	4	
14-3359	11-14-14	14:04					2	1	4	
14-3320	11-10-14	17:19				1	4	1	4	
14-2692	9-10-14	7:30				1	4	1	4, 14	
14-2357	8-13-14	17:46					3	2	4, 8	
14-1959	7-6-14	16:14					2	2	4	
14-1761	6-7-14	22:50					5	1	8	
14-1539	5-22-14	11:55					2	1	4, 14	
14-1484	5-14-14	16:29					2	1	4	
14-1408	5-6-14	16:41				2	2	1	2	
14-395	2-3-14	13:03					2	1	4	
14-215	1-15-14	10:47					2	2	4, 14	

Summary of All Intervals

Run Number	1	2	3	4	6	Avg
Start Time	7:25	7:25	7:25	7:25	7:25	7:25
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3091	3094	3073	3031	3046	3068
Vehs Exited	3050	3048	3026	3023	3008	3031
Starting Vehs	71	66	46	86	69	67
Ending Vehs	112	112	93	94	107	103
Travel Distance (mi)	854	853	849	845	843	849
Travel Time (hr)	162.9	168.8	148.3	151.4	163.2	158.9
Total Delay (hr)	133.7	139.6	119.5	122.6	134.4	129.9
Total Stops	3381	3290	3258	3363	3358	3331
Fuel Used (gal)	64.1	65.4	60.5	61.6	63.7	63.1

Interval #0 Information Seeding

Start Time	7:25
End Time	7:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	6	Avg
Vehs Entered	3091	3094	3073	3031	3046	3068
Vehs Exited	3050	3048	3026	3023	3008	3031
Starting Vehs	71	66	46	86	69	67
Ending Vehs	112	112	93	94	107	103
Travel Distance (mi)	854	853	849	845	843	849
Travel Time (hr)	162.9	168.8	148.3	151.4	163.2	158.9
Total Delay (hr)	133.7	139.6	119.5	122.6	134.4	129.9
Total Stops	3381	3290	3258	3363	3358	3331
Fuel Used (gal)	64.1	65.4	60.5	61.6	63.7	63.1

3: Congress & Westbrook/Westrook Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	208.9	0.1	0.6	25.9	67.7
Total Del/Veh (s)	107.8	55.2	26.9	91.6	78.1

Total Network Performance

Denied Del/Veh (s)	67.7
Total Del/Veh (s)	80.3

Intersection: 3: Congress & Westbrook/Westrook

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	TR
Maximum Queue (ft)	748	175	43	128	594	761	760
Average Queue (ft)	697	150	11	43	337	691	677
95th Queue (ft)	823	229	35	100	512	854	861
Link Distance (ft)	695		635	699	699	717	717
Upstream Blk Time (%)	61				0	35	39
Queuing Penalty (veh)	0				0	0	0
Storage Bay Dist (ft)		150					
Storage Blk Time (%)	59	3					
Queuing Penalty (veh)	169	15					

Network Summary

Network wide Queuing Penalty: 184

Summary of All Intervals

Run Number	1	2	4	5	6	Avg
Start Time	7:25	7:25	7:25	7:25	7:25	7:25
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3009	3100	3078	3092	3044	3064
Vehs Exited	3002	3080	3040	3072	3017	3043
Starting Vehs	61	63	65	59	63	61
Ending Vehs	68	83	103	79	90	84
Travel Distance (mi)	840	862	853	859	847	852
Travel Time (hr)	165.0	182.9	204.7	122.2	156.0	166.1
Total Delay (hr)	136.2	153.4	175.5	92.8	127.0	137.0
Total Stops	2605	2987	3298	2648	2692	2845
Fuel Used (gal)	63.5	68.6	73.9	54.2	61.8	64.4

Interval #0 Information Seeding

Start Time	7:25
End Time	7:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	4	5	6	Avg
Vehs Entered	3009	3100	3078	3092	3044	3064
Vehs Exited	3002	3080	3040	3072	3017	3043
Starting Vehs	61	63	65	59	63	61
Ending Vehs	68	83	103	79	90	84
Travel Distance (mi)	840	862	853	859	847	852
Travel Time (hr)	165.0	182.9	204.7	122.2	156.0	166.1
Total Delay (hr)	136.2	153.4	175.5	92.8	127.0	137.0
Total Stops	2605	2987	3298	2648	2692	2845
Fuel Used (gal)	63.5	68.6	73.9	54.2	61.8	64.4

3: Congress & Westbrook/Westrook Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	300.0	0.1	0.7	7.6	89.4
Total Del/Veh (s)	105.4	68.2	30.6	58.6	62.9

Total Network Performance

Denied Del/Veh (s)	89.4
Total Del/Veh (s)	65.1

Intersection: 3: Congress & Westbrook/Westrook

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	TR
Maximum Queue (ft)	734	175	35	342	681	722	694
Average Queue (ft)	707	153	8	54	367	535	515
95th Queue (ft)	762	229	30	186	591	781	770
Link Distance (ft)	695		635	699	699	717	717
Upstream Blk Time (%)	62			0	1	12	12
Queuing Penalty (veh)	0			0	0	0	0
Storage Bay Dist (ft)		150					
Storage Blk Time (%)	58	3					
Queuing Penalty (veh)	177	18					

Network Summary

Network wide Queuing Penalty: 195

3: Congress & Westbrook/Westrook Performance by approach

PM Pre-Development

3: Congress & Westbrook/Westrook Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	36.4	0.1	247.0	121.8	166.2
Total Del/Veh (s)	183.7	71.5	46.5	64.2	68.5

Total Network Performance

Denied Del/Veh (s)	166.2
Total Del/Veh (s)	71.0

Intersection: 3: Congress & Westbrook/Westrook

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	TR
Maximum Queue (ft)	723	175	56	730	746	739	760
Average Queue (ft)	550	120	15	663	701	715	727
95th Queue (ft)	829	235	44	903	836	816	810
Link Distance (ft)	695		635	699	699	717	717
Upstream Blk Time (%)	30			17	46	23	45
Queuing Penalty (veh)	0			0	0	0	0
Storage Bay Dist (ft)		150					
Storage Blk Time (%)	75	0					
Queuing Penalty (veh)	87	0					

Network Summary

Network wide Queuing Penalty: 87

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:25	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	3643	3642	3649	3626	3690	3675	3621
Vehs Exited	3606	3590	3640	3607	3688	3661	3628
Starting Vehs	66	62	97	77	94	78	99
Ending Vehs	103	114	106	96	96	92	92
Travel Distance (mi)	1009	1005	1014	1009	1030	1024	1012
Travel Time (hr)	270.3	269.8	200.6	260.4	162.2	261.9	311.7
Total Delay (hr)	235.6	235.1	165.6	225.6	126.6	226.5	276.9
Total Stops	3923	3955	4018	4019	3984	4118	4002
Fuel Used (gal)	94.4	94.2	78.7	92.1	70.3	93.2	104.0

Summary of All Intervals

Run Number	Avg
Start Time	4:25
End Time	5:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3648
Vehs Exited	3630
Starting Vehs	82
Ending Vehs	101
Travel Distance (mi)	1015
Travel Time (hr)	248.1
Total Delay (hr)	213.1
Total Stops	4002
Fuel Used (gal)	89.5

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3643	3642	3649	3626	3690	3675	3621
Vehs Exited	3606	3590	3640	3607	3688	3661	3628
Starting Vehs	66	62	97	77	94	78	99
Ending Vehs	103	114	106	96	96	92	92
Travel Distance (mi)	1009	1005	1014	1009	1030	1024	1012
Travel Time (hr)	270.3	269.8	200.6	260.4	162.2	261.9	311.7
Total Delay (hr)	235.6	235.1	165.6	225.6	126.6	226.5	276.9
Total Stops	3923	3955	4018	4019	3984	4118	4002
Fuel Used (gal)	94.4	94.2	78.7	92.1	70.3	93.2	104.0

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	Avg
Vehs Entered	3648
Vehs Exited	3630
Starting Vehs	82
Ending Vehs	101
Travel Distance (mi)	1015
Travel Time (hr)	248.1
Total Delay (hr)	213.1
Total Stops	4002
Fuel Used (gal)	89.5

3: Congress & Westbrook/Westrook Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.6	0.1	222.4	81.4	133.9
Total Del/Veh (s)	72.7	68.4	50.7	67.4	61.2

Total Network Performance

Denied Del/Veh (s)	133.9
Total Del/Veh (s)	63.6

Intersection: 3: Congress & Westbrook/Westrook

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	TR
Maximum Queue (ft)	532	175	46	725	744	759	772
Average Queue (ft)	290	112	11	699	713	707	721
95th Queue (ft)	516	222	36	841	770	838	821
Link Distance (ft)	695		635	699	699	717	717
Upstream Blk Time (%)	0			24	55	24	48
Queuing Penalty (veh)	0			0	0	0	0
Storage Bay Dist (ft)		150					
Storage Blk Time (%)	42	0					
Queuing Penalty (veh)	47	0					

Network Summary

Network wide Queuing Penalty: 48

AM Peak Hour - Pre-Development

3: Westbrook St & Swan Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.7	0.2	0.1	0.6
Total Del/Veh (s)	1.0	0.1	9.8	0.9

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	1.2

Intersection: 3: Westbrook St & Swan

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	30
Average Queue (ft)	0	9
95th Queue (ft)	4	32
Link Distance (ft)	806	170
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

AM Post - Development

SimTraffic Performance Report
Baseline

10/26/2017

3: Site Drive 2/Swan & Westbrook St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.3	0.1	0.1	0.1
Total Del/Veh (s)	2.8	0.4	9.0	8.4	2.4

7: Site Drive 1 & Westbrook St Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.7	0.0	0.1	0.5
Total Del/Veh (s)	0.6	1.3	10.4	1.1

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	4.0

Intersection: 3: Site Drive 2/Swan & Westbrook St

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	57	44	40
Average Queue (ft)	4	18	10
95th Queue (ft)	30	44	35
Link Distance (ft)	252	172	171
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Site Drive 1 & Westbrook St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	70	73
Average Queue (ft)	9	29
95th Queue (ft)	38	58
Link Distance (ft)	1609	187
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

PM Pre-Development

SimTraffic Performance Report
Baseline

10/26/2017

3: Westbrook St & Swan Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.3	0.6	0.1	0.5
Total Del/Veh (s)	0.4	0.4	8.8	0.4

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	1.1

Intersection: 3: Westbrook St & Swan

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	16	30
Average Queue (ft)	1	6
95th Queue (ft)	9	26
Link Distance (ft)	247	170
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

PM Post-Development

3: Site Drive 2/Swan & Westbrook St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.6	0.1	0.1	0.4
Total Del/Veh (s)	1.2	0.7	5.5	11.0	1.0

7: Site Drive 1 & Westbrook St Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.2	2.9	4.7	2.2

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	3.7

Intersection: 3: Site Drive 2/Swan & Westbrook St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	15	86	31	31
Average Queue (ft)	0	11	12	6
95th Queue (ft)	10	69	37	25
Link Distance (ft)	1609	252	172	171
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

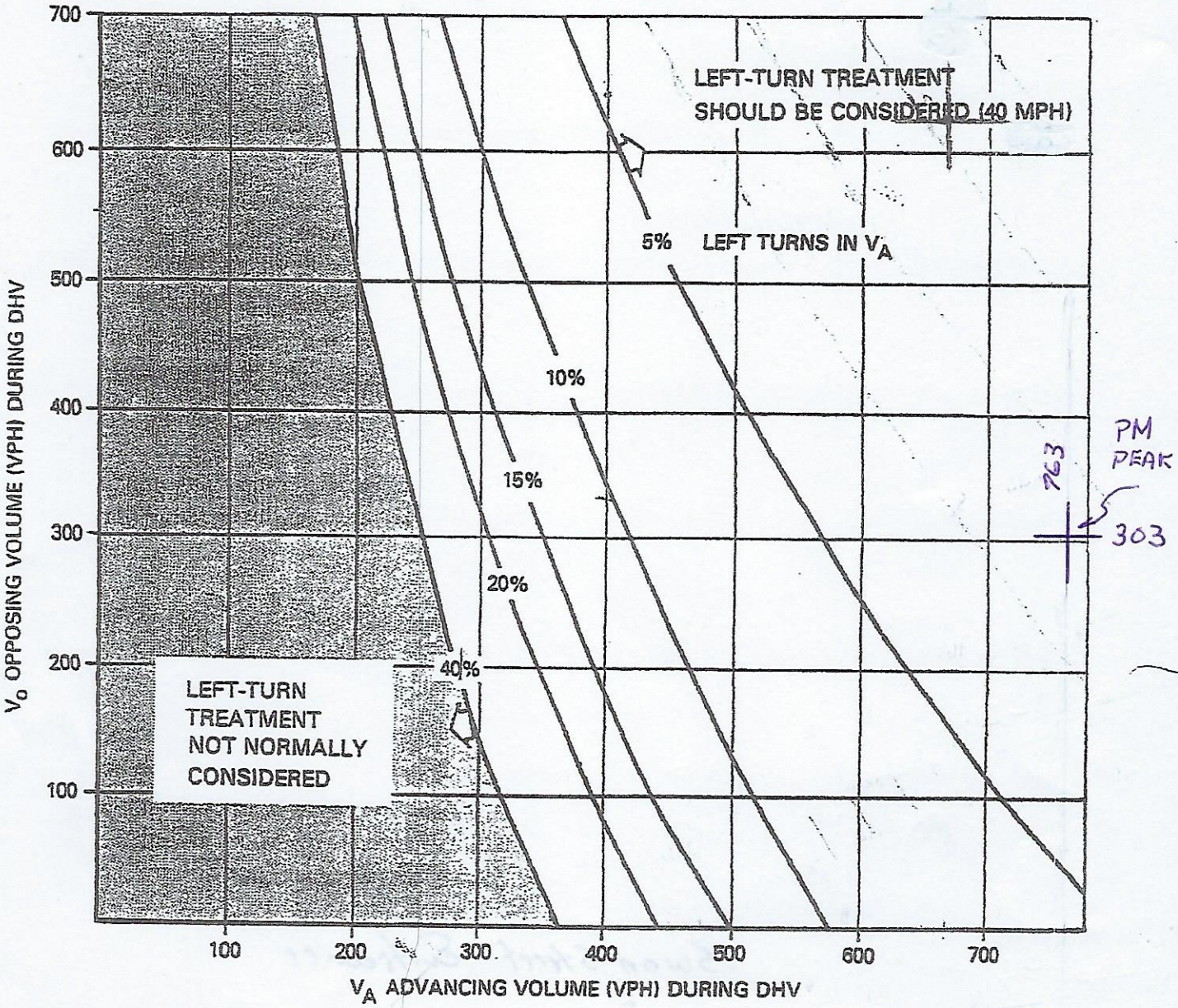
Intersection: 7: Site Drive 1 & Westbrook St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	66	49
Average Queue (ft)	12	20
95th Queue (ft)	48	46
Link Distance (ft)	1609	187
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

AM PEAK 279 756



PM PEAK 763 303

Instructions:

1. The family of curves represent the percent of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

4. Read V_A and V_O into the chart and locate the intersection of the two volumes.

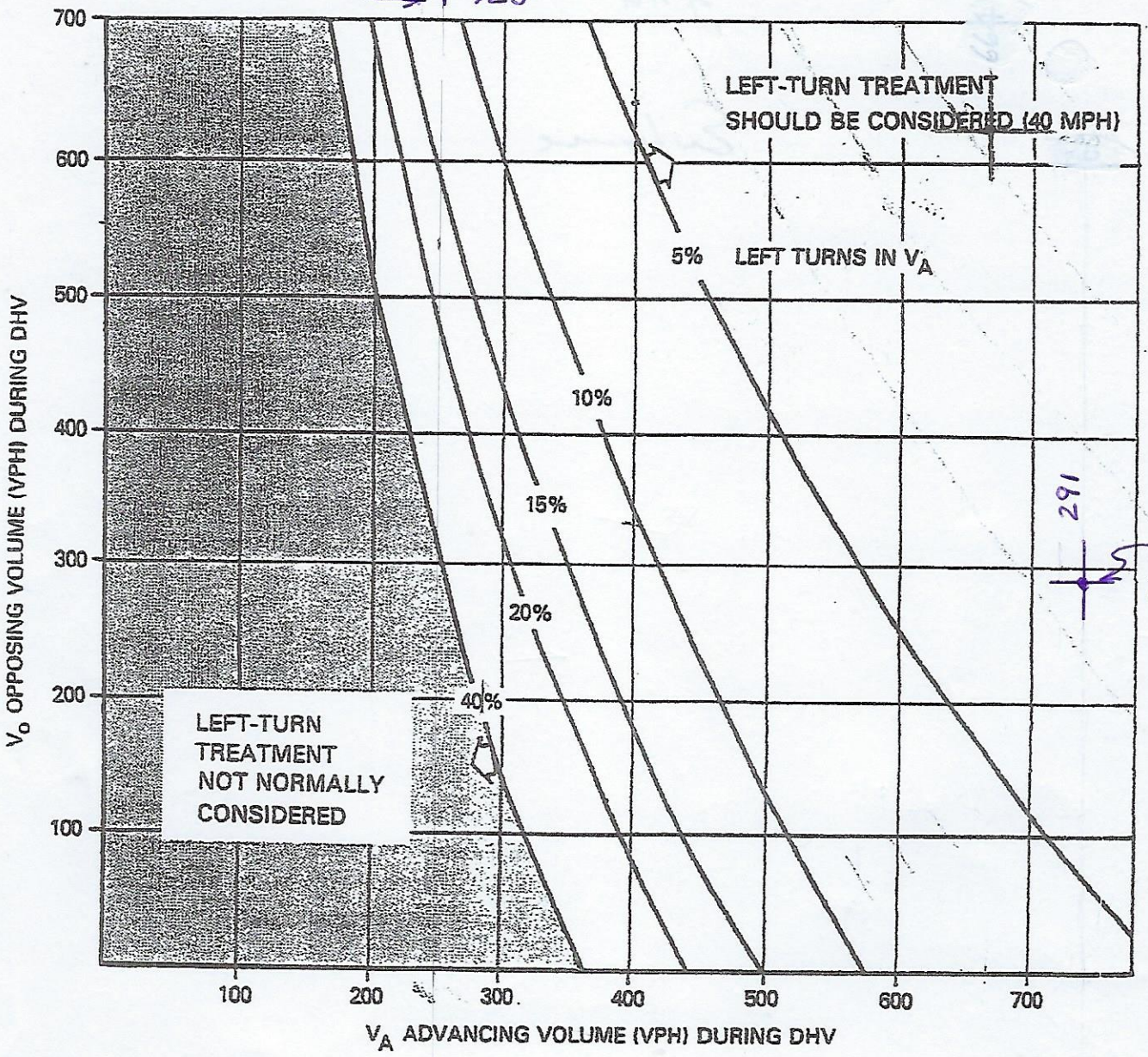
5. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is warranted. If the point is to the left of the line, then a left-turn lane is not warranted based on traffic volumes.

VOLUME WARRANTS FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS (40 mph)

Figure 8-19

Easterly Entrance

AM PEAK
247
725



PM PEAK
291
737

Instructions:

1. The family of curves represent the percent of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

4. Read V_A and V_O into the chart and locate the intersection of the two volumes.

5. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is warranted. If the point is to the left of the line, then a left-turn lane is not warranted based on traffic volumes.

VOLUME WARRANTS FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS (40 mph)

Figure 8-19

Westerly Entrance

EB Stroudwater 10.27 - 12:12

31	38	41	36
36	44	33	38
35	31	44	37
41	36	41	39
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Planning and Urban Development Department
Planning Division

Subject: R-3 PRUD Design Review – 1700 Westbrook Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, October 25 2017

The planned residential unit development project at 1700 Westbrook Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Nell Donaldson, Senior Planner against the standards of the *Planned Residential Unit Developments in the R3 Residential Zones* (Section (h) of the Design Manual).

Design Review Comments*:*

Response provided by the project team under the direction of the Stroudwater Development Partners, LLC noted in BLUE (landscape), RED (architecture), & GREEN (civil/site), dated November 9, 2017. Final design reflects a collaborative effort between the team's civil/site engineer, William Savage, architect, Ryan Senatore, and landscape architect, Soren DeNiord.

(h) Planned Residential Unit Development (PRUDs) in the R-3 Residential Zones

Standard (1) a. Design Relationship to the Site

Building placement is responsive to the site conditions of topography and wetlands/natural resource protection. However, the solar orientation of three of the buildings is not optimal with most living spaces facing east/west rather than south. The overall layout, including building placement, roadway and drive location, creates a lot of pavement and uncomfortable spaces internal to the site at the "front" of each residence. Staff suggest that a more typically townhouse layout using service alleys between buildings for driveway and garage access would improve the building solar orientation as well as limit the amount of pavement and create more desirable recreation and open spaces for residents (see attached sketch as reference).

***Response (Soren)*:**

Though we considered the benefits of southern exposure, the design team ultimately decided to orient the PRUD buildings to maximize long views of 'the preserve' as well as provide noise buffering from I-95. The positioning of the dwelling units is intended to connect residence to the landscape and foster a sense community identity associated with place. Living spaces directed toward an open / natural viewshed was the design driver, an overwhelming benefit intrinsic to its location at the edge of the Stroudwater River corridor. Recreation and open space are

provided as required but the *real* amenity of this housing is the proximity and connection to walking / biking trails, outdoor skating, community gardens, etc.

Standard (1) b. Internal Design Character and Relationship to the Surrounding Neighborhood

Context – The surrounding neighborhood is a mix of farmhouse, bungalow, and ranch-style suburban residential architecture with a range of eras and styles but all pretty typical one or two-story forms. In most cases, the existing homes are set back from the street at least 20 feet if not more with substantial landscaping and trees and space between buildings. In the proposal, townhouses as a type are not typically found in this part of Portland but the basic forms of the townhouses are contextual in the use of a front-end gable roof, porches, and generally typical residential forms and façade composition.

Form – The introduction of a garage on the first floor has altered the height and proportion of the building facades and created some awkward relationships between the ground floor and the cantilevered upper floors. There is essentially no living space now on the ground floor of these units which is of concern in terms of relationship of the individual units to the neighborhood, street, and open spaces. If that level of cantilever is needed on the upper floors, perhaps the ground floor should be increased in size and could include living space. Alternatively, the cantilever could be more grounded at the base and the garage would read as a recess rather than the living spaces read as projecting forms. Finally, the bay windows on the side of the townhouses seems superfluous or tacked on, undersized, and are awkward in their exterior design and interior layout. A bay window might function better on the front of each townhouse to add visual interest (rather than trim or material changes) and functional living space.

***Response (Ryan)*:**

We have revised the design to address the comments above by extending the bay overhang on the end walls of the building down to ground the building. The bay windows on the end walls have been removed and windows added in their place. We have not added bay windows to the street facing facade of the building as the projecting gable bays would get too visually complicated with bay windows on bays, the bays as designed are in keeping with the surrounding New England style Architecture.

Materials – Staff find that the proposed placement of different color material does not benefit the design. The recommendation would be to return to the previous scheme that uses color to differentiate the townhouses rather than the current proposal that lacks a clear rationale. The trim details, too, are evocative of Craftsman style details incongruous with the forms and rooflines of this project and not found in the context. In this case, staff do not see a benefit to this trim detail.

***Response (Ryan)*:**

We have simplified the exterior materials by revising the gables to have lap siding and removing the panel and batten detail at that those locations. We have also revised the siding colors to change at the unit demising walls to differentiate the townhouses; refer to the updated PRUD Rendering, Plan 30.

Standard (1) c. Recreation and Open Space

1. External buffers: The project provides a berm and plantings as an external buffer/screening to the street.

2. Internal buffers: There is little to no landscape buffers or screening to the neighboring properties within the PRUD or between the buildings within this section of the development. A street tree is provided in front of each unit between the building and the street. No buffer is provided between units' yards.

***Response (Soren)*:**

Additional landscaping has been provided within the PRUD lot including trees, shrubs, and perennials. Refer to the latest Landscape Plan, L1.0 (Plan 9).

3. Passive recreational open space: Trails are provided for the development to meet this standard.

4. Active recreational open space: It is not clear how this standard is being met – what is the plan for the open space provided at the center of the development? Are these active fields or playground? The design of those spaces does not create enjoyable, comfortable space that residents are likely to use – it is open, exposed, and surrounded by pavement and drives.

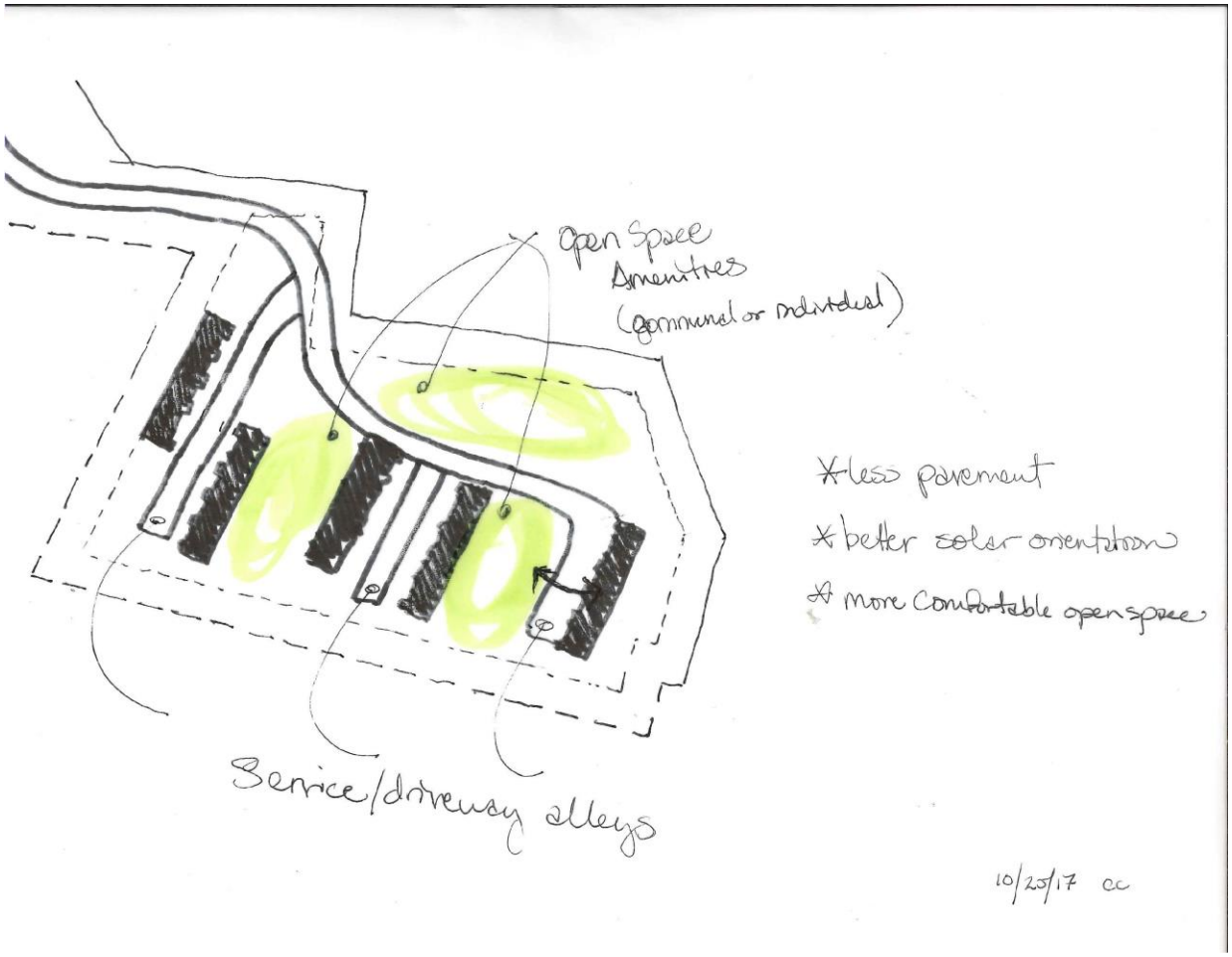
***Response (Will)*:**

The area designated as the shared PRUD open space within the center of the townhouses has been updated to be a shared community garden space as noted on the civil plans (Plan 13) and the Landscape Plan (Plan 9). The amble and open southern exposure to the area will make it a viable location for a functional garden space and its proximity to the surrounding homes will make it readily accessible and usable space for the residents.

5. Private open spaces: Porches appear to be the only outdoor space designated to each unit – these are not directly accessible from living spaces. The Landscape Plan, Site Plan, and architectural plans indicate that each unit would not have its own outdoor space or yard other than the front porch.

***Response (Ryan)*:**

Private open spaces have been added to the rear facades of the buildings, patio doors have been added to the living spaces with at grade patios for each townhouse. The patios are at the lowest level of the buildings that have a full ground level and they are at the second level at the daylight basement buildings; refer to the PRUD Floor Plans & Elevations, Plan 31.


Open Space
Amenities
(communal or individual)
Service/driveway alleys
*less pavement
*better solar orientation
*more comfortable open space
10/20/17 cc

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

STROUDWATER DEVELOPMENT PARTNERS, LLC	) NATURAL RESOURCES PROTECTION ACT
Portland, Cumberland County	) FRESHWATER WETLAND ALTERATION
100-UNIT SUBDIVISION	) WATER QUALITY CERTIFICATION
L-27619-TC-A-N (approval)	) FINDINGS OF FACT AND ORDER

Project Description: The applicant proposes to alter 14,980 square feet of freshwater wetlands to construct 98 single family house lots, one planned unit residential development lot that will include 25 townhomes and one open space lot along the river frontage, as shown on a set of plans the first of which is titled "Cover Sheet & Legend," prepared by Acorn Engineering, dated August 22, 2017, with a last revision date of October 25, 2017, as well as a plan titled "Wetland exhibit and Tree Removal Key," dated October 31, 2017. The applicant has avoided and minimized wetland impacts to the greatest extent practicable by reducing the size of a trail system through freshwater wetlands onsite, by proposing 2H:1V fill side slopes and by marking wetlands so that they are clearly defined during construction. The applicant has also maintained wetland hydrological connectivity where possible under driveways and roadways and proposed to cross wetlands at the narrowest points possible. According to the Department's Geographic Information System (GIS), there are no mapped essential or significant wildlife habitats associated with the project site. The proposed project is located at 1700 Westbrook Street in the City of Portland.

This Natural Resource Protection Act application is associated with a Site Location of Development Act application currently under delegated review by the City of Portland.

Permit for:	[X]	Tier 1
DEP Decision:	[X]	Approved [ ] Denied (see attached letter)
CORPS Action:	[X]	The Corps has been notified of your application. The following are subject to Federal screening: (1) projects with previously authorized or unauthorized work, in combination with a Tier 1 permit for a single and complete project, which total more than 15,000 square feet of altered area; (2) projects with multiple state permits and/or state exemptions which apply to a single and complete project that total more than 15, 000 square feet of altered area; and (3) projects that may impact a vernal pool, as determined by the State of Maine or the Corps. If your activity is listed above, *Corps approval is required for your project*. For information regarding the status of your application contact the Corps' Maine Project Office at (207) 623-8367.

Standard Conditions:

1) If construction or operation of the activity is not begun within four (4) years from the date signed, this permit shall lapse and the applicant shall reapply to the Department for a new permit. This permit is transferable only with prior approval from the Department. If the

activity is associated with a larger project, starting any aspect of that project constitutes start of construction.

2) The project shall be completed according to the plans in the application. Any change in the project plans must be reviewed and approved by the Department.
3) Properly installed erosion control measures shall be installed prior to beginning the project, and all disturbed soil should be stabilized immediately upon project completion.
4) A copy of this approval will be sent to the City of Portland. Department approval of your activity does not supersede or substitute the need for any necessary local approvals.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 17TH DAY OF NOVEMBER, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
For: Paul Mercer, Commissioner

Filed
NOV 20 2017
State of Maine
Board of Environmental Protection

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

JH/L27619AN/ATS#82301

Natural Resources Protection Act (NRPA)
Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCES PROTECTION ACT, 38 M.R.S.A. § 480-A ET SEQ., UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

Revised (4/92) DEP LW0428

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION, AUGUSTA, MAINE 04333

Erosion Control for Homeowners

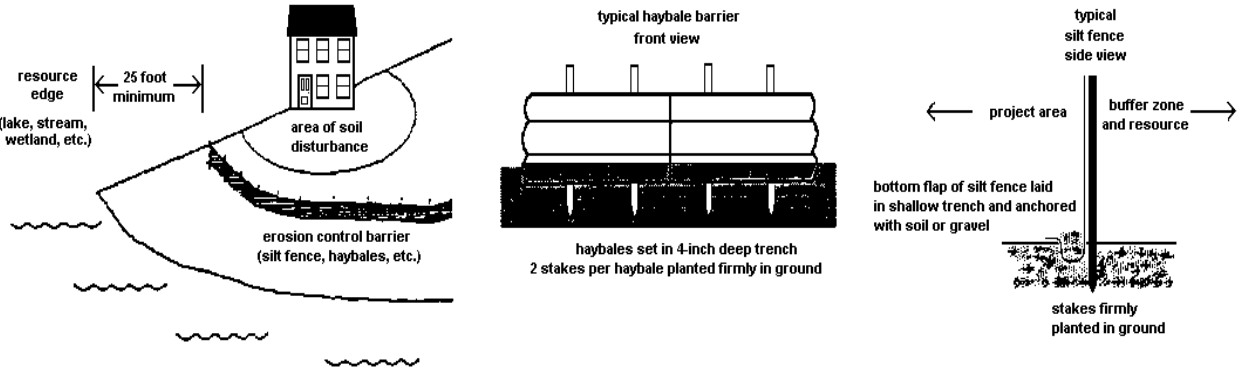
Before Construction

1. If you have hired a contractor, make sure you discuss your permit with them. Talk about what measures they plan to take to control erosion. Everybody involved should understand what the resource is, and where it is located. Most people can identify the edge of a lake or river. However, the edges of wetlands are often not so obvious. Your contractor may be the person actually pushing dirt around, but you are both responsible for complying with the permit.

2. Call around to find where erosion control materials are available. Chances are your contractor has these materials already on hand. You probably will need silt fence, hay bales, wooden stakes, grass seed (or conservation mix), and perhaps filter fabric. Places to check for these items include farm & feed supply stores, garden & lawn suppliers, and landscaping companies. It is not always easy to find hay or straw during late winter and early spring. It also may be more expensive during those times of year. Plan ahead -- buy a supply early and keep it under a tarp.

3. Before any soil is disturbed, make sure an erosion control barrier has been installed. The barrier can be either a silt fence, a row of staked hay bales, or both. Use the drawings below as a guide for correct installation and placement. The barrier should be placed as close as possible to the soil-disturbance activity.

4. If a contractor is installing the erosion control barrier, double check it as a precaution. Erosion control barriers should be installed "on the contour", meaning at the same level or elevation across the land slope, whenever possible. This keeps stormwater from flowing to the lowest point along the barrier where it can build up and overflow or destroy the barrier.



During Construction

1. Use lots of hay or straw mulch on disturbed soil. The idea behind mulch is to prevent rain from striking the soil directly. It is the force of raindrops hitting the bare ground that makes the soil begin to move downslope with the runoff water, and cause erosion. More than 90% of erosion is prevented by keeping the soil covered.

2. Inspect your erosion control barriers frequently. This is especially important after a rainfall. If there is muddy water leaving the project site, then your erosion controls are not working as intended. You or your contractor then need to figure out what can be done to prevent more soil from getting past the barrier.

3. Keep your erosion control barrier up and maintained until you get a good and healthy growth of grass and the area is permanently stabilized.

After Construction

1. After your project is finished, seed the area. Note that all ground covers are not equal. For example, a mix of creeping red fescue and Kentucky bluegrass is a good choice for lawns and other high-maintenance areas. But this same seed mix is a poor selection for stabilizing a road shoulder or a cut bank that you don't intend to mow. Your contractor may have experience with different seed mixes, or you might contact a seed supplier for advice.

2. Do not spread grass seed after September 15. There is the likelihood that germinating seedlings could be killed by a frost before they have a chance to become established. Instead, mulch the area with a thick layer of hay or straw. In the spring, rake off the mulch and then seed the area. Don't forget to mulch again to hold in moisture and prevent the seed from washing away or being eaten by birds or other animals.

3. Keep your erosion control barrier up and maintained until you get a good and healthy growth of grass and the area is permanently stabilized.

Why Control Erosion?

To Protect Water Quality

When soil erodes into protected resources such as streams, rivers, wetlands, and lakes, it has many bad effects. Eroding soil particles carry phosphorus to the water. An excess of phosphorus can lead to explosions of algae growth in lakes and ponds called blooms. The water will look green and can have green slime in it. If you are near a lake or pond, this is not pleasant for swimming, and when the soil settles out on the bottom, it smothers fish eggs and small animals eaten by fish. There many other effects as well, which are all bad.

To Protect the Soil

It has taken thousands of years for our soil to develop. It usefulness is evident all around us, from sustaining forests and growing our garden vegetables, to even treating our septic wastewater! We cannot afford to waste this valuable resource.

To Save Money ($$)

Replacing topsoil or gravel washed off your property can be expensive. You end up paying twice because State and local governments wind up spending your tax dollars to dig out ditches and storm drains that have become choked with sediment from soil erosion.

DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status*. The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error*. Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge*. If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested*. The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

Provisionally Adopted 1/10/00

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 1/2000
ID #

Total Fees:
Date Received:

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. § 704 – A

Please type or print:

This application is for:

Traffic 100-200 PCE's **X**
Traffic 200 + PC-E's _____

Name of Applicant: **Stroudwater Development Partners, LLC**

62 Portland Road, Suite 25, Kennebunk, Maine 04043 **Telephone: (207) 391-8846**

Name of local contact or agent: **William J. Bray, P.E., Traffic Solutions**

Address: **235 Bancroft Street, Portland, Maine 04102**
Telephone: **(207) 400-6890**

Name and type of development: **Stroudwater Preserve (Residential Subdivision)**

Location of development including road, street, or nearest route number: **1700 & 1714 Westbrook Street, Portland, Maine 04102**

City/Town/Plantation: **Portland**, County: **Cumberland**, Lots: **229-A-2; 246-A-2; 247-A-3; 256-A-3; 246-A-6; 247-A-2; 245-B-5**

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? Yes ____ No **X**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30 – A, chapter 187)?
Yes **X** No _____

Is this project located within a compact area of an urban compact municipality? Yes **X** No _____

Is this development or any portion of the site currently subject to state or municipal enforcement action? **No**

Existing DEP or MDOT permit number (if applicable): **N/A**

Name(s) of DOT staff person(s) contacted concerning this application: _____

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applications: _____

NOTICE OF INTENT TO FILE

Please take notice that:

Stroudwater Development Partners, LLC
62 Portland Road, Suite 25, Kennebunk, Maine 04043

Is intending to file a Traffic Movement Permit application with the Maine Department of Transportation **(City of Portland)** pursuant to the provisions of 23 M.R.S.A. § 704 – A on or about

August 22, 2017

The application is for:

A residential subdivision with a mix of detached single-family homes and multi-family units. The proposed project site is located on outer Westbrook Street in the City of Portland. The development plan proposes 99 single-family house lots and 25 multi-family units. Access to the proposed subdivision will be provided with construction of two proposed streets that will be offered for public street acceptance. The most easterly street connection will intersect Westbrook Street directly opposite existing Swan Street and the second street access intersects Westbrook Street approximately 1,600 feet westerly.

Weekday AM Peak Hour of Street = 87 trips

Weekday PM Peak Hour of Street = 116 trips

At the following location: **1700 & 1714 Westbrook Street, Portland, Maine**

A request for a public hearing must be received by the Department, **(City)** in writing, no later than 20 days after the application is found by the Department **(City)** to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

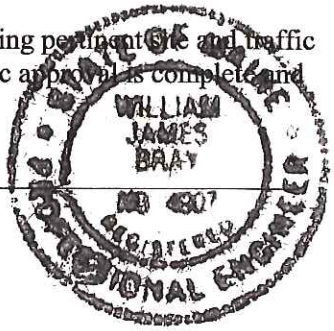
The application will be filed for public inspection at the **City of Portland's Planning Department office**, during normal working hours.

Written public comments may be sent to the Department of Transportation, Traffic Engineering Division, 16 State House Station, Augusta, Maine 04333.

1/2000

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the application for traffic approval is complete and accurate to the best of his/her knowledge.



Signature: William Bray Re/Cert/Lic No.: 4907

Name (print): William Bray

Date: 8-19-2017

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature of applicant

08/21/2017
Date

List of all Property Abutters.

1714 Westbrook St – Linda E. Paradis & Andrew D. Green, 246-A-4

1666 Westbrook St – Mary Davis & Stuart W. Tisdale, Jr., 248-A-4

1646 Westbrook St – Kevin A. Regan, 248-A-3

1630 Westbrook St – Jacqueline D. Day, 248-A-6

1618 Westbrook St – Bruce Harrington, 248-A-10

1498 Westbrook St – Stroudwater Christian Church, 256-A-1

105 Partridge Cir – Alina & Raymond Waterhouse, 228-A-3

125 Partridge Cir – Maria Shabazz & Michael A. Scannell, 228-A-4

132 Partridge Cir – William D. Dobrowoiski, 228-A-5

SECTION 1

A. SITE PLAN

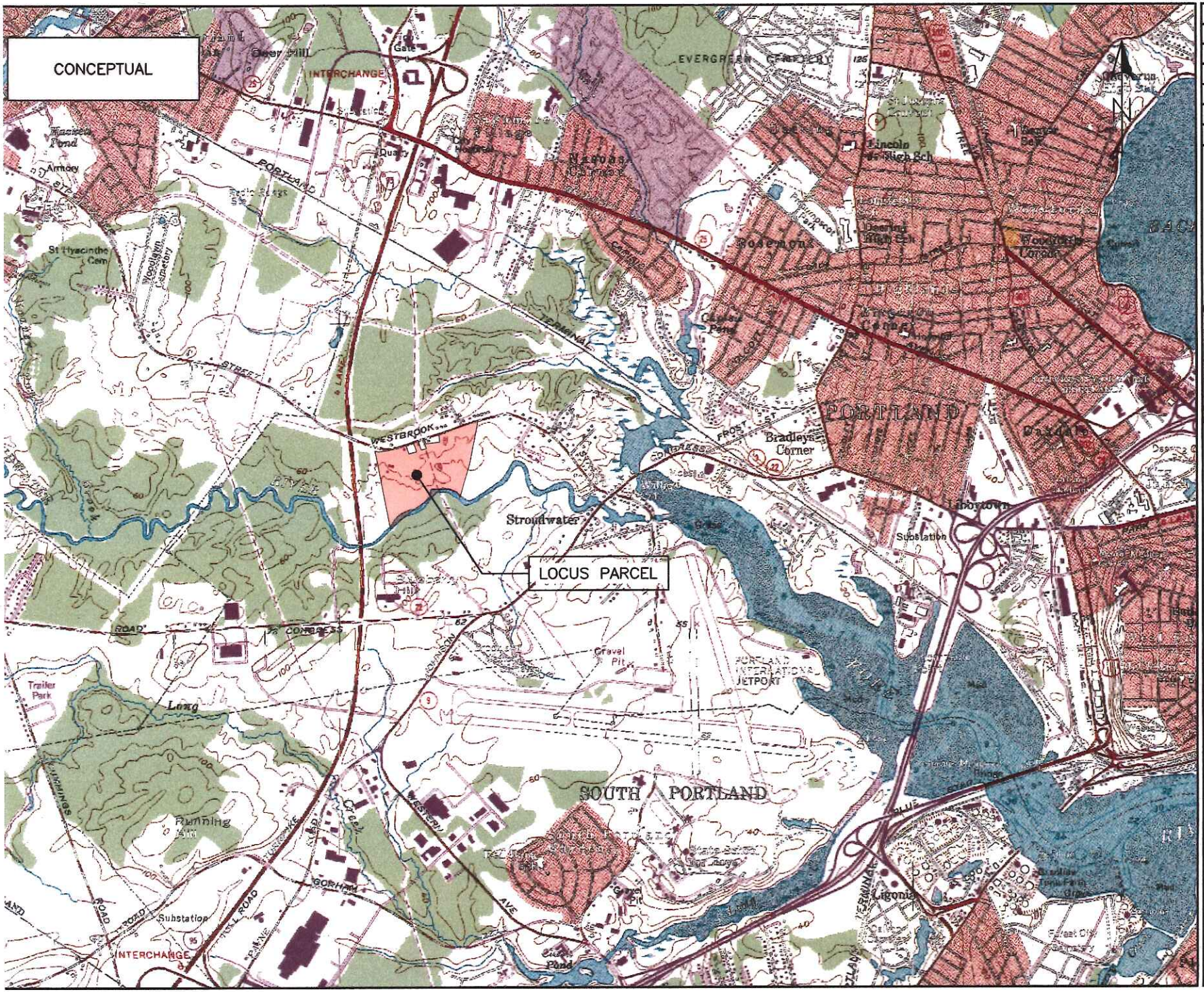
The proposed property, a 55.3-acre parcel of land, is located on outer Westbrook Street in the City of Portland. Stroudwater Development Partners, LLC are proposing to create a total of 99 single-family house lots and 25 multi-family units on the property. Access to the proposed subdivision will be provided with construction of two proposed streets that will be offered for public street acceptance. The most easterly street connection will intersect Westbrook Street directly opposite existing Swan Street and the second street access intersects Westbrook Street approximately 1,600 feet westerly.

B. EXISTING AND PROPOSED SITE USES

The existing site (55.3 acres in total area) is generally open pasture fields with a single-family home located near the westerly edge of the property. The Applicant is proposing to develop a mixed-use residential subdivision with a total of 99 single-family house lots and 25 multi-family units. Access to the proposed subdivision will be provided with construction of two proposed streets that will be offered for public street acceptance. The most easterly street connection will intersect Westbrook Street directly opposite existing Swan Street and the second street access intersects Westbrook Street approximately 1,600 feet westerly.

C. SITE AND VICINITY BOUNDARIES

The attached regional map depicts the proposed project site.



ISSUED FOR	BY DATE
SITE REVIEW	WHS 10/28/16
	REV. DATE

DRAWING NAME: VICINITY MAP

PROJECT NAME: CAMELOT FARMS SUBDIVISION

CLIENT: CAMELOT HOLDINGS, LLC

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372 PORTLAND, MAINE 04104 (207) 775-2655

FILE:	CIVIL
JN:	1000
SCALE:	1":2500'
DESIGN BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.

EX-1

D. PROPOSED USES IN THE GENERAL VICINITY OF THE PROPOSED DEVELOPMENT

Traffic generated by projects that have been approved by the Portland Planning Board and/or the Maine Department of Transportation, yet are not open, must be included in the estimate of pre-development traffic. Peak hour traffic generated by the following development projects will be appropriately accounted for in preparing a detailed traffic impact study:

1. *The Dirigo Plaza Project*
2. *Northland Enterprises, LLC Office Development*
3. *Portland International Jetport Future Expansion*
4. *JCA Community Center*

E. TRIP GENERATION

Trip generation for the proposed residential subdivision was determined based upon trip tables presented in the seventh edition of the Institute of Transportation Engineers "**TRIP GENERATION**" handbook. The ITE publication provides numerous land-use categories and the average volume of trips that are generated by each category. The following trip rates were used to calculate the trip generation of the proposed project:

Land Use #210 – Single-Unit Detached Housing
AM Peak Hour = 0.75 trips per dwelling unit
PM Peak Hour = 1.01 trips per dwelling unit

Land Use #220 - Apartment
AM Peak Hour = 0.51 trips per dwelling unit
PM Peak Hour = 0.62 trips per dwelling unit

The following Table 1 presents the determination of peak hour trip generation for the proposed residential subdivision:

Table 1
Peak Hour Trip Generation
Stroudwater Preserve Subdivision

Proposed Use	Number of Units	AM Peak Hour Trips	PM Peak Hour Trips
Single-Family Homes	99	74	100
Apartments	25	13	16
TOTAL	**124**	**87**	**116**

F. TRIP DISTRIBUTION

The Institute of Transportation Engineers "**TRIP GENERATION**" handbook provides the following directional distribution rates for each of the site-specific land use categories during both defined peak hour time periods:

Land Use #210 – Single-Unit Detached Housing	= AM Peak - 25% enter/75% exit
	= PM Peak - 63% enter/37% exit
Land Use #220 – Apartment	= AM Peak - 20% enter/80% exit
	= PM Peak - 65% enter/35% exit

Table 2, as follows, presents the directional distribution patterns of the peak hour traffic generated by the proposed residential subdivision:

Table 2
Site Trip Distribution Patterns
Stroudwater Preserve Subdivision

Proposed Use	Total Trips		AM Peak Hour		PM Peak Hour	
	AM Peak	PM Peak	Entering Trips	Exiting Trips	Entering Trips	Exiting Trips
Single-family Homes	74	100	18	56	63	37
Apartment	13	16	3	10	10	6
TOTAL	**87**	**116**	**21**	**66**	**73**	**43**

G. TRIP COMPOSITION

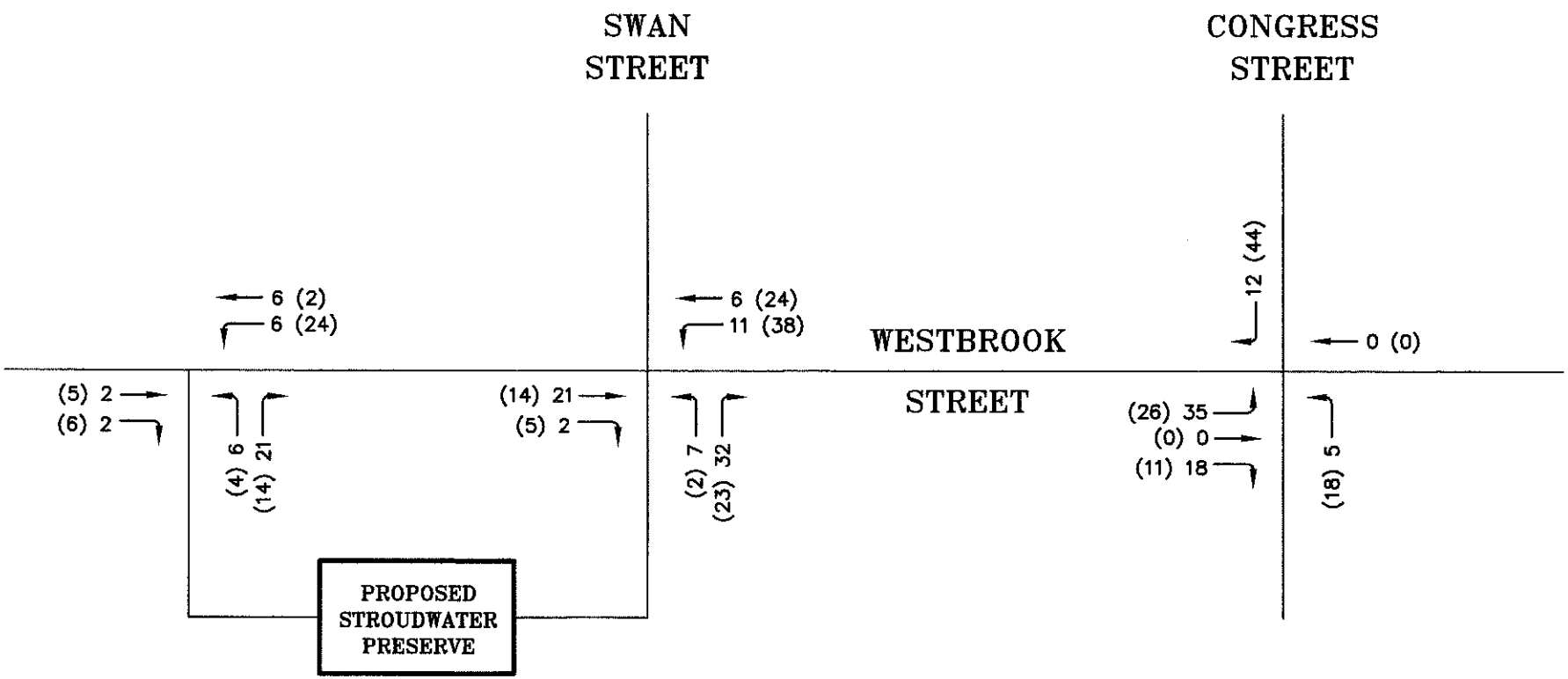
Trips generated by the proposed residential subdivision are assumed to be "*new*" or "*primary*" trips.

H. TRIP ASSIGNMENT

A travel model that replicates existing traffic patterns recorded for Swan Street (Copies of the Swan Street traffic data follow) were used in assigning vehicle trips generated by the proposed residential subdivision to the Westbrook Street corridor. The directional assignment percentages applied are presented as follows:

AM Peak Hour = 80% east/20% west
PM Peak Hour = 85% east/15% west

Figure 1 is a line diagram that depicts the assignment of the site generated traffic for both "*peak*" time periods.



LEGEND

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

SITE TRIP ASSIGNMENT

FIGURE 1

E:\LAND PROJECTS\34000\34398 TRAFFIC SOLUTIONS\STROUDWATER PRESERVE\PLANSET\STROUDWATER PRESERVE.DWG

STROUDWATER PRESERVE
PORTLAND, MAINE

DATE: AUGUST, 2017

FIGURE: 1

TRAFFIC SOLUTIONS
235 BANCROFT STREET, PORTLAND, MAINE 04102-1730

Portland: Westbrook & Swan
Thursday October 20, 2016
Sunny with some clouds
Count By: Dawn-Marie Fahey

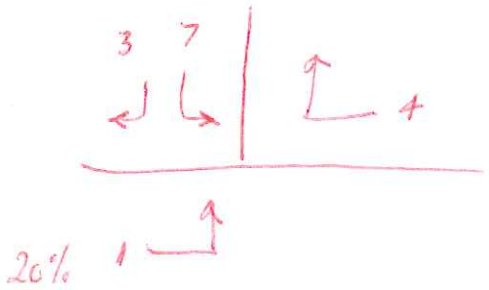
File Name : Portland Westbrook & Swan AM 10201
Site Code : 00102016
Start Date : 10/20/2016
Page No : 5

	Swan From North			Westbrook Street From East			Westbrook Street From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	**1**	**2**	**3**	**1**	**49**	**50**	**162**	**1**	**163**	**216**
07:30 AM	1	2	3	1	44	45	123	0	123	171
07:45 AM	1	2	3	1	40	41	161	0	161	205
08:00 AM	0	1	1	1	42	43	137	0	137	181
Total Volume	3	7	10	4	175	179	583	1	584	773
% App. Total	30	70		2.2	97.8		99.8	0.2		
PHF	.750	.875	.833	1.00	.893	.895	.900	.250	.896	.895

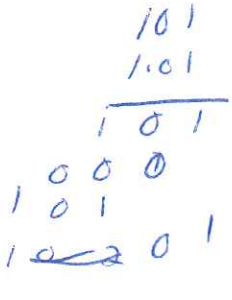
X 1.08

3 7 4 189 630 1

30% 70%

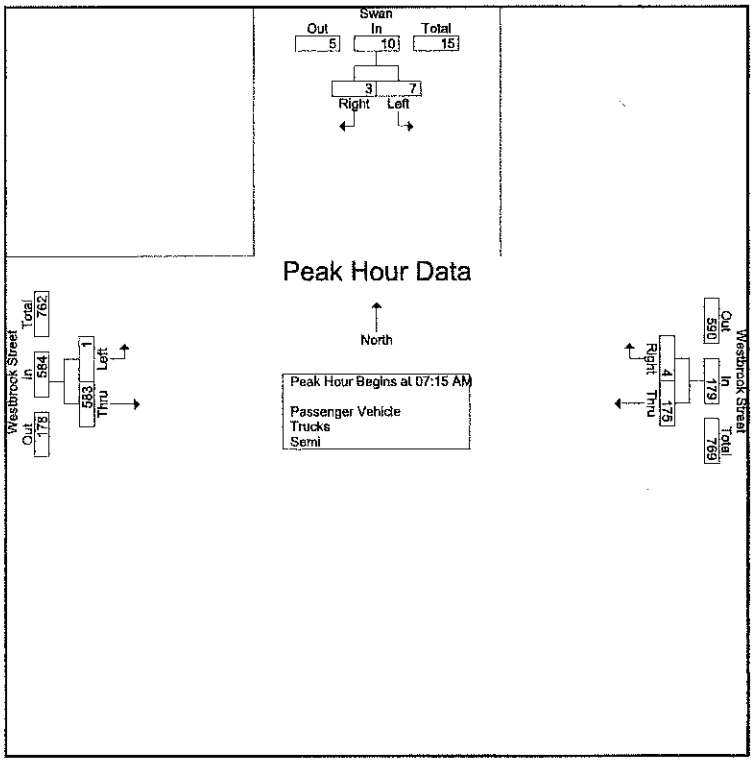


20% 1



Portland: Westbrook & Swan
Thursday October 20, 2016
Sunny with some clouds
Count By: Dawn-Marie Fahey

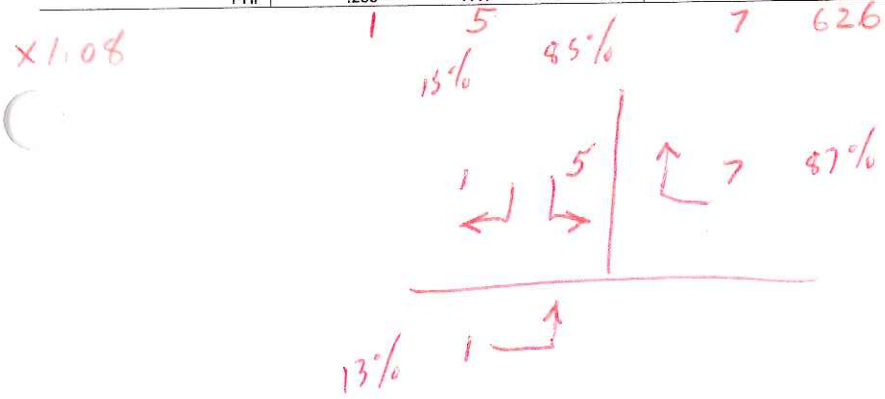
File Name : Portland Westbrook & Swan AM 10201(
Site Code : 00102016
Start Date : 10/20/2016
Page No : 6



Portland: Westbrook & Swan
Thursday October 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

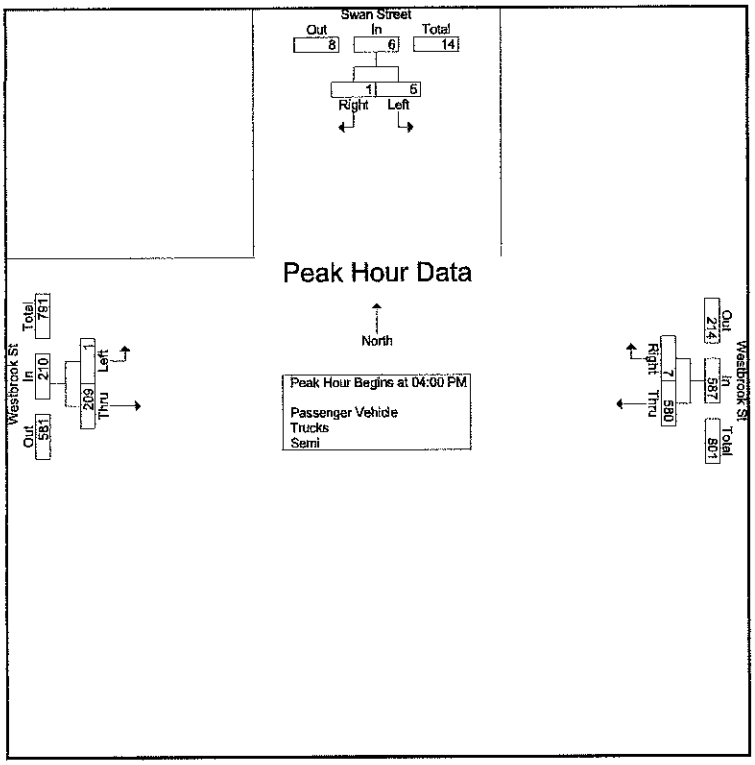
File Name : Portland Westbrook & Swan PM 10201
Site Code : 01102016
Start Date : 10/20/2016
Page No : 5

	Swan Street From North			Westbrook St From East			Westbrook St From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	**3**	**3**	**3**	138	141	56	0	56	200
04:15 PM	0	1	1	3	150	**153**	**57**	0	**57**	**211**
04:30 PM	0	1	1	1	**151**	152	52	0	52	205
04:45 PM	**1**	0	1	0	141	141	44	**1**	45	187
Total Volume	1	5	6	7	580	587	209	1	210	803
% App. Total	16.7	83.3		1.2	98.8		99.5	0.5		
PHF	.250	.417	.500	.583	.960	.959	.917	.250	.921	.951



Portland: Westbrook & Swan
Thursday October 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Westbrook & Swan PM 10201
Site Code : 01102016
Start Date : 10/20/2016
Page No : 6



Portland Westbrook & Congress
Thursday October 27, 2016
Cloudy
Count By: Dawn-Marie & Patrick

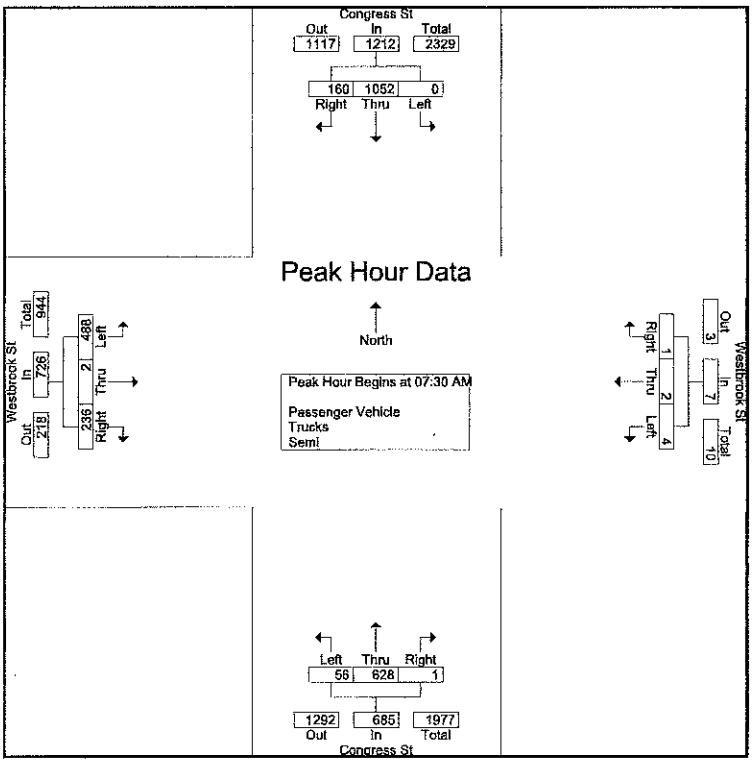
File Name : Portland Westbrook & Congress Merge 7-9 10271
Site Code : 00192716
Start Date : 10/27/2016
Page No : 5

	Congress St From North				Westbrook St From East				Congress St From South				Westbrook St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**53**	270	0	323	0	0	1	1	0	166	15	181	54	0	111	165	**670**
07:45 AM	32	**297**	0	**329**	0	**2**	**2**	**4**	0	136	11	147	62	**2**	120	184	664
08:00 AM	34	249	0	283	0	0	0	0	0	142	12	154	**74**	0	125	**199**	636
08:15 AM	41	236	0	277	1	0	1	2	**1**	**184**	**18**	**203**	46	0	**132**	178	660
Total Volume	160	1052	0	1212	1	2	4	7	1	628	56	685	236	2	488	726	2630
% App. Total	13.2	86.8	0		14.3	28.6	57.1		0.1	91.7	8.2		32.5	0.3	67.2		
PHF	.755	.886	.000	.921	.250	.250	.500	.438	.250	.853	.778	.844	.797	.250	.924	.912	.981

V/.08 173 1136 0 1 2 4 1 678 60 255 2 527

Portland Westbrook & Congress
Thursday October 27, 2016
Cloudy
Count By: Dawn-Marie & Patrick

File Name : Portland Westbrook & Congress Merge 7-9 10271
Site Code : 00192716
Start Date : 10/27/2016
Page No : 6



Portland Westbrook & Congress PM
Thursday October 27, 2016
Rain
Count By: Dawn-Marie & Patrick

File Name : Portland Westbrook & Congress Merge PM 10271(
Site Code : 01102716
Start Date : 10/27/2016
Page No : 5

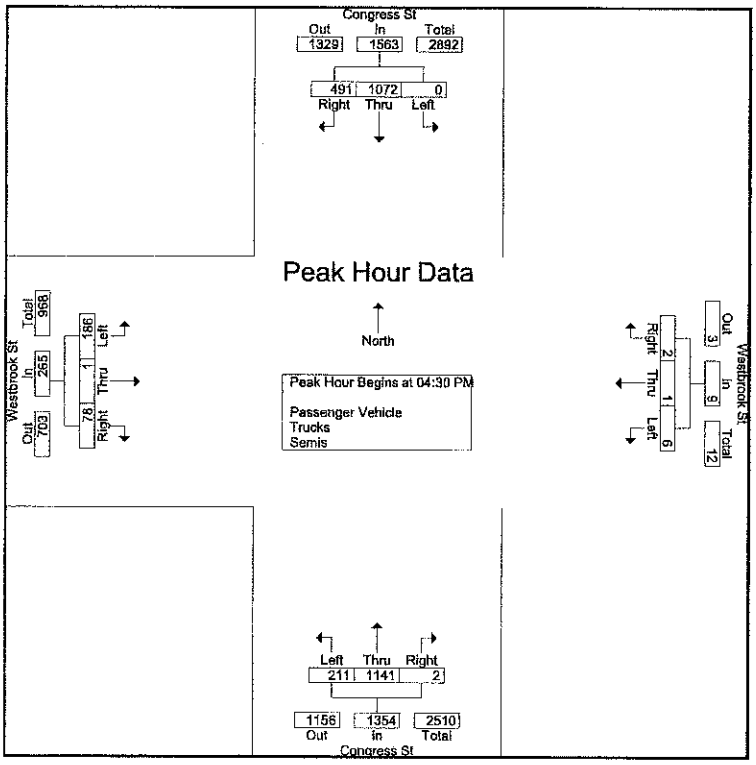
	Congress St From North				Westbrook St From East				Congress St From South				Westbrook St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	118	**313**	0	**431**	0	0	**3**	3	0	295	**63**	**358**	**22**	**1**	**53**	**76**	**868**
04:45 PM	117	252	0	369	1	0	1	2	0	**303**	54	357	16	0	40	56	784
05:00 PM	**131**	263	0	394	0	0	0	0	**1**	278	50	329	18	0	51	69	792
05:15 PM	125	244	0	369	1	1	2	**4**	1	265	44	310	22	0	42	64	747
Total Volume	491	1072	0	1563	2	1	6	9	2	1141	211	1354	78	1	186	265	3191
% App. Total	31.4	68.6	0		22.2	11.1	66.7		0.1	84.3	15.6		29.4	0.4	70.2		
PHF	.937	.856	.000	.907	.500	.250	.500	.563	.500	.941	.837	.946	.886	.250	.877	.872	.919

530 1158 2 1 6 2 1232 228 84 1 201

Seasonal Adjustment = 1.08

Portland Westbrook & Congress PM
Thursday October 27, 2016
Rain
Count By: Dawn-Marie & Patrick

File Name : Portland Westbrook & Congress Merge PM 10271
Site Code : 01102716
Start Date : 10/27/2016
Page No : 6



SECTION 2

TRAFFIC ACCIDENTS

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2014 through 2016) crash data for the section of Westbrook Street (Congress Street to Westbrook City Line), a distance of 1.27 miles. Their report is summarized in Table 1, as follows:

Table 1
2014 -2016 Traffic Accident Summary
(Westbrook Street)

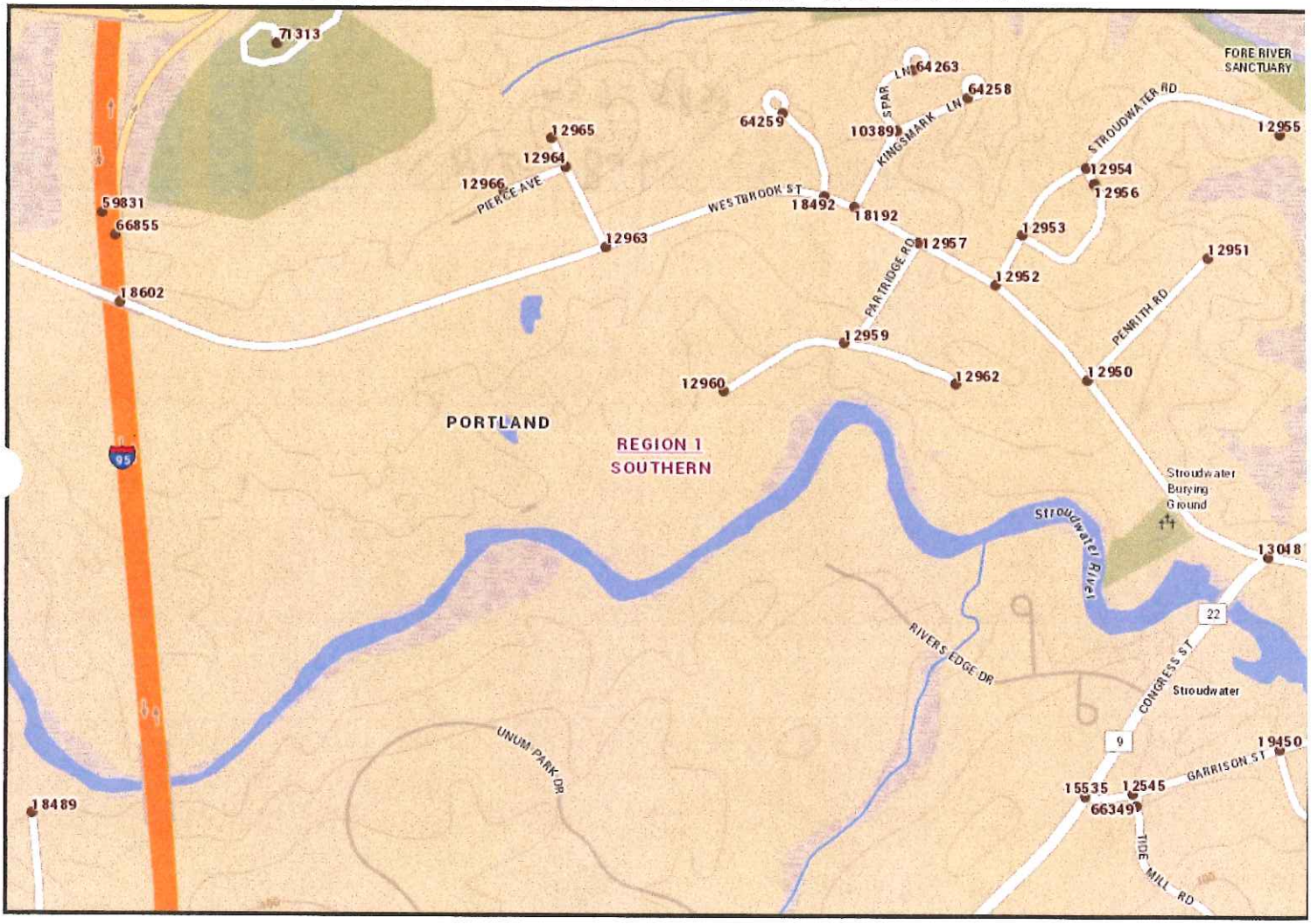
Location	Total Crashes	Critical Rate Factor
1. Westbrook Street @ Penrith Road	1	0.27
2. Westbrook Street @ Congress Street	31	0.89
3. Westbrook Street btw. Swan Street and Westbrook City Line	7	0.46
4. Westbrook Street btw. Swan Street and Buttonwood Lane	5	0.78
5. Westbrook Street btw. Buttonwood Lane and Kingsmark Lane	1	0.62
6. Westbrook Street btw. Penrith Road and Congress Street	5	0.70

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

As the data in the table presents, the incidence of traffic crashes occurring on the reviewed section of Westbrook Street do not meet MaineDOT's threshold criteria for identification of a high crash location.

DEFAULT TITLE FROM MAP DOCUMENT



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.2 Miles

1 inch = 0.14 miles

Date: 10/18/201
Time: 7:06:12 AM

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☐ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Westbrook St

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0560784** Start Node: **15060** Start Offset: **0** ☐ **Exclude First Node**

End Node: **13048** End Offset: **0** ☐ **Exclude Last Node**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
15060	0560784 - 0	TL Portland Westbrook	2	0	0	0	0	0	0	0.0	2.707	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
12963	0560784 - 0.60	Int of SWAN ST, WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.713	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
18492	0560784 - 0.79	Int of BUTTONWOOD LN WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.747	0.00	0.42	0.00
												Statewide Crash Rate:	0.14	
18192	0560784 - 0.82	Int of KINGSMARK LN WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.769	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12957	0560784 - 0.88	Int of PARTRIDGE RD WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.781	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12952	0560784 - 0.95	Int of STROUDWATER RD WESTBROOK ST	2	0	0	0	0	0	0	0.0	2.884	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
12950	0560784 - 1.06	Int of PENRITH RD, WESTBROOK ST	2	1	0	0	0	0	1	0.0	2.910	0.11	0.41	0.00
												Statewide Crash Rate:	0.14	
13048	0560784 - 1.27	Int of CONGRESS ST WESTBROOK ST	9	31	0	0	1	7	23	25.8	10.806	0.96	1.08	0.00
												Statewide Crash Rate:	0.71	
Study Years: 3.00		**NODE TOTALS:**		32	0	0	1	7	24	25.0	30.317	0.35	0.50	0.71

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
12963	15060	3119195	0 - 0.60	0560784 - 0	0.60	2	7	0	0	2	0	5	28.6	0.01599	145.95	315.64	0.00
Int of SWAN ST, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12963	18492	3119196	0 - 0.19	0560784 - 0.60	0.19	2	5	0	0	0	0	5	0.0	0.00519	321.25	410.42	0.00
Int of SWAN ST, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
18192	18492	3120115	0 - 0.03	0560784 - 0.79	0.03	2	1	0	0	0	1	0	100.0	0.00082	404.59	648.83	0.00
Int of KINGSMARK LN WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12957	18192	187566	0 - 0.06	0560784 - 0.82	0.06	2	0	0	0	0	0	0	0.0	0.00164	0.00	551.29	0.00
Int of PARTRIDGE RD WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12952	12957	3099870	0 - 0.07	0560784 - 0.88	0.07	2	0	0	0	0	0	0	0.0	0.00193	0.00	529.29	0.00
Int of STROUDWATER RD WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12950	12952	3106230	0 - 0.11	0560784 - 0.95	0.11	2	0	0	0	0	0	0	0.0	0.00320	0.00	464.35	0.00
Int of PENRITH RD, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
12950	13048	3106231	0 - 0.21	0560784 - 1.06	0.21	2	5	0	0	0	1	4	20.0	0.00601	277.10	395.55	0.00
Int of PENRITH RD, WESTBROOK ST				RD INV 05 60784											Statewide Crash Rate: 171.86		
Study Years: 3.00				**Section Totals:**	1.27		18	0	0	2	2	14	22.2	0.03479	172.46	271.60	0.63
				Grand Totals:	1.27		50	0	0	3	9	38	24.0	0.03479	479.05	407.91	1.17

SECTION 3

A. ENTRANCE/EXIT LOCATION

Access to the proposed subdivision will be provided with construction of two proposed streets that will be offered for public street acceptance. The most easterly street connection will intersect Westbrook Street directly opposite existing Swan Street and the second street access intersects Westbrook Street approximately 1,600 feet westerly. The proposed streets will be constructed in accordance with the City of Portland's Technical Standards and/or as directed by the City of Portland's Public Works Department.

B. ENTRANCE AND EXIT PLAN VIEW

The Maine Department of Transportation's Highway Entrance and Driveway Rules require the following sight distances for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	305
40	360
45	425
50	495
55	570

Sightline measurements were conducted at both proposed subdivision road intersections with Westbrook Street and compared with required sight distance standards promulgated by the Maine Department of Transportation. Westbrook Street is posted at 35mph across the full frontage of the proposed residential subdivision, requiring a minimum unobstructed sightline of 305 feet. Sightline measurements in excess of 400 feet were measured from the proposed centerline of both subdivision street connections with Westbrook Street.

C. ENTRANCE/EXIT DESIGN

The proposed project, including all required off-site improvements, will be designed and constructed in accordance with the City of Portland's Technical Design Standards.

SECTION 4

TITLE, RIGHT OR INTEREST

Copies of the attached Purchase and Sales Agreement for the property located at 1700 Westbrook Street and the Warranty Deed for the property at 1714 Westbrook Street provide evidence that Stroudwater Development Partners, LLC retain rights in both parcels of property.

PURCHASE AND SALE AGREEMENT
(Real Estate)

Agreement made and entered into this day by and between **ONEX CO.**, a/k/a Onex Company, a Maine business corporation having a mailing address of 399 Old Brunswick Rd., Gray, ME ("Seller") and **DIVERSACORP, LLC**, a Maine limited liability company having a mailing address of 5 Stone Pony Circle, Saco, ME, or its assigns ("Buyer"). In consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

1. **PURCHASE AND SALE OF PREMISES**. Seller agrees to sell and Buyer agrees to buy, on the terms and conditions hereinafter set forth, the land and buildings commonly known and designated as "Camelot Farm," located generally at 1700 Westbrook Street, Portland, Maine, and consisting of roughly 44.8 acres of real property, together with all improvements and fixtures thereon and all rights appurtenant thereto, being more particularly described in a Warranty Deed recorded in the Cumberland County Registry of Deeds in Book 14598, Page 346 (the "Deed") ("Premises" or "Property"). A copy of the deed is attached hereto as **EXHIBIT A** and made a part hereof. The description of the Premises in the Deed is understood to be general in nature and the description in the deed of conveyance contemplated herein shall be subject to approval by Buyer.

2. **PURCHASE PRICE**. Subject to any adjustments and prorations hereinafter described, Buyer agrees to pay for the Premises the sum of [redacted] payable as follows:

Drummond Woodsum

a. The sum of [redacted] as Deposit payable upon the signing of this Agreement by both parties ("Deposit"). This Deposit shall be held by [redacted] ("Escrow Agent") in a non-interest bearing account. It shall be applied as credit to the purchase price at closing or disposed of as set forth herein. In the event of a dispute over the return or forfeiture of any deposit held by the Escrow Agent, the Escrow Agent shall continue to hold the deposit until it has received a written release from the parties consenting to its disposition, or until a final order. Regardless of its representation of any party in this Agreement, Escrow Agent shall not, as Escrow Agent, have any responsibility or liability to any party beyond the proper disposition of the escrow funds actually paid over to it. All parties agree to indemnify and hold the Escrow Agent harmless from any and all costs, actions, failure to act, or payment or refusal to pay, so long as said actions are made in good faith and are not a result of willful misconduct, including any defense costs or attorney's fees. The Escrow Agent shall incur no liability in acting upon any signature, notice, request, waiver, consent or other document believed by the Escrow Agent to be genuine.

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b. The BALANCE of the purchase price, the sum of [redacted] by bank check, wire transfer or equivalent, at the time of closing subject to adjustment and as set forth in the Prorations.

3. **VESTING OF DEPOSIT**. The Deposit set forth in Section 3 above shall be refundable in full until the following occurrences, at which point, such portions of the deposit shall become non-refundable and shall vest in, and be released to, Seller: (a) [redacted] shall become non-refundable upon final approval of the subdivision plan by the City of Portland; (b) [redacted] shall become non-refundable upon satisfaction of the financing contingency set forth below.

4. **CLOSING**. The closing shall take place at the offices of Bergen & Parkinson, 62 Portland Road, Kennebunk, Maine within sixty (60) days after the later of: a) receipt of final subdivision approval from the City of Portland, or; b) satisfaction of any of the conditions precedent to buyers obligation to purchase set forth below. Notwithstanding the intended deadline set forth in the preceding sentence, Buyer and Seller agree that Buyer may extend the closing date up to sixty (60) additional days.

5. **TRANSFER OF TITLE**. Seller shall convey the Premises to Buyer at the closing in fee simple with good and marketable title, free and clear of liens and encumbrances, subject to the following:

a. Buyer shall have until thirty (30) days after the Effective Date to determine if title to the Premises is acceptable and notify Seller of the same. In the event that Buyer determines that Seller would be unable to convey title to the Premises as aforesaid and Buyer properly notifies Seller, then Seller shall have thirty (30) days notice from Buyer in which either to: notify Buyer that Seller via its own counsel shall remedy such title defects, to the satisfaction of Buyer's Counsel, at Sellers expense, or; notify Buyer that Seller shall reimburse Buyer at closing all Buyer's legal and other costs associated with remedying such title defects. If Seller fails to provide notice to Buyer within 30 days as set forth in the preceding sentence, then Seller hereby agrees that Buyer's costs of curing such title issues, including legal and other fees and costs, shall be offset against the purchase price at closing. Any period of time ninety (90) days after Seller received notice of a title defect, and the final recording or filing of any curative documents shall toll all deadlines and periods for any contingencies set forth anywhere in this agreement. In the event that said defects cannot be corrected or remedied within said time period to the satisfaction of Buyer's counsel, Buyer may terminate this Agreement by written notice to the parties and any non-vested portion of the Deposit shall be returned to Buyer. Buyer may, however, at its sole discretion elect to close notwithstanding such defects as may exist. Seller and Buyer understand and agree that any mortgages and liens on the Premises shall not be considered title defects provided that the same shall be discharged at or prior to the closing at Seller's expense. Seller may use purchase money proceeds for this purpose.

b. Seller agrees that it will not further encumber or permit to be encumbered the Premises by any liens, mortgages, attachments, covenants, restrictions or easements after the date of this Agreement.

c. At the closing, Seller shall execute and deliver to Buyer, against payment of the purchase price, a Quitclaim Deed with Covenants to the Premises, in accordance

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with the Short Form Deeds Act, 33 M.R.S.A. § 761 et seq., (the "Deed") together with a Bill of Sale for personal or intangible property, and such other rights as may be associated with the Property, if any. If Seller fails to execute and deliver a separate Bill of Sale or Assignments, then this Agreement shall be deemed to convey the same and this Provision survives closing, and in such instance, Seller hereby grants and assigns to Buyer all such personal property as of the date of Closing.

d. Seller further agrees to execute and deliver to Buyer at the closing such Affidavits and Certificates as are reasonably necessary for Buyer's acquisition and financing of the Premises, including without limitation a Certificate of Non-Foreign Status (as required by Internal Revenue Service regulations), an affidavit regarding underground storage tanks (as required by Maine Laws), and a title insurance "Seller's Affidavit" regarding mechanics liens and persons in possession.

e. Seller is a corporation and Seller certifies that it is duly authorized and validly existing under the Laws of the State of Maine and agrees to provide evidence satisfactory to Buyer of due organization, authority, and good standing, including an opinion of counsel evidencing the same, which opinion may be required at Buyer's sole discretion.

6. **CONDITION OF IMPROVEMENTS**. Improvements at the Premises shall be delivered to Buyer at closing in "broom clean" condition. The improvements shall be sold and conveyed strictly on an "as is", "where is" and "with all defects" basis. Notwithstanding the foregoing, Seller covenants that it has no knowledge that the improvements violate any federal, state, municipal or local statutes, laws, rules, regulations or ordinances, including, without limitation, those pertaining to land use (or permits issued in connection therewith), zoning, lead paint, urea formaldehyde foam insulation, asbestos, hazardous or toxic wastes or substances, pollutants, contaminants or other environmental matters. The provisions of this paragraph shall survive the Closing and delivery of the Deed (as hereinafter defined) or any expiration or termination of this Agreement.

7. **RISK OF LOSS, DAMAGE AND INSURANCE**.

a. All risk of loss to the Premises prior to the closing shall be borne by Seller. Seller shall keep the Premises fully insured against fire and other extended coverage risks until the closing.

b. In the event that, prior to the closing, the improvements which are part of the Premises are destroyed or, in the opinion of Buyer, substantially damaged, Buyer may either (i) terminate this Agreement and receive back any non-vested earnest money deposit, or (ii) accept the insurance proceeds payable by reason of such damage, destruction or taking and close this transaction notwithstanding the same. Seller agrees and hereby assigns any proceeds payable pursuant hereto to Buyer, and shall name Buyer as an additional insured as Buyer's interest may appear.

8. **INSPECTION/DUE DILIGENCE**. So long as Buyer is accompanied by Seller's Broker or another authorized agent of the Broker and upon reasonable advance notice, Buyer

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may enter into any part of the Premises at all reasonable times prior to the closing in order to inspect the Premises, conduct surveys, soil tests and engineering studies and to do such things as are reasonably necessary with respect to its acquisition, improvement or development of the Premises. Nothing in this paragraph shall limit the inspections necessary to complete due diligence and to meet any contingencies precedent to Buyer's obligation to close as set forth below. Except as otherwise set forth elsewhere in this Agreement, Buyer shall have one hundred twenty (120) days within which to complete general due diligence.

9. **POSSESSION OF THE PREMISES AND LEASES**. The Premises shall be delivered to the Buyer at the time of the closing free and clear of all tenancies or occupancies by any person or entity.

10. **REPRESENTATIONS AND WARRANTIES OF SELLER**. Seller represents and warrants to Buyer that the following are true as of the date of this Agreement and will be true as of the closing:

a. Seller has no knowledge, after reasonable investigation, that the Premises violates any applicable laws, ordinances, or regulations.

b. Seller has no knowledge, after reasonable investigation, that the Premises contains any special wastes, underground storage tanks urea-formaldehyde foam insulation, radon, asbestos containing materials, lead-based paint, waste oil, petroleum and any other hazardous, biomedical, radioactive or toxic, substances, materials or wastes. The terms used in the foregoing sentence shall include, without limitation, all substances, materials, etc., designated by such terms under any laws, ordinances or regulations, whether federal, state or local. Notwithstanding the foregoing, Seller believes there is or may have been an underground oil storage tank located in the front yard of the Premises, being further described in the Disclosure Form Delivered to Buyer.

c. There are no outstanding pending or threatened liens, claims, rights of first refusal, or encumbrances against the Premises.

d. All outstanding bills and/or accounts payable concerning the Premises are either paid or will be paid prior to or at the time of closing.

e. There are no outstanding claims, losses or demands against Seller by any tenant or other person respecting Seller's ownership, use and/or occupancy of the Premises.

f. There are no leases on the Premises.

g. No portion of the Premises is currently classified as Farm land or Tree Growth under applicable provisions of Title 36 M.R.S.A.

h. The Premises, is classified as Open Space the City of Portland and shall be withdrawn from such classification prior to or at closing at Seller's expense. Seller may use purchase money proceeds for this purpose.

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i. To the best of Seller's knowledge, there are rights of ingress and egress in perpetuity from the Premises to public highways or roads for both vehicular and pedestrian traffic and utilities.

j. Seller has provided Buyer with a copy of a survey made by Nadeau & Lodge, Inc., dated Feb. 21, 2003 entitled "Plan Depicting the Results of a Standard Boundary Survey Made for Onex Company [sic], Southerly Sideline of Westbrook Street, Portland, Maine" (the "Onex Plan"). Other than encroachments listed on the Onex Plan, there are no known boundary disputes or other encroachments affecting the Premises. For the avoidance of doubt, Buyer's knowledge of encroachments on the Onex Plan is not a waiver of Buyer's right to require reasonable curative boundary work as a condition hereof.

k. Seller has transacted business under the name "Onex Co." as registered with the Maine Secretary of State, and also as "Onex Company," as identified in a certain deed by which it took title (CCRD Book 14598, Page 346), and Seller certifies that that "Onex Co." and "Onex Company" as listed on said deed are one and the same.

l. Seller shall obtain authorization from its shareholders to enter into this Agreement, and to take all actions required hereunder, and further, that any notices given in advance of such meeting for the approval of this agreement shall be timely and duly given in accordance with the Bylaws, and any other governing documents, of the Seller.

11. **DEFAULT AND REMEDIES**. Upon default by either party, the non-defaulting party shall have all rights and remedies available to it in equity or at law, including Buyer's right to specific performance under this Agreement.

12. **CONDITIONS PRECEDENT TO BUYER'S OBLIGATION TO CLOSE**. The obligation of Buyer to close is subject to the satisfaction at or before the closing of all of the following conditions:

a. All representations and warranties of Seller contained in this Agreement shall be true as of the closing.

b. Buyer may, at its sole option, order its own survey of the Property, and any boundary encroachments, whether on Buyer's survey, or the Onex Plan, or otherwise, shall have been cured.

c. Buyer shall have determined within the timeframe set forth in Section 5 above that Seller can convey title in form and substance satisfactory to Buyer and Buyer's counsel.

d. Within 240 days after the Effective Date, Buyer shall have satisfactorily completed all inspections, testing, permit applications, or other requirements necessary to receive subdivision approval ("Necessary Investigations"), it being understood that each such Necessary Investigation constitutes its own condition precedent.

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e. Within 300 days after the Effective Date, Buyer shall have received final subdivision approval, granted in full and without any remaining contingencies to be fulfilled. In the event this condition is not met at the end of 300 days, and provided further that Buyer has diligently pursued the same, then Buyer may extend this contingency deadline by 60 days by giving Seller or its agents notice thereof, and paying to Seller an additional $5,000, which payment shall be in addition to the purchase price.

f. Within 60 days after final subdivision approval, Buyer shall have received financing for a mortgage loan in such amount and upon such terms and conditions as are satisfactory to Buyer.

g. Within the first 120 days after the Effective Date, Buyer shall have obtained an inspection of the Premises and determined them to be free of wetlands, endangered or threatened wildlife or plant habitats, coastal sand dunes, great ponds, rivers and streams and in compliance with all applicable laws, ordinances, and regulations. In the event the Premises or a portion thereof is determined to be in wetlands, etc. as described above, then so long as such condition does not materially or adversely impair the Buyer's development of the Premises then this condition shall be deemed satisfied.

h. Within 90 days after the Effective Date, Buyer shall have obtained a general building inspection of any structures on the Premises disclosing the Premises to be structurally sound (except for a leak in the roof, some rot in the exterior wood on the house, and some rotten wood in the stable, all as disclosed to the Buyer) and in good repair and all of the mechanical systems, including without limitation, plumbing, heating, electrical, drainage, water, sewer/septic to be in working order and repair and adequate to serve the premises, all to the satisfaction of the Buyer.

i. Within the first 90 days after the Effective Date, Buyer shall have obtained an environmental site assessment of the Premises disclosing the Premises to be free of urea-formaldehyde foam insulation, hazardous substances, underground storage tanks (other than as disclosed by the Buyer on Seller's Property Disclosure), asbestos containing materials, lead-based paint, radon and special wastes. The terms used in the foregoing sentence shall have those meanings ascribed to them under Federal, State and/or Local Law.

j. Within 60 days after final subdivision approval, Buyer shall have obtained an appraisal of the Premises with a valuation equal to or greater than the purchase price hereunder.

k. Prior to closing, any action by any officer, director, or shareholder of Seller, or any other party claiming via rights to, through, or associated with Seller challenging this Agreement or the proposed sale or subdivision development contemplated hereunder shall thereafter toll all deadlines set forth herein, which deadlines shall remain tolled until either final settlement, bonding off, or final adjudication of such matter, which, for the avoidance of doubt, includes the passage of any appeals period.

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l. Prior to closing, Seller shall have conducted necessary tests to locate the buried tank referenced in its disclosure, and shall have removed such tank at its sole expense in compliance with any applicable laws, evidence of which compliance is a condition precedent to closing.

13. **BROKERAGE**. Seller is responsible for the payment of all fees and commissions due any real estate brokers with respect to this transaction. Seller agrees to indem- nify and hold Buyer harmless from any and all claims made by real estate brokers with respect to this transaction. This indemnity shall include all costs and expenses including attorney's fees incurred by Buyer in defense against any such claim, and shall include claims made post-closing.

14. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS**.

a. Real estate taxes, assessments, rentals and utilities shall be prorated as of the closing.

b. The Maine real estate transfer tax shall be paid by Seller and Buyer in accordance with 36 M.R.S.A.§ 4641-A.

c. The recording fee for the deed of conveyance will be paid by Buyer.

d. A portion of the purchase price shall be withheld at the closing by Buyer if required by 36 M.R.S.A. §5250-A.

e. Utilities shall be prorated as of the closing date and Buyer shall reimburse Seller for any unused fuel oil or gas.

f. Seller shall pay any penalties due to the City of Portland which relate to Seller's removal of the Premises from any Open Space, Tree Growth, Farmland, or other such tax program set forth under Title 36 of the Maine Revised Statutes.

15. **CONFIDENTIALITY**. Seller and Buyer covenant and agree to keep confidential the terms of the transaction contemplated hereby and not to disclose to any person either the fact that discussions or negotiations are taking place (other than Buyer's lender or attorney) concerning the acquisition of the Property or the substance or status thereof, except as is necessary to perform obligations pursuant hereto.

16. **MISCELLANEOUS**. The parties further agree as follows:

a. Binding Agreement / Assignment. This Agreement shall inure to the benefit of and shall be binding upon the parties hereto and their respective heirs, legal representatives, successors, and assigns. Buyer reserves the right to assign this Agreement to an entity to be formed.

b. Joint & Several. Seller shall refer to each selling party as their interests

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appear but each Seller shall be responsible for all warranties and representation on a joint and several basis.

c. Amendment. This Agreement shall not be changed in any respect except by written instrument signed by the parties hereto.

d. Governing Law / Jurisdiction. This Agreement and all rights and obligations hereunder, including matters of construction, validity, and performance, shall be governed by the laws of the State of Maine and parties recognize Maine as the courts of Cumberland County having sole forum having jurisdiction hereover.

e. Severability. If any term, condition, or provision of this Agreement or the application thereof to any person or circumstance shall, to any extent, be held invalid or unenforceable according to the law, then the remaining terms, conditions, and provisions of his Agreement, or the application of any such invalid or unenforceable terms, condition or provision to persons or circumstances other than those to which it is held invalid or unenforceable shall not be affected thereby, and each term, condition, and provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

f. Headings. The descriptive headings of the sections of this Agreement have been inserted for the convenience and reference only and shall not control or affect the meaning or construction of any of the contents hereof.

g. Integration. This Agreement may be executed in multiple originals and embodies the entire understanding of the parties. All prior discussions and representations are merged herein.

h. Notice. Any demand or notice required or permitted hereunder, shall be effective if either: (i) hand-delivered to the addressee, or (ii) deposited in the mail, registered or certified, return receipt requested and postage prepaid, or delivered to a private express company addressed to the addressee: (A) at the address shown below, or (B) if such party has provided the other in writing with a change of address, at the last address so provided. Any notice or demand mailed as provided in this paragraph shall be deemed given and received on the earlier of: (i) the date received, or; (ii) the dated of delivery, refusal or non-delivery as indicated on the return receipt, if sent my mail or private express as provided above. All notices required to be given, or which may be given hereunder, shall be in writing and if mailed, shall be sent by mail to the party to be notified as follows:

Seller:	Onex Co. Attn: Kerrin Dorne. 68 Old Farm Road Newton, MA 02459
With a copy to:	Alexandra E. Caulfield Drummond Woodsum 84 Marginal Way, Suite 600 Portland, Maine 04101-2480
Buyer:	Diversacorp, LLC Attn: Nate Libby 5 Stone Pony Cir. Saco, ME 04072
With Mandatory Copy To:	Jason G. Howe, Esq. Bergen & Parkinson, LLC 62 Portland Road, Suite 25 Kennebunk, ME 04043

or to such other addresses as one party may from time to time hereafter designate by like notice to the other.

i. Gender and Number. All words denoting gender or number shall be construed to include any other gender or number as the context and facts require.

j. Survival / Merger. All representations of Seller survive closing unless extinguished in writing by agreement of the parties signed at closing. For the avoidance of doubt, acceptance of the Deed by Buyer does not merge the provisions of this Agreement or satisfies all obligations and representations of Seller.

k. Time. Time is of the essence in this Agreement.

l. Survey. Survey means a map of a staked survey of the Real Property and Improvements constituting the Property prepared by a surveyor who prepared one or both of the Existing Surveys (as defined herein), such Survey to comply with the ALTA/ACSM Survey Requirements 1999 for ALTA/ACSM land title surveys jointly established and adopted in 1999, by the American Land Title Association, American Congress on Surveying and Mapping, and the National Society of Professional Engineers, including optional items 1, 2, 3, 4, 6, 7, 8, 9, 19 and 11 of Table "A" thereof, which meets the accuracy standards (as adopted by ALTA and ACSM and in effect on the date of the Survey), or a state standard which is comparable to the foregoing ALTA/ACSM standard.

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m. Professional Advice. Each party hereby acknowledges that they have read and understand this Agreement and have had an opportunity to obtain professional advice regarding the same.

n. Recording. Buyer reserves the right to record a memorandum of this agreement at the Cumberland County Registry of Deeds at its expense, and Seller agrees to sign a memorandum hereof.

o. Authority. Seller warrants and represents that it / they have full authority to execute this Agreement and perform all obligations contained herein. All such actions have been properly authorized by any required votes and the party signing on behalf of Seller is duly appointed to so act in said capacity to make this Agreement binding upon Seller.

p. Signatures/Counterparts. Facsimile or Electronic Signatures shall be deemed to be and treated as originals. This agreement may be signed in counterpart, the combination of which counterparts constitutes a binding final agreement.

q. Improvident Transfers. Seller warrants and represents that they have fully complied with the Improvident Transfer Act and that this Agreement is enforceable pursuant to the provisions thereof.

17. **AGREEMENT OF ESCROW AGENT**. In the event of any dispute regarding the disposition of the escrowed funds held by Escrow Agent, Escrow Agent shall have the right to deliver said funds to a court of competent jurisdiction and commence an interpleader action to determine the proper disposition of said funds. Seller and Buyer agree to reimburse Escrow Agent for all expenses incurred by Escrow Agent in the interpleader action, including, without limitation, attorney's fees. Seller and Buyer further agree to hold Escrow Agent harmless for any action taken in good faith pursuant to the terms of this Agreement.

(*Signatures Below*)

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IN WITNESS WHEREOF, Seller and Buyer have executed this Agreement as of this day of August 2016 ("Effective Date").

ONEX CO.
("Seller")

Witness

By: _____

Print Name: Kerrin Dorne.
Its: Secretary
Thereunto Duly Authorized

DIVERSACORP, LLC
("Buyer")

Witness

By: _____
Nate Libby, its Manager
Thereunto Duly Authorized

Nate Libby (President)

(Exhibit A Below)

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EXHIBIT A

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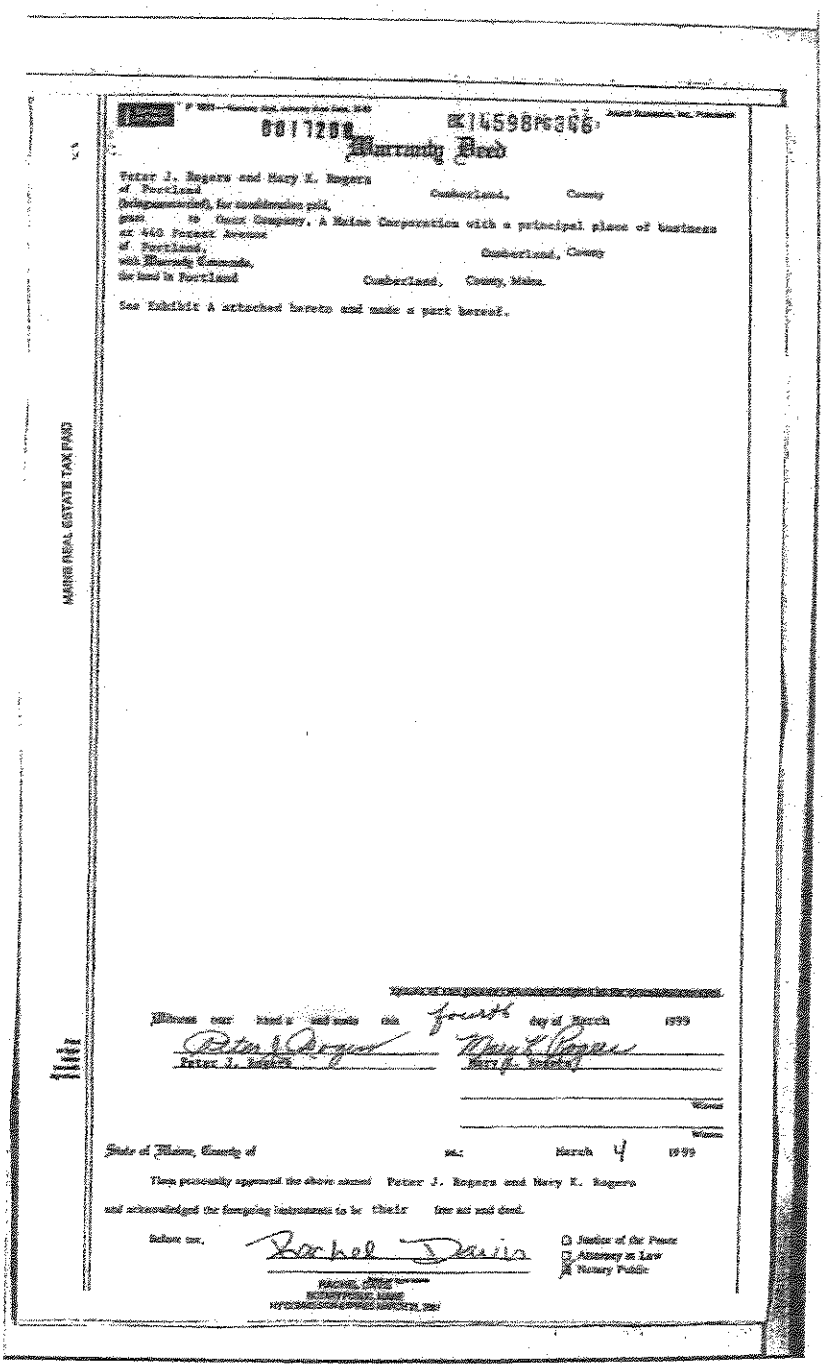

Warranty Deed

Peter J. Rogers and Mary K. Rogers
of Portland Cumberland, County
(Bringsmanstreet), for consideration paid,
grant to Onex Company, A Maine Corporation with a principal place of business
at 440 Forest Avenue
of Portland, Cumberland, County
with Warranty Commands,
the land in Portland Cumberland, County, Maine.

See Exhibit A attached hereto and made a part hereof.

MAINE REAL ESTATE TAX PAID

Witness our hand & seal made this fourth day of March 1999

Peter J. Rogers — Mary K. Rogers

Witness

Witness

State of Maine, County of ss: March 4 1999

Then personally appeared the above named Peter J. Rogers and Mary K. Rogers
and acknowledged the foregoing instruments to be their free act and deed.

Before me, Rachel Davis

☐ Justice of the Peace
☐ Attorney at Law
☒ Notary Public

RACHEL DAVIS
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES MARCH 31, 2001

Onex Initials [illegible]

Diversacorp [illegible]

BK14598PG347

EXHIBIT A

A certain lot or parcel of land, together with the buildings thereon, situated in Portland, in the County of Cumberland and State of Maine, in that part of Portland which was formerly Deering, on the southerly side of the road leading from Stroudwater Village, so-called, to Westbrook formerly called Saccarappa; being all and the same property which was conveyed to Allura S. Castner by Rufus T. Boothby and Frank P. Tibbetts, et als., by their deeds of warranty dated March 11, 1899, as recorded in Cumberland County Registry of Deeds in Book 671, Pages 424 and 425, said property being bounded and described in said deeds as follows:

Northerly by said road, easterly by land now or formerly of N.H. Dole and land of the heirs of M. Quimby, southerly by the Stroudwater River and westerly by land now or formerly of Royal Burnham, containing forty-eight (48) acres, more or less, reference being made to said deeds and the record thereof for a more particular description of the premises.

Excepting from the above described premises those parcels of land conveyed by the grantor by the following conveyances: On June 7, 1938 to Carroll E. Hackett, recorded in Cumberland County Registry of Deeds in Book 1548, Page 418; on April 25, 1949 to Granville F. Allen et al., recorded in said Registry of Deeds in Book 1952, Page 354; on May 28, 1954 to Portland Water District recorded in said Registry of Deeds in Book 2198, Page 386; on July 14, 1955 to Frederick A. Butts et al., recorded in said Registry of Deeds in Book 2236, Page 405; on November 4, 1956 to Rosamond J. Allen, recorded in said Registry of Deeds in Book 2325, Page 358; on November 14, 1957 to Rosamond J. Allen, recorded in said Registry of Deeds in Book 2386, Page 205.

This conveyance is made subject to a right of way over the above described land taken by the Portland Pipe Line Corporation by condemnation proceedings and recorded in Cumberland County Registry of Deeds in Book 1655, Page 294 to which reference is hereby made.

This conveyance is also subject to an easement granted to the Portland Water District recorded in the Cumberland County Registry of Deeds in Book 1399, Page 462 to which reference is hereby made.

This conveyance is also made subject to an easement for a sewer pipe granted to Frederick A. Butts et al. in deed recorded in Cumberland County Registry of Deeds in Book 2236, Page 405.

Also excepting and reserving from the above described premises another certain lot or parcel of land adjoining and to the south of land of Lillian E. Hackett, formerly of Carroll E. Hackett mentioned above. Said lot or parcel of land being bounded and described as follows: Beginning at the southwest corner of said Hackett land; thence southerly projecting the line marking the western boundary of the said Hackett land and which projection would form a 90 degree angle with said Westbrook Street, one hundred (100) feet to an iron stake; thence at an angle of 90 degrees 48' westerly ninety-seven and sixty-two hundredths (97.62) feet to an iron stake; thence northerly one hundred (100) feet to a stake at the southeasterly corner of said Hackett land; thence westerly ninety-seven and sixty-two hundredths (97.62) feet along southern boundary of said Hackett land to the point of beginning.

Meaning and intending to convey and hereby conveying the same premises conveyed to the Grantors by deed of Ruby H. Young dated October 27, 1980, recorded in the Cumberland County Registry of Deeds in Book 2574, Page 181.

RECEIVED
RECORDED REGISTRY OF DEEDS
1999 MAR -9 PM 3:27
CUMBERLAND COUNTY
John B Obrien

M.K.R.
P.J.R.

After recording return to:
Jason G. Howe, Esq.
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

Doc#: 8080 Bk:33834 Ps: 269

Space Above This Line For Recording Data

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **JUDITH A. CAMINITI**, f/k/a Judith C. Green, having a mailing address of 67 Goose Cove Road, Trenton, ME 04605, FOR CONSIDERATION PAID, hereby grants to **DIVERSACORP, LLC**, a Maine limited liability company whose mailing address is 5 Stone Pony Circle, Saco, Maine, with Warranty Covenants, a certain lot or parcel of land, together with any improvements thereon and all rights appurtenant thereto, commonly know and designated as 1714 Westbrook Street, Portland, Maine; being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND
INCORPORATED HEREIN BY REFERENCE

MAINE REAL ESTATE TAX PAID

IN WITNESS WHEREOF, Judith A. Caminiti, f/k/a Judith C. Green, has hereunder set her hand and seal as of this 17 day of February, 2017.

WITNESS

Judith A. Caminiti

STATE OF MAINE
York County, ss.

Date: 2/17/17

Personally appeared the above-named Judith A. Caminiti, being formerly known as Judith C. Green, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Attorney at Law / ~~Notary Public~~
Print: _____
[SEAL]

Jason G. Howe
ATTORNEY AT LAW

(Exhibit A Below)

EXHIBIT A
(1714 Westbrook St., Portland)

A certain lot or parcel of land, situated in Portland, Cumberland County, Maine and bounded and described as follows:

BEGINNING on the southeasterly side of Westbrook Street at a fir stump marked at the corner of land now or formerly of one Leavitt;

THENCE southeasterly by said Westbrook Street, ten (10) chains and sixty-three (63) links to land formerly of Solomon Conant, et als;

THENCE southerly by said Conant land twenty (20) chains eighty-seven (87) links to the Stroudwater River, across said river to land formerly of James Trickey, et als;

THENCE westerly by said River by said Trickey land and land formerly of George B. Leavitt to a stake;

THENCE by Leavitt land North 12° East (subject to variations since established) twenty-seven (27) chains and ninety-two (92) links to the first mentioned bounds, containing thirty (30) acres, more or less.

Excepting from the above-described premises those portions conveyed to Maine Turnpike Authority by Maurice S. Tomlinson, et al, by deed dated February 11, 1954, and recorded in the Cumberland County Registry of Deeds in Book 2166, Page 135; and by deed dated September 2, 1954, and recorded in said Registry of Deeds in Book 2166, Page 135.

Excepting from the above-described premises the parcel with a house thereon conveyed to Andrew D. Green and Judith C. Green by deed dated March 4, 1994, and recorded in the Cumberland County Registry of Deeds in Book 11319, Page 55.

Excepting from the above-described premises the 1 acre parcel conveyed to Andrew D. Green by deed dated December 20, 2004, and recorded in the Cumberland County Registry of Deeds in Book 22163, Page 81. Regarding this exception, further reference is made to a certain Agreement Concerning Marital Property recorded in said Registry in Book 22163, Page 80, and a certain Abstract of Divorce recorded in said Registry in Book 22735, Page 32.

SECTION 5

PUBLIC OR PRIVATE RIGHTS-OF-WAY

Four utility easements and a slope easement have been identified for the property. The easements include a 30-foot wide water easement granted to the Portland Water District; a 50-foot wide utility easement for three pipelines; sewer pipe easement to the Butts Property, and drainage and slope easements granted to the Maine Department of Transportation.

SECTION 6

SCHEDULE

Stroudwater Development Partners, LLC anticipates the proposed subdivision will be fully "*built-out*" by 2022.

STROUDWATER PRESERVE

STROUDWATER DEVELOPMENT PARTNERS, LLC
PORTLAND, MAINE

LEGEND

EXISTING

REFER TO THE EXISTING CONDITIONS PLAN FOR ADDITIONAL INFORMATION

PROPOSED

- UNDERDRAIN
- GREEN SPACE
- CONCRETE
- PAVEMENT
- UTILITY PAVEMENT CUTS
- STRIPING
- SEDIMENTATION BARRIER
- EDGE OF EX. PAVEMENT
- CURB
- SIGN
- LAMP OR LIGHT POLE
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- CATCH BASIN
- DRAIN MANHOLE
- DRAIN INLET
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND WATER LINE
- MINOR CONTOURS (1 FT)
- MAJOR CONTOURS (5 FT)
- GAS LINE
- STORM DRAIN LINE
- SEWER FORCE MAIN
- GRAVITY SEWER LINE
- EXISTING/PROPOSED BUILDING
- FOUNDATION DRAIN
- OVERHEAD ELECTRICAL/TELEPHONE/CABLE
- PROPERTY LINE
- SETBACKS

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UTILITIES

SEWER:

DEPARTMENT OF PUBLIC WORKS (DPW)
55 PORTLAND STREET
PORTLAND, MAINE 04101
CONTACT: KEITH GRAY, P.E.
(207) 874-8834

WATER:

PORTLAND WATER DISTRICT
225 DOUGLASS STREET
PO BOX 3553
PORTLAND, MAINE 04104
ATTN: MEANS DIVISION
(207) 774-5961

ELECTRIC:

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: PAUL DUPERRE
(207) 828-2882

TELEPHONE:

FAIRPOINT COMMUNICATIONS
45 FOREST AVENUE
PORTLAND MAINE 04101
CONTACT: BRIAN BOUCHARD
(207) 712-1063

CABLE:

SPECTRUM CABLE
118 JOHNSON ROAD
PORTLAND, MAINE, 04102
CONTACT: MARK PELLETIER
(877) 546-0962

NATURAL GAS:

UNITIL SERVICE CORP.
1075 FOREST AVENUE
PORTLAND, ME 04103
CONTACT: BRIDGET HARMON
(207) 541-2536

PROJECT TEAM

DEVELOPER:

STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE
CONTACT: MIKE BARTON, LEED AP
(207) 939-5432

ARCHITECT:

RYAN SENATORE ARCHITECTURE
PORTLAND, MAINE
CONTACT: RYAN SENATORE, R.A.
(207) 650-6414

SURVEYOR:

TITCOMB ASSOCIATES
FALMOUTH, MAINE
CONTACT: NICK ELLISTON P.L.S.
(207) 797-9199

WETLAND SCIENTIST:

MARK HAMPTON ASSOCIATES, INC.
PORTLAND, MAINE
CONTACT: MARK HAMPTON, C.S.S.
(207) 756-2900

TRAFFIC ENGINEER:

TRAFFIC SOLUTIONS
PORTLAND, MAINE
CONTACT: BILL BRAY, P.E.
(207) 400-6890

APPLICABLE PERMITS

1. LEVEL III SITE/SUBDIVISION PLAN PERMIT – CITY OF PORTLAND
2. SITE LOCATION OF DEVELOPMENT PERMIT – CITY OF PORTLAND UNDER DELEGATED REVIEW
3. MAINE CONSTRUCTION GENERAL PERMIT – MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
4. NRPA PERMIT – MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION

ABS	ACRYLONITRILE-BUTADIENE-STYRENE
APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CB	CATCH BASIN
CF	CUBIC FOOT
CI	CAST IRON
CIP	CAST IN PLACE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CY	CUBIC YARD
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
GAL.	GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PP	POLYPROPYLENE
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
SS	STAINLESS STEEL
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIM. APP.	WHS	9/22/17
FINAL APP.	WHS	10/25/17

DRAWING NAME: COVER SHEET & LEGEND
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. AND SHALL NOT BE USED FOR ANY PURPOSE OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE: 1079_CIVIL
JN: 1079
SCALE: NTS
DESIGNED BY: WHS
DRAWN BY: SJL
CHECKED BY: WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11419
10-25-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-01

GENERAL NOTES:

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN AUTOCAD FORMAT AND PAPER, STAMPED ''AS-BUILT''. IF AUTOCAD NOT AVAILABLE EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED EXISTING CONDITIONS SURVEY BY TITCOMB ASSOCIATES FOR DIVERSACORP LLC, DATED JUNE 6, 2017
8. SUBSURFACE DATA HAVE BEEN OBTAINED BY MARK HAMPTON ASSOCIATES, INC. AND SHALL BE INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO REVIEW THE REPORT PRIOR TO SUBMITTING A BID.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AND ALL ADJACENT PROPERTIES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THOUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
10. CONSTRUCTION MANAGEMENT PLAN NARRATIVE BY ACORN ENGINEERING, INC. AND STROUDWATER DEVELOPMENT PARTNERS, LLC SHALL BE REFERRED TO FOR ANTICIPATED PROJECT SCHEDULE AND CLOSURES. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL BE COMPLETED AT A MINIMUM FOR ABUTTING PROPERTIES. AT A MINIMUM, DOCUMENTATION SHALL INCLUDE PHOTOGRAPHS.
13. THE CONTRACTOR SHALL PROVIDE A GPS MODEL OF THE PROPERTY TO PROVIDE TO ACORN ENGINEERING.
14. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH ACORN, IF ANY.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR ENGINEER'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
9. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
10. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE.
12. THE ENGINEER BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.

SPECIAL INSPECTION NOTES:

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS, AS WELL AS SITE DRAINAGE, SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT.
3. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
6. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
7. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.
8. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.
9. SPECIAL INSPECTION FIRM SHALL BE EMPLOYED BY OWNER.

LAYOUT NOTES:

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO ITS ORIGINAL LOCATION AND ELEVATION BY A REGISTERED LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
3. SIGNAGE, STRIPING, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF PORTLAND, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE AND TO LOCATE PROPOSED FOUNDATION CORNERS.
6. CONTRACTOR TO ENSURE THAT DRIVEWAYS AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND IN USE AT ALL TIMES.

PERMITTING NOTES

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF THE FOLLOWING PERMITS: SITE PLAN – LEVEL III AND SUBDIVISION PERMIT FROM THE CITY OF PORTLAND, MAINE CONSTRUCTION GENERAL PERMIT FROM THE MAINE DEP, SITE LAW PERMIT FROM THE MAINE DEP, AND NRPA PERMIT FROM THE MAINE DEP.
2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.

GRADING AND DRAINAGE NOTES:

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. ANY EXCESS LOAM SHALL REMAIN PROPERTY OF THE OWNER.
2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING.
3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY PRIVATE ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE OWNER. PRIOR TO THE CONTRACTOR PRICING THE WORK THE CONTRACTOR SHALL REQUEST PROOF OF SUCH EASEMENT OR TEMPORARY RIGHTS. SHOULD EASEMENTS OR TEMPORARY RIGHTS NOT BE AVAILABLE THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. THE MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. NO ADDITIONAL PAYMENT FOR UNSUITABLE MATERIALS.
6. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF N=0.012 OR LESS.
7. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
8. NATIVE SOILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.

EROSION CONTROL NOTES:

1. ALL ROUTINE MAINTENANCE ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
2. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
3. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.
5. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.
6. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
3. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED BEFORE BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
4. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.
5. CONTRACTOR TO PROVIDE 5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
6. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAIN ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN ON SHEET C-54.
7. WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT ''WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURE'', MOST RECENT REVISION.
8. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH CITY OF PORTLAND, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
9. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
10. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
12. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
13. COORDINATE EXIT POINT FOR SECONDARY SERVICE WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN ENGINEERING WITHIN THE UTILITY PLAN.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL AT NO EXTRA EXPENSE TO THE OWNER.

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIM. APP.	WHS	9/22/17
FINAL APP.	WHS	10/25/17

DRAWING NAME: GENERAL NOTES

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OR ADDITIONAL INSPECTION AND APPROVAL BY ACORN ENGINEERING, INC. OR OTHERWISE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

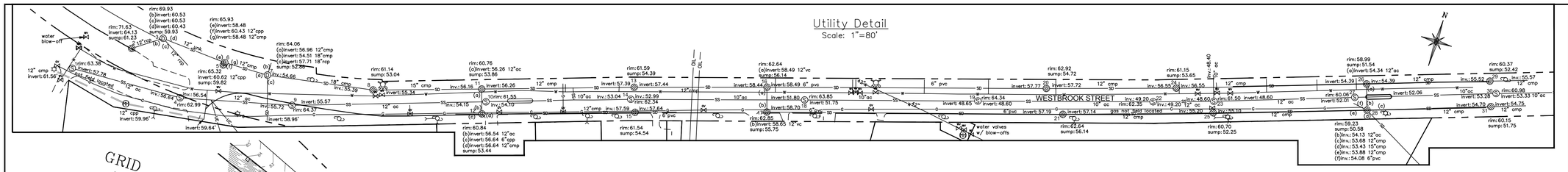
ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

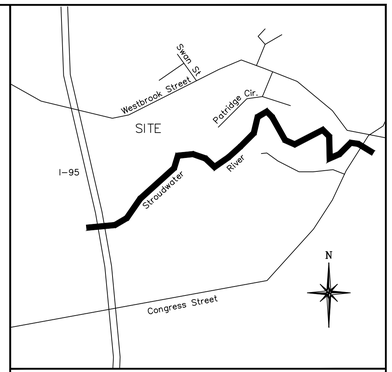
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11419
10-25-17
PROFESSIONAL ENGINEER

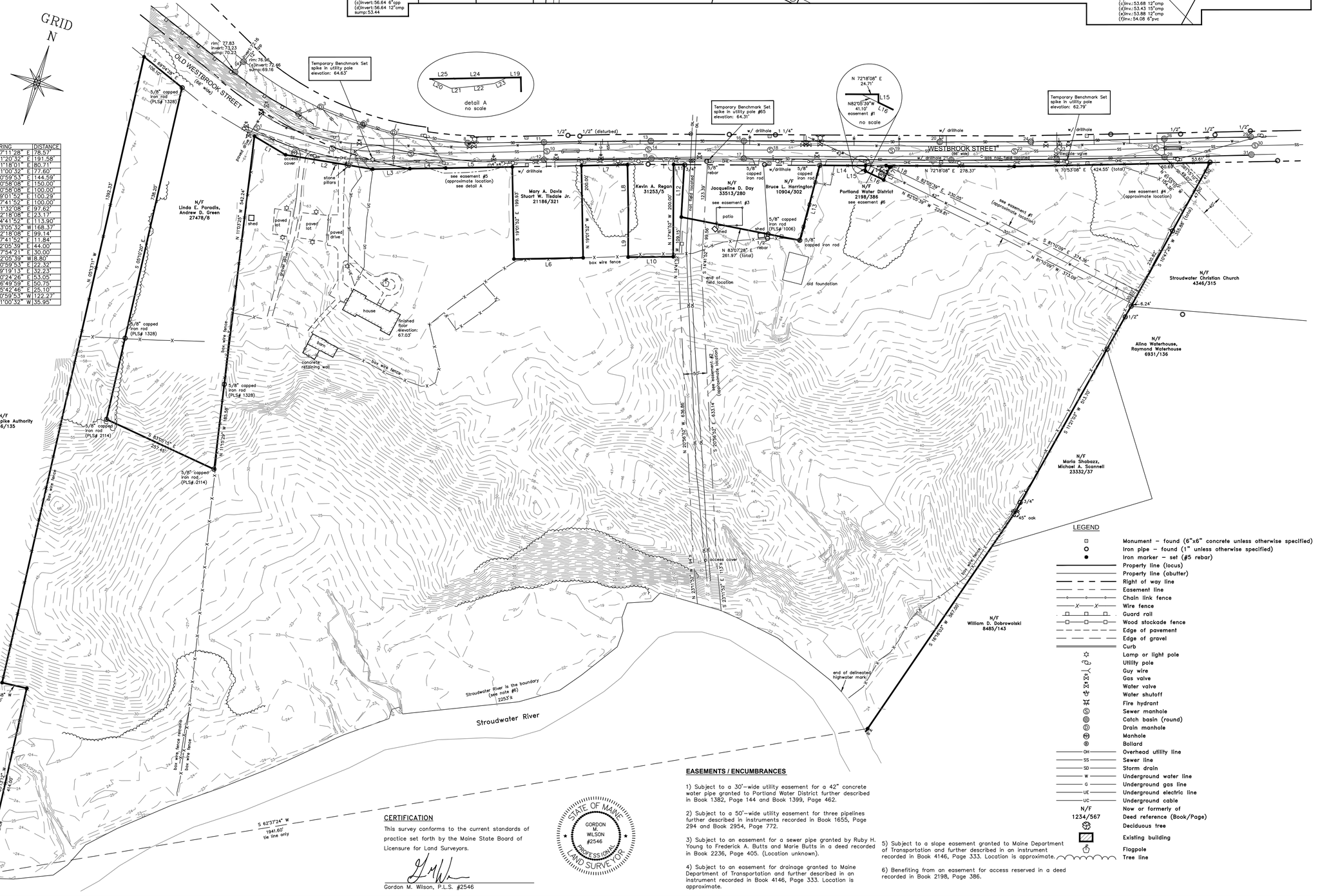
DRAWING NO.
C-02

Utility Detail
Scale: 1"=80'





VICINITY MAP
No Scale



NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Elevations are based on NAVD88 datum. Benchmarks are as shown.

4) Utility information on this plan is approximate, based on location of visible features and information contained on plans and drawings provided by others. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

5) Property lies within Zone X and Zone A based on FIRM Community #2300051 Panel #0012 C, dated December 8, 1998. Zone X is defined as an area of 500-year flood; area of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. Zone A is an area with no base flood elevation determined.

6) The location of the highwater mark on northerly side of Stroudwater River was delineated by others and located by Titcomb Associates. The location of the southerly side of Stroudwater River is approximate based on aerial imagery.

7) The two crude oil lines were marked out by Portland Pipe Line and located by Titcomb Associates. Titcomb Associates makes no guarantee or warranty as to the accuracy of the pipeline elevation data.

PLAN REFERENCES

1) Plan of a Standard Boundary Survey made for Onex Company by Nadeau & Lodge, Inc., dated February 21, 2003 and revised through October 9, 2003.

2) Second Amended Subdivision Plat of Portland Technology Park made for City of Portland by SGC Engineering LLC, dated September 29, 2011, revised through March 8, 2016 and recorded in Plan Book 216, Page 63.

3) Portland Water District 42" Concrete Pipe Line Right of Way Plans prepared by Harry Fuller, dated August 1931 and recorded in Plan Book 20, Page 39. (Location is approximate).

4) Portland Pipe Line Co. Survey of Property of Ruby H. Young, dated October 8, 1941 prepared by Francis A. Griffin and recorded in Plan Book 27, Page 37. (Location is approximate).

5) Stroudwater Woods made for S.&E. Cimino by Owen Haskell, Inc. dated October 25, 1979 and recorded in Plan Book 125, Page 21.

6) Partial Boundary Survey for Andrew D. Green by Lewis & Wasina, Inc. dated December 10, 2004 and revised through December 14, 2004 and recorded in Plan Book 205, Page 299.

7) Plan of Property made for Advent Christian Church of Portland by H.I. & E.C. Jordan dated October 18, 1979 and recorded in Plan Book 125, Page 10.

8) Plan of Property made for Theodore and Therese Barris by Wayne T. Wood dated January 1994 and revised through January 27, 1994, unrecorded.

AREA

2,408,245 square feet, 55.3 acres

OWNERS OF RECORD

Onex Company
14598/346

Diversacorp
33834/269

LEGEND

- Monument – found (6"x6" concrete unless otherwise specified)
- Iron pipe – found (1" unless otherwise specified)
- Iron marker – set (#5 rebar)
- Property line (locus)
- Property line (abutter)
- Right of way line
- Easement line
- Chain link fence
- Wire fence
- Guard rail
- Wood stockade fence
- Edge of pavement
- Edge of gravel
- Curb
- Lamp or light pole
- Utility pole
- Guy wire
- Gas valve
- Water valve
- Water shutoff
- Fire hydrant
- Sewer manhole
- Catch basin (round)
- Drain manhole
- Manhole
- Bollard
- OH — Overhead utility line
- SS — Sewer line
- SD — Storm drain
- W — Underground water line
- G — Underground gas line
- UE — Underground electric line
- UC — Underground cable
- N/F — Now or formerly of
- 1234/567 — Deed reference (Book/Page)
- Deciduous tree
- Existing building
- Flagpole
- Tree line

SCALE IN FEET
100 0 100 200
1" = 100'

EASEMENTS / ENCUMBRANCES

1) Subject to a 30'-wide utility easement for a 42" concrete water pipe granted to Portland Water District further described in Book 1382, Page 144 and Book 1399, Page 462.

2) Subject to a 50'-wide utility easement for three pipelines further described in instruments recorded in Book 1655, Page 294 and Book 2954, Page 772.

3) Subject to an easement for a sewer pipe granted by Ruby H. Young to Frederick A. Butts and Marie Butts in a deed recorded in Book 2236, Page 405. (Location unknown).

4) Subject to an easement for drainage granted to Maine Department of Transportation and further described in an instrument recorded in Book 4146, Page 333. Location is approximate.

5) Subject to a slope easement granted to Maine Department of Transportation and further described in an instrument recorded in Book 4146, Page 333. Location is approximate.

6) Benefiting from an easement for access reserved in a deed recorded in Book 2198, Page 386.

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Gordon M. Wilson, P.L.S. #2546

STATE OF MAINE
GORDON M. WILSON
#2546
PROFESSIONAL LAND SURVEYOR

PLAN OF
Existing Conditions of Camelot Farm
1700 Westbrook Street — Portland, Maine

MADE FOR
Diversacorp LLC
5 Stone Pony Circle — Saco, Maine

JOB #216100	DATE: 06/16/17	SCALE: 1" = 100'
BOOK #897		
216100.dwg		
FILE #9856		

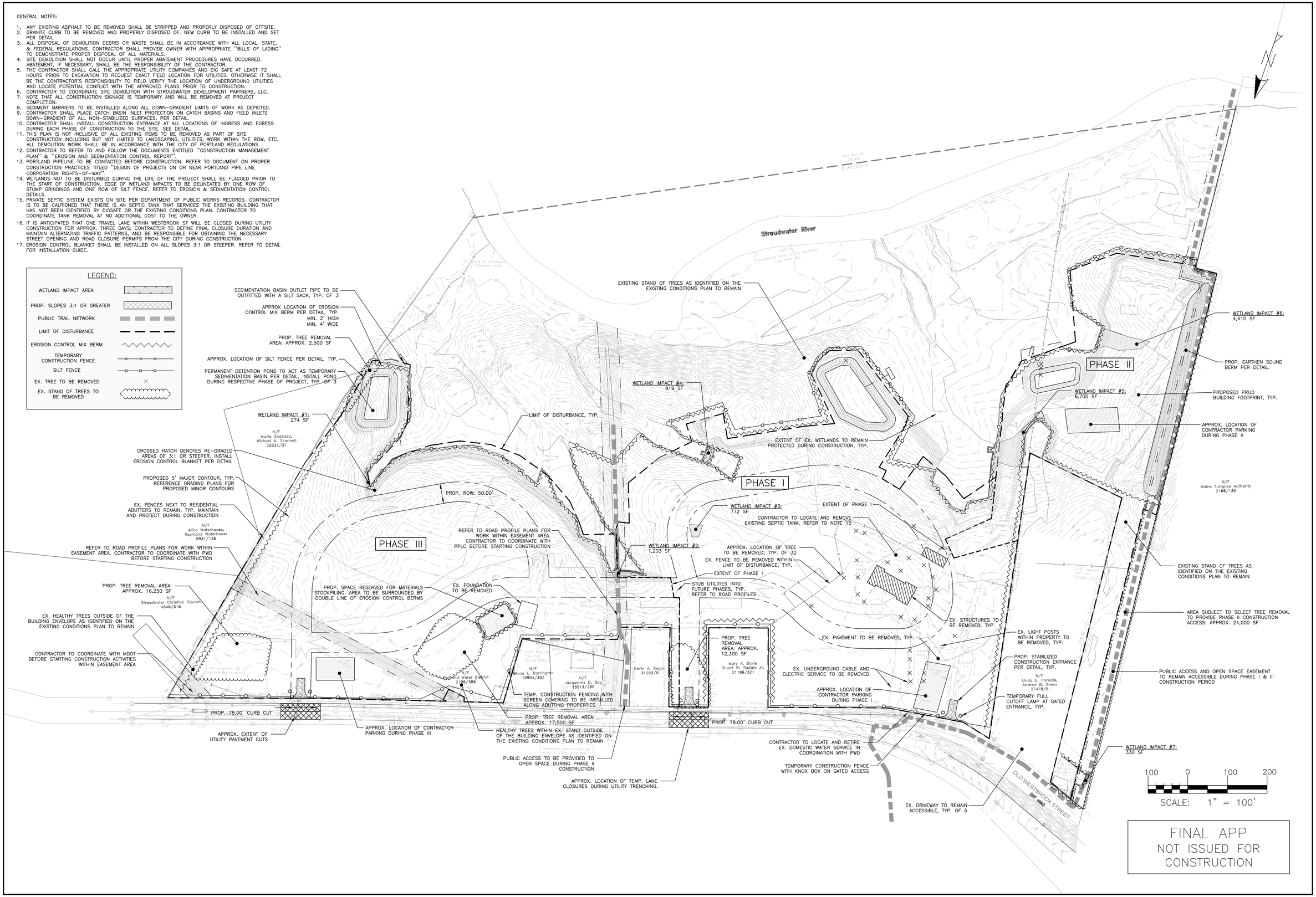
Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com

GENERAL NOTES:

1. ANY EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
2. GRANITE CURB TO BE REMOVED AND PROPERLY DISPOSED OF. NEW CURB TO BE INSTALLED AND SET PER DETAIL.
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
4. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
6. CONTRACTOR TO COORDINATE SITE DEMOLITION WITH STROUDWATER DEVELOPMENT PARTNERS, LLC.
7. NOTE THAT ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION.
8. SEDIMENT BARRIERS TO BE INSTALLED ALONG ALL DOWN-GRADIENT LIMITS OF WORK AS DEPICTED.
9. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
10. CONTRACTOR SHALL INSTALL CONSTRUCTION ENTRANCE AT ALL LOCATIONS OF INGRESS AND EGRESS DURING EACH PHASE OF CONSTRUCTION TO THE SITE. SEE DETAIL.
11. THIS PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO LANDSCAPING, UTILITIES, WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF PORTLAND REGULATIONS.
12. CONTRACTOR TO REFER TO AND FOLLOW THE DOCUMENTS ENTITLED "CONSTRUCTION MANAGEMENT PLAN" & "EROSION AND SEDIMENTATION CONTROL REPORT".
13. PORTLAND PIPELINE TO BE CONTACTED BEFORE CONSTRUCTION. REFER TO DOCUMENT ON PROPER CONSTRUCTION PRACTICES TITLED "DESIGN OF PROJECTS ON OR NEAR PORTLAND PIPE LINE CORPORATION RIGHTS-OF-WAY".
14. WETLANDS NOT TO BE DISTURBED DURING THE LIFE OF THE PROJECT SHALL BE FLAGGED PRIOR TO THE START OF CONSTRUCTION. EDGE OF WETLAND IMPACTS TO BE DELINEATED BY ONE ROW OF STUMP GRINDINGS AND ONE ROW OF SILT FENCE. REFER TO EROSION & SEDIMENTATION CONTROL DETAILS.
15. PRIVATE SEPTIC SYSTEM EXISTS ON SITE PER DEPARTMENT OF PUBLIC WORKS RECORDS. CONTRACTOR IS TO BE CAUTIONED THAT THERE IS AN SEPTIC TANK THAT SERVICES THE EXISTING BUILDING THAT HAS NOT BEEN IDENTIFIED BY DIGSAFE OR THE EXISTING CONDITIONS PLAN. CONTRACTOR TO COORDINATE TANK REMOVAL AT NO ADDITIONAL COST TO THE OWNER.
16. IT IS ANTICIPATED THAT ONE TRAVEL LANE WITHIN WESTBROOK ST WILL BE CLOSED DURING UTILITY CONSTRUCTION FOR APPROX. THREE DAYS; CONTRACTOR TO DEFINE FINAL CLOSURE DURATION AND MAINTAIN ALTERNATING TRAFFIC PATTERNS, AND BE RESPONSIBLE FOR OBTAINING THE NECESSARY STREET OPENING AND ROAD CLOSURE PERMITS FROM THE CITY DURING CONSTRUCTION.
17. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL SLOPES 3:1 OR STEEPER. REFER TO DETAIL FOR INSTALLATION GUIDE.

LEGEND:

- WETLAND IMPACT AREA
- PROP. SLOPES 3:1 OR GREATER
- PUBLIC TRAIL NETWORK
- LIMIT OF DISTURBANCE
- EROSION CONTROL MIX BERM
- TEMPORARY CONSTRUCTION FENCE
- SILT FENCE
- EX. TREE TO BE REMOVED
- EX. STAND OF TREES TO BE REMOVED



FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: DEMOLITION, CONSTRUCTION MANAGEMENT & EROSION CONTROL PLAN

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET, PORTLAND, MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE WITHOUT SUCH PERMISSION OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=100'
DESIGNED BY:	SJL
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE — WILLIAM H. SAVAGE — No. 11411 — 11-21-17 — LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-03

GENERAL NOTES:

1. ROS ZONE BOUNDARY AS DEFINED BY THE ZONING MAP AMENDMENT PASSED BY THE CITY COUNCIL ON 7/24/17.
2. THE REARMOST OPEN SPACE LOT EXTENDS FROM THE STROUDWATER RIVER TO THE OUTERMOST LOT LINES.
3. FINAL TRAIL LOCATION WITHIN THE OPEN SPACE TO BE DETERMINED BY PORTLAND TRAILS OR CITY OF PORTLAND.
4. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS. SUBDIVISION PLANS PER PHASE ARE RECORDED WITH CCRD AT:

4.1. PHASE I:

BOOK _____ PAGE _____

4.2. PHASE II:

BOOK _____ PAGE _____

4.3. PHASE III:

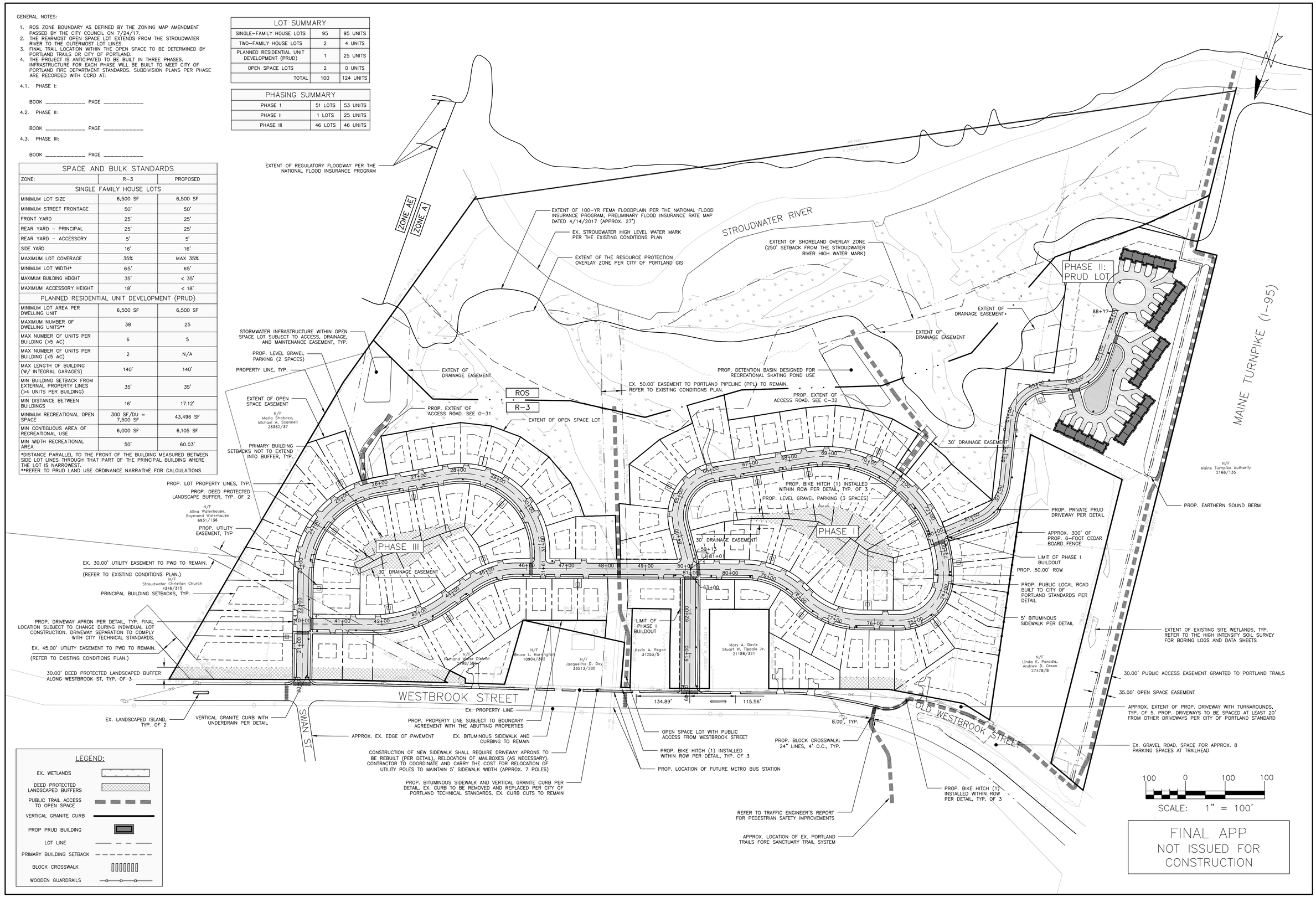
BOOK _____ PAGE _____

SPACE AND BULK STANDARDS		
ZONE:	R-3	PROPOSED
SINGLE FAMILY HOUSE LOTS		
MINIMUM LOT SIZE	6,500 SF	6,500 SF
MINIMUM STREET FRONTAGE	50'	50'
FRONT YARD	25'	25'
REAR YARD – PRINCIPAL	25'	25'
REAR YARD – ACCESSORY	5'	5'
SIDE YARD	16'	16'
MAXIMUM LOT COVERAGE	35%	MAX 35%
MINIMUM LOT WIDTH*	65'	65'
MAXIMUM BUILDING HEIGHT	35'	< 35'
MAXIMUM ACCESSORY HEIGHT	18'	< 18'
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)		
MINIMUM LOT AREA PER DWELLING UNIT	6,500 SF	6,500 SF
MAXIMUM NUMBER OF DWELLING UNITS**	38	25
MAX NUMBER OF UNITS PER BUILDING (>5 AC)	6	5
MAX NUMBER OF UNITS PER BUILDING (<5 AC)	2	N/A
MAX LENGTH OF BUILDING (W/ INTEGRAL GARAGES)	140'	140'
MIN BUILDING SETBACK FROM EXTERNAL PROPERTY LINES (>4 UNITS PER BUILDING)	35'	35'
MIN DISTANCE BETWEEN BUILDINGS	16'	17.12'
MINIMUM RECREATIONAL OPEN SPACE	300 SF/DU = 7,500 SF	43,496 SF
MIN CONTIGUOUS AREA OF RECREATIONAL USE	6,000 SF	6,105 SF
MIN WIDTH RECREATIONAL AREA	50'	60.03'

*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.
**REFER TO PRUD LAND USE ORDINANCE NARRATIVE FOR CALCULATIONS

LOT SUMMARY		
SINGLE-FAMILY HOUSE LOTS	95	95 UNITS
TWO-FAMILY HOUSE LOTS	2	4 UNITS
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)	1	25 UNITS
OPEN SPACE LOTS	2	0 UNITS
TOTAL	100	124 UNITS

PHASING SUMMARY		
PHASE 1	51 LOTS	53 UNITS
PHASE II	1 LOTS	25 UNITS
PHASE III	46 LOTS	46 UNITS



FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
TRAFFIC	WHS 8/3/17
FEMA	WHS 8/9/17
PHOTOMETRIC	OJD 8/16/17
PRELIM APP	WHS 8/25/17
FINAL APP	WHS 10/25/17
TRAFFIC REVIEW	WHS 11/8/17
DPW REVIEW	WHS 11/9/17

DRAWING NAME: SUBDIVISION PLAN
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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STATE OF MAINE
SARAH H. WHITE
No. 11453
REGISTERED PROFESSIONAL ENGINEER
11-9-17

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=100'
DESIGNED BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

DRAWING NO.
C-10

GENERAL NOTES:

1. FOR INFORMATION REGARDING PROPOSED UTILITY CHANGES, REFER TO THE ROAD PROFILE PLANS (4), SHEETS C-20 TO C-23, MOST RECENT VERSION.
2. FOR INFORMATION REGARDING PROPOSED GRADING CHANGES, REFER TO GRADING & DRAINAGE PLANS (3), SHEETS C-31 TO C-33, MOST RECENT VERSION.
3. REFER TO ARCHITECTURAL PLANS FOR PRUD FLOOR PLANS AND BUILDING HEIGHTS.
4. TOTAL SITE AREA INCLUDES 55.3 ACRES (2,408,860 S.F.). R.O.W. WIDTH FOR WESTBROOK STREET IS 66 FEET PER EXISTING CONDITIONS PLAN. REFER TO EXISTING CONDITIONS PLAN COMPLETED BY TITCOMB ASSOCIATES DATED 6/16/17.
5. SITE BOUNDARIES PER EXISTING CONDITIONS PLAN AND PROPERTY PINS TO BE SET BY TITCOMB ASSOCIATES.
6. PER THE PORTLAND GIS WEBSITE AS OF 10/10/17 AND ZONING MAP AMENDMENT PASSED BY CITY COUNCIL ON 7/24/17, THE SITE IS BOUNDED BY:
   - 6.1. NORTH R-1 RESIDENTIAL, OP OFFICE PARK, & ROS RECREATIONAL OPEN SPACE
   - 6.2. WEST R-1 RESIDENTIAL & R-2 RESIDENTIAL
   - 6.3. SOUTH OP OFFICE PARK
   - 6.4. EAST I-L INDUSTRIAL LAND & MAINE TURNPIKE
7. LOCUS PARCEL IS SHOWN ON THE CITY OF PORTLAND ASSESSOR'S CHART, BLOCK, LOT: 229-A-2, 246-A-3, 247-A-3, 248-A-3, 256-A-3, 246-A-6, 247-A-2, & 245-B-5
8. PROPOSED DEVELOPMENT REMAINS OUTSIDE THE 100-YR FEMA FLOODPLAIN PER THE NATIONAL FLOOD INSURANCE PROGRAM, PRELIMINARY FLOOD INSURANCE RATE MAP DATED 4/14/2017 (APPROX. 27').
9. ALL BUILDING CORNER OFFSETS TO BOUNDARY LINES ARE FROM CORNERBOARDS AND NOT BUILDING FOUNDATION, UNLESS OTHERWISE NOTED.
10. THIS SHEET IS THE SUBDIVISION PLAT FOR THE CREATION OF UP TO 100 LOTS INCLUDING 95 SINGLE FAMILY HOUSE LOTS, TWO (2) TWO-FAMILY LOTS, ONE (1) PRUD LOT, AND TWO (2) OPEN SPACE LOTS FOR A TOTAL OF 124 DWELLING UNITS.
11. THE SINGLE FAMILY AND TWO-FAMILY HOUSE LOT ARE TO BE SUBJECT TO HOMEOWNERS ASSOCIATION (HOA) DOCUMENTS. THE HOA DOCUMENTS OUTLINE THE MAINTENANCE AND MANAGEMENT OF STORMWATER BMPS AND INFRASTRUCTURE UNDER THE DESIGNATED OWNERSHIP OF THE HOA; REFER TO THE STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY TABLE. THE HOA WILL BE RESPONSIBLE FOR MAINTENANCE AND REPLACEMENT OF THE SEWER FORCEMAIN FROM THE WESTBROOK STREET CONNECTION. HOMEOWNERS WILL BE RESPONSIBLE FOR INDIVIDUAL SERVICE LATERALS AND PUMPS.
12. THE HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF CHAPTER 32 STORMWATER INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT, WHICH SPECIFIES ANNUAL INSPECTIONS AND REPORTING REQUIREMENTS AT A MINIMUM. IN ADDITION, THE ASSOCIATIONS SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF THE SUBMITTED STORMWATER MANAGEMENT PLAN AND THE APPROVED PLANS, AND MEET CITY STANDARDS AND STATE GUIDELINES.
13. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS. SUBDIVISION PLANS PER PHASE ARE RECORDED WITH CCRD AT:
   - 13.1. PHASE I:
     BOOK _____ PAGE _____
   - 13.2. PHASE II:
     BOOK _____ PAGE _____
14. THE HOMEOWNERS ASSOCIATION MUST COMPLY TO THE FOLLOWING AS APPROVED BY THE CITY:
   - 14.1. HOMEOWNERS ASSOCIATION DOCUMENTS:
     BOOK _____ PAGE _____
   - 14.2. HOMEOWNERS ASSOCIATION POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT:
     BOOK _____ PAGE _____
   - 14.3. PER CITY REQUIREMENT, THE PROPERTY IS SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AND DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS. THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AS APPROVED BY THE CITY IS RECORDED AT:
     BOOK _____ PAGE _____

WAIVERS & CONDITIONS OF APPROVAL:

TBD

EASEMENTS:

ALL PROPOSED EASEMENTS TO BE REVIEWED BY TITCOMB ASSOCIATES AND RECORDED IN CCRD. ALL EXISTING EASEMENTS ARE TO REMAIN.

EXISTING EASEMENTS:

1. SUBJECT TO A 30'-WIDE UTILITY EASEMENT FOR A 42" CONCRETE WATER PIPE GRANTED TO PORTLAND WATER DISTRICT FURTHER DESCRIBED IN BOOK 1382, PAGE 144 AND BOOK 1399, PAGE 462.
2. SUBJECT TO A 50'-WIDE UTILITY EASEMENT FOR THREE PIPELINES FURTHER DESCRIBED IN INSTRUMENTS RECORDED IN BOOK 1655, PAGE 294 AND BOOK 2954, PAGE 772.
3. SUBJECT TO AN EASEMENT FOR A SEWER PIPE GRANTED BY RUBY H. YOUNG TO FREDERICK A. BUTTS AND MARIE BUTTS IN A DEED RECORDED IN BOOK 2236, PAGE 405. (LOCATION UNKNOWN).
4. SUBJECT TO AN EASEMENT FOR DRAINAGE GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION AND FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
5. SUBJECT TO A SLOPE EASEMENT GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
6. BENEFITTING FROM AN EASEMENT FOR ACCESS RESERVED IN A DEED RECORDED IN BOOK 2198, PAGE 386.

PROPOSED EASEMENTS:

1. OPEN SPACE EASEMENTS BOOK _____ PAGE _____
2. PUBLIC ACCESS EASEMENTS BOOK _____ PAGE _____
3. DRAINAGE EASEMENTS BOOK _____ PAGE _____
4. UTILITY EASEMENTS BOOK _____ PAGE _____

SURVEY NOTES:

1. BOOK AND PAGE REFERENCES ARE TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE.
3. ELEVATIONS ARE BASED ON NAVD88 DATUM. BENCHMARKS ARE SHOWN.
4. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES AND INFORMATION CONTAINED ON PLANS AND DRAWINGS PROVIDED BY OTHERS. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
5. PROPERTY IS WITHIN ZONE X AND ZONE A BASED ON FIRM COMMUNITY #230051 PANEL #0012 C, DATED DECEMBER 8, 1998. ZONE X IS DEFINED AS AN AREA OF 500-YEAR FLOOD; AREA OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD. ZONE A IS AN AREA WITH NO BASE FLOOD ELEVATION DETERMINED.
6. THE LOCATION OF THE HIGHWATER MARK ON NORTHERLY SIDE OF STROUDWATER RIVER WAS DELINEATED BY OTHERS AND LOCATED BY TITCOMB ASSOCIATES. THE LOCATION OF THE SOUTHERLY SIDE OF STROUDWATER RIVER IS APPROXIMATE BASED ON AERIAL IMAGERY.
7. THE TWO CRUDE OIL LINES WERE MARKED OUT BY PORTLAND PIPE LINE AND LOCATED BY TITCOMB ASSOCIATES. TITCOMB ASSOCIATES MAKES NO GUARANTEE OR WARRANTY AS TO THE ACCURACY OF THE PIPELINE ELEVATION DATA.

PLAN REFERENCES:

1. PLAN OF A STANDARD BOUNDARY SURVEY MADE FOR ONEX COMPANY BY NADEAU & LODGE, IN., DATED FEBRUARY 21, 2003 AND REVISED THROUGH OCTOBER 9, 2003.
2. SECOND AMENDED SUBDIVISION PLAT OF PORTLAND TECHNOLOGY PARK MADE FOR CITY OF PORTLAND BY SGC ENGINEERING, LLC, DATED SEPTEMBER 29, 2011, REVISED THROUGH MARCH 8, 2016 AND RECORDED IN PLAN BOOK 216, PAGE 63.
3. PORTLAND WATER DISTRICT 42" CONCRETE PIPE LINE RIGHT OF WAY PLANS PREPARED BY HARRY FULLER, DATED AUGUST 1931 AND RECORDED IN PLAN BOOK 20, PAGE 39. (LOCATION IS APPROXIMATE).
4. PORTLAND PIPE LINE CO. SURVEY OF PROPERTY OF RUBY H. YOUNG, DATED OCTOBER 8, 1941 PREPARED BY FRANCIS A. GRIFFIN AND RECORDED IN PLAN BOOK 27, PAGE 37. (LOCATION IS APPROXIMATE).
5. STROUDWATER WOODS MADE FOR S.&E. CIMINO BY OWEN HASKELL, INC. DATED OCTOBER 25, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 21.
6. PARTIAL BOUNDARY SURVEY FOR ANDREW D. GREEN BY LEWIS & WASINA, INC. DATED DECEMBER 10, 2004 AND REVISED THROUGH DECEMBER 14, 2004 AND RECORDED IN PLAN BOOK 205, PAGE 299.
7. PLAN OF PROPERTY MADE FOR ADVENT CHRISTIAN CHURCH OF PORTLAND BY H.I. & E.C. JORDAN DATED OCTOBER 18, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 10.
8. PLAN OF PROPERTY MADE FOR THEODORE AND THERESE BARRIS BY WAYNE T. WOOD DATED JANUARY 1994 AND REVISED THROUGH JANUARY 27, 1994, UNRECORDED.

RECORDING INFORMATION
STATE OF MAINE, CUMBERLAND
COUNTY REGISTRY OF DEEDS

RECEIVED: _____

RECORDED IN _____

ATTEST: _____
REGISTRAR

SPACE AND BULK STANDARDS

ZONE:	R-3	PROPOSED
SINGLE FAMILY HOUSE LOTS		
MINIMUM LOT SIZE	6,500 SF	6,500 SF
MINIMUM STREET FRONTAGE	50'	50'
FRONT YARD	25'	25'
REAR YARD - PRINCIPAL	25'	25'
REAR YARD - ACCESSORY	5'	5'
SIDE YARD	16'	16'
MAXIMUM LOT COVERAGE	35%	MAX 35%
MINIMUM LOT WIDTH*	65'	65'
MAXIMUM BUILDING HEIGHT	35'	< 35'
MAXIMUM ACCESSORY HEIGHT	18'	< 18'
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)		
MINIMUM LOT AREA PER DWELLING UNIT	6,500 SF	6,500 SF
MAXIMUM NUMBER OF DWELLING UNITS**	38	25
MAX NUMBER OF UNITS PER BUILDING (>5 AC)	6	5
MAX NUMBER OF UNITS PER BUILDING (<5 AC)	2	N/A
MAX LENGTH OF BUILDING (W/ INTERIAL GARAGES)	140'	140'
MIN BUILDING SETBACK FROM EXTERNAL PROPERTY LINES (>4 UNITS PER BUILDING)	35'	35'
MIN DISTANCE BETWEEN BUILDINGS	16'	17.12'
MINIMUM RECREATIONAL OPEN SPACE	300 SF/DU = 7,500 SF	43,496 SF
MIN CONTIGUOUS AREA OF RECREATIONAL USE	6,000 SF	6,105 SF
MIN WIDTH RECREATIONAL AREA	50'	60.03'

*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.
**REFER TO PRUD LAND USE ORDINANCE NARRATIVE FOR CALCULATIONS

LEGEND:

- EX. WETLANDS
- DEED PROTECTED LANDSCAPED BUFFERS
- POTENTIAL IZ LOTS
- LOT LINE
- EASEMENT BOUNDARY
- BLOCK CROSSWALK
- WOODEN GUARDRAILS
- PROP. PROPERTY PINS
- PROP. MONUMENTS

STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY

CITY	HOA
FB-1, FP-4, FP-5, FP-7, FP-9	FB-2, FP-3, FP-6, FP-8, FP-10
*REFER C-31 FOR BMP LOCATIONS	

REX CROTEAU, MAINE P.L.S. #2273

TITCOMB ASSOCIATES DATE: _____

APPROVED: PORTLAND PLANNING BOARD

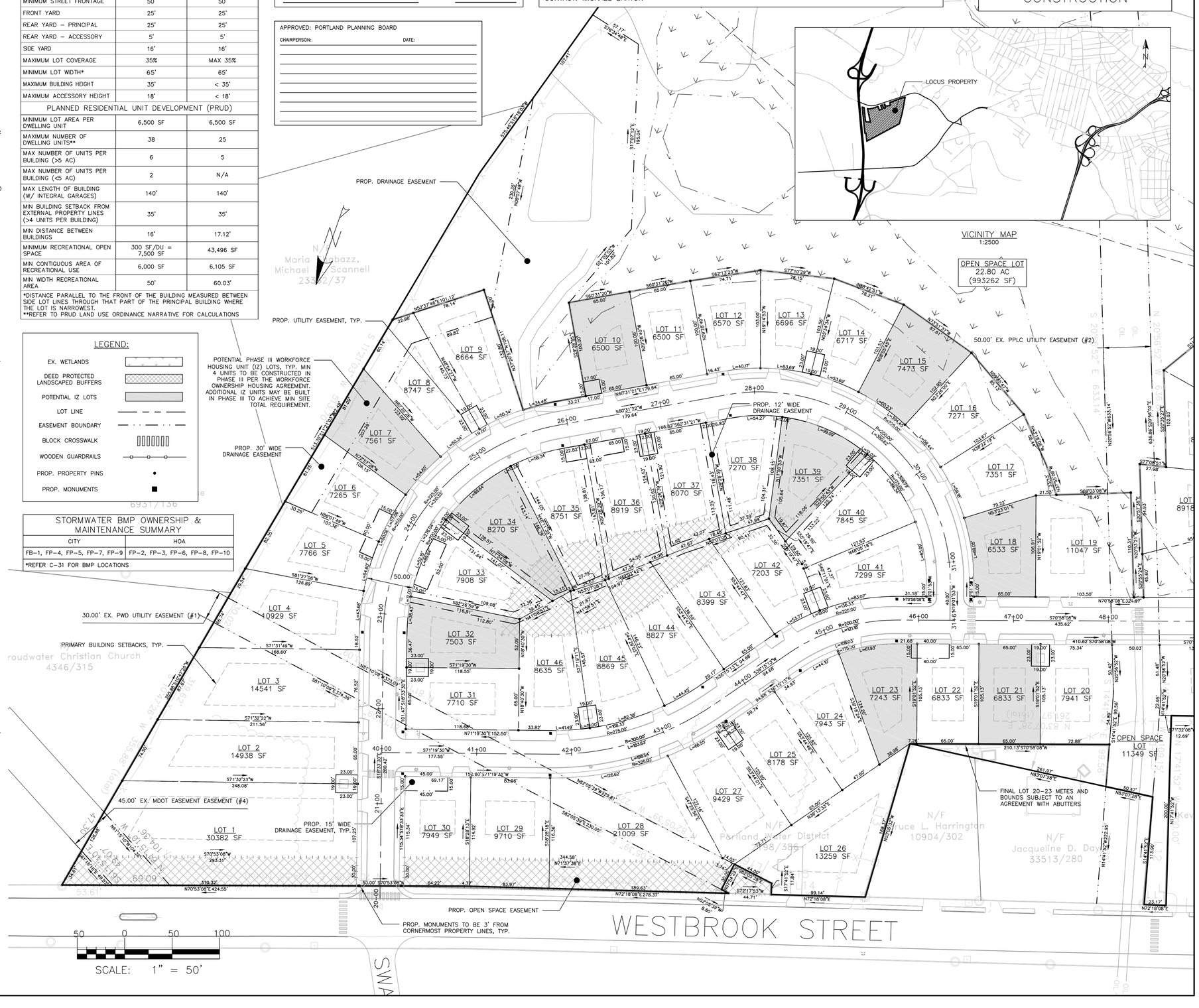
CHAIRPERSON: DATE:

DEVELOPER:
STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE
CONTACT: MICHAEL BARTON

CIVIL/SITE ENGINEER:
ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: WILLIAM SAVAGE, P.E.

SURVEYOR:
TITCOMB ASSOCIATES
FALMOUTH, MAINE
CONTACT: REX CROTEAU, P.L.S.

FINAL APP
NOT ISSUED FOR CONSTRUCTION



ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: SUBDIVISION PLAT - PHASE III
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN OR OTHERWISE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1079_CIVIL
JN: 1079
SCALE: 1"=50'
DESIGNED BY: WHS
DRAWN BY: OJD
CHECKED BY: WHS

STATE OF MAINE WILLIAM H. SAVAGE NO. 11411 11-21-17 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-11

GENERAL NOTES:

1. FOR INFORMATION REGARDING PROPOSED UTILITY CHANGES, REFER TO THE ROAD PROFILE PLANS (4), SHEETS C-20 TO C-23, MOST RECENT VERSION.
2. FOR INFORMATION REGARDING PROPOSED GRADING CHANGES, REFER TO GRADING & DRAINAGE PLANS (3), SHEETS C-31 TO C-33, MOST RECENT VERSION.
3. REFER TO ARCHITECTURAL PLANS FOR PRUD FLOOR PLANS AND BUILDING HEIGHTS.
4. TOTAL SITE AREA INCLUDES 55.3 ACRES (2,408,860 S.F.). R.O.W. WIDTH FOR WESTBROOK STREET IS 66 FEET PER EXISTING CONDITIONS PLAN. REFER TO EXISTING CONDITIONS PLAN COMPLETED BY TITCOMB ASSOCIATES DATED 6/16/17.
5. SITE BOUNDARIES PER EXISTING CONDITIONS PLAN AND PROPERTY PINS TO BE SET BY TITCOMB ASSOCIATES.
6. PER THE PORTLAND GIS WEBSITE AS OF 10/10/17 AND ZONING MAP AMENDMENT PASSED BY CITY COUNCIL ON 7/24/17. THE SITE IS BOUNDED BY:
   - 6.1. NORTH R-1 RESIDENTIAL, OP OFFICE PARK, & ROS RECREATIONAL OPEN SPACE
   - 6.2. WEST R-1 RESIDENTIAL & R-2 RESIDENTIAL
   - 6.3. SOUTH OP OFFICE PARK
   - 6.4. EAST I-L INDUSTRIAL LAND & MAINE TURNPIKE
7. LOCUS PARCEL IS SHOWN ON THE CITY OF PORTLAND ASSESSOR'S CHART, BLOCK, LOT: 229-A-2, 246-A-3, 247-A-3, 248-A-3, 256-A-3, 246-A-6, 247-A-2, & 245-B-5
8. PROPOSED DEVELOPMENT REMAINS OUTSIDE THE 100-YR FEMA FLOODPLAIN PER THE NATIONAL FLOOD INSURANCE PROGRAM, PRELIMINARY FLOOD INSURANCE RATE MAP DATED 4/14/2017 (APPROX. 27').
9. ALL BUILDING CORNER OFFSETS TO BOUNDARY LINES ARE FROM CORNERBOARDS AND NOT BUILDING FOUNDATION, UNLESS OTHERWISE NOTED.
10. THIS SHEET IS THE SUBDIVISION PLAT FOR THE CREATION OF UP TO 100 LOTS INCLUDING 95 SINGLE FAMILY HOUSE LOTS, TWO (2) TWO-FAMILY LOTS, ONE (1) PRUD LOT, AND TWO (2) OPEN SPACE LOTS FOR A TOTAL OF 124 DWELLING UNITS.
11. THE SINGLE FAMILY AND TWO-FAMILY HOUSE LOT ARE TO BE SUBJECT TO HOMEOWNERS ASSOCIATION (HOA) DOCUMENTS. THE HOA DOCUMENTS OUTLINE THE MAINTENANCE AND MANAGEMENT OF STORMWATER BMPS AND INFRASTRUCTURE UNDER THE DESIGNATED OWNERSHIP OF THE HOA; REFER TO THE STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY TABLE. THE HOA WILL BE RESPONSIBLE FOR MAINTENANCE AND REPLACEMENT OF THE SEWER FORCEMAIN FROM THE WESTBROOK STREET CONNECTION. HOMEOWNERS WILL BE RESPONSIBLE FOR INDIVIDUAL SERVICE LATERALS AND PUMPS.
12. THE HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF CHAPTER 32 STORMWATER INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT, WHICH SPECIFIES ANNUAL INSPECTIONS AND REPORTING REQUIREMENTS AT A MINIMUM. IN ADDITION, THE ASSOCIATIONS SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF THE SUBMITTED STORMWATER MANAGEMENT PLAN AND THE APPROVED PLANS, AND MEET CITY STANDARDS AND STATE GUIDELINES.
13. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS. SUBDIVISION PLANS PER PHASE ARE RECORDED WITH CCRD AT:

   13.1. PHASE II:

   BOOK _____ PAGE _____

   13.2. PHASE III:

   BOOK _____ PAGE _____

14. THE HOMEOWNERS ASSOCIATION MUST COMPLY TO THE FOLLOWING AS APPROVED BY THE CITY:

   14.1. HOMEOWNERS ASSOCIATION DOCUMENTS:

   BOOK _____ PAGE _____

   14.2. HOMEOWNERS ASSOCIATION POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT:

   BOOK _____ PAGE _____

   14.3. PER CITY REQUIREMENT, THE PROPERTY IS SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AND DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS. THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AS APPROVED BY THE CITY IS RECORDED AT:

   BOOK _____ PAGE _____

WAIVERS & CONDITIONS OF APPROVAL:

TBD

EASEMENTS:

ALL PROPOSED EASEMENTS TO BE REVIEWED BY TITCOMB ASSOCIATES AND RECORDED IN CCRD. ALL EXISTING EASEMENTS ARE TO REMAIN.

EXISTING EASEMENTS:

1. SUBJECT TO A 30'-WIDE UTILITY EASEMENT FOR A 42" CONCRETE WATER PIPE GRANTED TO PORTLAND WATER DISTRICT FURTHER DESCRIBED IN BOOK 1382, PAGE 144 AND BOOK 1399, PAGE 462.
2. SUBJECT TO A 50'-WIDE UTILITY EASEMENT FOR THREE PIPELINES FURTHER DESCRIBED IN INSTRUMENTS RECORDED IN BOOK 1655, PAGE 294 AND BOOK 2954, PAGE 772.
3. SUBJECT TO AN EASEMENT FOR A SEWER PIPE GRANTED BY RUBY H. YOUNG TO FREDERICK A. BUTTS AND MARIE BUTTS IN A DEED RECORDED IN BOOK 2236, PAGE 405. (LOCATION UNKNOWN).
4. SUBJECT TO AN EASEMENT FOR DRAINAGE GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION AND FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
5. SUBJECT TO A SLOPE EASEMENT GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
6. BENEFITTING FROM AN EASEMENT FOR ACCESS RESERVED IN A DEED RECORDED IN BOOK 2198, PAGE 386.

PROPOSED EASEMENTS:

1. OPEN SPACE EASEMENTS BOOK _____ PAGE _____
2. PUBLIC ACCESS EASEMENTS BOOK _____ PAGE _____
3. DRAINAGE EASEMENTS BOOK _____ PAGE _____
4. UTILITY EASEMENTS BOOK _____ PAGE _____

SURVEY NOTES:

1. BOOK AND PAGE REFERENCES ARE TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE.
3. ELEVATIONS ARE BASED ON NAVD88 DATUM. BENCHMARKS ARE SHOWN.
4. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES AND INFORMATION CONTAINED ON PLANS AND DRAWINGS PROVIDED BY OTHERS. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
5. PROPERTY IS WITHIN ZONE X AND ZONE A BASED ON FIRM COMMUNITY #230051 PANEL #0012 C, DATED DECEMBER 8, 1998. ZONE X IS DEFINED AS AN AREA OF 500-YEAR FLOOD; AREA OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD. ZONE A IS AN AREA WITH NO BASE FLOOD ELEVATION DETERMINED.
6. THE LOCATION OF THE HIGHWATER MARK ON NORTHERLY SIDE OF STROUDWATER RIVER WAS DELINEATED BY OTHERS AND LOCATED BY TITCOMB ASSOCIATES. THE LOCATION OF THE SOUTHERLY SIDE OF STROUDWATER RIVER IS APPROXIMATE BASED ON AERIAL IMAGERY.
7. THE TWO CRUDE OIL LINES WERE MARKED OUT BY PORTLAND PIPE LINE AND LOCATED BY TITCOMB ASSOCIATES. TITCOMB ASSOCIATES MAKES NO GUARANTEE OR WARRANTY AS TO THE ACCURACY OF THE PIPELINE ELEVATION DATA.

PLAN REFERENCES:

1. PLAN OF A STANDARD BOUNDARY SURVEY MADE FOR ONEX COMPANY BY NADEAU & LODGE, IN., DATED FEBRUARY 21, 2003 AND REVISED THROUGH OCTOBER 9, 2003.
2. SECOND AMENDED SUBDIVISION PLAT OF PORTLAND TECHNOLOGY PARK MADE FOR CITY OF PORTLAND BY SGC ENGINEERING, LLC, DATED SEPTEMBER 29, 2011, REVISED THROUGH MARCH 8, 2016 AND RECORDED IN PLAN BOOK 216, PAGE 63.
3. PORTLAND WATER DISTRICT 42" CONCRETE PIPE LINE RIGHT OF WAY PLANS PREPARED BY HARRY FULLER, DATED AUGUST 1931 AND RECORDED IN PLAN BOOK 20, PAGE 39. (LOCATION IS APPROXIMATE).
4. PORTLAND PIPE LINE CO. SURVEY OF PROPERTY OF RUBY H. YOUNG, DATED OCTOBER 8, 1941 PREPARED BY FRANCIS A. GRIFFIN AND RECORDED IN PLAN BOOK 27, PAGE 37. (LOCATION IS APPROXIMATE).
5. STROUDWATER WOODS MADE FOR S.&E. CIMINO BY OWEN HASKELL, INC. DATED OCTOBER 25, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 21.
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7. PLAN OF PROPERTY MADE FOR ADVENT CHRISTIAN CHURCH OF PORTLAND BY H.I. & E.C. JORDAN DATED OCTOBER 18, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 10.
8. PLAN OF PROPERTY MADE FOR THEODORE AND THERESE BARRIS BY WAYNE T. WOOD DATED JANUARY 1994 AND REVISED THROUGH JANUARY 27, 1994, UNRECORDED.

FINAL APP
NOT ISSUED FOR
CONSTRUCTION

SPACE AND BULK STANDARDS		
ZONE:	R-3	PROPOSED
SINGLE FAMILY HOUSE LOTS		
MINIMUM LOT SIZE	6,500 SF	6,500 SF
MINIMUM STREET FRONTAGE	50'	50'
FRONT YARD	25'	25'
REAR YARD – PRINCIPAL	25'	25'
REAR YARD – ACCESSORY	5'	5'
SIDE YARD	16'	16'
MAXIMUM LOT COVERAGE	35%	MAX 35%
MINIMUM LOT WIDTH*	65'	65'
MAXIMUM BUILDING HEIGHT	35'	< 35'
MAXIMUM ACCESSORY HEIGHT	18'	< 18'
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)		
MINIMUM LOT AREA PER DWELLING UNIT	6,500 SF	6,500 SF
MAXIMUM NUMBER OF DWELLING UNITS**	38	25
MAX NUMBER OF UNITS PER BUILDING (>5 AC)	6	5
MAX NUMBER OF UNITS PER BUILDING (<5 AC)	2	N/A
MAX LENGTH OF BUILDING (W/ INTEGRAL GARAGES)	140'	140'
MIN BUILDING SETBACK FROM EXTERNAL PROPERTY LINES (>4 UNITS PER BUILDING)	35'	35'
MIN DISTANCE BETWEEN BUILDINGS	16'	17.12'
MINIMUM RECREATIONAL OPEN SPACE	300 SF/DU = 7,500 SF	43,496 SF
MIN CONTIGUOUS AREA OF RECREATIONAL USE	6,000 SF	6,105 SF
MIN WIDTH RECREATIONAL AREA	50'	60.03'

*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.
**REFER TO PRUD LAND USE ORDINANCE NARRATIVE FOR CALCULATIONS

STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY	
CITY	HOA
FB-11, FP-12, FP-13, FP-15, FP-18, FP-19	FP-14, FP-16, FP-17, FP-20

*REFER C-32 FOR BMP LOCATIONS

LEGEND:

- EX. WETLANDS
- DEED PROTECTED LANDSCAPED BUFFERS
- POTENTIAL IZ LOTS
- LOT LINE
- EASEMENT BOUNDARY
- BLOCK CROSSWALK
- WOODEN GUARDRAILS
- PROP. PROPERTY PINS
- PROP. MONUMENTS

RECORDING INFORMATION
STATE OF MAINE, CUMBERLAND
COUNTY REGISTRY OF DEEDS

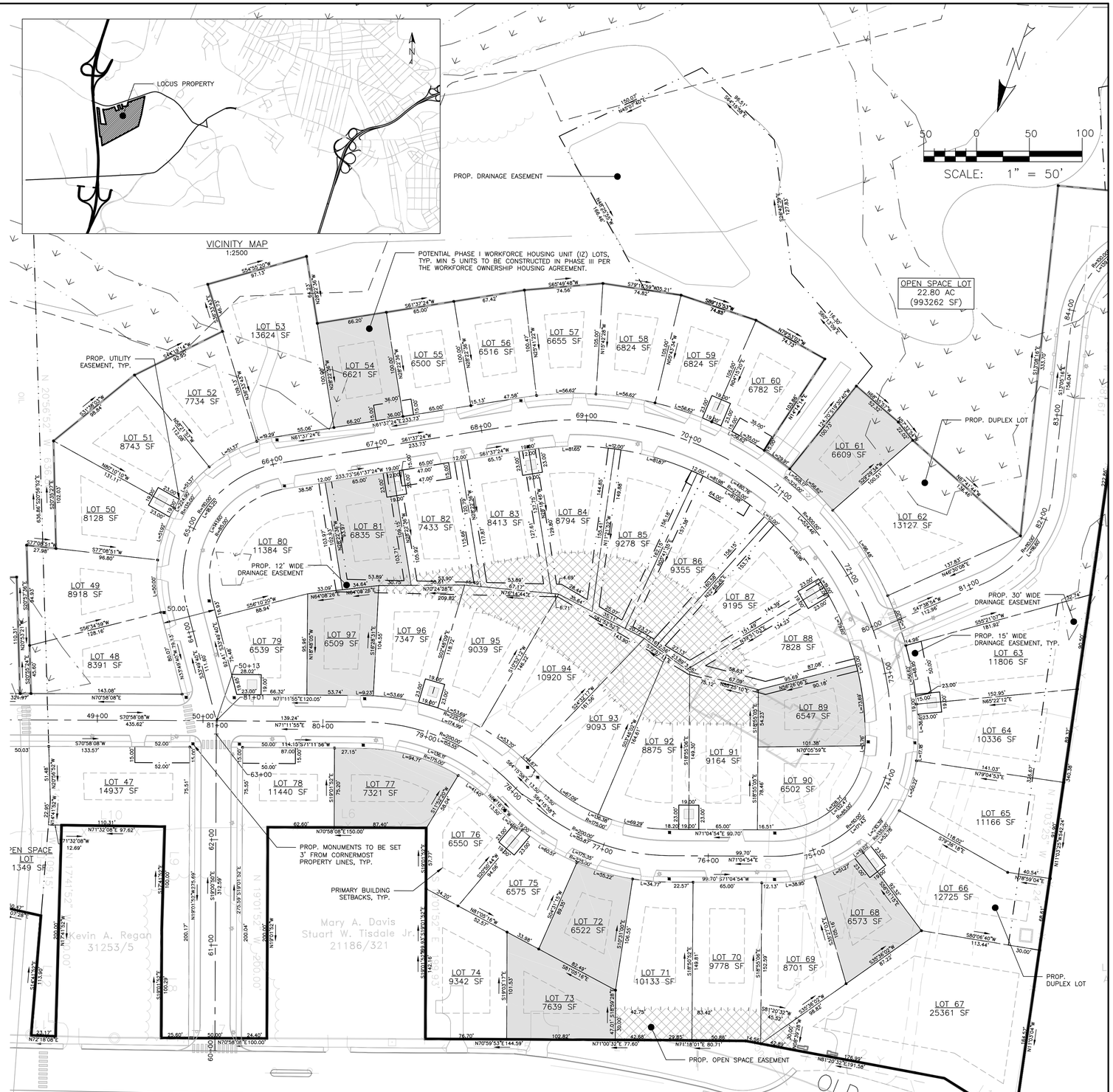
RECEIVED: _____

RECORDED IN _____

ATTEST: _____
REGISTRAR

APPROVED: PORTLAND PLANNING BOARD

CHAIRPERSON: DATE:



REX CROTEAU, MAINE P.L.S. #2273

TITCOMB ASSOCIATES DATE:

DEVELOPER:	CIVIL/SITE ENGINEER:	SURVEYOR:
STROUDWATER DEVELOPMENT PARTNERS, LLC KENNEBUNK, MAINE CONTACT: MICHAEL BARTON	ACORN ENGINEERING, INC. PORTLAND, MAINE CONTACT: WILLIAM SAVAGE, P.E.	TITCOMB ASSOCIATES FALMOUTH, MAINE CONTACT: REX CROTEAU, P.L.S.

ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

SUBDIVISION PLAT – PHASE I

PROJECT NAME: STROUDWATER PRESERVE

DRAWING NAME:

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=50'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM SAVAGE No. 11416 11-21-17 LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-12

SPACE AND BULK STANDARDS		
ZONE:	R-3	PROPOSED
SINGLE FAMILY HOUSE LOTS		
MINIMUM LOT SIZE	6,500 SF	6,500 SF
MINIMUM STREET FRONTAGE	50'	50'
FRONT YARD	25'	25'
REAR YARD – PRINCIPAL	25'	25'
REAR YARD – ACCESSORY	5'	5'
SIDE YARD	16'	16'
MAXIMUM LOT COVERAGE	35%	MAX 35%
MINIMUM LOT WIDTH*	65'	65'
MAXIMUM BUILDING HEIGHT	35'	< 35'
MAXIMUM ACCESSORY HEIGHT	18'	< 18'
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)		
MINIMUM LOT AREA PER DWELLING UNIT	6,500 SF	6,500 SF
MAXIMUM NUMBER OF DWELLING UNITS**	38	25
MAX NUMBER OF UNITS PER BUILDING (>5 AC)	6	5
MAX NUMBER OF UNITS PER BUILDING (<5 AC)	2	N/A
MAX LENGTH OF BUILDING (W/ INTEGRAL GARAGES)	140'	140'
MIN BUILDING SETBACK FROM EXTERNAL PROPERTY LINES (>4 UNITS PER BUILDING)	35'	35'
MIN DISTANCE BETWEEN BUILDINGS	16'	17.12'
MINIMUM RECREATIONAL OPEN SPACE	300 SF/DU = 7,500 SF	43,496 SF
MIN CONTIGUOUS AREA OF RECREATIONAL USE	6,000 SF	6,105 SF
MIN WIDTH RECREATIONAL AREA	50'	60.03'

*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.
**REFER TO PRUD LAND USE ORDINANCE NARRATIVE FOR CALCULATIONS

GENERAL NOTES:

1. FOR INFORMATION REGARDING PROPOSED UTILITY CHANGES, REFER TO THE ROAD PROFILE PLANS (4), SHEETS C-20 TO C-24, MOST RECENT VERSION.
2. FOR INFORMATION REGARDING PROPOSED GRADING CHANGES, REFER TO GRADING & DRAINAGE PLANS (3), SHEETS C-31 TO C-33, MOST RECENT VERSION.
3. REFER TO ARCHITECTURAL PLANS FOR PRUD FLOOR PLANS AND BUILDING HEIGHTS.
4. TOTAL SITE AREA INCLUDES 55.3 ACRES (2,408,860 S.F.). R.O.W. WIDTH FOR WESTBROOK STREET IS 66 FEET PER EXISTING CONDITIONS PLAN. REFER TO EXISTING CONDITIONS PLAN COMPLETED BY TITCOMB ASSOCIATES DATED 6/16/17.
5. SITE BOUNDARIES PER EXISTING CONDITIONS PLAN AND PROPERTY PINS TO BE SET BY TITCOMB ASSOCIATES.
6. PER THE PORTLAND GIS WEBSITE AS OF 10/10/17 AND ZONING MAP AMENDMENT PASSED BY CITY COUNCIL ON 7/24/17, THE SITE IS BOUNDED BY:
   6.1. NORTH R-1 RESIDENTIAL, OP OFFICE PARK, & ROS RECREATIONAL OPEN SPACE
   6.2. WEST R-1 RESIDENTIAL & R-2 RESIDENTIAL
   6.3. SOUTH OP OFFICE PARK
   6.4. EAST I-L INDUSTRIAL LAND & MAINE TURNPIKE
7. LOCUS PARCEL IS SHOWN ON THE CITY OF PORTLAND ASSESSOR'S CHART, BLOCK, LOT: 229-A-2, 246-A-3, 247-A-3, 248-A-3, 256-A-3, 246-A-6, 247-A-2, & 245-B-5
8. PROPOSED DEVELOPMENT REMAINS OUTSIDE THE 100-YR FEMA FLOODPLAIN PER THE NATIONAL FLOOD INSURANCE PROGRAM, PRELIMINARY FLOOD INSURANCE RATE MAP DATED 4/14/2017 (APPROX. 27').
9. ALL BUILDING CORNER OFFSETS TO BOUNDARY LINES ARE FROM CORNERBOARDS AND NOT BUILDING FOUNDATION, UNLESS OTHERWISE NOTED.
10. THIS SHEET IS THE SUBDIVISION PLAT FOR THE CREATION OF UP TO 100 LOTS INCLUDING 95 SINGLE FAMILY HOUSE LOTS, TWO (2) TWO-FAMILY LOTS, ONE (1) PRUD LOT, AND TWO (2) OPEN SPACE LOTS FOR A TOTAL OF 124 DWELLING UNITS.
11. THE PRUD LOT IS TO BE SUBJECT TO CONDOMINIUM ASSOCIATION DOCUMENTS. THE CONDOMINIUM ASSOCIATION DOCUMENTS OUTLINE THE MAINTENANCE AND MANAGEMENT OF THE PRUD ROADWAY, DRIVEWAYS, SIDEWALKS, STORMWATER BMPS AND INFRASTRUCTURE, PRIVATE UTILITIES, AND SEWER INFRASTRUCTURE AS THE RESPONSIBILITY OF THE ASSOCIATION. THE CONDOMINIUM ASSOCIATION WILL BE RESPONSIBLE FOR MAINTENANCE AND REPLACEMENT OF THE SEWER FORCEMAIN, INCLUDING BUILDING LATERALS AND PUMPS, FROM THE CONNECTION TO THE EX. SEWER MANHOLE CLEANOUT INSTALLED IN PHASE I.
12. THE CONDOMINIUM ASSOCIATION SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF CHAPTER 32 STORMWATER INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT, WHICH SPECIFIES ANNUAL INSPECTIONS AND REPORTING REQUIREMENTS AT A MINIMUM. IN ADDITION, THE ASSOCIATIONS SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF THE SUBMITTED STORMWATER MANAGEMENT PLAN AND THE APPROVED PLANS, AND MEET CITY STANDARDS AND STATE GUIDELINES.
13. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS. SUBDIVISION PLANS PER PHASE ARE RECORDED WITH CCRD AT:

   13.1. PHASE I:

   BOOK _____ PAGE _____

   13.2. PHASE III:

   BOOK _____ PAGE _____

14. THE CONDOMINIUM ASSOCIATION MUST COMPLY TO THE FOLLOWING AS APPROVED BY THE CITY:

   14.1. CONDOMINIUM ASSOCIATION DOCUMENTS:

   BOOK _____ PAGE _____

   14.2. CONDOMINIUM ASSOCIATION POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT:

   BOOK _____ PAGE _____

   14.3. PER CITY REQUIREMENT, THE PROPERTY IS SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AND DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS. THE WORKFORCE OWNERSHIP HOUSING AGREEMENT AS APPROVED BY THE CITY IS RECORDED AT:

   BOOK _____ PAGE _____

WAIVERS & CONDITIONS OF APPROVAL:

TBD

EASEMENTS:

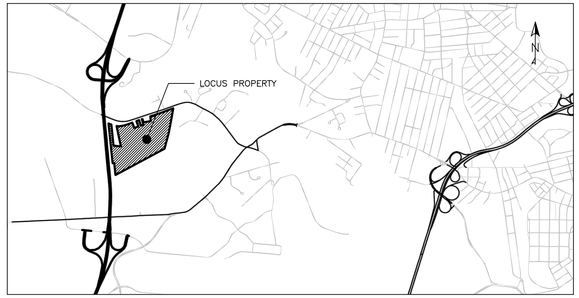
ALL PROPOSED EASEMENTS TO BE REVIEWED BY TITCOMB ASSOCIATES AND RECORDED IN CCRD. ALL EXISTING EASEMENTS ARE TO REMAIN.

EXISTING EASEMENTS:

1. SUBJECT TO A 30'-WIDE UTILITY EASEMENT FOR A 42" CONCRETE WATER PIPE GRANTED TO PORTLAND WATER DISTRICT FURTHER DESCRIBED IN BOOK 1382, PAGE 144 AND BOOK 1399, PAGE 462.
2. SUBJECT TO A 50'-WIDE UTILITY EASEMENT FOR THREE PIPELINES FURTHER DESCRIBED IN INSTRUMENTS RECORDED IN BOOK 1655, PAGE 294 AND BOOK 2954, PAGE 772.
3. SUBJECT TO AN EASEMENT FOR A SEWER PIPE GRANTED BY RUBY H. YOUNG TO FREDERICK A. BUTTS AND MARIE BUTTS IN A DEED RECORDED IN BOOK 2236, PAGE 405. (LOCATION UNKNOWN).
4. SUBJECT TO AN EASEMENT FOR DRAINAGE GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION AND FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
5. SUBJECT TO A SLOPE EASEMENT GRANTED TO MAINE DEPARTMENT OF TRANSPORTATION FURTHER DESCRIBED IN AN INSTRUMENT RECORDED IN BOOK 4146, PAGE 333. LOCATION IS APPROXIMATE.
6. BENEFITING FROM AN EASEMENT FOR ACCESS RESERVED IN A DEED RECORDED IN BOOK 2198, PAGE 386.

PROPOSED EASEMENTS:

1. OPEN SPACE EASEMENTS BOOK _____ PAGE _____
2. PUBLIC ACCESS EASEMENTS BOOK _____ PAGE _____
3. DRAINAGE EASEMENTS BOOK _____ PAGE _____
4. UTILITY EASEMENTS BOOK _____ PAGE _____



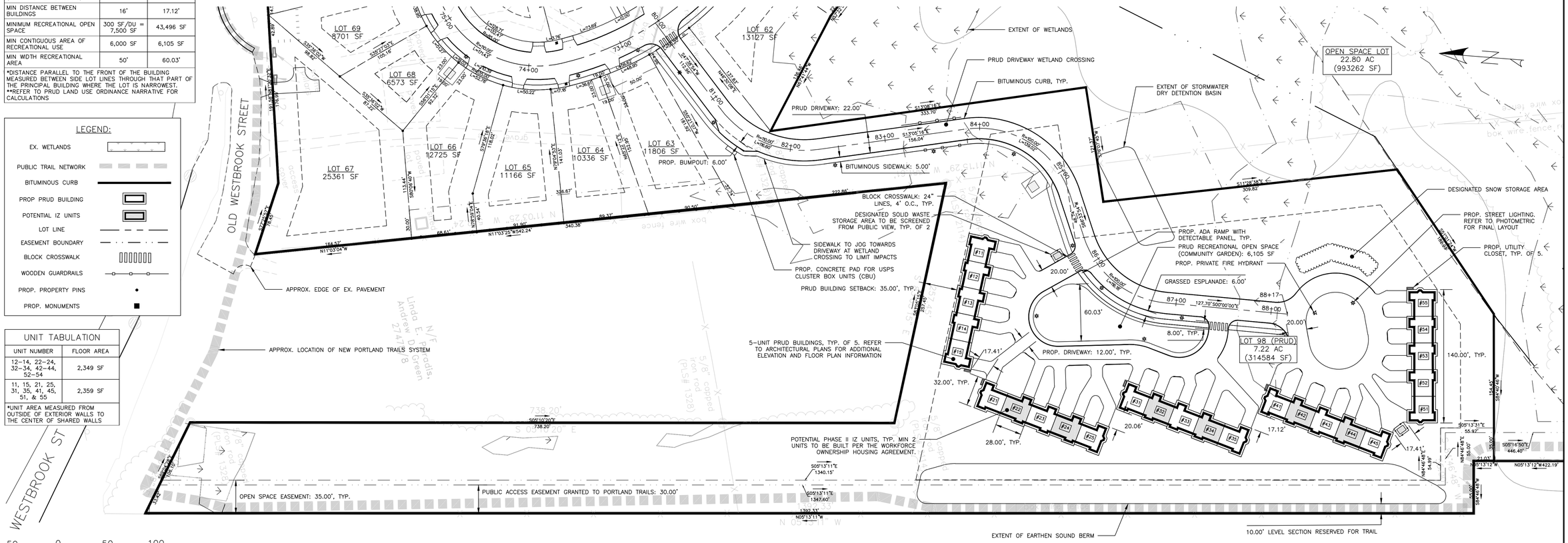
VICINITY MAP
1:2500

LEGEND:

- EX. WETLANDS
- PUBLIC TRAIL NETWORK
- BITUMINOUS CURB
- PROP PRUD BUILDING
- POTENTIAL IZ UNITS
- LOT LINE
- EASEMENT BOUNDARY
- BLOCK CROSSWALK
- WOODEN GUARDRAILS
- PROP. PROPERTY PINS
- PROP. MONUMENTS

UNIT TABULATION	
UNIT NUMBER	FLOOR AREA
12-14, 22-24, 32-34, 42-44, 52-54	2,349 SF
11, 15, 21, 25, 31, 35, 41, 45, 51, & 55	2,359 SF

*UNIT AREA MEASURED FROM OUTSIDE OF EXTERIOR WALLS TO THE CENTER OF SHARED WALLS



50 0 50 100

SCALE: 1" = 50'

SURVEY NOTES:

1. BOOK AND PAGE REFERENCES ARE TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE.
3. ELEVATIONS ARE BASED ON NAVD88 DATUM. BENCHMARKS ARE SHOWN.
4. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES AND INFORMATION CONTAINED ON PLANS AND DRAWINGS PROVIDED BY OTHERS. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
5. PROPERTY IS WITHIN ZONE X AND ZONE A BASED ON FIRM COMMUNITY #230051 PANEL #0012 C, DATED DECEMBER 8, 1998. ZONE X IS DEFINED AS AN AREA OF 500-YEAR FLOOD; AREA OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD. ZONE A IS AN AREA WITH NO BASE FLOOD ELEVATION DETERMINED.
6. THE LOCATION OF THE HIGHWATER MARK ON NORTHERLY SIDE OF STROUDWATER RIVER WAS DELINEATED BY OTHERS AND LOCATED BY TITCOMB ASSOCIATES. THE LOCATION OF THE SOUTHERLY SIDE OF STROUDWATER RIVER IS APPROXIMATE BASED ON AERIAL IMAGERY.
7. THE TWO CRUDE OIL LINES WERE MARKED OUT BY PORTLAND PIPE LINE AND LOCATED BY TITCOMB ASSOCIATES. TITCOMB ASSOCIATES MAKES NO GUARANTEE OR WARRANTY AS TO THE ACCURACY OF THE PIPELINE ELEVATION DATA.

PLAN REFERENCES:

1. PLAN OF A STANDARD BOUNDARY SURVEY MADE FOR ONEX COMPANY BY NADEAU & LODGE, IN., DATED FEBRUARY 21, 2003 AND REVISED THROUGH OCTOBER 9, 2003.
2. SECOND AMENDED SUBDIVISION PLAT OF PORTLAND TECHNOLOGY PARK MADE FOR CITY OF PORTLAND BY SGC ENGINEERING, LLC, DATED SEPTEMBER 29, 2011, REVISED THROUGH MARCH 8, 2016 AND RECORDED IN PLAN BOOK 216, PAGE 63.
3. PORTLAND WATER DISTRICT 42" CONCRETE PIPE LINE RIGHT OF WAY PLANS PREPARED BY HARRY FULLER, DATED AUGUST 1931 AND RECORDED IN PLAN BOOK 20, PAGE 39. (LOCATION IS APPROXIMATE).
4. PORTLAND PIPE LINE CO. SURVEY OF PROPERTY OF RUBY H. YOUNG, DATED OCTOBER 8, 1941 PREPARED BY FRANCIS A. GRIFFIN AND RECORDED IN PLAN BOOK 27, PAGE 37. (LOCATION IS APPROXIMATE).
5. STROUDWATER WOODS MADE FOR S.&E. CIMINO BY OWEN HASKELL, INC. DATED OCTOBER 25, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 21.
6. PARTIAL BOUNDARY SURVEY FOR ANDREW D. GREEN BY LEWIS & WASINA, INC. DATED DECEMBER 10, 2004 AND REVISED THROUGH DECEMBER 14, 2004 AND RECORDED IN PLAN BOOK 205, PAGE 299.
7. PLAN OF PROPERTY MADE FOR ADVENT CHRISTIAN CHURCH OF PORTLAND BY H.I. & E.C. JORDAN DATED OCTOBER 18, 1979 AND RECORDED IN PLAN BOOK 125, PAGE 10.
8. PLAN OF PROPERTY MADE FOR THEODORE AND THERESE BARRIS BY WAYNE T. WOOD DATED JANUARY 1994 AND REVISED THROUGH JANUARY 27, 1994, UNRECORDED.

RECORDING INFORMATION
STATE OF MAINE, CUMBERLAND
COUNTY REGISTRY OF DEEDS

RECEIVED: _____

RECORDED IN _____

ATTEST: _____
REGISTRAR

APPROVED: PORTLAND PLANNING BOARD

CHAIRPERSON: DATE:

REX CROTEAU, MAINE P.L.S. #2273

TITCOMB ASSOCIATES DATE:

DEVELOPER:
STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE
CONTACT: MICHAEL BARTON

CIVIL/SITE ENGINEER:
ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: WILLIAM SAVAGE, P.E.

SURVEYOR:
TITCOMB ASSOCIATES
FALMOUTH, MAINE
CONTACT: REX CROTEAU, P.L.S.

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
FINAL APP	WHS	10/25/17
DPW REVIEW	WHS	11/9/17
CITY COMMENTS	WHS	11/21/17

DRAWING NAME: SUBDIVISION PLAT - PHASE II
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102 (207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=50'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM SAVAGE No. 11419 11-21-17 LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-13

PLANT LEGEND

(129) ACER RUBRUM - RED MAPLE (29 'RED POINTE' / 86 'KARPICK')
3" caliper

(19) QUERCUS BICOLOR - SWAMP WHITE OAK
3" caliper

(27) MYRICA PENSYLVANICA - BAYBERRY
3'-4'

(54) PINUS STROBUS - EASTERN WHITE PINE
8'-10'

(16) PINUS RIGIDA - PITCH PINE
6'-7'

MEADOWS (ALL DISTURBED AREAS)
NEW ENGLAND CONSERVATION / WILDLIFE SEED MIX

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes. For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

PRUD SHRUB AND PERENNIAL PLANTINGS (PER CITY OF PORTLAND STANDARDS)

FOLLY

POSSIBLE RIPARIAN SUCCESSION AREA AND LARCH GROVE

POSSIBLE MEADOW MANAGEMENT STRATEGY: INCREASED BIODIVERSITY & POLLINATOR SPECIES WITH NATIVE SEED MIX AND ANNUAL MOWING

STORMWATER BMP POND (WINTER SKATING RINK)

LOOP TRAIL

PARTRIDGE CIRCLE

MAINE TURNPIKE (I-95)

HEALTHY EXISTING PINE TREES TO REMAIN IN 30' BUFFER ALONG WESTBROOK STREET

WESTBROOK STREET

SWAN STREET

TRAIL HEAD

OLD WESTBROOK STREET

TRAIL CONNECTOR

0 50 100 200

N

NOT FOR CONSTRUCTION

Soren deNiord Design Studio
43 Wellwood Road
Portland, ME
04103
T: 207-400-2450
E: soren@sorendeniord.com

STROUDWATER PRESERVE

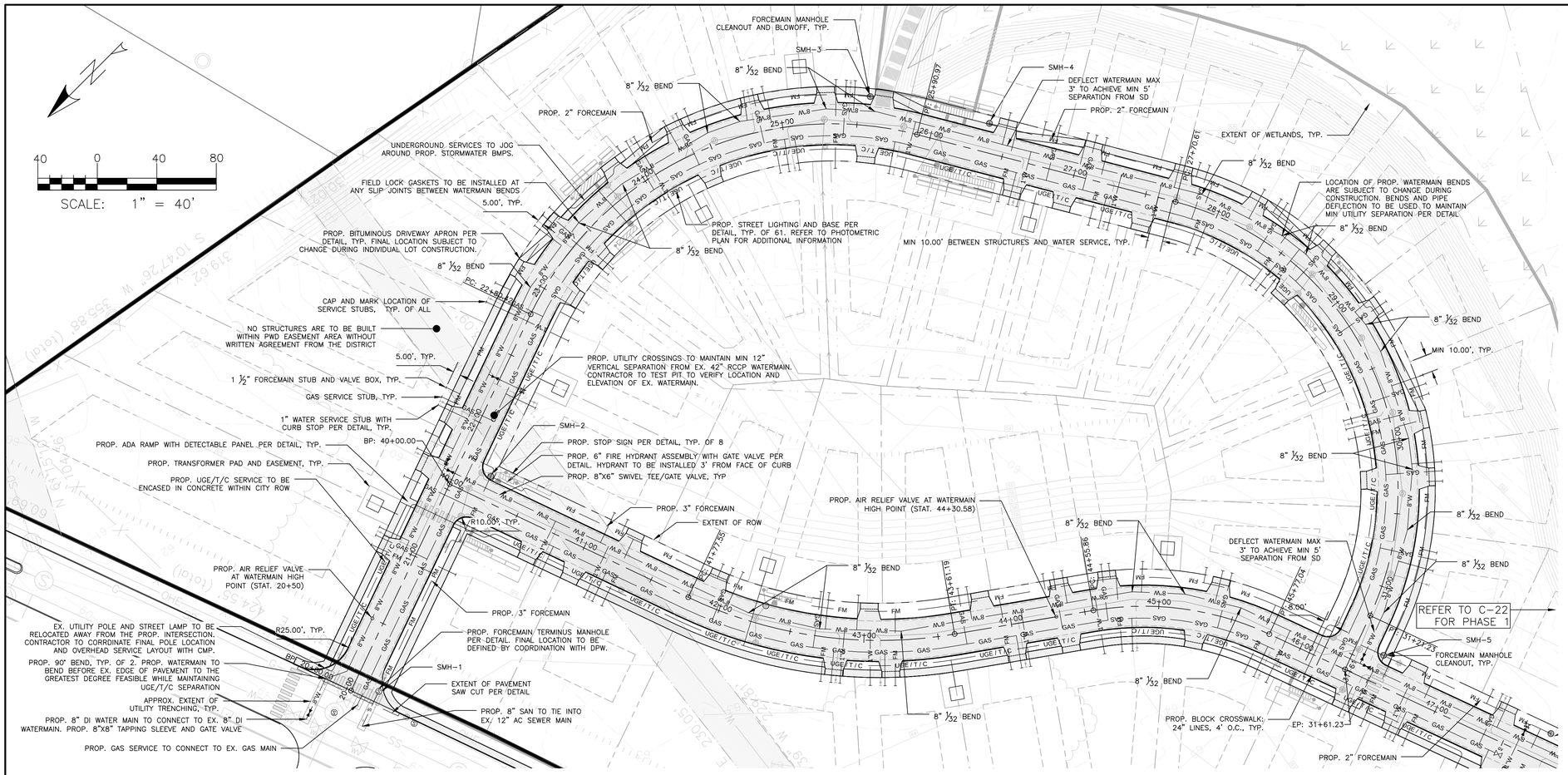
WESTBROOK STREET
PORTLAND, MAINE

No:	Revision / Submission	Date:
	FINAL SUBMISSION	

revisions:
date: October 18, 2017
scale: As Noted
drawn: XX
checked: XX

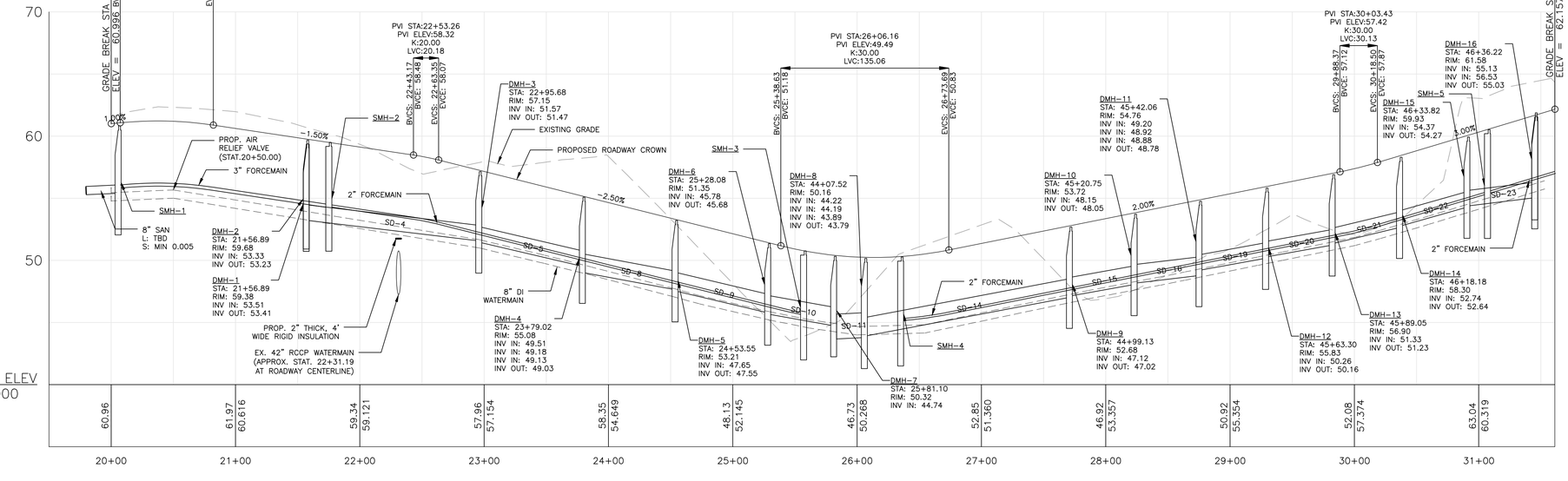
L1.0

LANDSCAPE PLAN



CENTERLINE ALIGNMENT – 1 (PHASE III)

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



GENERAL NOTES:

1. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS.
2. FINAL SITE SIGNAGE TO BE REVIEWED AND ACCEPTED BY THE CITY'S TRAFFIC ENGINEER.
3. LOCATION OF PROPOSED CONNECTIONS TO EX. INFRASTRUCTURE IN WESTBROOK ST ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
4. CONTRACTOR IS TO BE CAUTIONED THAT THERE IS AN SEPTIC TANK THAT SERVICES THE EXISTING BUILDING THAT HAS NOT BEEN IDENTIFIED BY DIGSAFE OR THE EXISTING CONDITIONS PLAN. CONTRACTOR TO COORDINATE TANK REMOVAL AT NO ADDITIONAL COST TO THE OWNER. REFER TO C-03.
5. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS EXTEND TO SERVICE STUB. UNLESS SPECIFIED OTHERWISE.
6. SEWER UTILITIES: SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. SEWER UTILITIES TO REMAIN PRIVATE AND OWNED BY THE HOMEOWNER'S ASSOCIATION. FINAL FORCEMAIN UTILITY, SERVICES, AND ASSOCIATED APERTURES LAYOUT ARE TO BE SUBMITTED FOR APPROVAL BY THE PRODUCT SUPPLIER. STRUCTURES AND PIPE NETWORK AS SHOWN ON THE PROFILE ARE APPROX. AND ARE SUBJECT TO CHANGE.
7. WATER UTILITIES: WATER MAIN CONSTRUCTION, WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. REFER TO PWD SPECIFICATIONS AND PROCEDURES SECTION 1: GENERAL INFORMATION FOR DISTRICT REQUIREMENTS ON EX. EASEMENTS. CONTRACTOR TO COORDINATE WITH PWD PRIOR TO PERFORMING TEST PIT EXCAVATION FOR EX. 42" RCCP WATERMAIN. EACH PHASE MUST HAVE A MAIN EXTENSION AGREEMENT WITH PWD PRIOR TO CONSTRUCTION. PWD TO REVIEW AND ACCEPT FINAL DRAWINGS PRIOR TO CONSTRUCTION.
8. ELECTRIC UTILITIES: TELEPHONE/CABLE SERVICES TO BYPASS TRANSFORMER. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
9. GAS UTILITIES: PROJECT GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE REVIEWED AND ACCEPTED BY UNITIL.
10. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY THE CONTRACTOR WORKING WITH CHARTER/SPECTRUM COMMUNICATIONS AND FAIRPOINT PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE.
11. NEW FIRE HYDRANTS ARE PROPOSED WITHIN THE SITE SO THAT THE BUILDINGS ARE AT MOST 500' FROM A HYDRANT. HYDRANTS ARE TO BE BUILT TO CITY OF PORTLAND FIRE DEPARTMENT AND PORTLAND WATER DISTRICT STANDARDS. FINAL FIRE HYDRANTS TO BE ACCEPTED BY THE CITY.
12. DRIVEWAY LOCATIONS AS SHOWN ARE SUBJECT TO CHANGE DURING CONSTRUCTION BUT SHALL REMAIN IN COMPLIANCE WITH THE DESIGN AND SEPARATION STANDARDS SET BY THE TECHNICAL MANUAL.

MINIMUM HORIZONTAL UTILITY SERVICE SEPARATION

UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	–	6'	5'	4'	6'
WATER	6'	–	5'*	6'	3'
SEWER	5'	5'*	–	5'	10'
GAS	4'	6'	5'	–	3'
STORMWATER	6'	3'	10'	3'	–

*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE; OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.

STORM DRAIN SCHEDULE

NAME	SIZE	LENGTH	SLOPE
SD-1	12"	17.48'	0.50%
SD-2	12"	13.71'	5.09%
SD-3	15"	16.00'	0.50%
SD-4	15"	139.01'	1.19%
SD-5	15"	84.07'	2.33%
SD-6	12"	10.00'	0.50%
SD-7	12"	16.02'	0.50%
SD-8	18"	75.18'	1.84%
SD-9	18"	75.18'	2.35%
SD-10	18"	53.63'	1.76%
SD-11	24"	22.42'	0.50%
SD-12	12"	17.92'	0.50%
SD-13	12"	12.85'	0.50%
SD-14	18"	164.94'	1.90%
SD-15	18"	52.67'	1.77%
SD-16	18"	52.81'	1.18%
SD-17	12"	16.19'	0.50%
SD-18	12"	10.82'	0.50%
SD-19	15"	54.21'	1.78%
SD-20	15"	54.21'	1.79%
SD-21	15"	54.83'	2.39%
SD-22	15"	54.83'	2.78%
SD-23	15"	54.93'	1.20%
SD-24	12"	19.22'	3.26%
SD-25	12"	29.25'	0.75%
SD-26	12"	162.54'	0.82%
SD-27	12"	47.15'	0.50%
SD-28	12"	16.62'	0.50%
SD-29	12"	10.89'	0.50%

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PWD REVIEW	WHS 10/23/17
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: ROAD PROFILE – 1
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 BANFORD DRIVE
PORTLAND, MAINE 04102
(207) 775-2655

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FILE: 1079_CIVIL
JN: 1079
SCALE: SEE PLAN
DESIGNED BY: WHS
DRAWN BY: OJD
CHECKED BY: WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11418
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-20

GENERAL NOTES:

1. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS.
2. FINAL SITE SIGNAGE TO BE REVIEWED AND ACCEPTED BY THE CITY'S TRAFFIC ENGINEER.
3. LOCATION OF PROPOSED CONNECTIONS TO EX. INFRASTRUCTURE IN WESTBROOK ST ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
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5. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS EXTEND TO SERVICE STUB. UNLESS SPECIFIED OTHERWISE.
6. CONTRACTOR TO MEET ONSITE WITH PORTLAND PIPE LINE COMPANY (PPLC) PRIOR TO STARTING ANY LAND DISTURBANCE WITHIN THE PIPELINE EASEMENT.
7. SEWER UTILITIES: SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. SEWER UTILITIES TO REMAIN PRIVATE AND OWNED BY THE HOMEOWNER'S ASSOCIATION. FINAL FORCEMAIN UTILITY, SERVICES, AND ASSOCIATED APERTURES LAYOUT ARE TO BE SUBMITTED FOR APPROVAL BY THE PRODUCT SUPPLIER. STRUCTURES AND PIPE NETWORK AS SHOWN ON THE PROFILE ARE APPROX. AND ARE SUBJECT TO CHANGE.
8. WATER UTILITIES: WATER MAIN CONSTRUCTION, WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. REFER TO PWD SPECIFICATIONS AND PROCEDURES SECTION 1: GENERAL INFORMATION FOR DISTRICT REQUIREMENTS ON EX. EASEMENTS. CONTRACTOR TO COORDINATE WITH PWD PRIOR TO PERFORMING TEST PIT EXCAVATION FOR EX. 42" RCCP WATERMAIN. EACH PHASE MUST HAVE A MAIN EXTENSION AGREEMENT WITH PWD PRIOR TO CONSTRUCTION. PWD TO REVIEW AND ACCEPT FINAL DRAWINGS PRIOR TO CONSTRUCTION.
9. ELECTRIC UTILITIES: TELEPHONE/CABLE SERVICES TO BYPASS TRANSFORMER. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
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MINIMUM HORIZONTAL UTILITY SERVICE SEPARATION

UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	–	6'	5'	4'	6'
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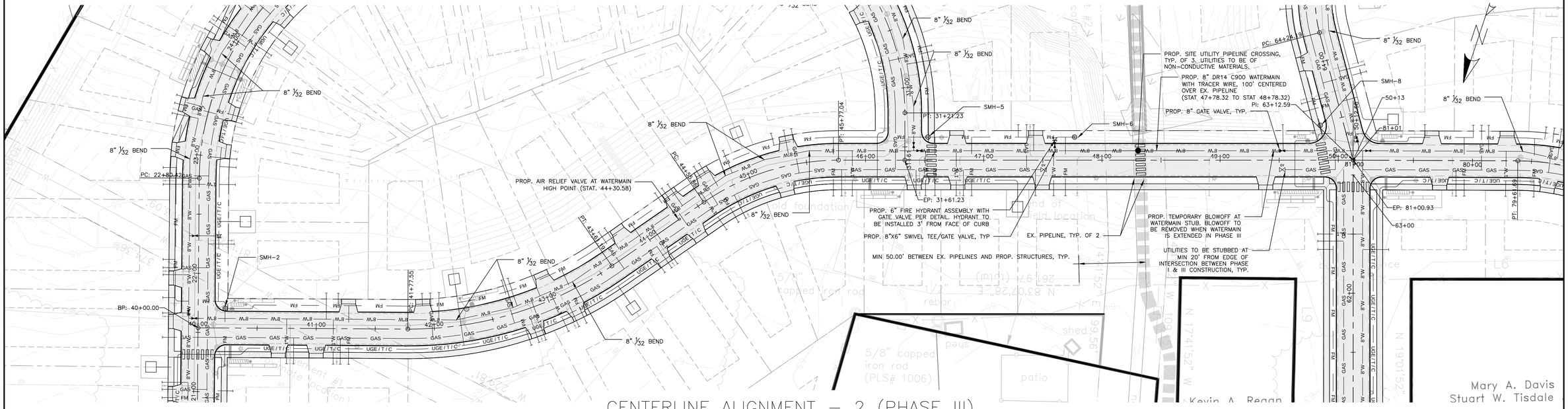
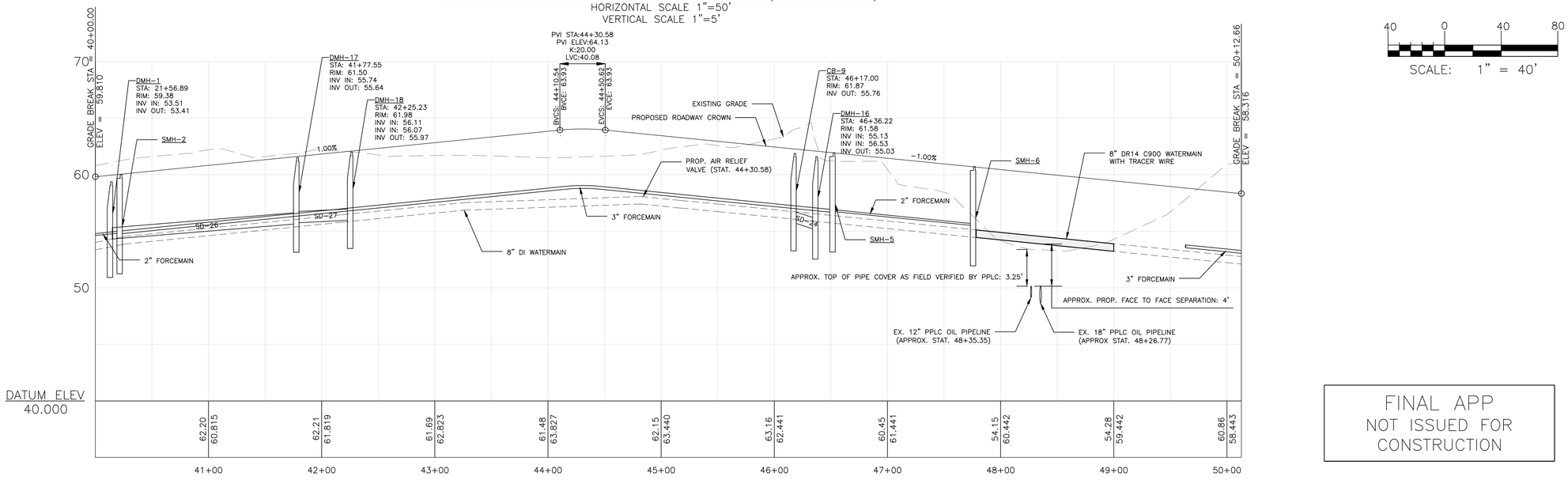
*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE; OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.



CENTERLINE ALIGNMENT – 2 (PHASE III)

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



40 0 40 80
SCALE: 1" = 40'

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PWD REVIEW	OJD 10/23/17
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: ROAD PROFILE – 2
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	SEE PLAN
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

DRAWING NO.
C-21

GENERAL NOTES:

1. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS.
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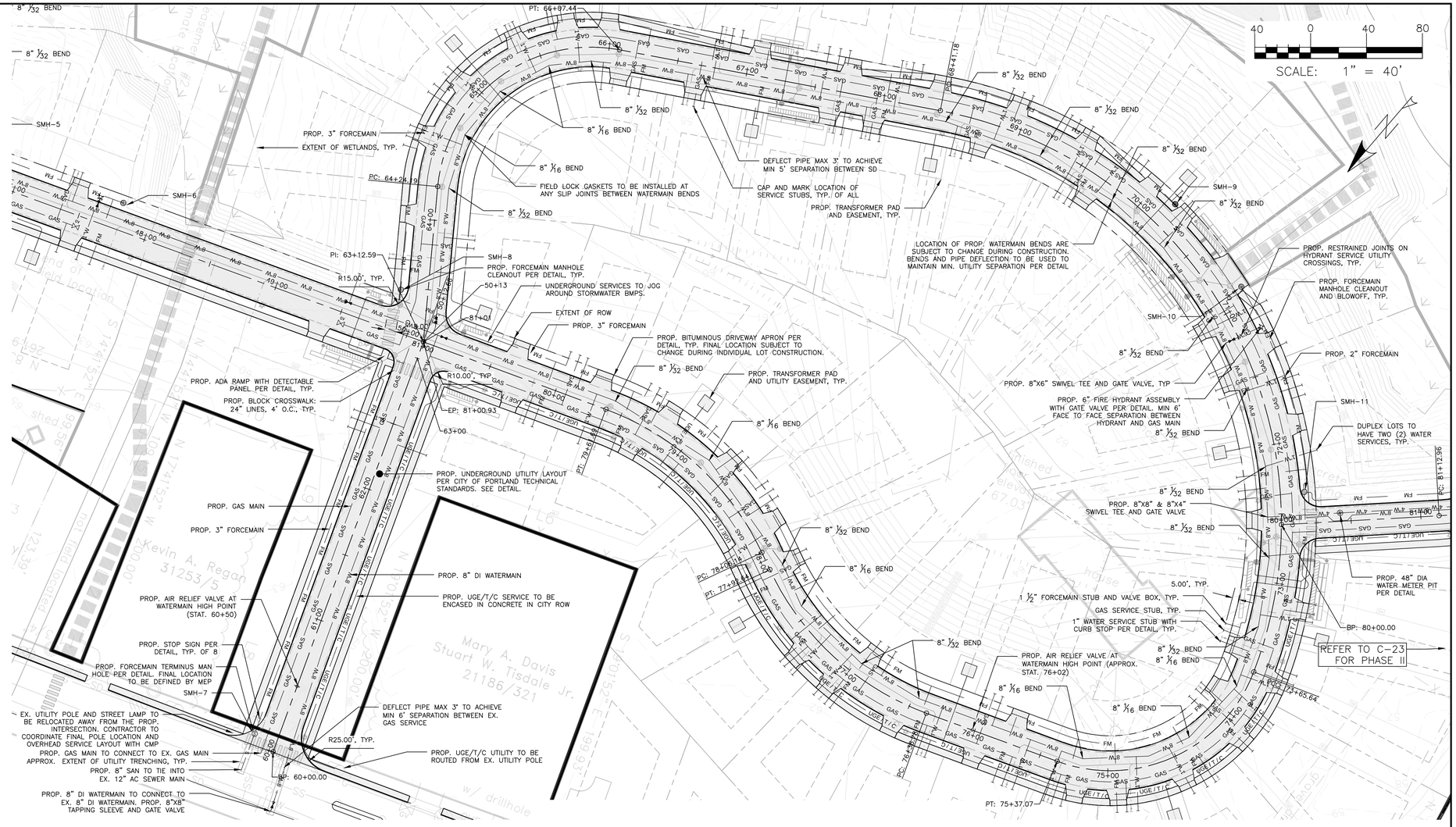
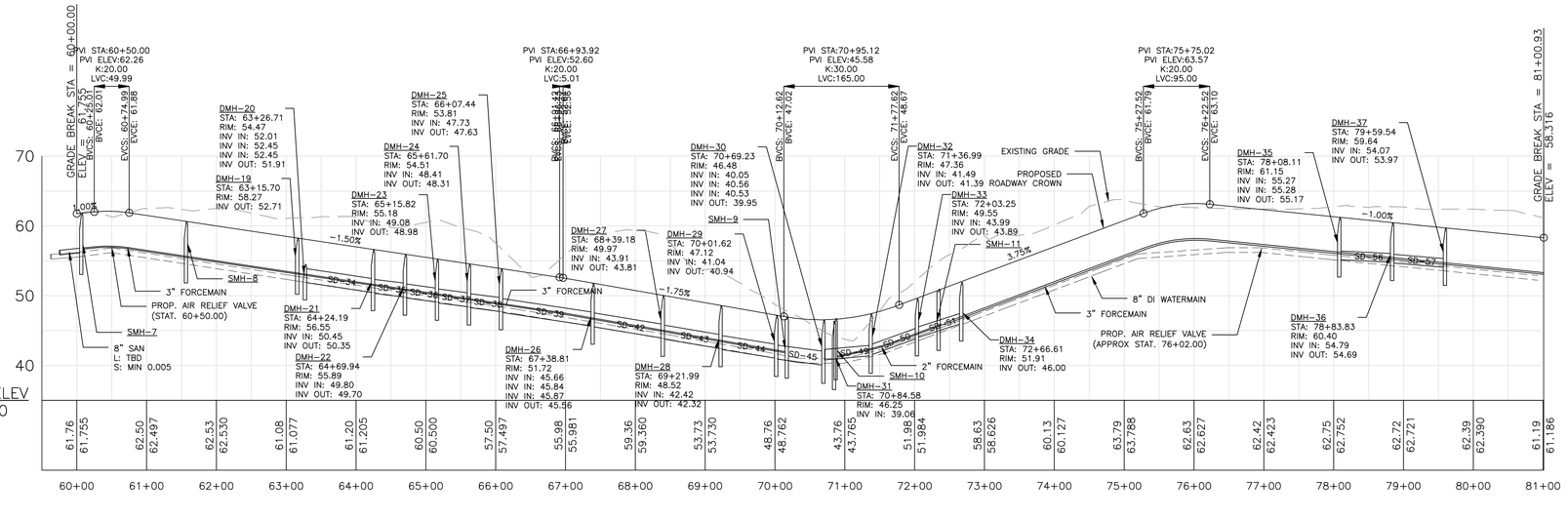
MINIMUM HORIZONTAL UTILITY SERVICE SEPARATION					
UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	–	6'	5'	4'	6'
WATER	6'	–	5'*	6'	3'
SEWER	5'	5'*	–	5'	10'
GAS	4'	6'	5'	–	3'
STORMWATER	6'	3'	10'	3'	–

*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE; OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.

FINAL APP
NOT ISSUED FOR CONSTRUCTION





STORM DRAIN SCHEDULE			
NAME	SIZE	LENGTH	SLOPE
SD-30	12"	22.68'	0.50%
SD-31	18"	11.40'	2.23%
SD-32	12"	24.47'	0.50%
SD-33	12"	13.38'	0.50%
SD-34	24"	97.48'	1.50%
SD-35	24"	44.18'	1.24%
SD-36	24"	44.30'	1.40%
SD-37	24"	44.30'	1.29%
SD-38	24"	44.18'	1.32%
SD-39	24"	131.37'	1.50%
SD-40	12"	16.38'	0.50%
SD-41	12"	10.59'	0.50%
SD-42	24"	100.37'	1.64%
SD-43	24"	81.74'	1.70%
SD-44	24"	78.61'	1.63%
SD-45	24"	66.79'	1.33%
SD-46	36"	22.34'	3.99%
SD-47	12"	11.14'	0.50%
SD-48	12"	16.80'	0.50%
SD-49	18"	64.93'	0.90%
SD-50	18"	65.47'	3.66%
SD-51	18"	62.57'	3.21%
SD-52	12"	8.53'	0.50%
SD-53	12"	15.14'	0.50%
SD-54	12"	11.18'	0.50%
SD-55	12"	17.18'	0.50%
SD-56	15"	76.39'	0.50%
SD-57	15"	76.39'	0.81%
SD-58	15"	140.18'	0.93%
SD-59	12"	23.74'	0.50%

ISSUED FOR	BY DATE
PWD REVIEW	OJD 10/23/17
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: ROAD PROFILE – 3
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC
ENGINEERING □ SURVEYING □ PLANNING
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. AND IF MODIFIED WITHOUT SUCH PERMISSION OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1079_CIVIL
JN: 1079
SCALE: SEE PLAN
DESIGNED BY: WHS
DRAWN BY: OJD
CHECKED BY: WHS

STATE OF MAINE WILLIAM H. SAVAGE No. 11611 11-21-17 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-22

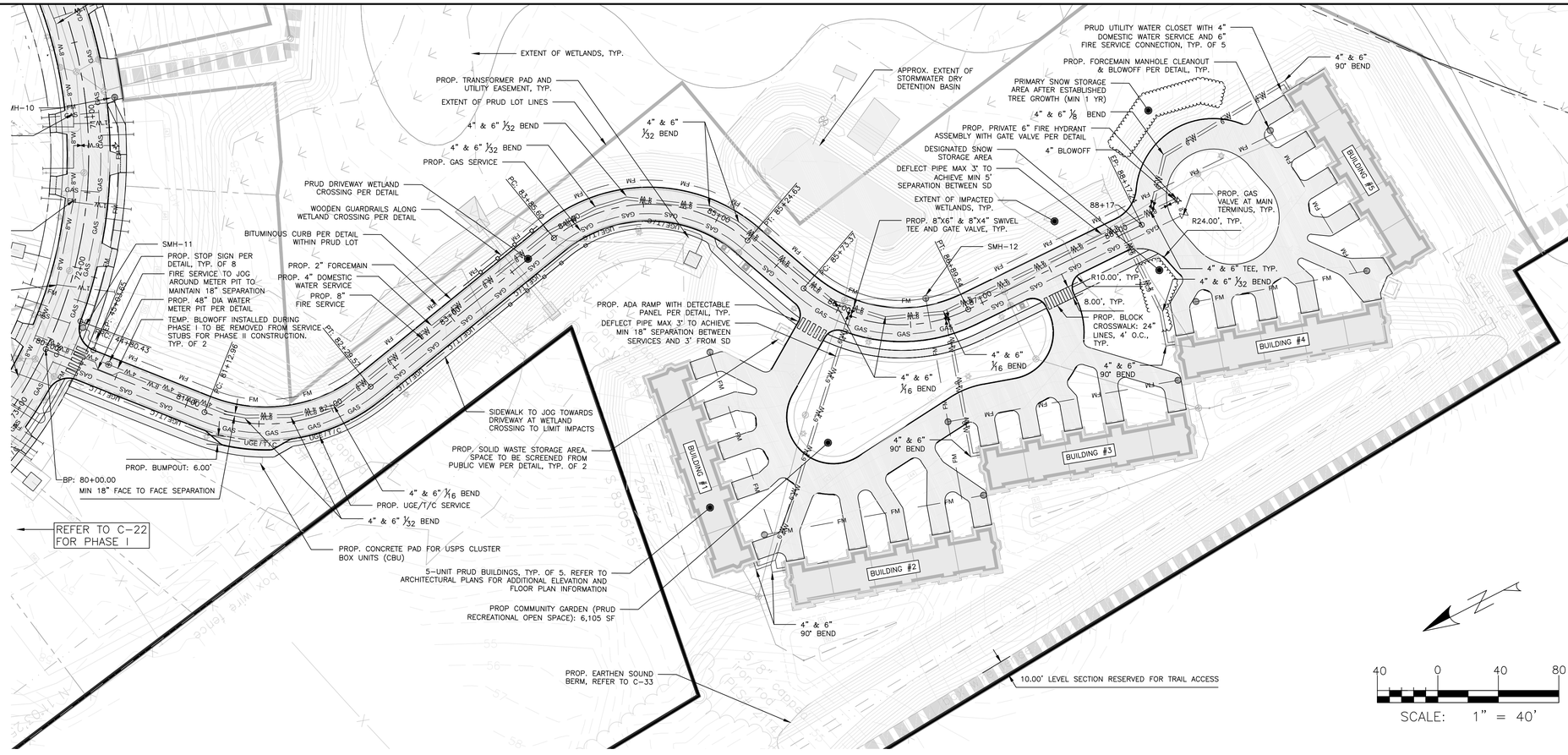
GENERAL NOTES:

1. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS.
2. FINAL SITE SIGNAGE TO BE REVIEWED AND ACCEPTED BY THE CITY'S TRAFFIC ENGINEER.
3. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
4. CONTRACTOR IS TO BE CAUTIONED THAT THERE IS AN SEPTIC TANK THAT SERVICES THE EXISTING BUILDING THAT HAS NOT BEEN IDENTIFIED BY DIGSAFE OR THE EXISTING CONDITIONS PLAN. CONTRACTOR TO COORDINATE TANK REMOVAL AT NO ADDITIONAL COST TO THE OWNER. REFER TO C-03.
5. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS EXTEND TO OUTSIDE WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
6. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTION LOCATION TO EACH PRUD BUILDING AND UNIT.
7. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. SEWER UTILITIES TO REMAIN PRIVATE AND OWNED BY THE CONDOMINIUM ASSOCIATION. FINAL FORCEMAIN UTILITY, SERVICES, AND ASSOCIATED APENTURES LAYOUT ARE TO BE SUBMITTED FOR APPROVAL BY THE PRODUCT SUPPLIER. STRUCTURES AND PIPE NETWORK AS SHOWN ARE APPROX. AND ARE SUBJECT TO CHANGE.
8. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER MAIN CONSTRUCTION, WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. FINAL WATER METER SIZE AND LOCATION FOR PRUD LOT TO BE COORDINATED WITH PORTLAND WATER DISTRICT. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND. PRUD BUILDINGS (5) TO BE SUBJECT TO PWD'S RESIDENTIAL BACKFLOW REQUIREMENTS. EACH PHASE TO HAVE A MAIN EXTENSION AGREEMENT WITH PWD PRIOR TO CONSTRUCTION.
9. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATIONS AND TRANSFORMER SIZES DEFINED BY M.E.P. FINAL TRANSFORMER PAD LOCATIONS TO BE DEFINED WITH COORDINATION AND APPROVAL FROM CMP. EXTENT OF UTILITY EASEMENT TO BE DEFINED BY FINAL TRANSFORMER SIZE. TELEPHONE/CABLE SERVICES TO BYPASS TRANSFORMER; M.E.P. TO FINALIZE SERVICE CONNECTION TO PRUD BUILDINGS. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
10. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P.
11. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY THE CONTRACTOR WORKING WITH CHARTER/SPECTRUM COMMUNICATIONS AND FAIRPOINT PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE.
12. NEW FIRE HYDRANTS ARE PROPOSED WITHIN THE SITE SO THAT THE SINGLE FAMILY HOUSE AND PRUD BUILDINGS ARE AT LEAST 500' FROM A HYDRANT. HYDRANTS ARE TO BE BUILT TO CITY OF PORTLAND FIRE DEPARTMENT AND PORTLAND WATER DISTRICT STANDARDS. FINAL FIRE HYDRANT WITHIN THE PRUD LOT TO BE REMAIN PRIVATE AND MAINTAINED BY CONDOMINIUM ASSOCIATION. CONDOMINIUM ASSOCIATION TO HAVE A MAINTENANCE AGREEMENT AS ACCEPTED BY THE REVIEWING AUTHORITY THAT OUTLINES COMPLIANCE WITH PORTLAND WATER DISTRICT AND CITY OF PORTLAND CODE OF ORDINANCES (CHAPTER 10) REQUIREMENTS.

MINIMUM HORIZONTAL UTILITY SERVICE SEPARATION

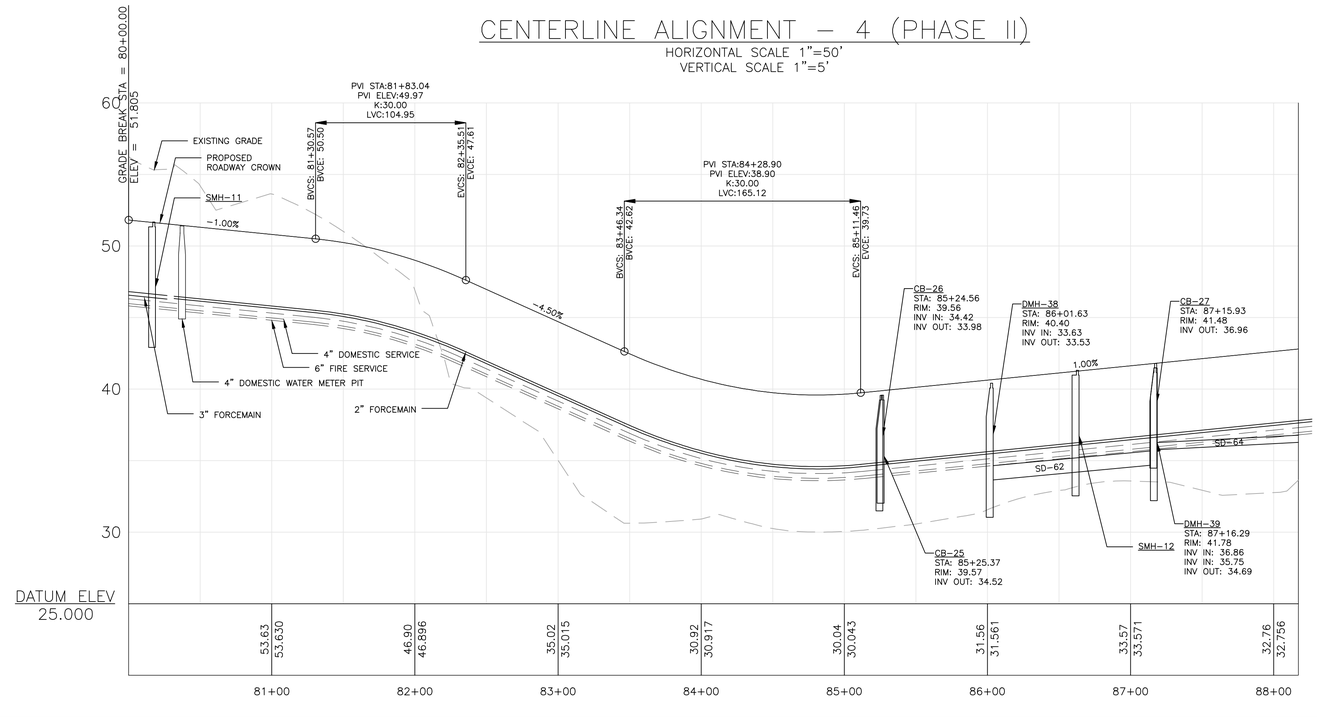
UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	–	6'	5'	4'	6'
WATER	6'	–	5'*	6'	3'
SEWER	5'	5'*	–	5'	10'
GAS	4'	6'	5'	–	3'
STORMWATER	6'	3'	10'	3'	–

*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE; OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.



CENTERLINE ALIGNMENT – 4 (PHASE II)

HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'



STORM DRAIN SCHEDULE

NAME	SIZE	LENGTH	SLOPE
SD-60	12"	19.99'	0.50%
SD-61	18"	29.78'	10.01%
SD-62	12"	106.08'	1.00%
SD-63	6"	9.99'	1.00%
SD-64	6"	147.72'	0.51%
SD-65	18"	41.86'	6.04%

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PWD REVIEW	OJD 10/23/17
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: ROAD PROFILE – 4
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC

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ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE: 1079_CIVIL
JN: 1079
SCALE: SEE PLAN
DESIGNED BY: WHS
DRAWN BY: OJD
CHECKED BY: WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11415
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-23

GENERAL NOTES:

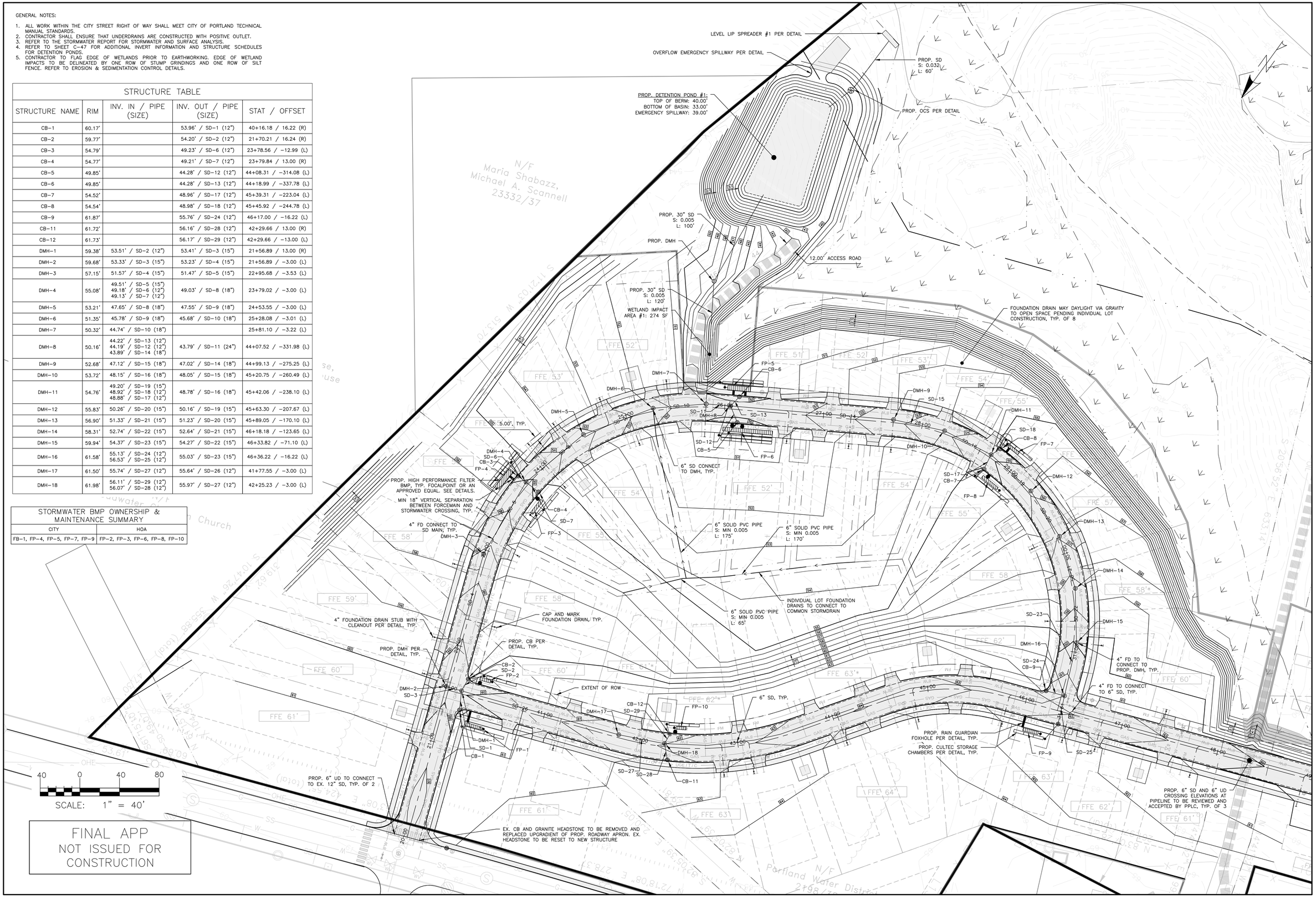
1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET.
3. REFER TO THE STORMWATER REPORT FOR STORMWATER AND SURFACE ANALYSIS.
4. REFER TO SHEET C-47 FOR ADDITIONAL INVERT INFORMATION AND STRUCTURE SCHEDULES FOR DETENTION PONDS.
5. CONTRACTOR TO FLAG EDGE OF WETLANDS PRIOR TO EARTHWORKING. EDGE OF WETLAND IMPACTS TO BE DELINEATED BY ONE ROW OF STUMP GRINDINGS AND ONE ROW OF SILT FENCE. REFER TO EROSION & SEDIMENTATION CONTROL DETAILS.

STRUCTURE TABLE

STRUCTURE NAME	RIM	INV. IN / PIPE (SIZE)	INV. OUT / PIPE (SIZE)	STAT / OFFSET
CB-1	60.17'		53.96' / SD-1 (12")	40+16.18 / 16.22 (R)
CB-2	59.77'		54.20' / SD-2 (12")	21+70.21 / 16.24 (R)
CB-3	54.79'		49.23' / SD-6 (12")	23+78.56 / -12.99 (L)
CB-4	54.77'		49.21' / SD-7 (12")	23+79.84 / 13.00 (R)
CB-5	49.85'		44.28' / SD-12 (12")	44+08.31 / -314.08 (L)
CB-6	49.85'		44.28' / SD-13 (12")	44+18.99 / -337.78 (L)
CB-7	54.52'		48.96' / SD-17 (12")	45+39.31 / -223.04 (L)
CB-8	54.54'		48.98' / SD-18 (12")	45+45.92 / -244.78 (L)
CB-9	61.87'		55.76' / SD-24 (12")	46+17.00 / -16.22 (L)
CB-11	61.72'		56.16' / SD-28 (12")	42+29.66 / 13.00 (R)
CB-12	61.73'		56.17' / SD-29 (12")	42+29.66 / -13.00 (L)
DMH-1	59.38'	53.51' / SD-2 (12")	53.41' / SD-3 (15")	21+56.89 / 13.00 (R)
DMH-2	59.68'	53.33' / SD-3 (15")	53.23' / SD-4 (15")	21+56.89 / -3.00 (L)
DMH-3	57.15'	51.57' / SD-4 (15")	51.47' / SD-5 (15")	22+95.68 / -3.53 (L)
DMH-4	55.08'	49.51' / SD-5 (15") 49.18' / SD-6 (12") 49.13' / SD-7 (12")	49.03' / SD-8 (18")	23+79.02 / -3.00 (L)
DMH-5	53.21'	47.65' / SD-8 (18")	47.55' / SD-9 (18")	24+53.55 / -3.00 (L)
DMH-6	51.35'	45.78' / SD-9 (18")	45.68' / SD-10 (18")	25+28.08 / -3.01 (L)
DMH-7	50.32'	44.74' / SD-10 (18")		25+81.10 / -3.22 (L)
DMH-8	50.16'	44.22' / SD-13 (12") 44.19' / SD-12 (12") 43.89' / SD-14 (18")	43.79' / SD-11 (24")	44+07.52 / -331.98 (L)
DMH-9	52.68'	47.12' / SD-15 (18")	47.02' / SD-14 (18")	44+99.13 / -275.25 (L)
DMH-10	53.72'	48.15' / SD-16 (18")	48.05' / SD-15 (18")	45+20.75 / -260.49 (L)
DMH-11	54.76'	49.20' / SD-19 (15") 48.92' / SD-18 (12") 48.88' / SD-17 (12")	48.78' / SD-16 (18")	45+42.06 / -238.10 (L)
DMH-12	55.83'	50.26' / SD-20 (15")	50.16' / SD-19 (15")	45+63.30 / -207.67 (L)
DMH-13	56.90'	51.33' / SD-21 (15")	51.23' / SD-20 (15")	45+89.05 / -170.10 (L)
DMH-14	58.31'	52.74' / SD-22 (15")	52.64' / SD-21 (15")	46+18.18 / -123.65 (L)
DMH-15	59.94'	54.37' / SD-23 (15")	54.27' / SD-22 (15")	46+33.82 / -71.10 (L)
DMH-16	61.58'	55.13' / SD-24 (12") 56.53' / SD-25 (12")	55.03' / SD-23 (15")	46+36.22 / -16.22 (L)
DMH-17	61.50'	55.74' / SD-27 (12")	55.64' / SD-26 (12")	41+77.55 / -3.00 (L)
DMH-18	61.98'	56.11' / SD-29 (12") 56.07' / SD-28 (12")	55.97' / SD-27 (12")	42+25.23 / -3.00 (L)

STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY

CITY	HOA
FB-1, FP-4, FP-5, FP-7, FP-9	FP-2, FP-3, FP-6, FP-8, FP-10



FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: GRADING & DRAINAGE PLAN – PHASE 3

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=40'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE — WILLIAM H. SAVAGE — No. 11411 — 11-21-17 — REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-31

GENERAL NOTES:

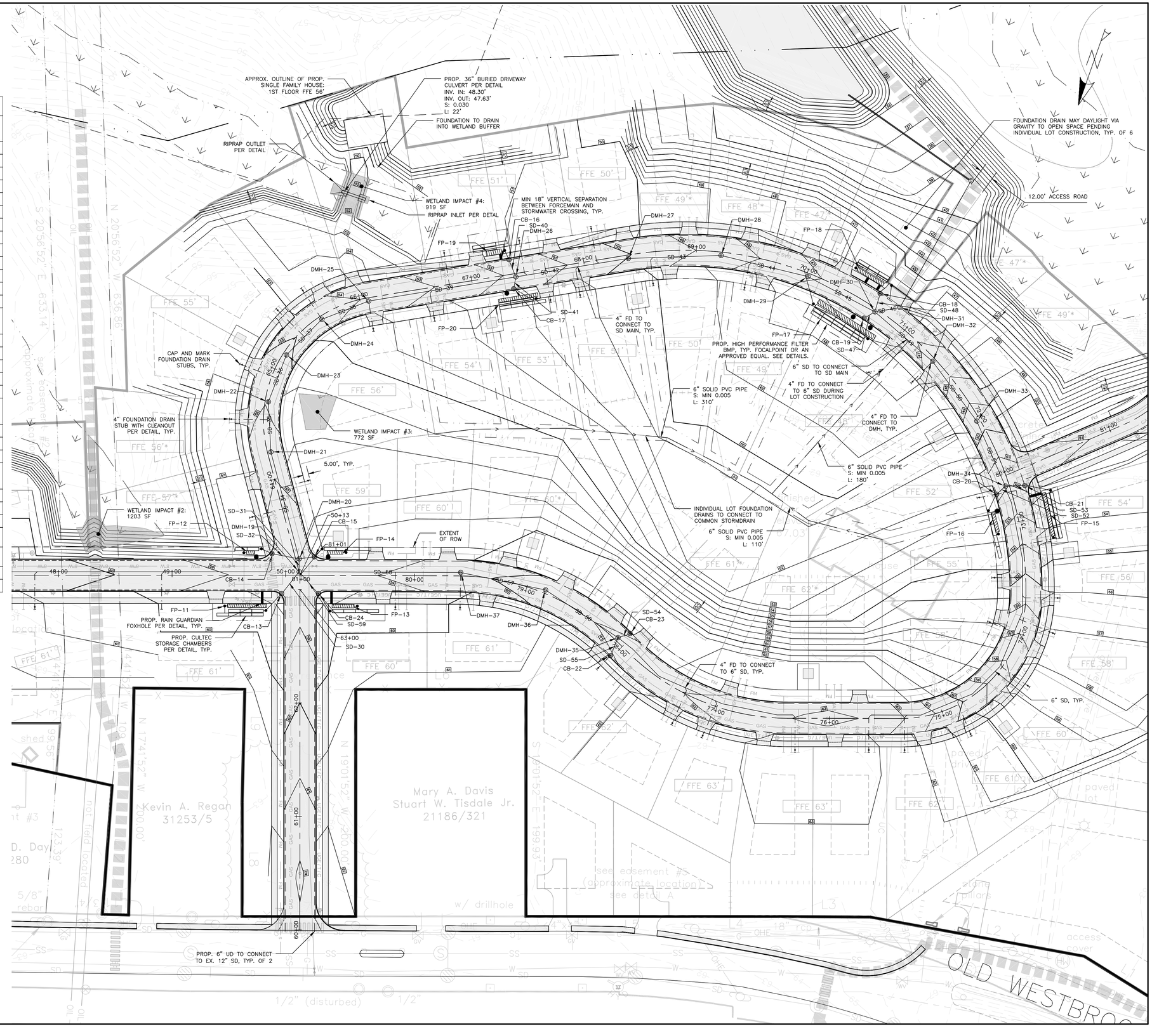
1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET.
3. REFER TO THE STORMWATER REPORT FOR STORMWATER AND SURFACE ANALYSIS.
4. REFER TO SHEET C-47 FOR ADDITIONAL INVERT INFORMATION AND STRUCTURE SCHEDULES FOR DETENTION PONDS.
5. CONTRACTOR TO FLAG EDGE OF WETLANDS PRIOR TO EARTHWORKING. EDGE OF WETLAND IMPACTS TO BE DELINEATED BY ONE ROW OF STUMP GRINDINGS AND ONE ROW OF SILT FENCE. REFER TO EROSION & SEDIMENTATION CONTROL DETAILS.

STRUCTURE TABLE

STRUCTURE NAME	RIM	INV. IN / PIPE (SIZE)	INV. OUT / PIPE (SIZE)	STAT / OFFSET
CB-13	58.76'		51.94' / SD-30 (12")	62+96.38 / -16.22 (L)
CB-14	58.76'		52.57' / SD-32 (12")	-
CB-15	58.33'		52.08' / SD-33 (12")	80+88.43 / 16.19 (R)
CB-16	51.49'		45.92' / SD-40 (12")	67+35.31 / -13.00 (L)
CB-17	51.49'		45.92' / SD-41 (12")	67+35.31 / 13.00 (R)
CB-18	46.17'		40.61' / SD-48 (12")	70+64.18 / -13.00 (L)
CB-19	46.18'		40.61' / SD-47 (12")	70+64.18 / 13.00 (R)
CB-20	51.79'		46.23' / SD-52 (12")	72+71.26 / 13.00 (R)
CB-21	51.79'		46.23' / SD-53 (12")	72+71.26 / -12.99 (L)
CB-22	60.92'		55.36' / SD-55 (12")	78+01.79 / -12.97 (L)
CB-23	60.90'		55.34' / SD-54 (12")	78+03.17 / 13.01 (R)
CB-24	58.76'		52.12' / SD-59 (12")	62+96.26 / 16.23 (R)
DMH-19	58.27'		52.71' / SD-31 (18")	63+15.70 / 0.04 (R)
DMH-20	58.02'	52.01' / SD-33 (12") 52.45' / SD-32 (12") 52.45' / SD-31 (18")	51.91' / SD-34 (24")	63+26.71 / 3.00 (R)
DMH-21	56.55'	50.45' / SD-34 (24")	50.35' / SD-35 (24")	64+24.19 / 3.00 (R)
DMH-22	55.89'	49.80' / SD-35 (24")	49.70' / SD-36 (24")	64+69.94 / 3.00 (R)
DMH-23	55.18'	49.08' / SD-36 (24")	48.98' / SD-37 (24")	65+15.82 / 3.00 (R)
DMH-24	54.51'	48.41' / SD-37 (24")	48.31' / SD-38 (24")	65+61.70 / 3.00 (R)
DMH-25	53.81'	47.73' / SD-38 (24")	47.63' / SD-39 (24")	66+07.44 / 3.00 (R)
DMH-26	51.72'	45.66' / SD-39 (24") 45.84' / SD-40 (12") 45.87' / SD-41 (12")	45.56' / SD-42 (24")	67+38.81 / 3.00 (R)
DMH-27	49.97'	43.91' / SD-42 (24")	43.81' / SD-43 (24")	68+39.18 / 3.00 (R)
DMH-28	48.52'	42.42' / SD-43 (24")	42.32' / SD-44 (24")	69+21.99 / 3.00 (R)
DMH-29	47.12'	41.04' / SD-44 (24")	40.94' / SD-45 (24")	70+01.62 / 3.02 (R)
DMH-30	46.48'	40.05' / SD-45 (24") 40.56' / SD-47 (12") 40.53' / SD-48 (12")	39.95' / SD-46 (36")	70+69.23 / 3.00 (R)
DMH-31	46.25'	40.32' / SD-46 (36")		70+84.58 / -13.00 (L)
DMH-32	47.36'	41.49' / SD-50 (18")	41.39' / SD-49 (18")	71+36.99 / 3.00 (R)
DMH-33	49.55'	43.99' / SD-51 (18")	43.89' / SD-50 (18")	72+03.25 / 3.00 (R)
DMH-34	51.91'	46.91' / SD-52 (12") 46.16' / SD-53 (12")	46.00' / SD-51 (18")	72+66.61 / 3.49 (R)
DMH-35	61.15'	55.27' / SD-55 (12") 55.28' / SD-54 (12")	55.17' / SD-56 (15")	78+08.11 / 3.01 (R)
DMH-36	60.40'	54.79' / SD-56 (15")	54.69' / SD-57 (15")	78+83.83 / 3.00 (R)
DMH-37	59.64'	54.07' / SD-57 (15")	53.97' / SD-58 (15")	79+59.54 / 3.01 (R)

STORMWATER BMP OWNERSHIP & MAINTENANCE SUMMARY

CITY	HOA
FB-11, FP-12, FP-13, FP-15, FP-18, FP-19	FP-14, FP-16, FP-17, FP-20



40 0 40 80

SCALE: 1" = 40'

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: GRADING & DRAINAGE PLAN - PHASE I

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=40'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

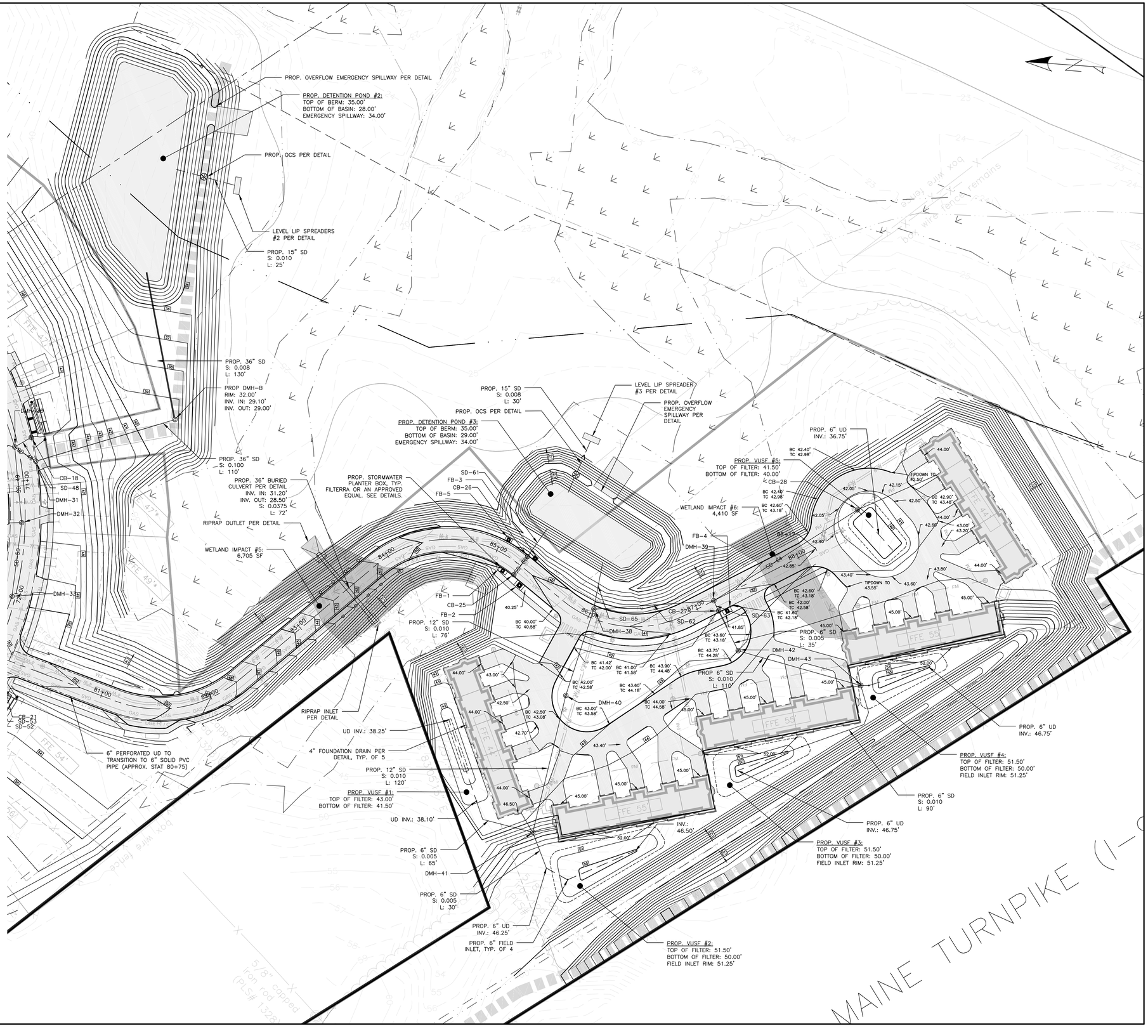
STATE OF MAINE WILLIAM H. SAVAGE No. 11415 11-21-17 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-32

GENERAL NOTES:

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET.
3. REFER TO THE STORMWATER REPORT FOR STORMWATER AND SURFACE ANALYSIS.
4. REFER TO SHEET C-47 FOR ADDITIONAL INVERT INFORMATION AND STRUCTURE SCHEDULES FOR DETENTION PONDS.
5. CONTRACTOR TO FLAG EDGE OF WETLANDS PRIOR TO EARTHWORKING. EDGE OF WETLAND IMPACTS TO BE DELINEATED BY ONE ROW OF STUMP GRINDINGS AND ONE ROW OF SILT FENCE. REFER TO EROSION & SEDIMENTATION CONTROL DETAILS.

STRUCTURE TABLE				
STRUCTURE NAME	RIM	INV. IN / PIPE (SIZE)	INV. OUT / PIPE (SIZE)	STAT / OFFSET
CB-25	39.57'		34.52' / SD-60 (12")	85+25.35 / 9.90 (R)
CB-26	39.56'	34.42' / SD-60 (12")	33.98' / SD-61 (18")	85+24.54 / -10.07 (L)
CB-27	41.48'		36.96' / SD-63 (6")	87+15.91 / 9.99 (R)
CB-28	41.50'	36.50' / (6")	36.40' / (6")	-
DMH-38	40.41'	33.63' / SD-62 (12")	33.53' / SD-65 (18")	86+01.61 / -7.81 (L)
DMH-39	41.78'	36.86' / SD-63 (6") 36.20' / SD-64 (6")	34.69' / SD-62 (12")	87+16.27 / 0.00 ()
DMH-40	42.75'	36.50' / (12")	46.25' / (6")	-
DMH-41	49.00'	44.75' / (6") 37.80' / (6")	37.70' / (12")	-
DMH-42	43.25'	40.10' / (6")	40.00'' / (6")	-
DMH-43	51.00'	46.10' / (6") 46.10' / (6")	41.20' / (6")	-



40 0 40 80

SCALE: 1" = 40'

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
FINAL APP	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: GRADING & DRAINAGE PLAN - PHASE II

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN WITHOUT ACORN'S KNOWLEDGE AND CONSENT SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

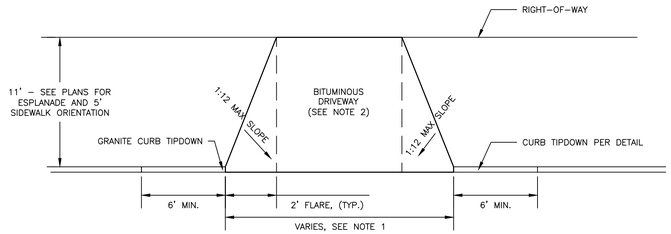
FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=40'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11411
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-33

NOTES:

1. REFER TO BITUMINOUS DRIVEWAY APRON DETAIL FOR APRON CROSS-SECTION

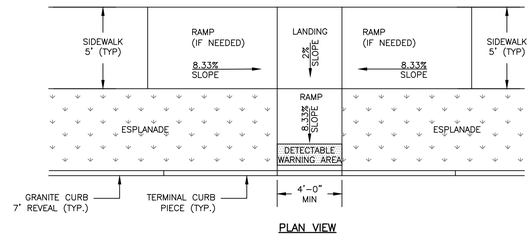


DRIVEWAY APRON LAYOUT DETAIL

NOT TO SCALE

NOTES:

1. ALL RAMPS SHALL COMPLY WITH ADA STANDARDS TO THE GREATEST EXTENT PRACTICAL.
2. GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.



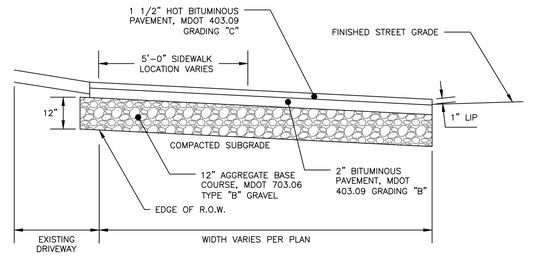
PLAN VIEW

PERPENDICULAR ADA RAMP LAYOUT FOR NARROW SIDEWALK WITH ESPLANADE

NOT TO SCALE

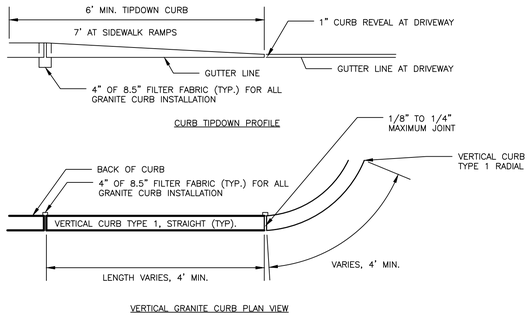
NOTES:

1. PROVIDE 2% CROSS-SLOPE MAXIMUM ALONG PEDESTRIAN ACCESS ROUTE (5' MINIMUM)

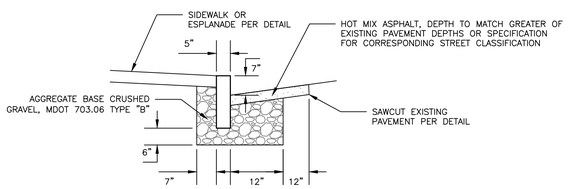


BITUMINOUS DRIVEWAY APRON DETAIL

NOT TO SCALE



VERTICAL GRANITE CURB PLAN VIEW



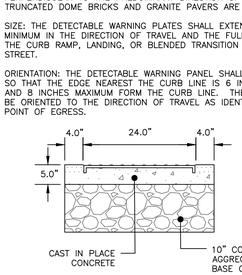
VERTICAL GRANITE CURB CROSS SECTION

VERTICAL GRANITE CURB AND TIPDOWN INSTALLATION

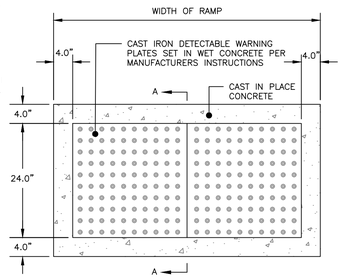
NOT TO SCALE

NOTES:

1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FORM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



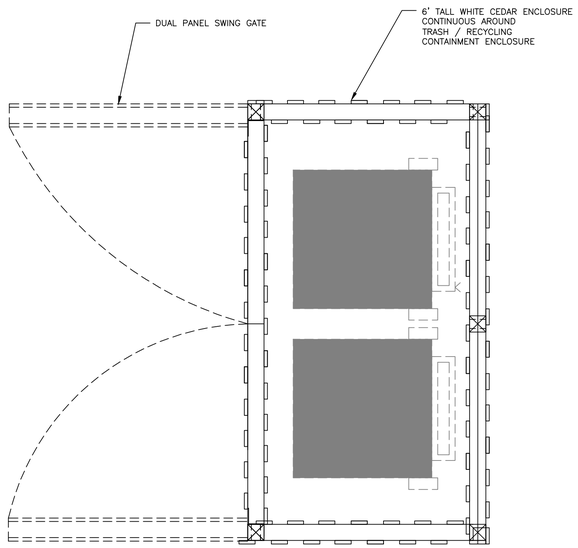
SECTION A–A



PLAN VIEW

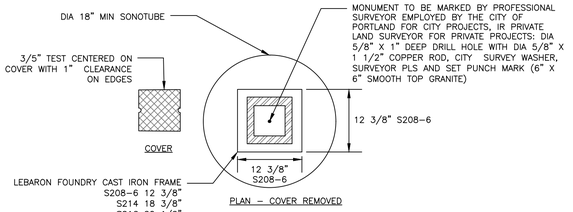
SIDEWALK RAMP DETECTABLE WARNING PANEL

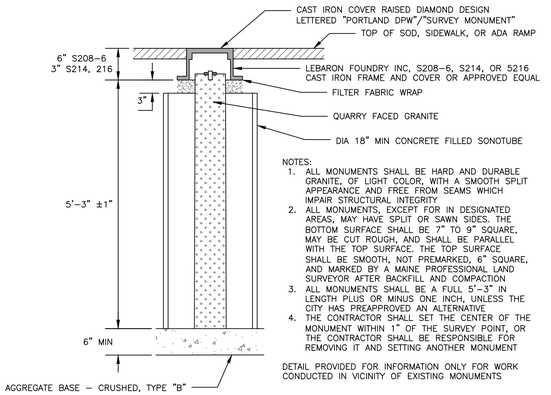
NOT TO SCALE



TRASH ENCLOSURE

NOT TO SCALE





NOTES:

1. ALL MONUMENTS SHALL BE HARD AND DURABLE GRANITE, OF LIGHT COLOR, WITH A SMOOTH SPLIT APPEARANCE AND FREE FROM SEAMS WHICH IMPAIR STRUCTURAL INTEGRITY
2. ALL MONUMENTS, EXCEPT FOR IN DESIGNATED AREAS, MAY HAVE SPLIT OR SAWN SIDES. THE BOTTOM SURFACE SHALL BE 7" TO 9" SQUARE, MAY BE CUT ROUGH, AND SHALL BE PARALLEL WITH THE TOP SURFACE. THE TOP SURFACE SHALL BE SMOOTH, NOT PREMARKED, 6" SQUARE, AND MARKED BY A MAINE PROFESSIONAL LAND SURVEYOR AFTER BACKFILL AND COMPACTION
3. ALL MONUMENTS SHALL BE A FULL 5'-3" IN LENGTH PLUS OR MINUS ONE INCH, UNLESS THE CITY HAS PREAPPROVED AN ALTERNATIVE
4. THE CONTRACTOR SHALL SET THE CENTER OF THE MONUMENT WITHIN 1" OF THE SURVEY POINT, OR THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING IT AND SETTING ANOTHER MONUMENT

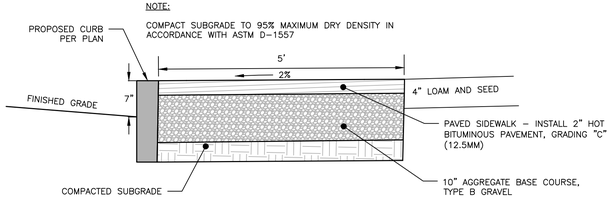
DETAIL PROVIDED FOR INFORMATION ONLY FOR WORK CONDUCTED IN VICINITY OF EXISTING MONUMENTS

GRANITE STREET MONUMENT

NOT TO SCALE

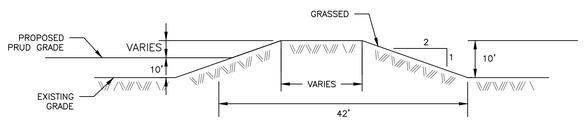
NOTE:

COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557



BITUMINOUS SIDEWALK DETAIL

NOT TO SCALE



EARTHEN SOUND BERM

NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/9/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: SITE DETAILS – 1

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND, MAINE 04102
(207) 775-2855

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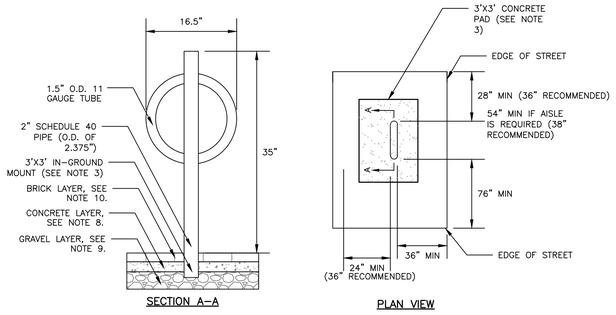
STATE OF MAINE WILLIAM BAVAGE No. 11415 11-21-17 REGISTERED PROFESSIONAL ENGINEER

FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

DRAWING NO.
C-40

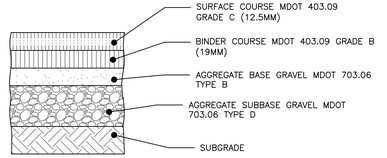
NOTES:

1. BICYCLE RACK SHALL HAVE CAPACITY FOR TWO BICYCLES.
2. BICYCLE RACK PARTS SHALL BE OF UNIFORM COLOR AND SHALL BE FINISHED IN ACCORDANCE WITH PRODUCT SPECIFICATION. PER CITY OF PORTLAND TECHNICAL STANDARDS ALL BIICYCLE RACKS WITHIN THE RIGHT-OF-WAY SHALL MATCH THE FURNITURE COLOR FOR THAT LOCATION AS DESCRIBED IN THE MUNICIPAL LIGHTING STANDARDS; IF NO DESIGNATED COLOR FOR THAT AREA EXISTS, BICYCLE RACKS SHALL BE BLACK.
3. BICYCLE RACK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S MOST RECENT INSTALLATION RECOMMENDATIONS, AND SHALL BE INSTALLED WITH AN IN-GROUND MOUNT UNLESS OTHERWISE APPROVED BY ENGINEER.
4. BICYCLE RACK SHALL BE "DERO BIKE HITCH", AS MANUFACTURED BY DERO BIKE RACKS.
5. MINIMUM OFFSETS SHOWN. MANUFACTURER'S RECOMMENDED OFFSETS SHALL BE ENFORCED WHERE POSSIBLE.
6. MINIMUM DISTANCE BETWEEN BICYCLE RACKS SHALL BE 24". RECOMMENDED DISTANCE BETWEEN BICYCLE RACKS SHALL BE 36".
7. ALL OFFSETS ARE FROM OUTSIDE EDGES OF ITEMS.
8. CONCRETE SHALL BE 4000 PSI @28 DAYS. BOTTOM OF CONCRETE SHALL BE AT TOP OF SIDEWALK GRAVEL ELEVATION. DEPTH VARIES APPROX. 4"-7".
9. GRAVEL LAYER SHALL BE INSTALLED IN ACCORDANCE WITH BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL, AND SHALL BE MAINEDOT 703.06 TYPE B.
10. TOP OF BRICK LAYER SHALL BE AT SAME ELEVATION IN ACCORDANCE WITH BRICK SIDEWALK DETAIL.



BICYCLE RACK DETAIL

NOT TO SCALE



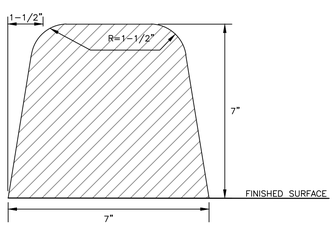
NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557
2. PRUD DRIVEWAY BUILT TO LOCAL ROAD DEPTH STANDARDS

	THICKNESS OF LAYERS
STANDARD	LAYERS
1-1/2"	SURFACE COURSE MDOT 403.09 GRADE C (12.5mm)
2"	BINDER COURSE MDOT 403.09 GRADE B (19mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B
15"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

BITUMINOUS PAVEMENT PROFILE: LOCAL ROADS

NOT TO SCALE

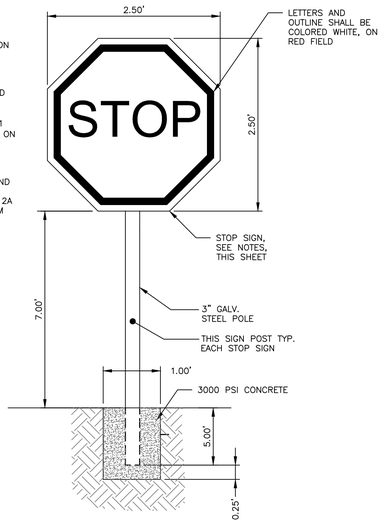


VERTICAL BITUMINOUS CURB - MOLD 1

NOT TO SCALE

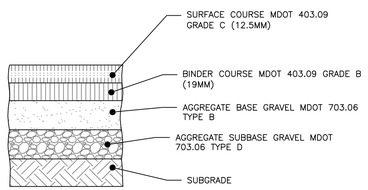
NOTES:

1. ALL ASPECTS OF STOP SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.
2. SIGN SHALL BE CONSTRUCTED AS SIGN R1-1 UNDER THE "REGULATORY SIGNS, BARRICADES, AND GATES" (R1 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.
3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



STOP SIGN DETAIL

NOT TO SCALE



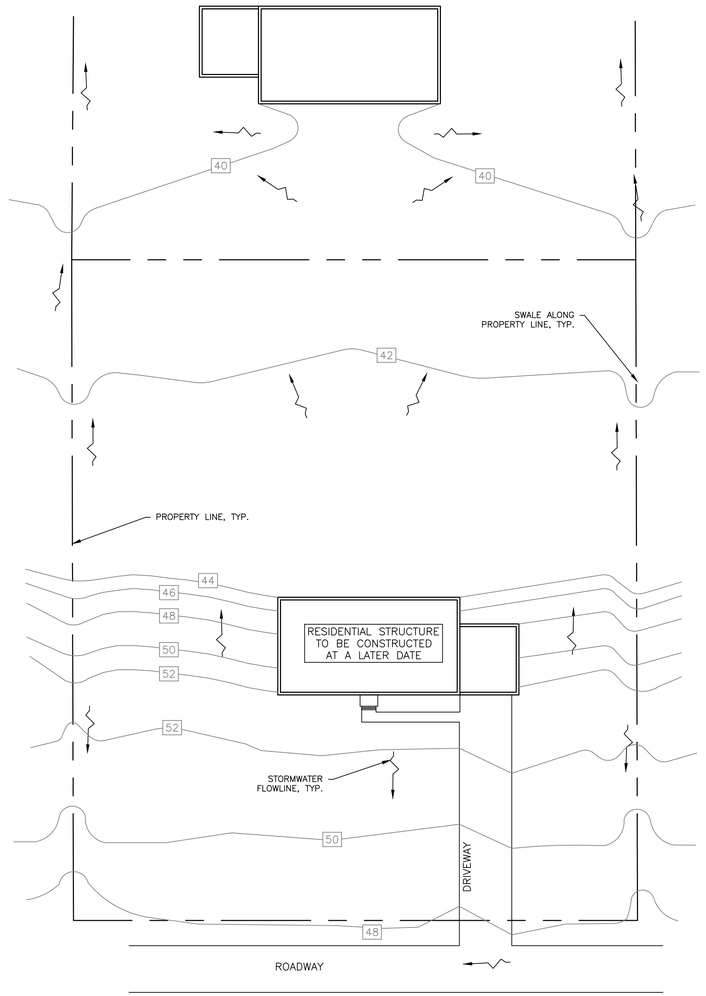
NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
2. COLLECTOR BITUMINOUS PAVEMENT PROFILE APPLIES ONLY WITHIN WESTBROOK STREET. R.O.W.
3. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF PORTLAND STANDARDS IN ADDITION TO MDOT STANDARDS.

	THICKNESS OF LAYERS
STANDARD	LAYERS
1-1/2"	SURFACE COURSE MDOT 403.09 GRADE C (12.5mm)
2-1/2"	BINDER COURSE MDOT 403.09 GRADE B (19mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B
18"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

CITY OF PORTLAND COLLECTOR BITUMINOUS PAVEMENT PROFILE: WESTBROOK STREET

NOT TO SCALE

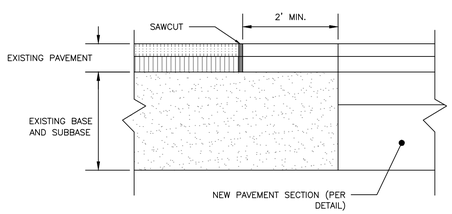


TYPICAL GRADING FOR RESIDENTIAL LOTS

NOT TO SCALE

NOTES:

1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. APPLY BITUMINOUS TACK COAT PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
2. THE NEW PAVEMENT SECTION SHALL MEET THE CITY OF PORTLAND ARTERIAL BITUMINOUS PAVEMENT SECTION DETAIL AT A MINIMUM OR THE THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



PAVEMENT SAWCUT DETAIL

NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/15/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: SITE DETAILS - 2

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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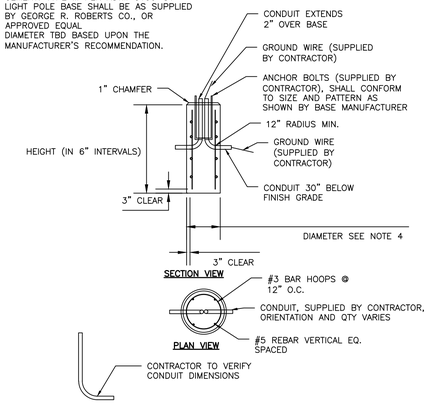
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11415
11-21-17
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-41

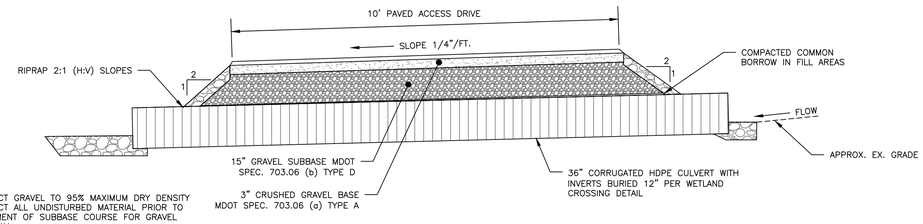
NOTES:

1. CONCRETE: 5000 PSI @ 28 DAYS
2. CEMENT: TYPE III PER ASTM C150-81
3. LIGHT POLE BASE SHALL BE AS SUPPLIED BY GEORGE R. ROBERTS CO., OR APPROVED EQUAL
4. DIAMETER TBD BASED UPON THE MANUFACTURER'S RECOMMENDATION.



LIGHT POLE BASE

NOT TO SCALE

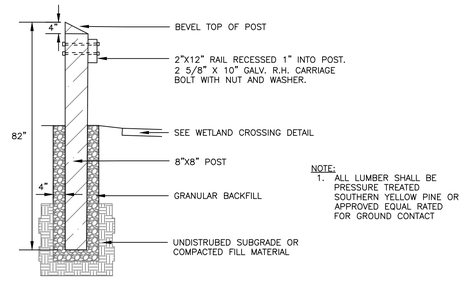


NOTES:

1. COMPACT GRAVEL TO 95% MAXIMUM DRY DENSITY
2. COMPACT ALL UNDISTURBED MATERIAL PRIOR TO PLACEMENT OF SUBBASE COURSE FOR GRAVEL DRIVEWAY

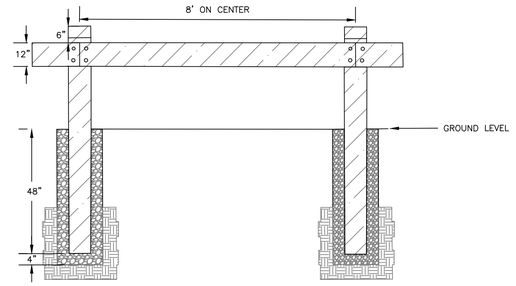
TYPICAL DRIVEWAY SECTION AT WETLAND CROSSING

NOT TO SCALE



NOTE:
1. ALL LUMBER SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE OR APPROVED EQUAL RATED FOR GROUND CONTACT

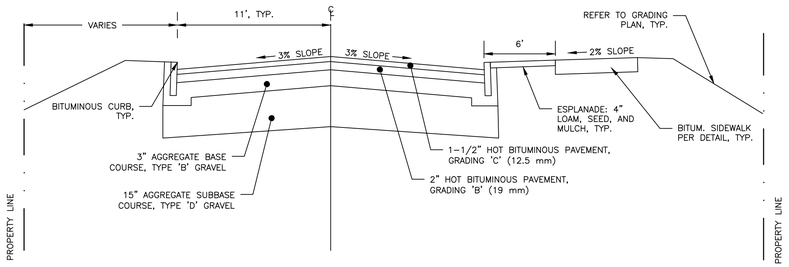
SIDE ELEVATION



FRONT ELEVATION

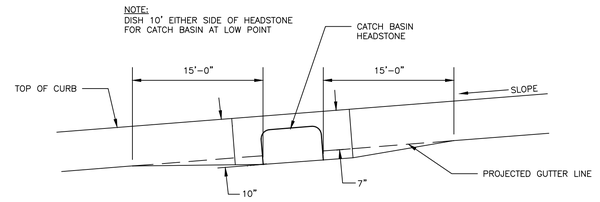
WOODEN GUARDRAIL DETAIL

NOT TO SCALE



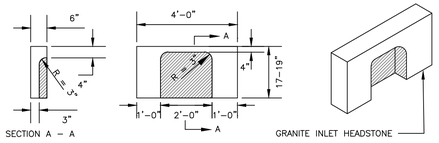
PRUD CROSS SECTION

NOT TO SCALE



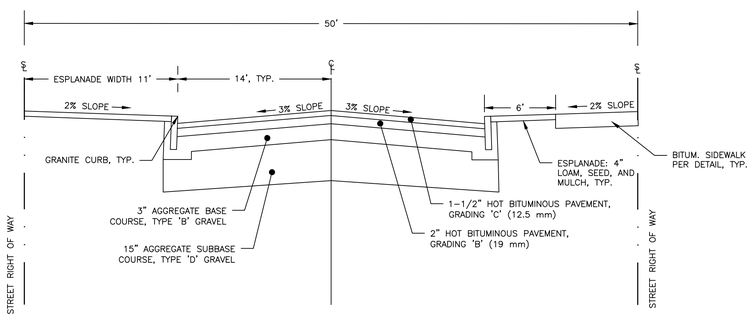
PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLET

NOT TO SCALE



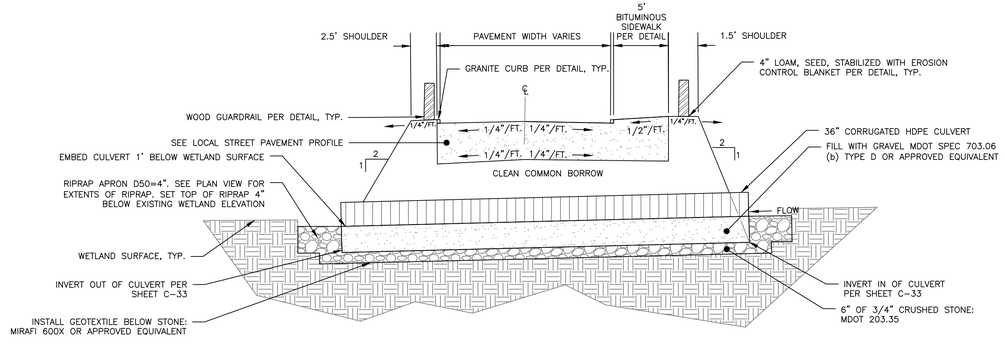
4' GRANITE HEADSTONE FOR CATCH BASIN INLET

NOT TO SCALE



LOCAL STREET CROSS SECTION: PROPOSED PUBLIC ROADS

NOT TO SCALE



TYPICAL PRUD DRIVEWAY SECTION AT WETLAND CROSSING

NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
CORPS REVIEW	WHS 10/31/17
DPW REVIEW	WHS 11/8/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: SITE DETAILS - 3

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH ST. PORTLAND, MAINE 04102
(207) 775-2855

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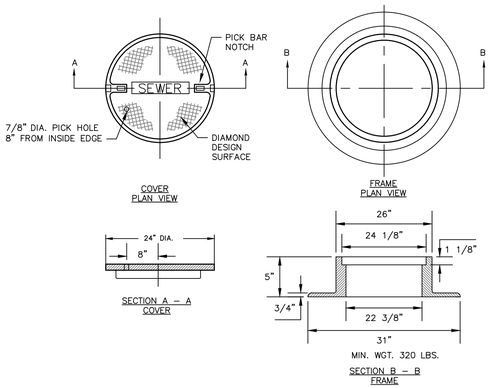
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11615
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-42

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

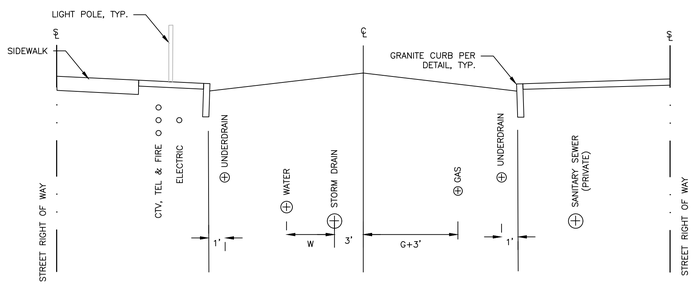
1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLD AND SHALL HAVE ONE ⅞" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVAL EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROFFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.



NOTES:

1. ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER
2. ALL SANITARY AND STORMWATER/DRAIN MANHOLE COVERS SHALL BE 24" x 5".
3. ALL SANITARY MANHOLE COVERS AND SHALL HAVE "SEWER" CAST INTO THE COVER.
4. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
5. APPROVED MANHOLE FRAMES:
   - 5.1. EAST JORDAN = 1690Z
   - 5.2. NEENAH = R-1496
   - 5.3. OR APPROVED EQUAL
6. APPROVED MANHOLE COVERS
   - 6.1. EAST JORDAN = 2160A
   - 6.2. NEENAH = R-1496
   - 6.3. OR APPROVED EQUAL

CAST IRON MANHOLE COVER AND FRAME
NOT TO SCALE



NOTES:

1. DEPTH OF SANITARY SEWER, STORM DRAIN AND WATER PER ROAD PROFILES.
2. DEPTH OF UNDERDRAIN SHALL BE 3'-6" FROM GUTTER LINE TO PIPE INVERT.
3. DEPTHS OF ELECTRIC, TELEPHONE, CABLE TELEVISION AND FIRE TO BE AT LEAST 36 INCHES BELOW FINISH GRADE. DEPTHS OF OTHER UTILITIES PER REQUIREMENTS OF APPLICABLE UTILITY COMPANY. WHEN TREES ARE PROPOSED FOR THE ESPLANADE, THE UTILITIES DESIGNATED FOR THAT LOCATION SHALL MAKE NECESSARY PROVISIONS.
4. APPLICABLE WARNING TAPE SHALL BE PLACES OVER EACH UTILITY.
5. RIGID PVC CONDUIT IS REQUIRED FOR STREET AND DRIVEWAY CROSSINGS AND OTHER PAVEMENT CROSSINGS MORE THAN 12 FEET IN LENGTH. CONDUITS CROSSING STREETS SHALL BE ENCASED IN CONCRETE.

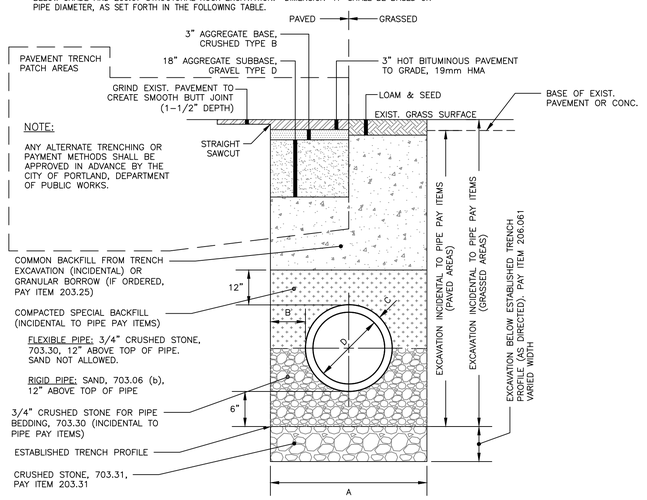
STREET CLASSIFICATION	R.O.W. WIDTH (FT.)	UTILITY LOCATION DIMENSIONS	
		W (FT.)	G (FT.)
LOCAL	50	5	5
COLLECTOR	60	7	7
ARTERIAL	66	8	8

UTILITY LOCATIONS IN STREETS
NOT TO SCALE

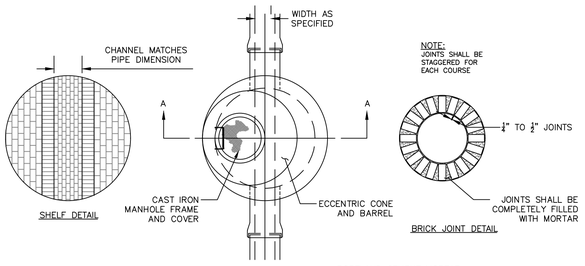
PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6	4
8	4
10	4
12	4
15	4
18	5
21	5
24	5
27	6
30	6
36	7
42	8
48	8
54	8
60	9

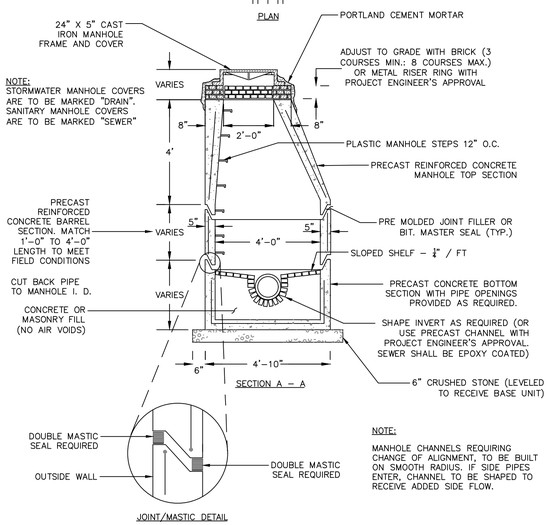
NOTES:

1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
4. DIMENSION "A" IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER ITEMS 203.25 GRANULAR BORROW, 203.31 CRUSHED STONE, 206.061 STRUCTURAL EARTH EXCAVATION, BELOW GRADE AND 206.07 STRUCTURAL ROCK EXCAVATION. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

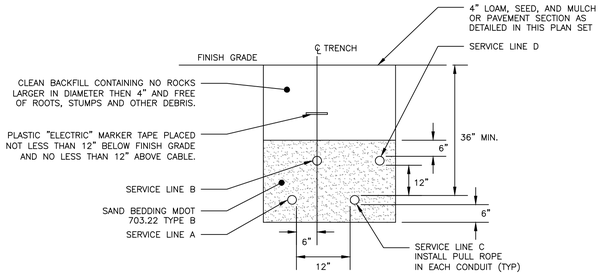


PIPE INSTALLATION DETAIL
NOT TO SCALE





PRECAST CONCRETE MANHOLE
NOT TO SCALE



CONDUIT TYPE				
SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
A	2-5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	2-4"	SCHEDULE 40 PVC	COMMUNICATION	–
C	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARE	IF REQUIRED
D	2-4"	SCHEDULE 40 PVC	CABLE	–

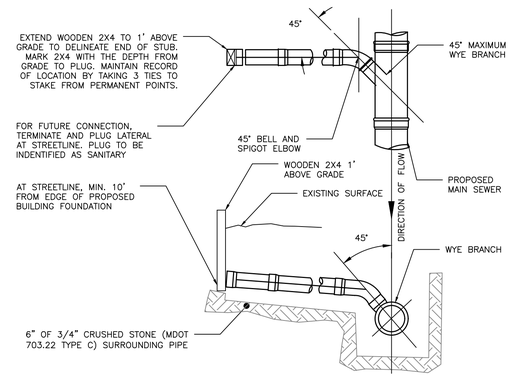
NOTES:

1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.

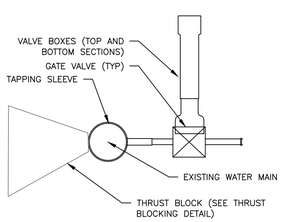
UTILITY TRENCH
NOT TO SCALE

NOTES:

1. LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
2. SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO HOUSEHOLD PLUMBING WITH ARCHITECTURAL CONTRACTOR
3. CONNECTION OF PROPOSED SEWER LATERAL TO HOUSEHOLD PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.



SEWER TEE/WYE CONNECTION DETAIL
NOT TO SCALE



SIDE VIEW

TAPPING SLEEVE AND VALVE
NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: UTILITY DETAILS – 1
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.

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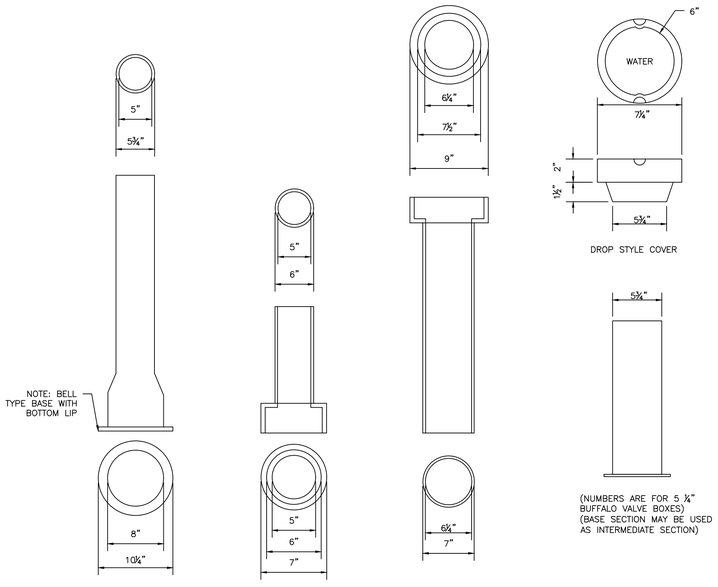
ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

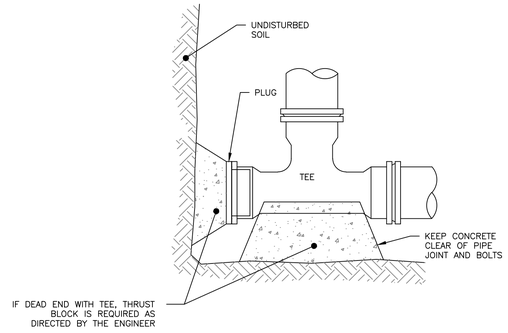
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE — WILLIAM SAVAGE — No. 11411 — 11-21-17 — REGISTERED PROFESSIONAL ENGINEER

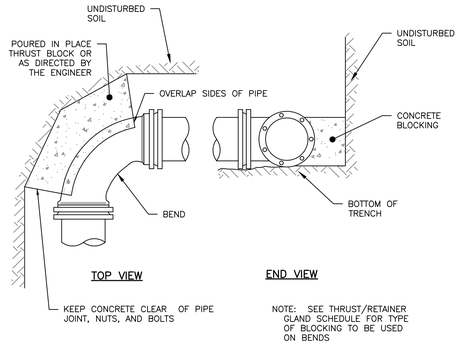
DRAWING NO.
C-43



VALVE BOX & COVER
NOT TO SCALE



END SECTION



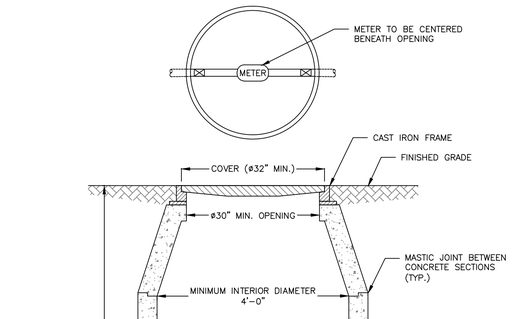
TOP VIEW

END VIEW

NOTE: SEE THRUST/RETAINER GLAND SCHEDULE FOR TYPE OF BLOCKING TO BE USED ON BENDS

REGULAR BEND

THRUST BLOCKING
NOT TO SCALE



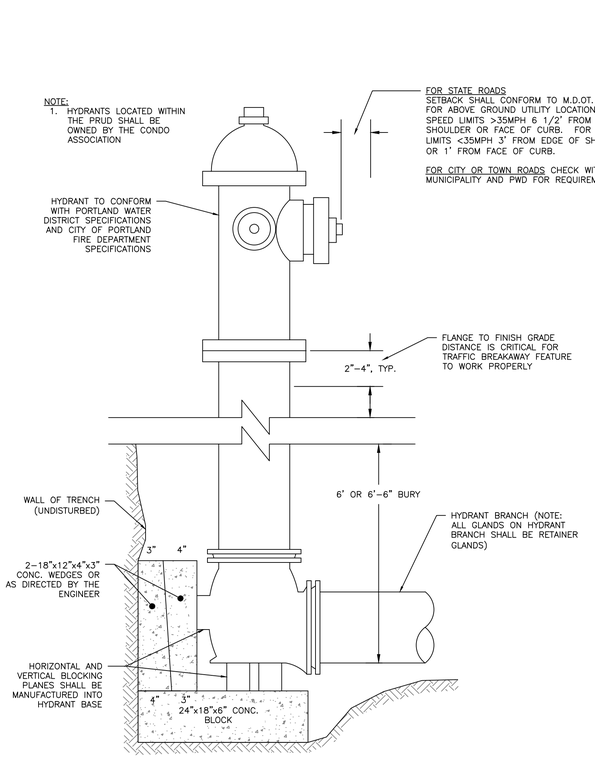
4" DOMESTIC WATER METER PIT
NOT TO SCALE

METER PIT AND COVER:

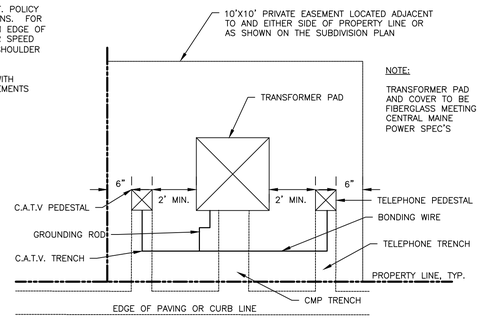
1. SPECIAL APPROVAL BY PWD IS REQUIRED, PRIOR TO CONSTRUCTION, FOR ALL PROPOSED METER PIT INSTALLATIONS.
2. BACKFLOW PREVENTION DEVICES MAY NOT BE INSTALLED WITHIN SMALL METER PITS.
3. FINAL METER PIT LAYOUT AND DESIGN SUBJECT TO PWD REVIEW AND APPROVAL.
4. METER PIT SHALL BE LOCATED ON PRIVATE PROPERTY BETWEEN 10' AND 20' FROM THE PROPERTY LINE UNLESS OTHERWISE APPROVED BY PWD.
5. THE METER PIT SHALL BE MADE OF PRECAST CONCRETE OF SUFFICIENT SIZE TO PROVIDE 5.5' MINIMUM GROUND COVER FORM FINISHED GRADE TO THE TOP OF THE SERVICE PIPE.
6. ALL SEAMS BETWEEN CONCRETE SECTIONS SHALL BE SEALED WITH MASTIC JOINT. ALL OPENINGS IN THE CONCRETE FOR SERVICE PIPING SHALL BE SEALED WITH A MODULAR SEAL (LINK-SEAL OR SIMILAR)
7. METER PIT INTERIOR MUST BE AT LEAST 48" IN DIAMETER. THE OPENING MUST BE AT LEAST 30" IN DIAMETER, WITH A CAST IRON FRAME. THE COVER SHALL BE CAST IRON OR STEEL, 32" MINIMUM IN DIAMETER, AND BE EITHER PERMANENTLY LABELED "WATER" OR HAVE NO LABEL. STEEL PLATE MATERIAL SHALL BE COATED WITH A RUST INHIBITOR PAINT.
8. WALL-MOUNTED LADDER RUNGS ARE NOT TO BE INSTALLED WITHIN METER PIT.
9. ALL PIPING INSIDE AND EXTENDING THROUGH THE METER PIT WILL BE MADE OF COPPER, WITH A MINIMUM OF 6" CLEARANCE FROM THE METER PIT FLOOR. USE BLOCKING AS NEEDED TO SUPPORT THE PIPE.
10. CUSTOMER SHALL ENSURE THE METER PIT AND COVER ARE PROPERLY RATED FOR TRAFFIC FLOW, IF APPLICABLE.

METER INSTALLATION:

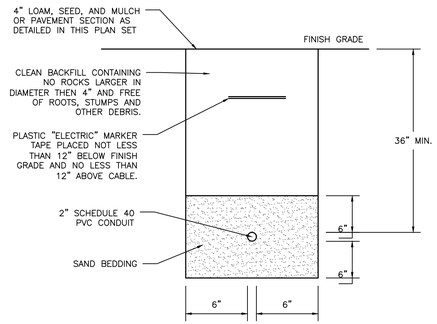
11. ONLY PWD PERSONNEL ARE AUTHORIZED TO INSTALL WATER METERS. PWD PERSONNEL ARE ADDITIONALLY AUTHORIZED TO OPERATE METER VALVES AS NEEDED FOR INSTALLATION AND MAINTENANCE.
12. PWD WILL SUPPLY THE WATER METER. ALL OTHER FITTINGS, INCLUDING A METER RESETTER FOR 1" OR SMALLER METERS, SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER.
13. FOR 1.5" AND 2" METERS, CUSTOMER WILL INSTALL A FLANGED METER SPOOL PIECE, SUPPLIED BY PWD AT NO ADDITIONAL CHARGE, PRIOR TO METER SET. THE METER SPOOL WILL BE MADE AVAILABLE FOR CUSTOMER PICKUP AT PWD CUSTOMER SERVICE, 225 DOUGLASS STREET, PORTLAND DURING NORMAL BUSINESS HOURS.
14. CUSTOMER WILL INSTALL TWO BALL VALVES AT LEAST 24" APART FOR METER INSTALLATION, ALLOWING FOR THE WATER METER TO BE CENTERED UNDER THE METER PIT OPENING. THE BALL VALVES SHALL BE SOLDERED IN PLACE.



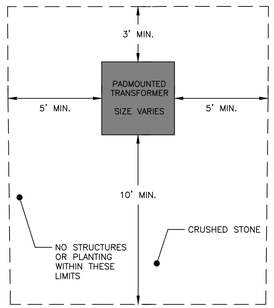
TYPICAL HYDRANT INSTALLATION DETAIL
NOT TO SCALE



TYPICAL TRANSFORMER DETAIL
NOT TO SCALE



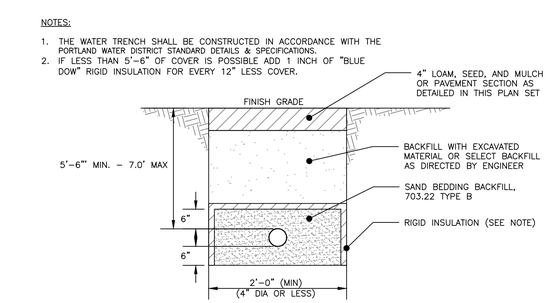
SECONDARY ELECTRICAL TRENCH
NOT TO SCALE



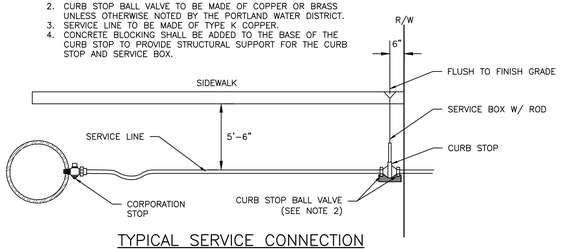
CMP TRANSFORMER SETBACKS
NOT TO SCALE

NOTES:

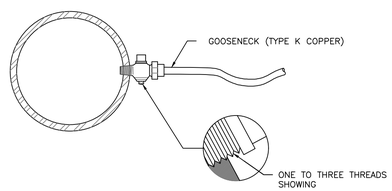
1. WHERE DANGER OF PLOW OR TRAFFIC DAMAGE EXISTS, BARRIERS CONSISTING OF CONCRETE FILLED 6 INCH IPS STEEL POSTS SET 4 FEET DEEP SHALL BE PROVIDED FOR PROTECTION (PRESSURE TREATED 6X6 INCH MIN. TIMBER POSTS MAY BE SUBSTITUTED IN RESIDENTIAL AREAS). POSTS SHALL NOT INTERFERE WITH TRANSFORMER ACCESS. GENERALLY THE POSTS SHALL BE LOCATED NEAR THE CORNERS OF THE TRANSFORMERS.
2. THE SETBACKS DEPICT CLEARANCES FROM OBSTRUCTIONS INCLUDING TREES, SHRUBS, AND FENCES.
3. THERE SHALL BE NO OPENINGS IN THE BUILDING WALL IN BACK OF, BESIDE, OR OVER THE TRANSFORMER UNLESS THE TRANSFORMER IS A MIN. OF 10 FEET FROM THE BUILDING.
4. SIDE CLEARANCES FROM DOORS OR WINDOWS SHALL NOT BE LESS THAN 10 FEET.
5. THERE SHALL BE A MIN. OF 10 FEET BETWEEN THE TRANSFORMER AND ANY GAS METER/REGULATOR, GAS RELIEF VALVE, GAS VENT DISCHARGE, GAS FILLING CONNECTION, OR PROPANE TANK. SOME INSURANCE COMPANIES MAY REQUIRE INCREASED CLEARANCES.
6. TRANSFORMER SHALL BE LOCATED FAR ENOUGH AWAY FROM BUILDING OVERHANGS SO THAT THEY WILL NOT BE SUBJECT TO DAMAGE BY FALLING ICE AND SNOW.
7. IF TRANSFORMER IS NOT INSTALLED IMMEDIATELY UPON THE INSTALLATION OF THE CABLE IN THE PAD, THE CONTRACTOR SHALL PROVIDE AND INSTALL A CMP APPROVED CONCRETE, STEEL, OR FIBERGLASS COVER OVER THE PAD OPENING TO ELIMINATE EXPOSURE OF THE CABLE.



WATER SERVICE TRENCH SECTION DETAIL
NOT TO SCALE



TYPICAL SERVICE CONNECTION
NOT TO SCALE



SERVICE TAP: 3/4" AND 1" C.C. THREAD
NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/15/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: UTILITY DETAILS - 2

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2855

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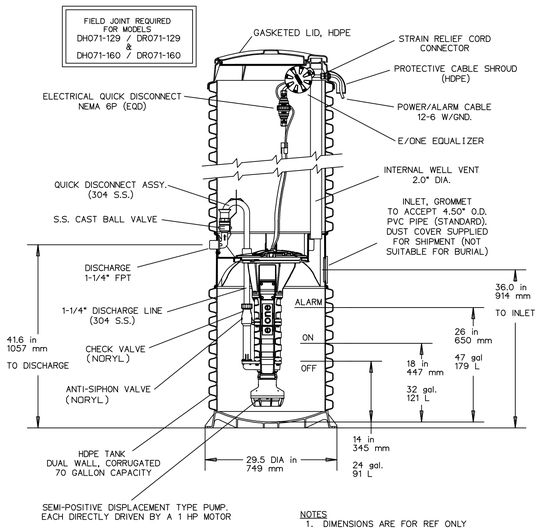
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE — WILLIAM SAVAGE — No. 11615 — 11-21-17 — REGISTERED PROFESSIONAL ENGINEER

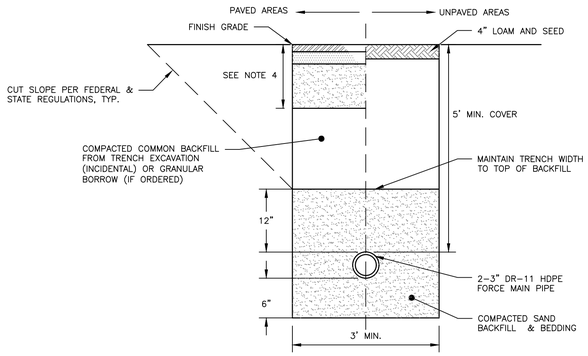
DRAWING NO.
C-44



NOTES
1. DIMENSIONS ARE FOR REF ONLY
2. ENVIRONMENT ONE DH071 STATION OR APPROVED EQUIVALENT
3. CONCRETE BALLAST MAY BE REQUIRED. SEE INSTALLATION INSTRUCTION FOR DETAILS

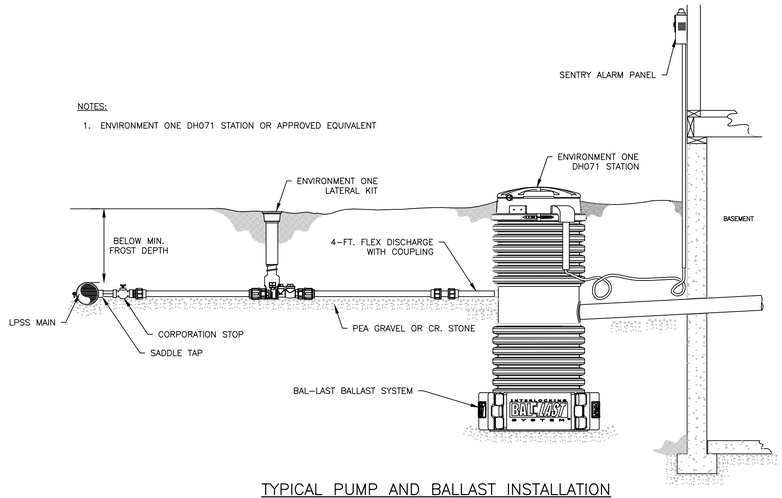
LOW-PRESSURE PUMP STATION DETAIL
NOT TO SCALE

NOTES:
1. PLACE TRENCH BACKFILL MATERIAL IN 12" LIFTS.
2. COMPACT MATERIAL LIFTS TO 92% OF MAX. DRY DENSITY.
3. PAVED AREAS SHALL MATCH TYPICAL ROAD SECTION WHEN LOCATED WITHIN PAVED AREAS.
4. WORK WITHIN NEW WESTBROOK STREET SHALL BE COORDINATED WITH THE DEPARTMENT OF PUBLIC WORKS DIRECTOR. PAVEMENT CUT IN WESTBROOK STREET SHALL BE RESTORED TO EXISTING CONDITIONS OR THE COLLECTOR PAVEMENT PROFILE, WHICHEVER IS MORE STRINGENT.

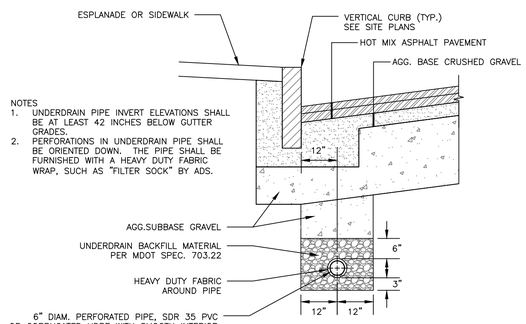


FORCE MAIN TRENCH
NOT TO SCALE

NOTES:
1. ENVIRONMENT ONE DH071 STATION OR APPROVED EQUIVALENT



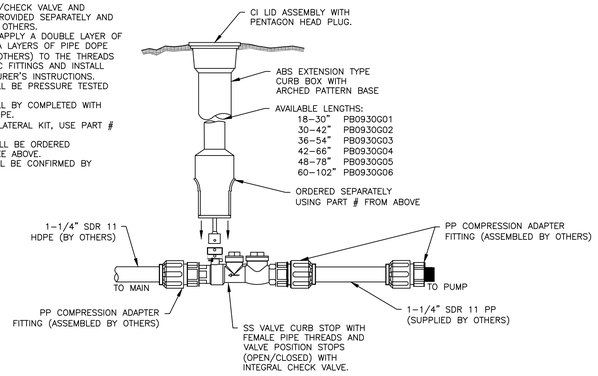
TYPICAL PUMP AND BALLAST INSTALLATION
NOT TO SCALE



NOTES
1. UNDERDRAIN PIPE INVERT ELEVATIONS SHALL BE AT LEAST 42 INCHES BELOW GUTTER GRADES.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN. THE PIPE SHALL BE FURNISHED WITH A HEAVY DUTY FABRIC WRAP, SUCH AS "FILTER SOCK" BY ADS.

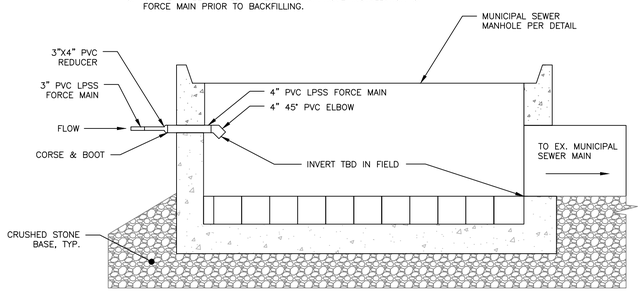
UNDERDRAIN INSTALLATION – TYPE "B"
NOT TO SCALE

NOTES:
1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY AND ASSEMBLED BY OTHERS.
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, A LAYERS OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER MANUFACTURER'S INSTRUCTIONS.
3. ASSEMBLY SHALL BE PRESSURE TESTED BY OTHERS.
4. ASSEMBLY SHALL BY COMPLETED WITH SDR11 HDPE PIPE.
5. TO ORDER SS LATERAL KIT, USE PART # NC0193GO.
6. CURB BOX SHALL BE ORDERED SEPARATELY, SEE ABOVE.
7. PIPE SIZE SHALL BE CONFIRMED BY OTHERS.



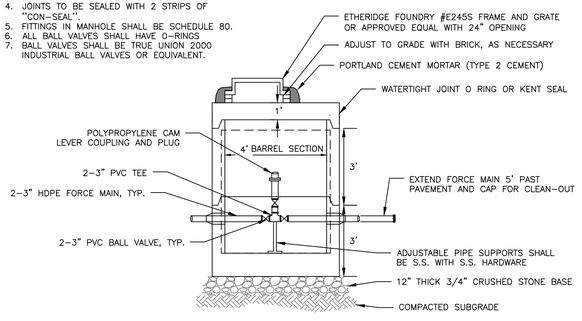
FORCE MAIN SHUT-OFF DETAIL
NOT TO SCALE

NOTES:
1. USE FLEXIBLE RUBBER BOOT WITH TWO STAINLESS STEEL BANDS.
2. LOCATION OF CORED HOLE IN MANHOLE SHOULD BE FIELD CHECKED PRIOR TO INSTALLATION TO ENSURE ADEQUATE SEPARATION FROM MANHOLE BARREL JOINT.
3. CITY ENGINEER SHALL INSPECT AND APPROVE INSTALLATION OF FORCE MAIN PRIOR TO BACKFILLING.

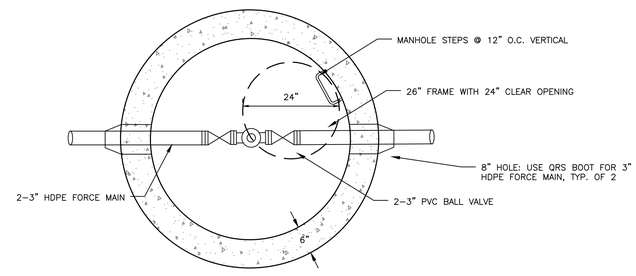


FORCE MAIN TERMINUS MANHOLE
NOT TO SCALE

NOTES:
1. CONCRETE TO HAVE A MIN. PSI OF 5,000 @ 28 DAYS.
2. CEMENT: TYPE III PER ASTM C150-81.
3. DESIGN LOADING: H-20 PER ASTM C-478.
4. JOINTS TO BE SEALED WITH 2 STRIPS OF "CON-SEAL".
5. FITTINGS IN MANHOLE SHALL BE SCHEDULE 80.
6. ALL BALL VALVES SHALL HAVE O-RINGS
7. BALL VALVES SHALL BE TRUE UNION 2000 INDUSTRIAL BALL VALVES OR EQUIVALENT.



SIDE PROFILE



PLAN VIEW

FORCE MAIN MANHOLE CLEAN-OUT
NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: UTILITY DETAILS - 3

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
ENGINEERING • PLANNING
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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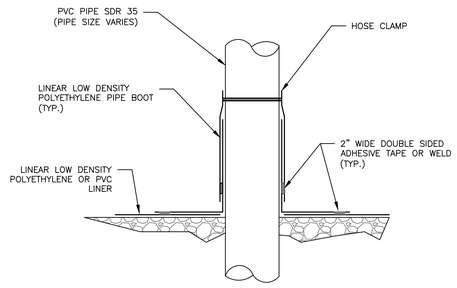
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

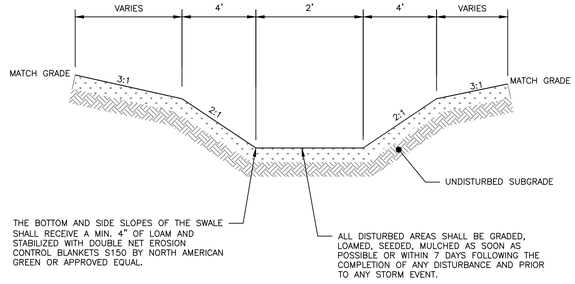
STATE OF MAINE WILLIAM H. SAVAGE No. 11411 11-21-17 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-45



TYPICAL STORMWATER BMP PIPE PENETRATION DETAIL

NOT TO SCALE

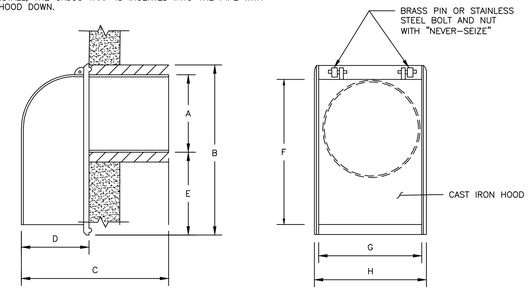


TYPICAL DRAINAGE SWALE CROSS-SECTION

NOT TO SCALE

NOTES:

1. INSTALL "CASCO TRAP" AS MANUFACTURED BY THE ETHERIDGE FOUNDRY, OR APPROVED EQUIVALENT AS SUPPLIED BY THE LEBARON FOUNDRY, MODEL #L, 202 "STANDARD CATCH BASIN TRAP". INSTALL TRAP IN ALL CATCH BASINS.
2. THE CASCO TRAP IS AN ETHERIDGE STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. TO INSTALL, THE CASCO TRAP IS INSERTED INTO THE PIPE WITH THE HOOD DOWN.



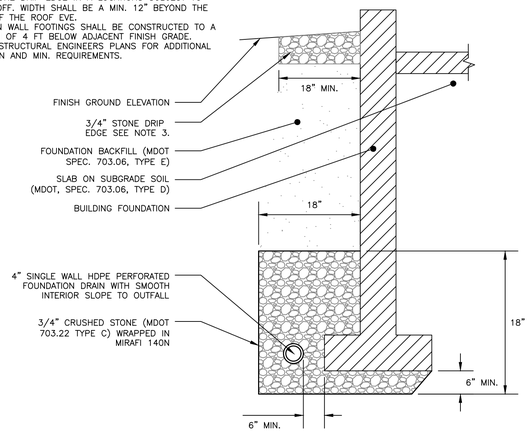
SIZE	A	B	C	D	E	F	G	H
6"	5 1/2	13 3/8	13 3/8	5 3/8	5 7/8	11 5/8	6 1/2	7 1/4
8"	7 1/2	15	15 3/8	5 1/2	5 3/8	13 3/4	8 3/4	9 3/8
10"	9 1/2	16	16 1/4	6	4 1/2	14 1/8	11 1/2	12 3/8
12"	11 1/2	17	22	8	3 1/2	17	12 1/2	13 3/8
15"	14 1/2	21 3/4	22 3/4	10 1/4	7	20 1/2	14 1/4	15 3/4

CASCO TRAP DETAIL

NOT TO SCALE

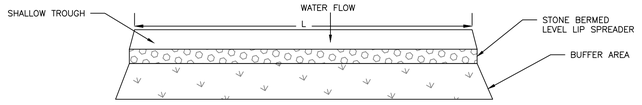
NOTES:

1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. INSTALL STONE DRIP EDGE IN A LOCATIONS SUBJECT TO ROOF RUNOFF. WIDTH SHALL BE A MIN. 12" BEYOND THE PROJECT OF THE ROOF EVE.
4. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.

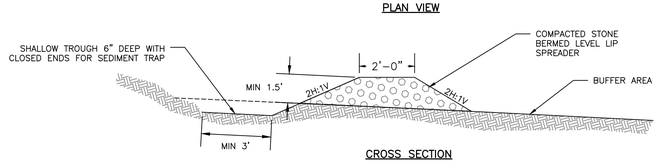


FOUNDATION DRAIN DETAIL

NOT TO SCALE



PLAN VIEW



CROSS SECTION

BERM STONE SIZE
% PASSING BY WEIGHT
100
84-100
63-83
42-55
8-12

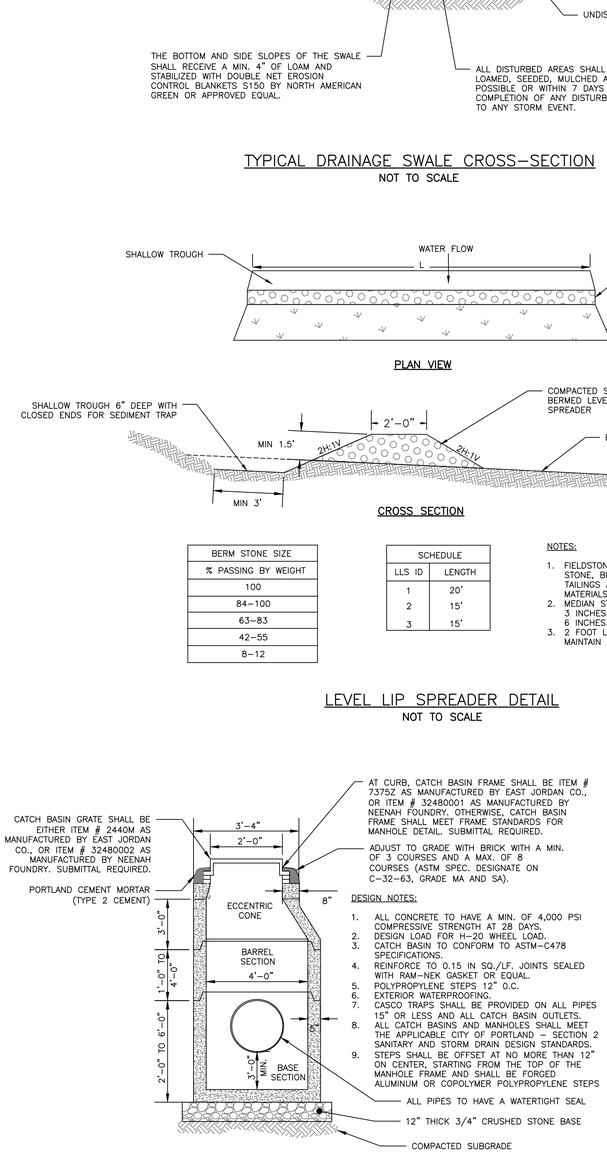
SCHEDULE	
LLS ID	LENGTH
1	20'
2	15'
3	15'

NOTES:

1. FIELDSTONE, ROUGH QUARRIED STONE, BLASTED LEDGE ROCK OR TAILINGS ARE ACCEPTABLE BERM MATERIALS.
2. MEDIAN STONE SIZE TO BE APPROX 3 INCHES AT A MAXIMUM SIZE OF 6 INCHES. SEE TABLE.
3. 2 FOOT LEVEL LIP SECTION SHALL MAINTAIN A FLAT SURFACE AT 0%.

LEVEL LIP SPREADER DETAIL

NOT TO SCALE

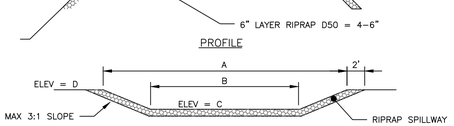


DESIGN NOTES:

1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.15 IN SQ./LF. JOINTS SEALED WITH RAM-NEK GASKET OR EQUAL.
5. POLYPROPYLENE STEPS 12" O.C.
6. EXTERIOR WATERPROOFING.
7. CASCO TRAPS SHALL BE PROVIDED ON ALL PIPES 15" OR LESS AND ALL CATCH BASIN OUTLETS.
8. ALL CATCH BASINS AND MANHOLES SHALL MEET THE APPLICABLE CITY OF PORTLAND - SECTION 2 SANITARY AND STORM DRAIN DESIGN STANDARDS.
9. STEPS SHALL BE OFFSET AT NO MORE THAN 12" ON CENTER, STARTING FROM THE TOP OF THE MANHOLE FRAME AND SHALL BE FORGED ALUMINUM OR COPOLYMER POLYPROPYLENE STEPS

4'-0" DIAMETER PRECAST CATCH BASIN/MANHOLE

NOT TO SCALE



PROFILE

CROSS SECTION

SCHEDULE				
	ITEM	POND 1	POND 2	POND 3
A	SPILLWAY WIDTH (TOP)	18'	18'	18'
B	SPILLWAY WIDTH (BOT.)	16.8'	16.5'	15'
C	SPILLWAY ELEV.	39.40'	34.50'	34.00'
D	TOP OF BERM ELEV.	40.00'	35.00'	35.00'

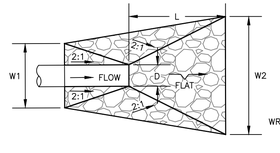
OVERFLOW SPILLWAY DETAIL

NOT TO SCALE

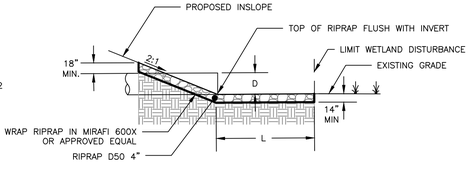
SCHEDULE - SINGLE CULVERT			
CULVERT DIAMETER (D)	LENGTH (L)	WIDTH (W1)	WIDTH (W2)
D	4.5D	3D	D+L
24"	9'	6'	11'
36"	13.5'	9'	16.5'

NOTES:

1. RIPRAP SHALL BE DESCRIBED BY M.D.O.T. 703.26 EXCEPT SIZE SHALL BE AS SHOWN.
2. REFERENCE FOR ADDITIONAL INFORMATION: BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL - CULVERT INLET/OUTLET PROTECTION.



PLAN VIEW



SECTION VIEW

RIPRAP OUTLET APRON DETAIL

NOT TO SCALE

FINAL APP
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/16/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: **DRAINAGE DETAILS**

PROJECT NAME: **STROUDWATER PRESERVE**

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

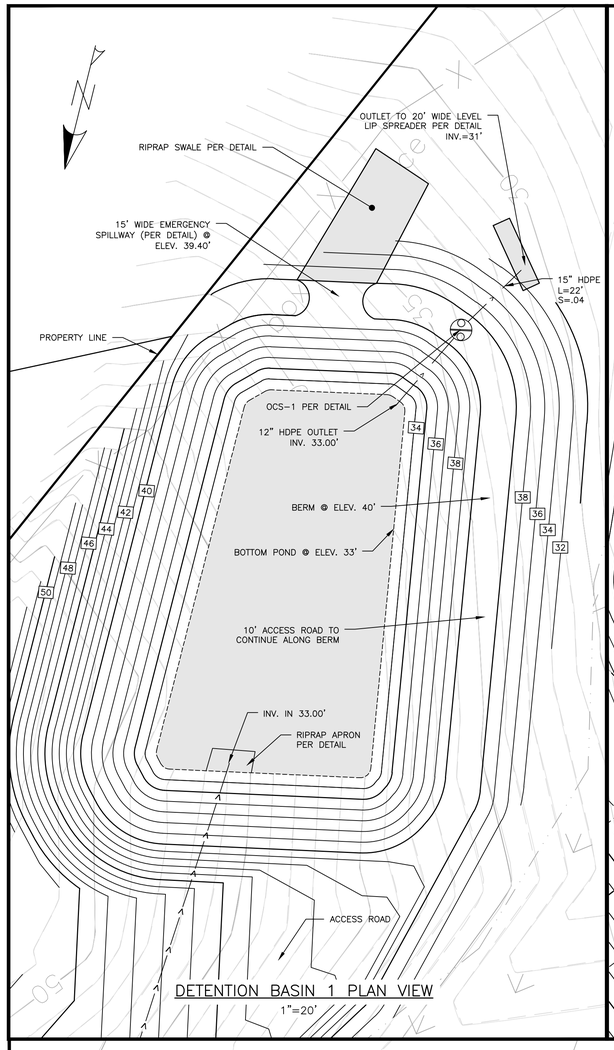
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OR AUTHORIZATION FROM ACORN ENGINEERING, INC. AND ANY MODIFICATION SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
158 DANFORTH STREET, PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

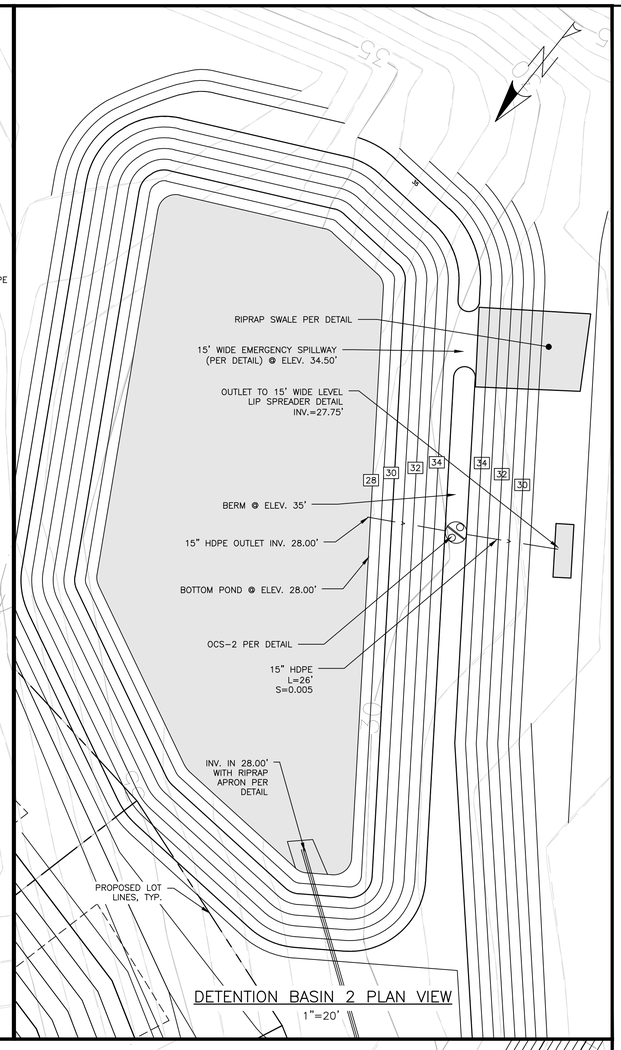
STATE OF MAINE
WILLIAM H. SAVAGE
No. 11411
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-46



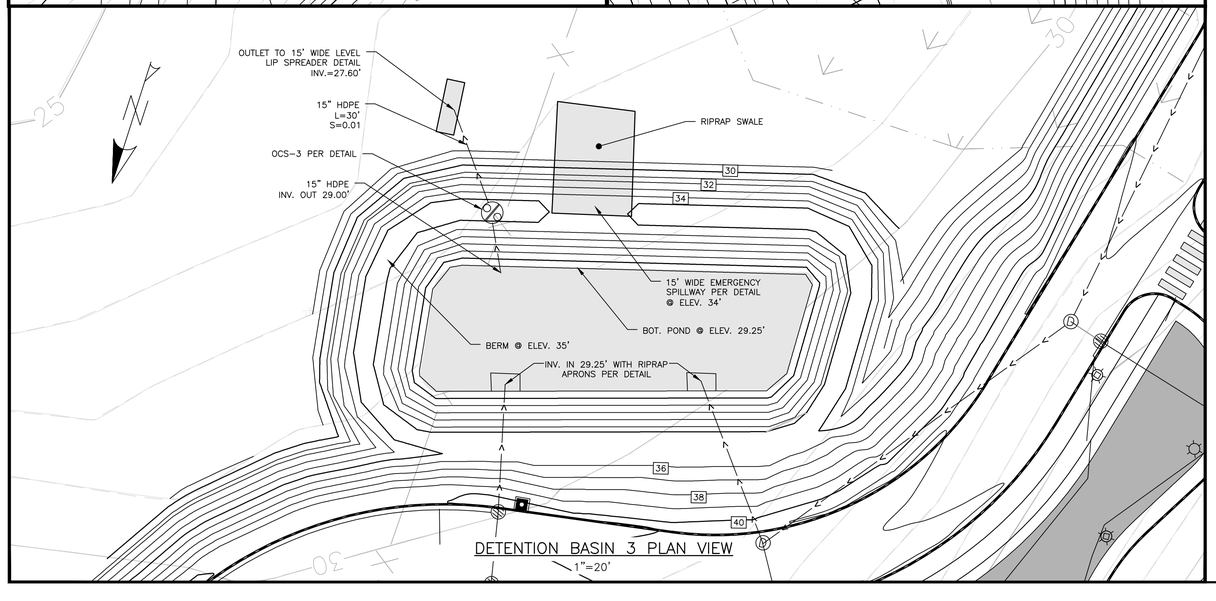
DETENTION BASIN 1 PLAN VIEW

1"=20'



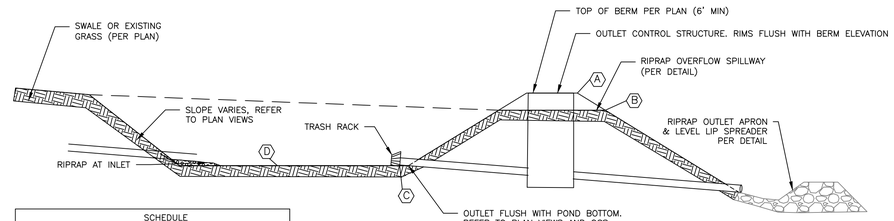
DETENTION BASIN 2 PLAN VIEW

1"=20'



DETENTION BASIN 3 PLAN VIEW

1"=20'



CROSS SECTION

SCHEDULE			
ITEM	POND 1	POND 2	POND 3
(A) TOP OF BERM	40'	35'	35'
(B) SPILLWAY INVERT	39.40'	34.50'	34.00'
(C) OUTLET INVERT	33.00'	28.00'	29.00'
(D) BOTTOM OF BASIN	33'	28'	29'

DESIGN NOTES:

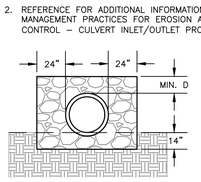
1. THE BASIN SURFACE SHALL BE STABILIZED WITH ONE OF THE FOLLOWING SEED MIX: REDTOP, INDIAN GRASS, SWITCHGRASS, OR DEERTONGUE.
2. BERM FILL SHALL COMPACTED TO ATLEAST 90% OF MAX DENSITY.

DETENTION BASIN DETAIL

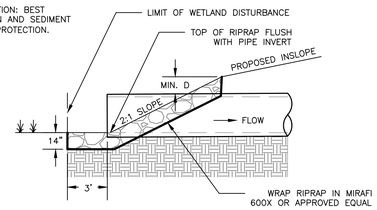
NOT TO SCALE

NOTES:

1. RIPRAP SHALL BE DESCRIBED BY M.D.O.T. 703.26 EXCEPT SIZE SHALL BE AS SHOWN.
2. REFERENCE FOR ADDITIONAL INFORMATION: BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL – CULVERT INLET/OUTLET PROTECTION.



FRONT VIEW



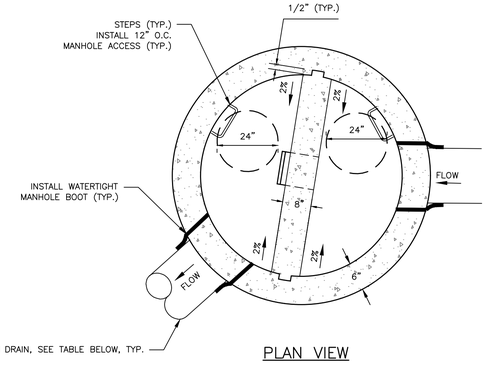
SECTION VIEW

RIPRAP INLET APRON DETAIL

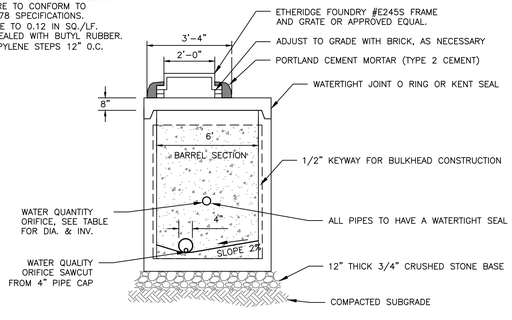
NOT TO SCALE

NOTES:

1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. STRUCTURE TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF.
5. JOINTS SEALED WITH BUTYL RUBBER.
6. POLYPROPYLENE STEPS 12" O.C.



PLAN VIEW



SIDE PROFILE

OUTLET CONTROL STRUCTURE

NOT TO SCALE

OUTLET CONTROL STRUCTURE SCHEDULE					
STRUCTURE	RIM	WATER QUALITY ORIFICE INV.	WATER QUANTITY ORIFICE INV.	INV. IN	INV. OUT
OCS-1	40'	33.00' (1.7")	33.95' (6") 36.25' (10")	33.00' (12" HDPE)	32.90' (12" HDPE)
OCS-2	35'	28.00' (2.2")	28.70' (6")	28.00' (15" HDPE)	27.90' (15" HDPE)
OCS-3	35'	29.10' (2")	30.95' (5")	29.25' (15" HDPE)	29.00' (15" HDPE)

FINAL APP.
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: DETENTION BASIN DETAILS

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11411
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-47

Calculation Summary					
Label	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
ROAD 1	1.34	4.1	0.3	4.47	13.67
ROAD 2	1.46	4.2	0.3	4.87	14.00
ROAD 3	1.44	4.5	0.3	4.80	15.00
ROAD 4	1.56	3.7	0.3	5.20	12.33
site	0.16	5.0	0.0	N.A.	N.A.

Luminaire Schedule (note fixture cataloge numbers are not complete)						
Type	**Symbol**	**Qty**	**Lum. Lumens**	**LLF**	**Lum. Watts**	**Description**
S3	→	58	5492	0.900	54	VPS-24L-55-3K7-3
S4W	→	7	5406	0.900	54	VPS-24L-55-3K7-4W

NOTES:
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE UNLESS OTHERWISE INDICATED.
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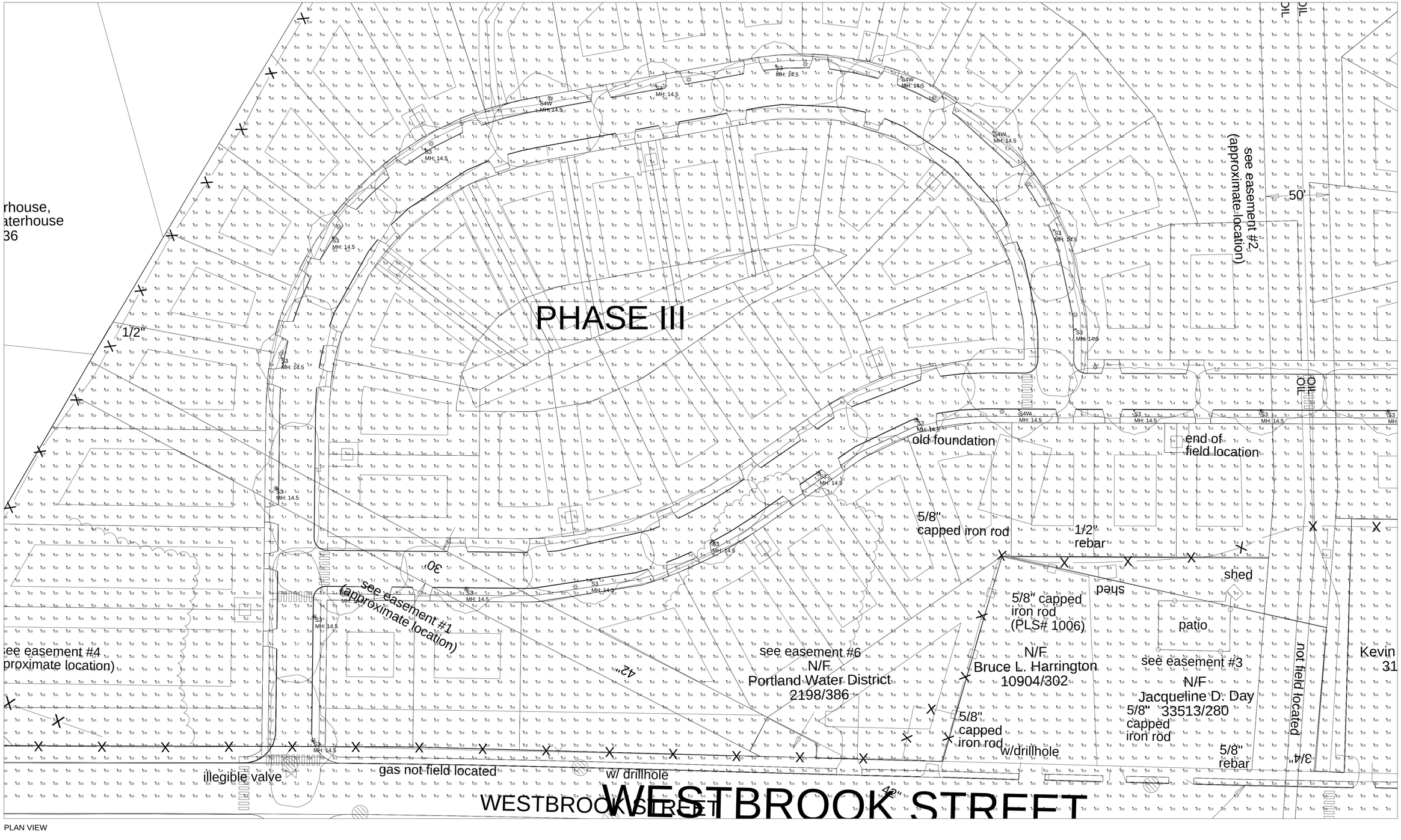
7) CHECK GRAPHIC SCALE. DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY OCCUR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.



PLAN VIEW

street ltg 11-21-17 rev 1.AGI

TITLE
1700 WESTBROOK ST
PORTLAND, ME
PARTIAL LIGHTING LAYOUT

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

GENERATED FOR:
ACORN ENGINEERING

SCALE NOT TO SCALE

Date:11/21/2017

Page 1 of 3

SWANEY LIGHTING ASSOCIATES, INC.

NOTICE: THIS DRAWING IS THE EXCLUSIVE PROPERTY OF SWANEY LIGHTING ASSOCIATES. ITS ACCEPTANCE CONSTITUTES AN AGREEMENT THAT THE DRAWING WILL BE TREATED AS CONFIDENTIAL. THIS DRAWING IS TO BE USED FOR NO PURPOSE OTHER THAN AS DETAILED INFORMATION CONCERNING THE OPERATION OF UNITS INDICATED. THIS DRAWING IS TO BE RETURNED UPON REQUEST AND IS NOT TO BE COMMUNICATED, DISCLOSED OR COPIED, EXCEPT AS EXPRESSLY AUTHORIZED BY SWANEY LIGHTING ASSOCIATES.
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Calculation Summary					
Label	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
ROAD 1	1.34	4.1	0.3	4.47	13.67
ROAD 2	1.46	4.2	0.3	4.87	14.00
ROAD 3	1.44	4.5	0.3	4.80	15.00
ROAD 4	1.56	3.7	0.3	5.20	12.33
site	0.16	5.0	0.0	N.A.	N.A.

Luminaire Schedule (note fixture cataloge numbers are not complete)						
Type	**Symbol**	**Qty**	**Lum. Lumens**	**LLF**	**Lum. Watts**	**Description**
S3	→	58	5492	0.900	54	VPS-24L-55-3K7-3
S4W	→	7	5406	0.900	54	VPS-24L-55-3K7-4W

NOTES:
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
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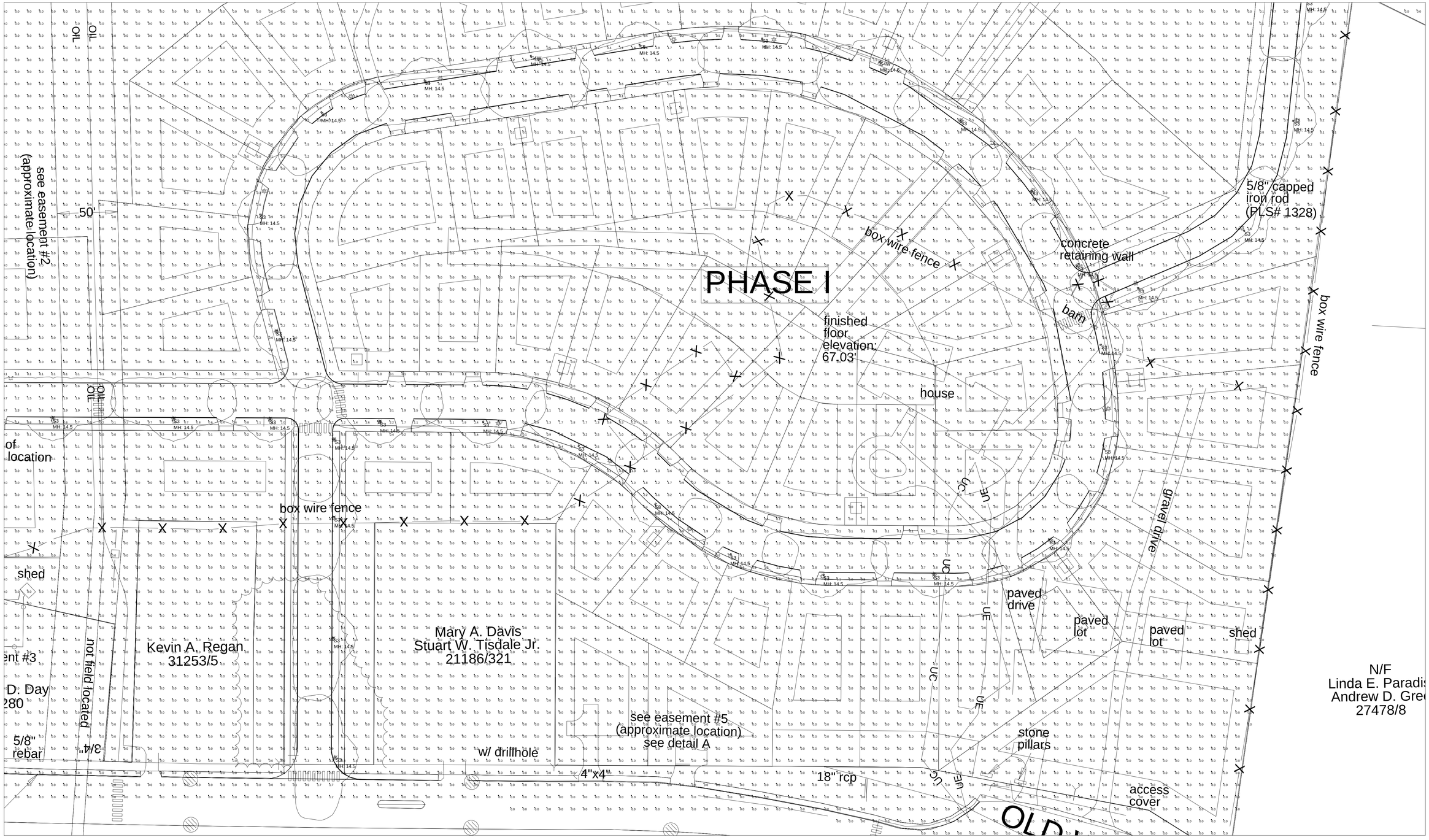

PLAN VIEW

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GENERATED FOR: ACORN ENGINEERING

SCALE NOT TO SCALE

TITLE 1700 WESTBROOK ST PORTLAND, ME PARTIAL LIGHTING LAYOUT

Date:11/21/2017

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

SWANEY LIGHTING ASSOCIATES, INC.

street ltg 11-21-17 rev 1.AGI

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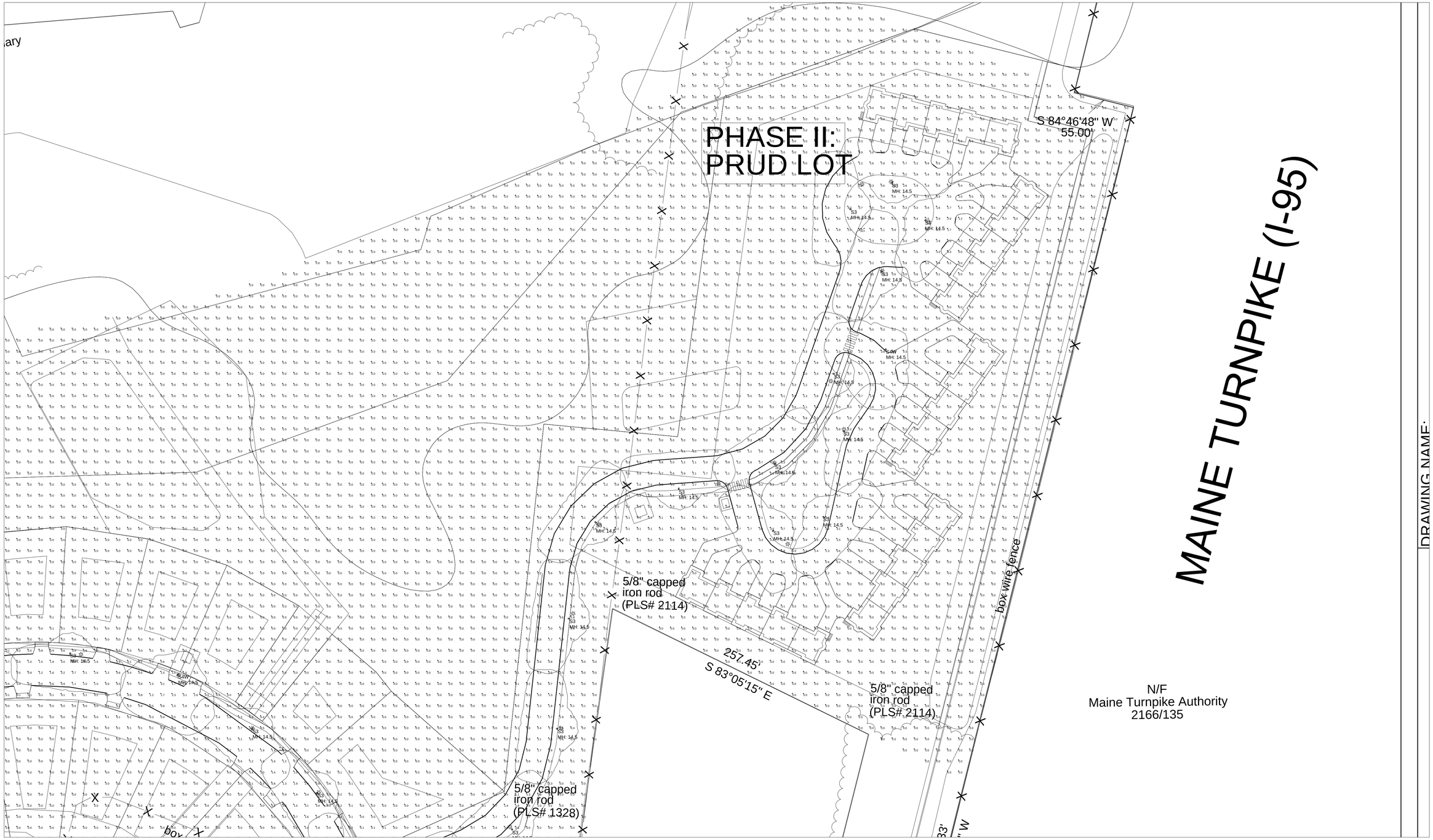

PLAN VIEW

DRAWING NAME:

street ltg 11-21-17 rev 1.AGI

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1700 WESTBROOK ST
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Page 3 of 3

SWANEY LIGHTING ASSOCIATES, INC.

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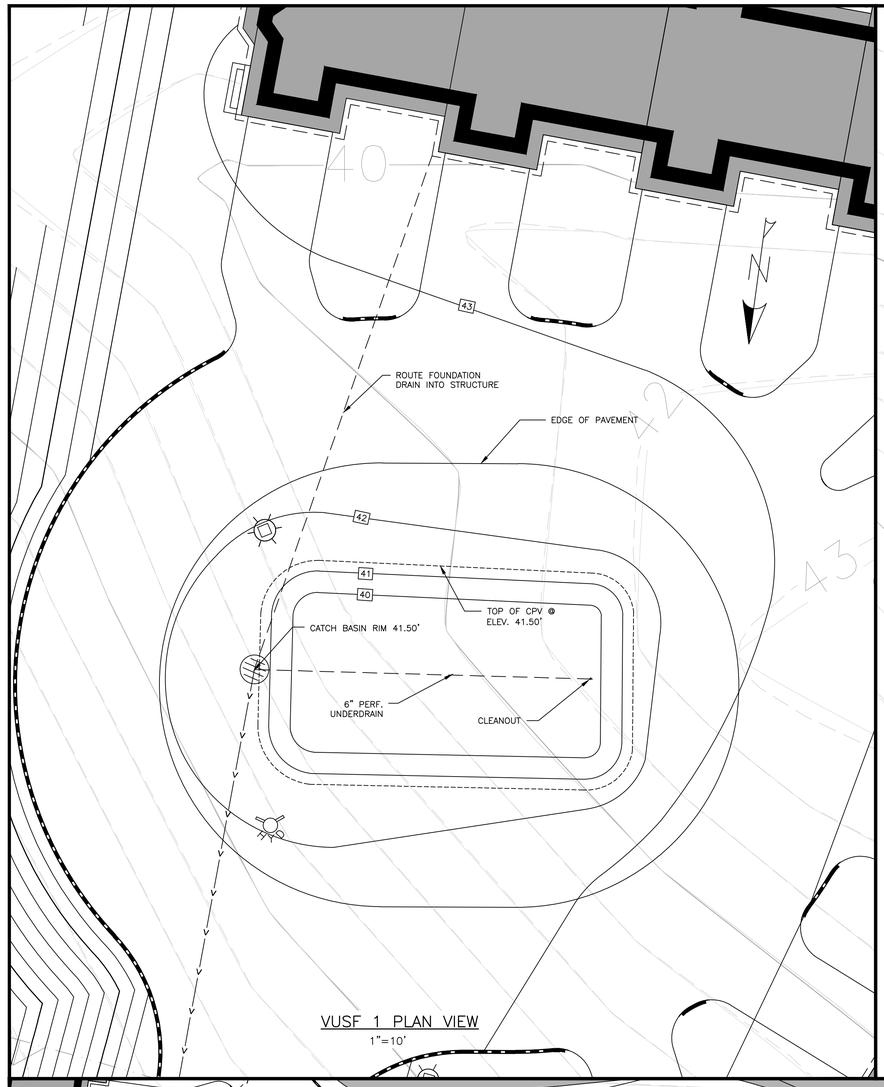
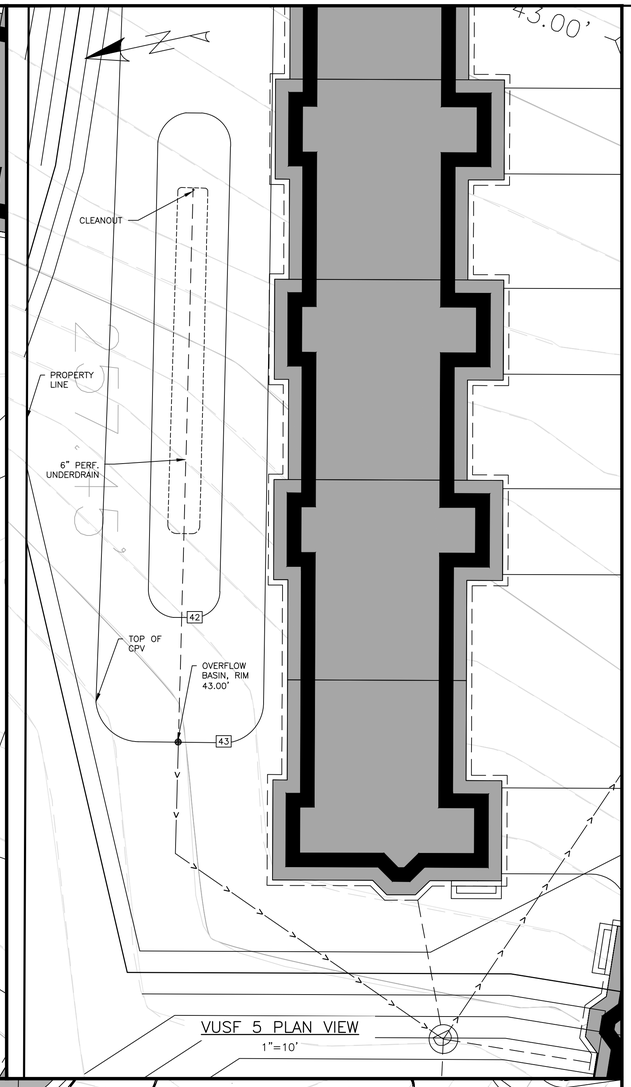
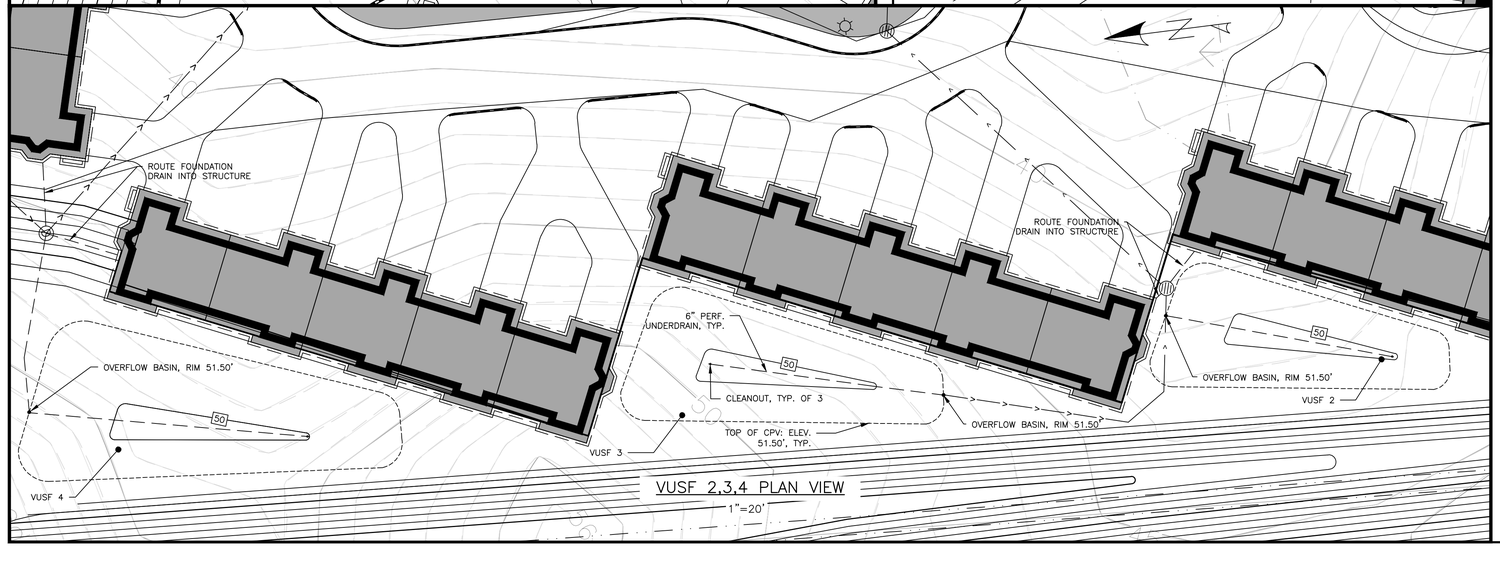


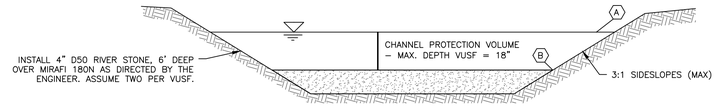
VUSF 1 PLAN VIEW
1"=10'



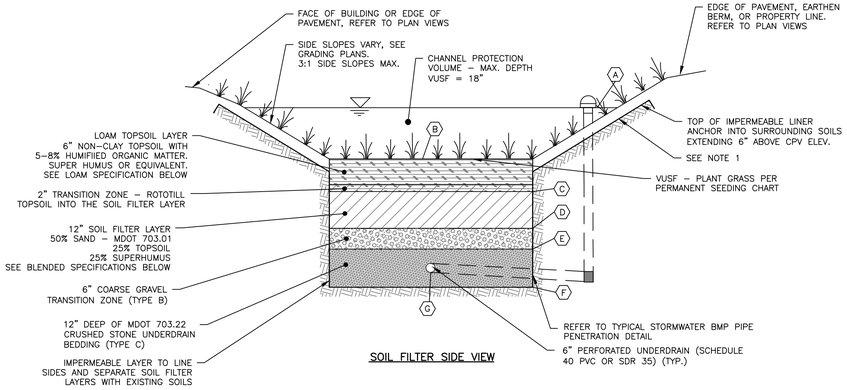
VUSF 5 PLAN VIEW
1"=10'



VUSF 2,3,4 PLAN VIEW
1"=20'



SOIL FILTER CROSS SECTION



SOIL FILTER SIDE VIEW

NOTES:

1. WRAP ALL SIDES BETWEEN THE SOIL FILTER MATERIALS, IMPERMEABLE LINER AND EXISTING SOILS WITH MIRAFI 180N OR EQUIVALENT.
2. THE SIDESLOPES SHALL BE STABILIZED WITH A MIN. OF 4" LOAM, EROSION CONTROL BLANKETS SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL AND A CONSERVATION SEED MIX.
3. LIGHT COMPACTION SOIL FILTER AND PIPE BEDDING MATERIAL. (90 TO 92% STANDARD PROCTOR). TESTING SHALL BE PERFORMED BY A QUALIFIED MATERIAL TESTING FIRM.
4. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.
5. TESTING: SIEVE ANALYSIS INCLUDING HYDROMETER TESTING FOR CLAY CONTENT FOR EACH LAYER SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION. ALL TESTING AND SUBMITTALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE MAINE DEP – TECHNICAL DESIGN MANUAL SECTION 7.2.5 TESTING AND SUBMITTALS.
6. ACORN ENGINEERING, INC., RECOMMENDS THE SOIL FILTER LAYER BE SUPPLIED BY JONES ASSOCIATES, INC., AUBURN, ME.

6" LOAM TOPSOIL LAYER SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	75 – 95
#10	60 – 90
#40	35 – 85
#200	20 – 70

1. CLAY FRACTION <10% PASSING THE #200 SIEVE. <10% CLAY PASSING THE #200 SIEVE ALLOWED PER EMAIL FROM MARIANNE HUBERT – MDEP TO WILL SAVAGE DATED 9/20/13
2. LOAM SHALL BE LOOSE AND FRIABLE AND SHALL BE FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS OR ROOTS OR RHIZOMES OR "WITCH GRASS" OR OTHER UNDESIRABLE GRASSES.

SOIL FILTER BED –SUPERHUMUS OR EQUIV. SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
#200	0 – 5
MINIMAL CLAY CONTENT, NO MORE THAN 3 – 5% PASSING #200 SIEVE	

SOIL FILTER BED – UNDERDRAIN BEDDING (TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	0 – 75
#4	0 – 25
#10	0 – 5

12" SOIL FILTER BED – BLENDED SAND, LOAM, SUPERHUMUS SIEVE ANALYSIS	
SIEVE SIZE	% PASSING BY WEIGHT
#10	85 – 100
#20	70 – 100
#60	15 – 40
#200	8 – 15

1. CLAY FRACTION <2% PASSING THE #200 SIEVE.
2. SUPERHUMUS OR EQUIV.

SOIL FILTER BED – TRANSITION ZONE (TYPE B)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	90 – 100
1/2"	75 – 100
#4	50 – 100
#20	15 – 80
#50	0 – 5
#200	0 – 5

ELEVATION SCHEDULE			
ITEM	VUSF 1	VUSF 2–4	VUSF 5
(A) TOP OF CPV/RIM ELEV.	41.50'	51.50'	43.00'
(B) TOP OF LOAM TOPSOIL LAYER	40.00'	50.00'	41.50'
(C) TOP OF SOIL FILTER	39.50'	49.50'	41.00'
(D) TOP OF GRAVEL	38.50'	48.50'	40.00'
(E) TOP OF STONE	38.00'	48.00'	39.50'
(F) BOTTOM OF STONE	36.25'	46.25'	37.75'
(G) UNDERDRAIN INVERT	VARIES	VARIES	VARIES

CONSTRUCTION OBSERVATION:

CONSTRUCTION OBSERVATION SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY ACORN ENGINEERING. THE CONTRACTOR OR OWNERS REPRESENTATIVE SHALL NOTIFY ACORN ENGINEERING A MINIMUM 48 HOURS OR 2 BUSINESS DAY WHICH EVER IS GREATER PRIOR TO ANY OF THE PHASES OF CONSTRUCTION LISTED BELOW SO THAT THE FOLLOWING SITE VISITS MAY BE SCHEDULED.

1. ONE SITE VISIT AFTER PRELIMINARY CONSTRUCTION OF THE VUSF GRADES;
2. ONE SITE VISIT DURING THE INSTALLATION OR THE IMPERVIOUS LINER.
3. ONE SITE VISIT AFTER THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
4. ONE SITE VISIT DURING THE CONSTRUCTION OF THE SOIL FILTER LAYER.
5. ONE SITE VISIT DURING THE CONSTRUCTION OF THE TOPSOIL LAYER.
6. ONE SITE VISIT DURING THE FLOODING OF THE VUSF, IF REQUIRED.

VEGETATED UNDERDRAINED SOIL FILTER DETAIL
NOT TO SCALE

FINAL APP.
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: VEGETATED UNDERDRAINED SOIL FILTER DETAILS

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

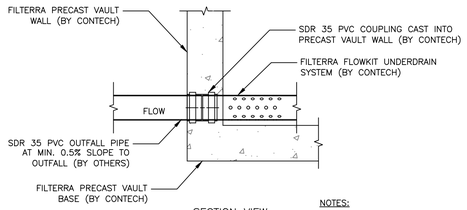
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. AND ANY UNAUTHORIZED USE OR OTHERWISE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM SAVAGE
No. 11411
11-21-17
PROFESSIONAL ENGINEER

DRAWING NO.
C-48

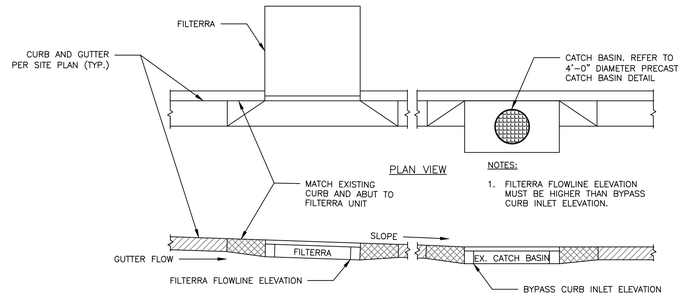


SECTION VIEW

NOTES:

1. DETAIL ADOPTED FROM CONTECH ENGINEERED SOLUTIONS, LLC DATED 3/23/15.

FILTERRA OUTFALL PIPE CONNECTION DETAIL
NOT TO SCALE



PLAN VIEW

NOTES:

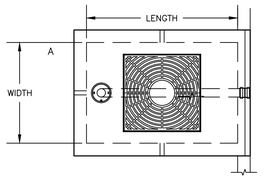
1. FILTERRA FLOWLINE ELEVATION MUST BE HIGHER THAN BYPASS CURB INLET ELEVATION.

ELEVATION VIEW

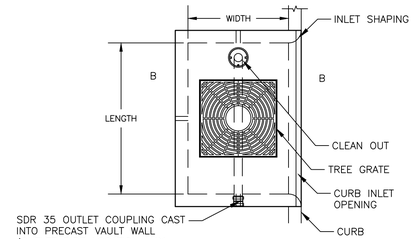
FILTERRA TYPICAL FLOWLINE
NOT TO SCALE

FILTERRA SUMMARY AND SIZING CHART					
FILTERRA ID	TRIBUTARY AREA (SF)	TRIBUTARY AREA (ACRES)	IMPERVIOUS AREA (SF)	IMPERVIOUS AREA (ACRES)	SIZE
FB–2	20,329	0.467	7,000	0.161	4' X 8'
FB–3	13,410	0.308	5,127	0.118	4' X 6'
FB–4	21,170	0.486	7,010	0.161	4' X 8'
FB–5	58,624	1.346	8,776	0.201	4' X 8'
FB–6	26,611	0.611	5,821	0.134	4' X 6'
FB–7	29,265	0.672	8,233	0.189	4' X 8'
FB–8	62,140	1.427	14,934	0.343	6' X 10'
FB–9	14,356	0.330	8,169	0.188	4' X 8'
FB–10	12,721	0.292	6,808	0.156	4' X 8'
FB–11	24,501	0.562	7,977	0.183	4' X 8'
FB–12	41,011	0.941	15,785	0.362	6' X 10'
FB–13	10,835	0.249	5,374	0.123	4' X 6'
FB–15	21,480	0.493	9,933	0.228	6' X 8'
FB–16	13,445	0.309	8,339	0.191	4' X 8'
FB–19	50,222	1.153	15,378	0.353	6' X 10'
FB–20	21,581	0.495	8,315	0.191	4' X 8'
FB–21	47,756	1.096	9,945	0.228	6' X 8'
FB–22	9,804	0.225	5,210	0.120	4' X 6'
FB–23	64,150	1.473	14,558	0.334	6' X 10'
FB–24	17,829	0.409	9,951	0.228	6' X 8'
FB–25	19,221	0.441	11,061	0.254	6' X 8'
FB–26	45,228	1.038	13,667	0.314	6' X 10'
FB–27	19,302	0.443	6,812	0.156	4' X 8'
FB–28	5,127	0.118	5,127	0.118	4'X 8'
FB–29	9,616	0.221	8,741	0.201	4' X 8'
FB–30	32,353	0.743	15,675	0.360	6' X 8'
FB–31	16,856	0.387	7,906	0.182	4' X 8'
FB–32	3,142	0.072	3,142	0.072	4' X 4'
FB–33	5,542	0.127	5,542	0.127	4' X 6'

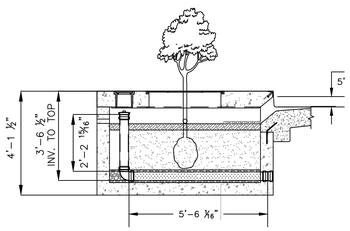
1. ALL STRUCTURES SHALL BE A FILTERRA OR APPROVED EQUIVALENT HIGH PERFORMANCE SOIL FILTER BMP
2. SIZING OF ALL STRUCTURES SHALL BE APPROVED BY THE MANUFACTURER
3. FB–2 – FB–28 WITHIN PROPOSED PUBLIC ROW, FB–29 – FB–33 WITHIN PROPOSED PRIVATE PRUD



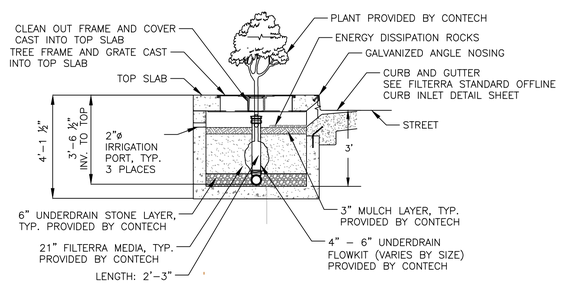
PLAN VIEW



PLAN VIEW



SECTION A–A

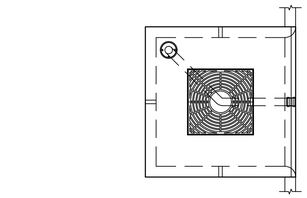


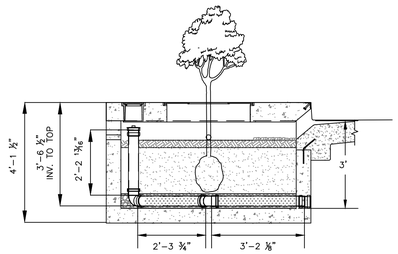
SECTION B–B

SHORT SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0406	4 X 6	6' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0408	4 X 8	8' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0412	4 X 12	12' – 0"	4' – 0"	4" SDR 35	(2) 3' X 3'
FT0608	6 X 8	8' – 0"	6' – 0"	4" SDR 35	(1) 4' X 4'
FT0610	6 X 10	10' – 0"	6' – 0"	6" SDR 35	(1) 4' X 4'
FT0612	6 X 12	12' – 0"	6' – 0"	6" SDR 35	(2) 4' X 4'
FT0713	7 X 13	13' – 0"	7' – 0"	6" SDR 35	(2) 4' X 4'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

LONG SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0604	6 X 4	6' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0804	8 X 4	8' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0806	8 X 6	8' – 0"	6' – 0"	4" SDR 35	(1) 4' X 4'
FT1006	10 X 6	10' – 0"	6' – 0"	6" SDR 35	(1) 4' X 4'
FT1204	12 X 4	12' – 0"	4' – 0"	4" SDR 35	(2) 3' X 3'
FT1206	12 X 6	12' – 0"	6' – 0"	6" SDR 35	(2) 4' X 4'
FT1307	13 X 7	13' – 0"	7' – 0"	6" SDR 35	(2) 4' X 4'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

FILTERRA SYSTEM – RECTANGLE
NOT TO SCALE





SQUARE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0404	4 X 4	4' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0606	6 X 6	6' – 0"	6' – 0"	4" SDR 35	(1) 3' X 3'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

FILTERRA SYSTEM – SQUARE
NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17

DRAWING NAME: **FILTERRA BMP DETAILS**

PROJECT NAME: **STROUDWATER PRESERVE**

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

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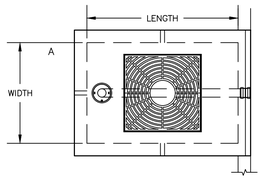
ACORN ENGINEERING, INC.
ENGINEERING
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2855

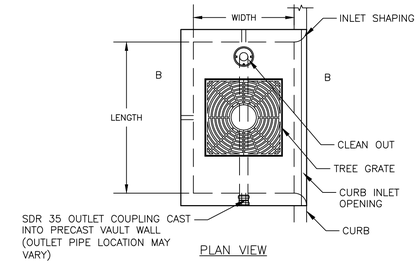
FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SPRUCE
No. 9175
10-31-17
REGISTERED PROFESSIONAL ENGINEER

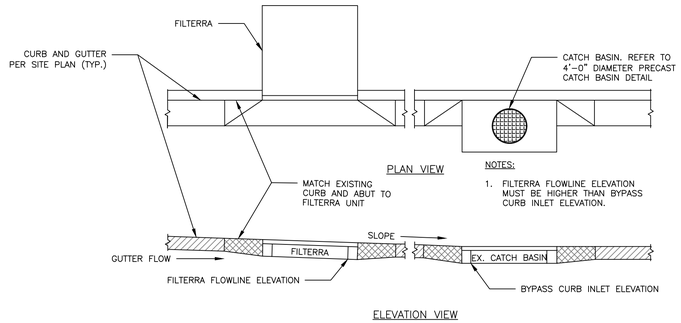
DRAWING NO.
C-49



PLAN VIEW



PLAN VIEW



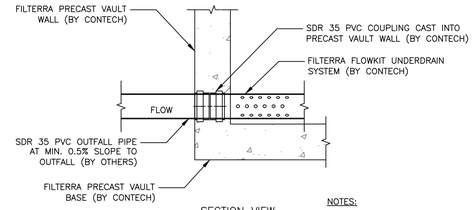
PLAN VIEW

NOTES:

1. FILTERRA FLOWLINE ELEVATION MUST BE HIGHER THAN BYPASS CURB INLET ELEVATION.

ELEVATION VIEW

FILTERRA TYPICAL FLOWLINE
NOT TO SCALE

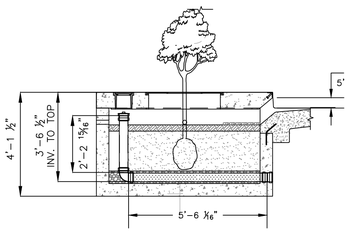


SECTION VIEW

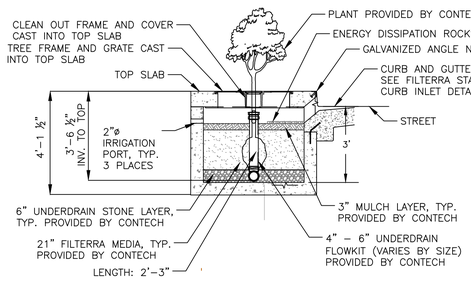
NOTES:

1. DETAIL ADOPTED FROM CONTECH ENGINEERED SOLUTIONS, LLC DATED 3/23/15.

FILTERRA OUTFALL PIPE CONNECTION DETAIL
NOT TO SCALE



SECTION A–A

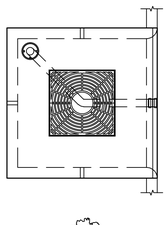


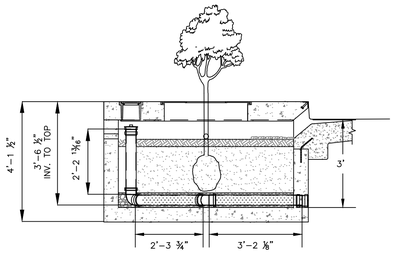
SECTION B–B

SHORT SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0406	4 X 6	6' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0408	4 X 8	8' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0412	4 X 12	12' – 0"	4' – 0"	4" SDR 35	(2) 3' X 3'
FT0608	6 X 8	8' – 0"	6' – 0"	4" SDR 35	(1) 4' X 4'
FT0610	6 X 10	10' – 0"	6' – 0"	6" SDR 35	(1) 4' X 4'
FT0612	6 X 12	12' – 0"	6' – 0"	6" SDR 35	(2) 4' X 4'
FT0713	7 X 13	13' – 0"	7' – 0"	6" SDR 35	(2) 4' X 4'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

LONG SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0604	6 X 4	6' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0804	8 X 4	8' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0806	8 X 6	8' – 0"	6' – 0"	4" SDR 35	(1) 4' X 4'
FT1006	10 X 6	10' – 0"	6' – 0"	6" SDR 35	(1) 4' X 4'
FT1204	12 X 4	12' – 0"	4' – 0"	4" SDR 35	(2) 3' X 3'
FT1206	12 X 6	12' – 0"	6' – 0"	6" SDR 35	(2) 4' X 4'
FT1307	13 X 7	13' – 0"	7' – 0"	6" SDR 35	(2) 4' X 4'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

FILTERRA SYSTEM – RECTANGLE
NOT TO SCALE





SQUARE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0404	4 X 4	4' – 0"	4' – 0"	4" SDR 35	(1) 3' X 3'
FT0606	6 X 6	6' – 0"	6' – 0"	4" SDR 35	(1) 3' X 3'
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION					

FILTERRA SYSTEM – SQUARE
NOT TO SCALE

FILTERRA SUMMARY AND SIZING CHART			
FILTERRA ID	TRIBUTARY AREA (ACRES)	IMPERVIOUS AREA (ACRES)	SIZE
FB–1	0.221	0.201	4' X 8'
FB–2	0.743	0.360	6' X 8'
FB–3	0.387	0.182	4' X 8'
FB–4	0.072	0.072	4' X 4'
FB–5	0.127	0.127	4' X 6'

1. ALL STRUCTURES SHALL BE A FILTERRA OR APPROVED EQUIVALENT HIGH PERFORMANCE SOIL FILTER BMP.
2. SIZING OF ALL STRUCTURES SHALL BE APPROVED BY THE MANUFACTURER
3. FILTERRAS ARE SOLELY WITHIN PROPOSED PRIVATE PRUD

FINAL APP
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ISSUED FOR	BY DATE
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FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/17/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: **FILTERRA BMP DETAILS**

PROJECT NAME: **STROUDWATER PRESERVE**

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

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ACORN ENGINEERING, INC.
ENGINEERING — SURVEYING — PERMITTING
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1079_CIVIL
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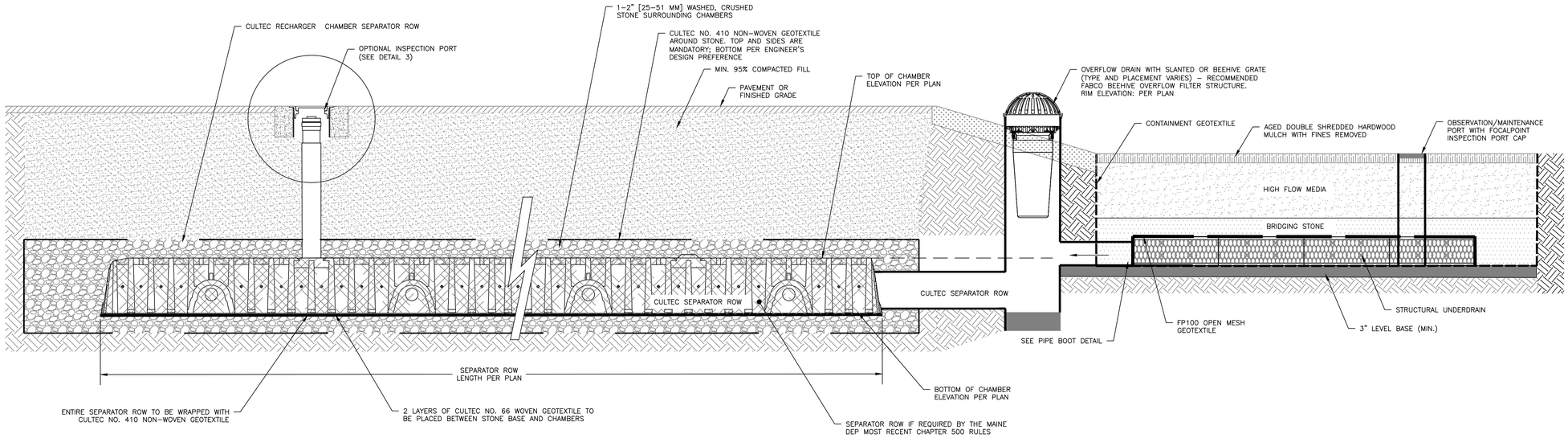
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM SAVAGE
No. 11411
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-49



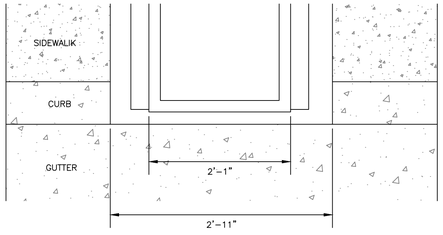
FOCALPOINT TYPICAL SECTION
NOT TO SCALE

FOCALPOINT SUMMARY AND SIZING CHART				
FOCALPOINT ID	TRIBUTARY AREA (ACRES)	IMPERVIOUS AREA (ACRES)	TOP BASIN/ BOTTOM BASIN	SIZE
1	0.467	0.160	60.50'/59.50'	3' X 16.4'
2	0.308	0.118	60.25'/59.25'	3' X 11.3'
3	0.486	0.139	55.80'/54.80'	3' X 16.1'
4	1.346	0.231	55.75'/54.75'	5' X 23.6'
5	0.941	0.379	50.50'/49.50'	3' X 35'
6	2.099	0.476	50.50'/49.50'	4' X 48.9'
7	0.292	0.188	55.40'/54.50'	3' X 13.3'
8	0.562	0.156	55.50'/54.50'	3' X 18.5'
9	0.941	0.340	62.65'/61.65'	3' X 15.7'
10	0.249	0.123	62.30'/61.30'	3' X 10.1'
11	0.493	0.227	59.12'/58.12'	3' X 33.7'
12	0.309	0.191	57.75'/56.75'	3' X 6.8'
13	1.153	0.353	59.25'/58.25'	3' X 19.3'
14	0.495	0.191	59.40'/58.40'	3' X 13.8'
15	2.569	0.503	53.60'/52.60'	3' X 39'
16	0.634	0.410	53.40'/52.40'	3' X 18.1'
17	0.441	0.304	47.00'/46.00'	4' X 57.8'
18	1.038	0.271	46.80'/45.80'	3' X 29'
19	0.443	0.155	51.25'/50.25'	4' X 15.6'
20	0.118	0.118	51.00'/50.00'	3' X 33.5'

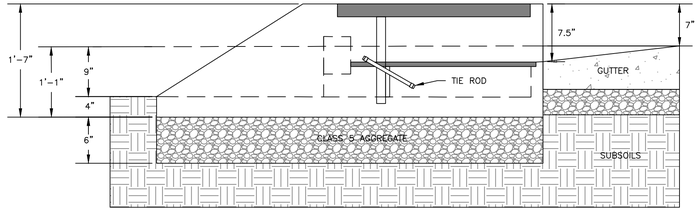
1. ALL STRUCTURES SHALL BE A FOCALPOINT OR APPROVED EQUIVALENT HIGH PERFORMANCE SOIL FILTER BMP
2. SIZING OF ALL STRUCTURES SHALL BE APPROVED BY THE MANUFACTURER

NOTES:

FOXHOLE COULD ALSO BE INSTALLED BEHIND CURB

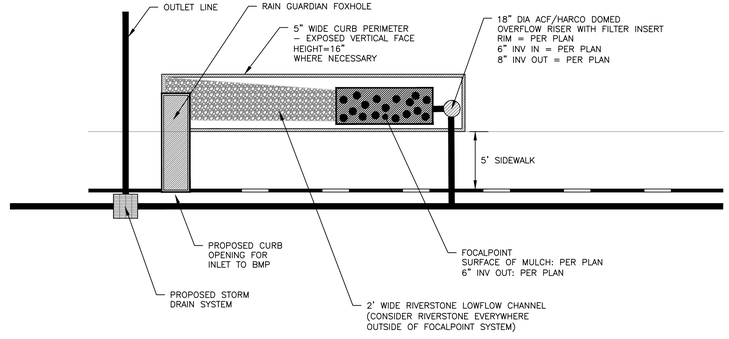


INSTALLED PLAN VIEW - INLET ONLY



INSTALLED ELEVATION VIEW - INLET/OUTLET ONLY

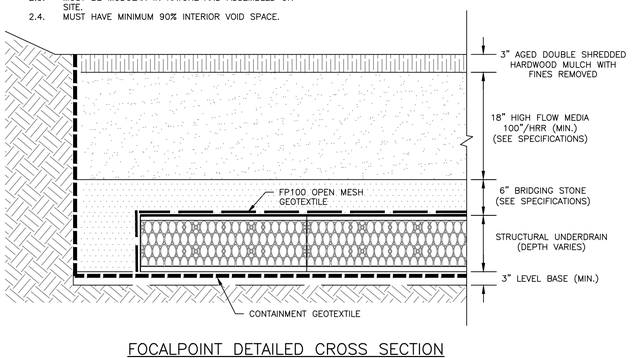
RAIN GUARDIAN FOXHOLE
NOT TO SCALE



EXAMPLE FOCALPOINT LAYOUT - SIDEWALK LOCATION
NOT TO SCALE

FOCALPOINT HP PERFORMANCE SPECIFICATION:

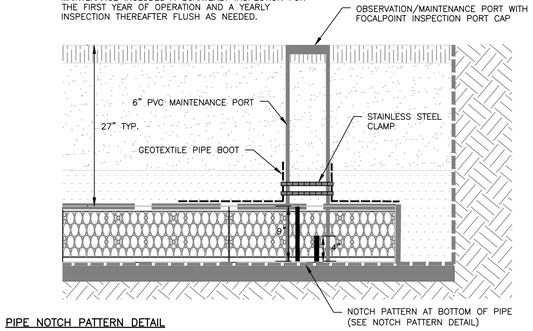
1. HIGH PERFORMANCE MEDIA
   1.1. HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.
2. HIGH PERFORMANCE STRUCTURAL UNDERDRAIN
   2.1. MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
   2.2. MUST MEET H20 LOADING REQUIREMENTS.
   2.3. MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
   2.4. MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.



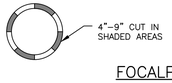
FOCALPOINT DETAILED CROSS SECTION
NOT TO SCALE

OBSERVATION/MAINTENANCE PORT

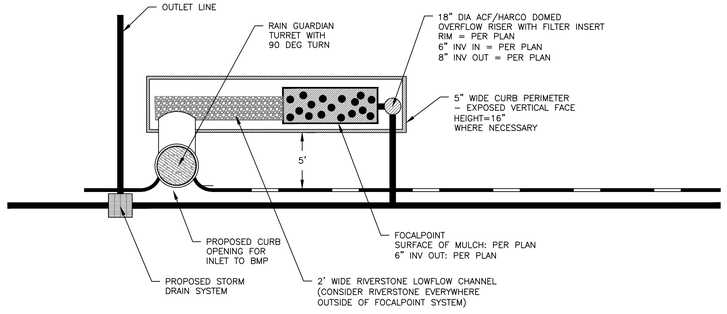
PORT USED FOR INSPECTION PURPOSES AND FOR SYSTEM MAINTENANCE AS REQUIRED. WATER SHALL BE PUMPED INTO THE SYSTEM AND RESUSPEND ACCUMULATED SEDIMENT. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION FOR THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER FLUSH AS NEEDED.



PIPE NOTCH PATTERN DETAIL



FOCALPOINT OBSERVATION PORT DETAIL
NOT TO SCALE



EXAMPLE FOCALPOINT LAYOUT - NON SIDEWALK LOCATION
NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
CITY COMMENTS	WHS 11/21/17

PROJECT NAME: **FOCALPOINT BMP DETAILS**

STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

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ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1079_CIVIL
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DRAWN BY:	ADG
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM SAVAGE
No. 11411
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-52

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
- STONE SIZE SHALL BE 2–3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
- THE ENTRANCE SHALL NOT BE LESS THAN 20 FEET WIDE, HOWEVER NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS. THE LENGTH SHALL NOT BE LESS THAN 50 FEET IN LENGTH.
- GEOTEXTILE FABRIC (WOVEN OR NON–WOVEN) SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA.
- THE ENTRANCE/EXIT SHALL BE MAINTAINED TO THE EXTENT THAT IT WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC ROAD WAYS.

1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.

1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.

1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.

1.1.5 VERNON PLACE, AVON STREET, AND CONGRESS STREET SHALL BE SWEPT TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SIDE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.

1.1.7 SILT FENCE STAKE SPACING SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE "TOED" INTO THE GROUND.

1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED ½ THE DESIGN HEIGHT.

1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.

1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.

1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.

1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.

1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4" OF LOAM, LIMED, AND MULCHED. EROSION CONTROL BLANKETS OR MATS SHALL BE PLACED OVER THE MULCH IN AREAS NOTED IN PARAGRAPH 4.1 OF THIS REPORT.

1.2.2 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.

1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER–WINTER STABILIZATION. ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

4.1 SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.

4.2 MULCHING

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75–LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE–INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WHEN THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4.3 SOIL STOCKPILING

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR–INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE–ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.

4.4 SEEDING

BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS NOT BEEN LOAMED, FINAL GRADING WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED.

DORMANT SEEDING MAY BE PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS/1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS

BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION – BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER–WINTER PROTECTION.
- STABILIZE THE SOIL WITH SOD – STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- STABILIZE THE SOIL WITH MULCH – BY NOVEMBER 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES

ALL STONE–COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS – BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% F THE SLOPE BY NOVEMBER 1ST, THEN THE CONTRACTOR SHALL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP.
- STABILIZE THE SOIL WITH SOD – THE DISTURBED SLOPE SHALL BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR SHALL NOT USE LATE–SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- STABILIZE THE SOIL WITH EROSION CONTROL MIX – EROSION CONTROL MIX SHALL BE PROPERLY INSTALLED BY NOVEMBER 15TH. THE CONTRACTOR SHALL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 2H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- STABILIZE THE SOIL WITH STONE RIPRAP – PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. A REGISTERED PROFESSIONAL ENGINEER SHALL BE HIRED TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A "STORM EVENT". A "STORM EVENT" SHALL CONSIST 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL – BEST MANAGEMENT PRACTICES (BMP'S) SHALL INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REMOVED WITH A TEMPORARY CHECK DAM. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE–HALF THE HEIGHT OF THE BARRIER. FILTER BERMS SHOULD BE RESHAPED AS NEEDED. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS, WHICH HAVE EXPERIENCED MUD–TRACKING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE–INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: WILL SAVAGE, PE
TELEPHONE: (207) 775–2655

QUALIFICATIONS:

- MAINE PROFESSIONAL ENGINEERING LICENSE #11419
- MAINE DEP – CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT #14
- CERTIFIED EROSION, SEDIMENT AND STORM WATER INSPECTOR (CESSWI) CERT #0293
- CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #4620

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

1. INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
2. INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
3. INSTALL SEDIMENTATION BASINS.
4. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
5. INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
6. COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
7. COMMENCE INSTALLATION OF UTILITIES.
8. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
9. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
10. COMPLETE REMAINING EARTHWORK OPERATIONS.
11. INSTALL SUB–BASE AND BASE GRAVELS IN PAVED AREAS.
12. INSTALL PAVING, CURBING AND BRICKWORK.
13. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
14. ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
15. TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
16. COMPLETE SITE SIGNAGE AND STRIPING.
17. EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE–VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 CONCLUSION

THE ABOVE EROSION CONTROL NARRATIVE IS INTENDED TO MINIMIZE THE DEVELOPMENT IMPACT BY IMPLEMENTING TEMPORARY AND PERMANENT EROSION CONTROL MEASURES. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

SEEDING PLAN

SITE PREPARATION

THE SEEDED AREAS SHALL BE FEASIBLY GRADED OUT TO PROVIDE THE USE OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IF NECESSARY, THE SITE MAY REQUIRE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL REPORT.

SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10–10–10 (N–P205–K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

TEMPORARY SEED APPLICATION RATES

SEED	LBS / ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	2.57	8/15 TO 10/1
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15
ANNUAL RYGRASS	0.92	4/1 TO 7/1
SUDANGRASS	0.92	5/15 TO 8/15
PERENNIAL	0.92	8/15 TO 9/15
TOTAL	7.17 LBS/ACRE	

PERMANENT SEED APPLICATION RATES

SEED	LBS / ACRE
KENTUCKY BLUEGRASS	20.00
CREEPING RED FESCUE	20.00
PERENNIAL RYEGRASS	4.80
TOTAL	44.8 LBS/ACRE

MULCHING

MULCH SHALL BE APPLIED AT A RATE OF 70 LBS – 90 LBS PER 1,000 SQUARE FEET. THE MULCH SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4 INCHES. THE SEEDED AREA SHALL BE MULCHED IMMEDIATELY AFTER SEED IS APPLIED. MULCHING DURING THE WINTER SEASON SHALL BE DOUBLE THE NORMAL AMOUNT.

CONCLUSION

PLEASE REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION PERTAINING TO TEMPORARY SEEDING AND MULCHING.

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 8/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: EROSION & SEDIMENTATION CONTROL NOTES
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE TO THIS PLAN WITHOUT THE WRITTEN PERMISSION OF ACORN ENGINEERING, INC. OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

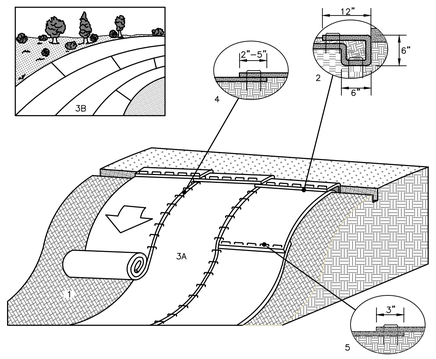
ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775–2655

FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE WILLIAM SAVAGE No. 11419 11-21-17 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-50

SLOPE
INSTALLATION DETAIL



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (ECB), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE ECB IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF ECB EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE ECB WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF ECB BACK OVER THE SEED AND COMPACTED SOIL. SECURE ECB OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE ECB.
3. ROLL THE ECB (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. ECB WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ECB MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL ECB MUST BE STAPLED WITH APPROXIMATELY 2" – 5" OVERLAP DEPENDING ON THE ECB TYPE.
5. CONSECUTIVE ECB SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE ECB WIDTH.

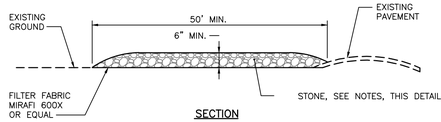
*NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE ECB.

EROSION CONTROL BLANKET SLOPE INSTALLATION

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
2. STONE SHALL BE 2"–3" COARSE AGGREGATE
3. CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
4. WHEN NECESSARY, ON-SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
5. CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT-OF-WAY



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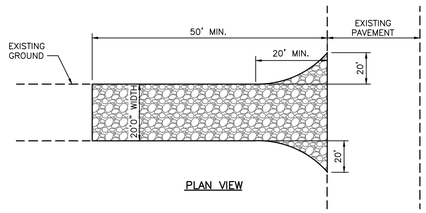
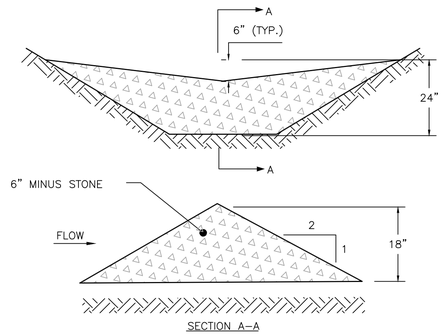


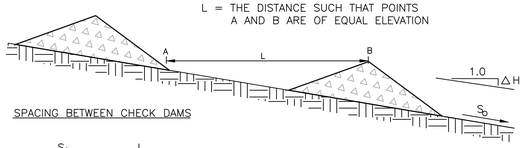
PLAN VIEW

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



SECTION A–A

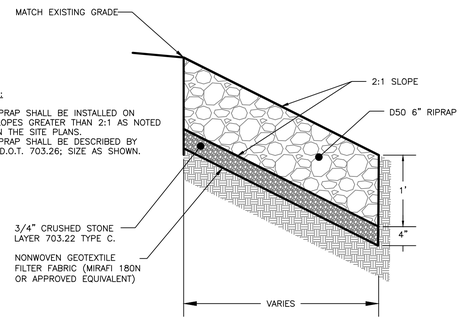


SPACING BETWEEN CHECK DAMS

S_o (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	10

STONE CHECK DAM

NOT TO SCALE



NOTES:

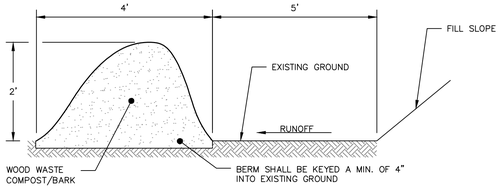
1. RIPRAP SHALL BE INSTALLED ON SLOPES GREATER THAN 2:1 AS NOTED ON THE SITE PLANS.
2. RIPRAP SHALL BE DESCRIBED BY M.D.O.T. 703.26; SIZE AS SHOWN.

RIPRAP CROSS-SECTION

NOT TO SCALE

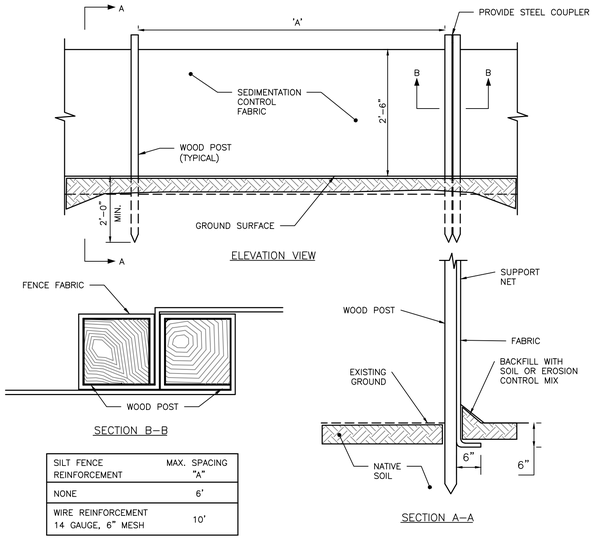
NOTES:

1. THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):
   - 1.1. pH BETWEEN 5.0 – 8.0
   - 1.2. PARTICLE SIZE (BY WEIGHT):
     - 1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
     - 1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
   - 1.3. SOLUBLE SALTS CONTENT < 4.0 MMHOS/CM
   - 1.4. ORGANIC MATTER 20 TO 100% , DRY WEIGHT BASIS
2. THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR, WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.
3. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.



EROSION CONTROL MIX BERM DETAIL

NOT TO SCALE



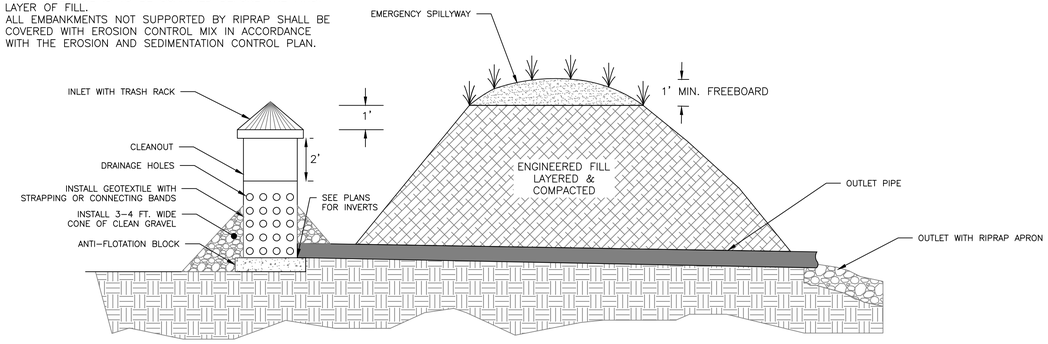
SILT FENCE REINFORCEMENT	MAX. SPACING "A"
NONE	6'
WIRE REINFORCEMENT 14 GAUGE, 6" MESH	10'

SILTATION FENCE DETAIL

NOT TO SCALE

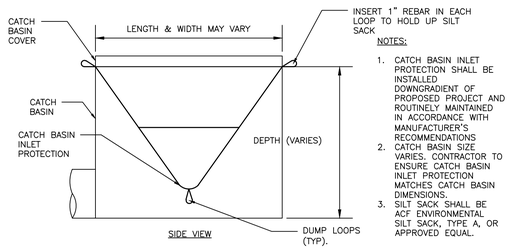
GENERAL NOTES:

1. EMBANKMENT FOUNDATION AREA SHALL BE CLEARED OF STUMPS, ROOTS, BRUSH, ETC. TO PROVIDE GOOD CONTACT.
2. BASINS ARE TO BE CONSTRUCTED BEFORE THE GROUND IS FROZEN.
3. ALL NATIVE SOIL IS TO BE SCARIFIED BEFORE THE FIRST LAYER OF FILL.
4. ALL EMBANKMENTS NOT SUPPORTED BY RIPRAP SHALL BE COVERED WITH EROSION CONTROL MIX IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL PLAN.



TEMPORARY SEDIMENTATION BASIN CROSS-SECTION

NOT TO SCALE



NOTES:

1. CATCH BASIN INLET PROTECTION SHALL BE INSTALLED DOWNGRADIENT OF PROPOSED PROJECT AND ROUTINELY MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. CATCH BASIN SIZE VARIES. CONTRACTOR TO ENSURE CATCH BASIN INLET PROTECTION MATCHES CATCH BASIN DIMENSIONS.
3. SILT SACK SHALL BE ACF ENVIRONMENTAL SILT SACK, TYPE A, OR APPROVED EQUAL.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIM. APP.	WHS 9/22/17
FINAL APP.	WHS 10/25/17
DPW REVIEW	WHS 11/6/17
CITY COMMENTS	WHS 11/21/17

DRAWING NAME: EROSION & SEDIMENTATION CONTROL DETAILS
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102 (207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	SJL
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11418
11-21-17
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-51

STROUDWATER PRESERVE

PORTLAND, MAINE

NOTE PLANS ARE CONCEPTUAL AND DO NOT NECESSARILY REFLECT FINAL LOT LAYOUTS, MASSING, OR STYLES

09/11/17

HOUSE TYPE TABLE		
HOUSE TYPE	DESCRIPTION	NOTES
A	2 STORY	
A'	2 STORY	FULL DAYLIGHT BASEMENT REAR
A□	2 STORY	PARTIAL DAYLIGHT BASEMENT REAR
A□	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
B	2 STORY	
C	2 STORY	
D	2 STORY, 2 CAR GARAGE	
E	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
E'	2 STORY, SHIFTED GARAGE FROM □E□	PARTIAL DAYLIGHT BASEMENT SIDE
E□	2 STORY	
E□	2 STORY	FULL DAYLIGHT BASEMENT REAR
F	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
G	2 STORY	FULL DAYLIGHT BASEMENT REAR
G'	2 STORY, NO FRONT PORCH	FULL DAYLIGHT BASEMENT REAR
G□	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
G□	2 STORY	
H	2 STORY	
H'	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
I	2 STORY	
□	2 STORY	FULL DAYLIGHT BASEMENT REAR
□'	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
K	2 STORY	FULL DAYLIGHT BASEMENT REAR
K"	2 STORY	GARAGE REDUCED LENGTH 24"
K□	2 STORY	
L	2 STORY	FULL BASEMENT REAR, NO GARAGE

1 HOUSE TYPE STUDY - PART A
1"=50'

PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

STROUDWATER PRESERVE

PORTLAND, MAINE

NOTE PLANS ARE CONCEPTUAL AND DO NOT NECESSARILY REFLECT FINAL LOT LAYOUTS, MASSING, OR STYLES

09/11/17

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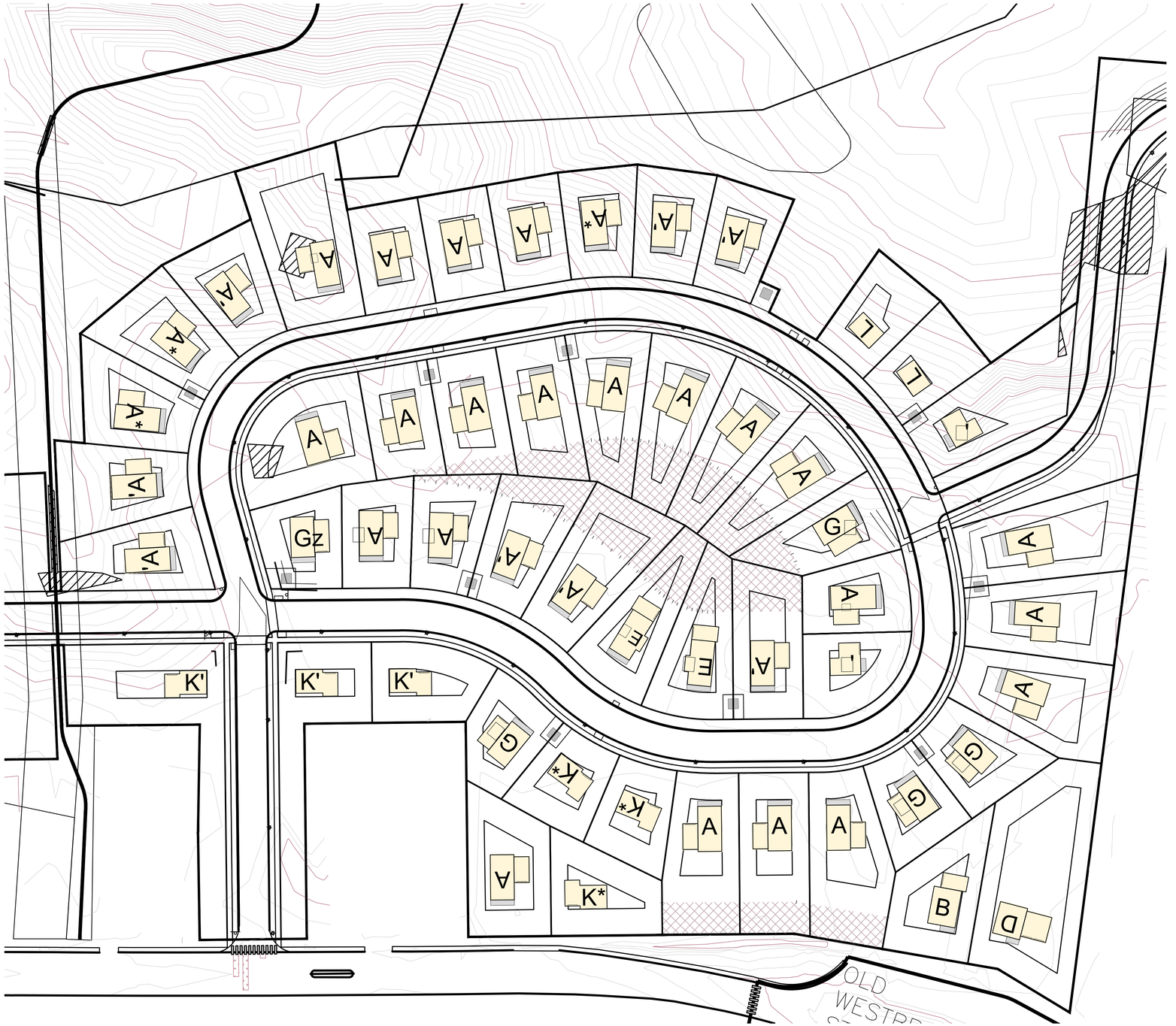
B	2 STORY	
C	2 STORY	
D	2 STORY, 2 CAR GARAGE	
E	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
E'	2 STORY, SHIFTED GARAGE FROM 'E□	PARTIAL DAYLIGHT BASEMENT SIDE
E□	2 STORY	
E□	2 STORY	FULL DAYLIGHT BASEMENT REAR
F	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
G	2 STORY	FULL DAYLIGHT BASEMENT REAR
G'	2 STORY, NO FRONT PORCH	FULL DAYLIGHT BASEMENT REAR
G□	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
G□	2 STORY	
H	2 STORY	
H'	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
I	2 STORY	
□	2 STORY	FULL DAYLIGHT BASEMENT REAR
□'	2 STORY	PARTIAL DAYLIGHT BASEMENT SIDE
K	2 STORY	FULL DAYLIGHT BASEMENT REAR
K"	2 STORY	GARAGE REDUCED LENGTH 24"
K□	2 STORY	
L	2 STORY	FULL BASEMENT REAR, NO GARAGE



1 HOUSE TYPE STUDY - PART B

1"=50'

PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

STROUDWATER PRESERVE - PRUD UNITS

PORTLAND, MAINE

11/02/17

PROGRESS PRINT ONLY
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1 CONCEPT RENDERINGS
N.T.S.

RYAN SENATORE **ARCHITECTURE**

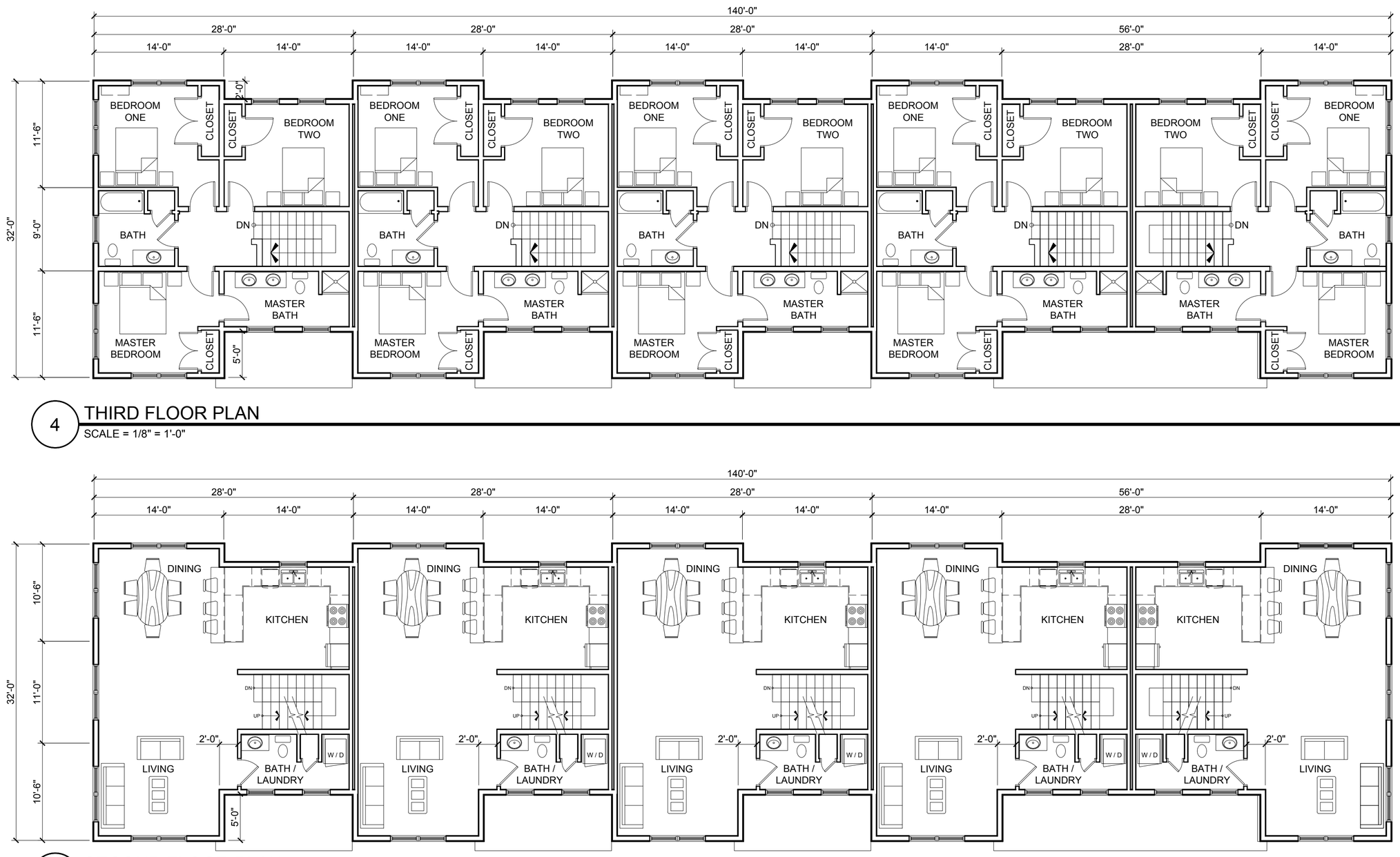
STROUDWATER PRESERVE - PRUD UNITS

PORTLAND, MAINE

11/02/17

PROGRESS PRINT ONLY
Not for Construction

BUILDINGS 1 & 5

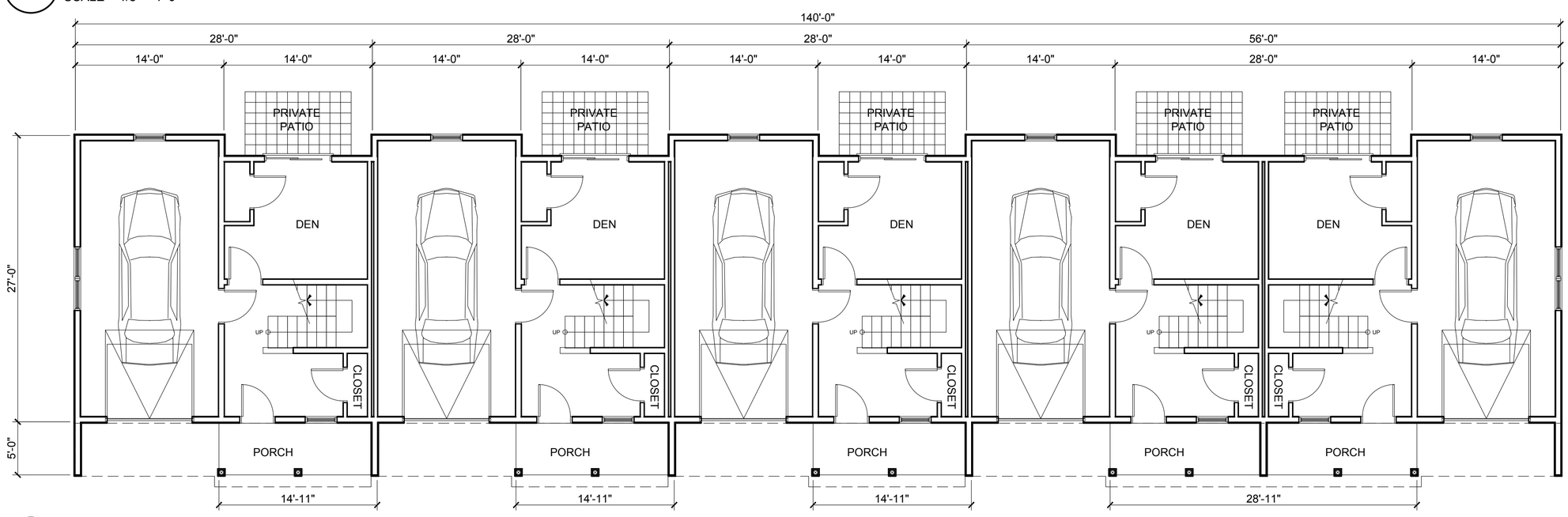


4 THIRD FLOOR PLAN

SCALE = 1/8" = 1'-0"

3 SECOND FLOOR PLAN

SCALE = 1/8" = 1'-0"



2 FIRST FLOOR PLAN

SCALE = 1/8" = 1'-0"

1 ELEVATION

SCALE = 1/8" = 1'-0"

RYAN SENATORE **ARCHITECTURE**

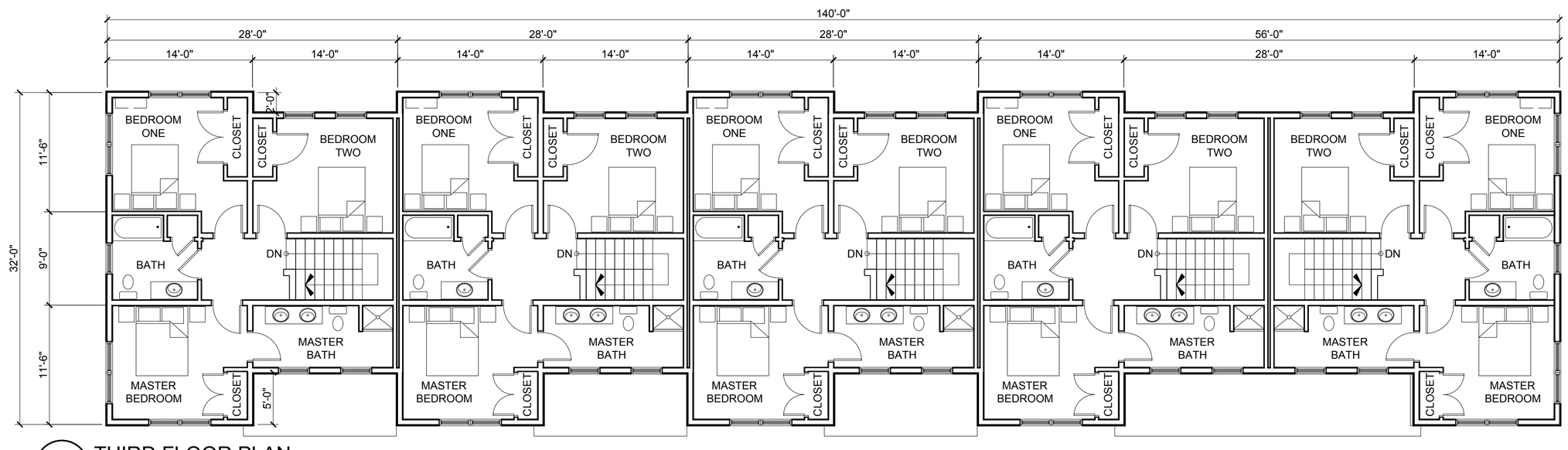
STROUDWATER PRESERVE - PRUD UNITS

PORTLAND, MAINE

11/02/17

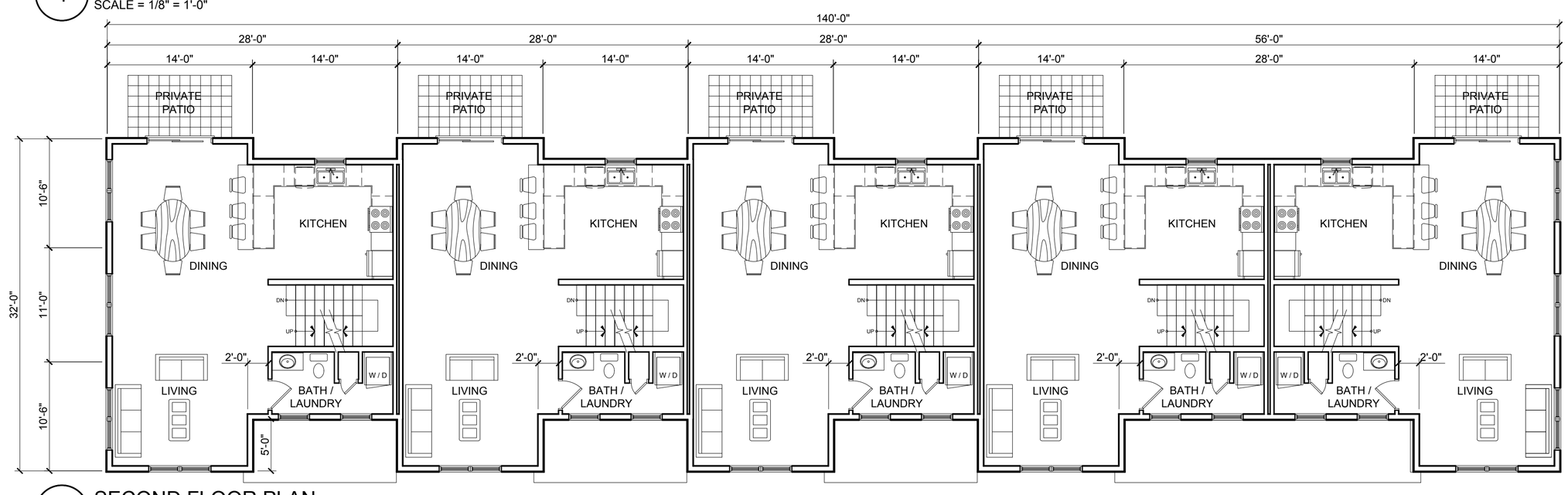
PROGRESS PRINT ONLY
Not for Construction

BUILDINGS 2, 3, & 4



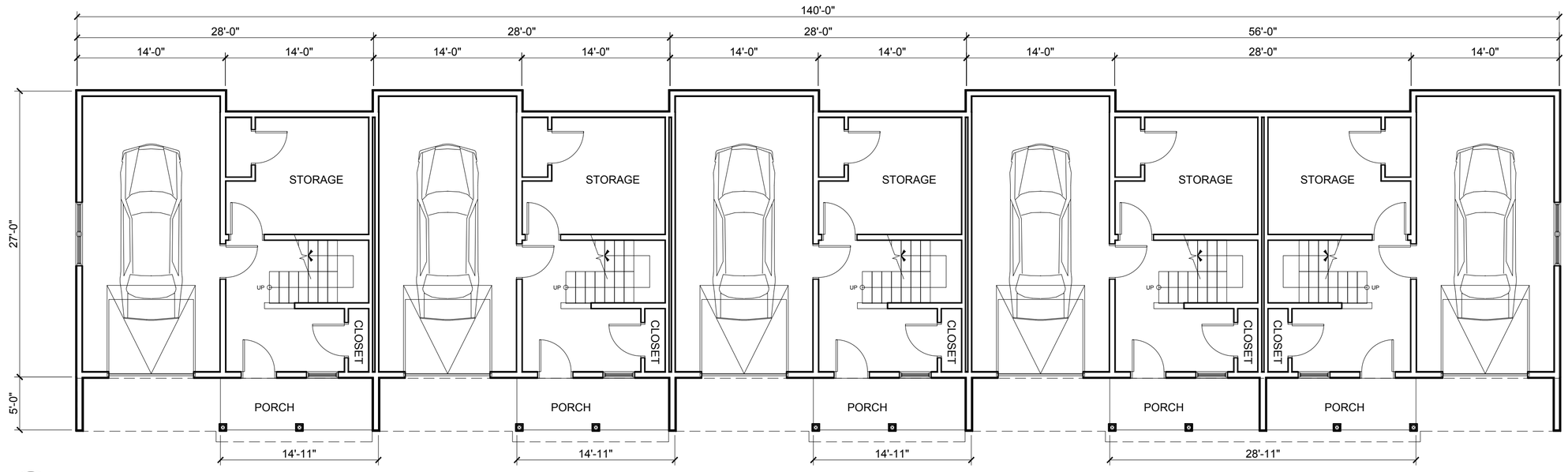
4 THIRD FLOOR PLAN

SCALE = 1/8" = 1'-0"



3 SECOND FLOOR PLAN

SCALE = 1/8" = 1'-0"



2 FIRST FLOOR PLAN

SCALE = 1/8" = 1'-0"

1 ELEVATION

SCALE = 1/8" = 1'-0"

RYAN SENATORE **ARCHITECTURE**

GENERAL NOTES:

1. ROS ZONE BOUNDARY AS DEFINED BY THE ZONING MAP AMENDMENT PASSED BY THE CITY COUNCIL ON 7/24/17.
2. THE REARMOST OPEN SPACE LOT EXTENDS FROM THE STROUDWATER RIVER TO THE OUTERMOST LOT LINES.
3. FINAL TRAIL LOCATION WITHIN THE OPEN SPACE TO BE DETERMINED BY PORTLAND TRAILS OR CITY OF PORTLAND.
4. THE PROJECT IS ANTICIPATED TO BE BUILT IN THREE PHASES. INFRASTRUCTURE FOR EACH PHASE WILL BE BUILT TO MEET CITY OF PORTLAND FIRE DEPARTMENT STANDARDS. SUBDIVISION PLANS PER PHASE ARE RECORDED WITH CCRD AT:

4.1. PHASE I:

BOOK _____ PAGE _____

4.2. PHASE II:

BOOK _____ PAGE _____

4.3. PHASE III:

BOOK _____ PAGE _____

SPACE AND BULK STANDARDS		
ZONE:	R-3	PROPOSED
SINGLE FAMILY HOUSE LOTS		
MINIMUM LOT SIZE	6,500 SF	6,500 SF
MINIMUM STREET FRONTAGE	50'	50'
FRONT YARD	25'	25'
REAR YARD – PRINCIPAL	25'	25'
REAR YARD – ACCESSORY	5'	5'
SIDE YARD	16'	16'
MAXIMUM LOT COVERAGE	35%	MAX 35%
MINIMUM LOT WIDTH*	65'	65'
MAXIMUM BUILDING HEIGHT	35'	< 35'
MAXIMUM ACCESSORY HEIGHT	18'	< 18'
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)		
MINIMUM LOT AREA PER DWELLING UNIT	6,500 SF	6,500 SF
MAXIMUM NUMBER OF DWELLING UNITS**	38	25
MAX NUMBER OF UNITS PER BUILDING (>5 AC)	6	5
MAX NUMBER OF UNITS PER BUILDING (<5 AC)	2	N/A
MAX LENGTH OF BUILDING (W/ INTEGRAL GARAGES)	140'	140'
MIN BUILDING SETBACK FROM EXTERNAL PROPERTY LINES (>4 UNITS PER BUILDING)	35'	35'
MIN DISTANCE BETWEEN BUILDINGS	16'	17.12'
MINIMUM RECREATIONAL OPEN SPACE	300 SF/DU = 7,500 SF	43,496 SF
MIN CONTIGUOUS AREA OF RECREATIONAL USE	6,000 SF	6,105 SF
MIN WIDTH RECREATIONAL AREA	50'	60.03'

*DISTANCE PARALLEL TO THE FRONT OF THE BUILDING MEASURED BETWEEN SIDE LOT LINES THROUGH THAT PART OF THE PRINCIPAL BUILDING WHERE THE LOT IS NARROWEST.
**REFER TO PRUD LAND USE ORDINANCE NARRATIVE FOR CALCULATIONS

LOT SUMMARY		
SINGLE-FAMILY HOUSE LOTS	95	95 UNITS
TWO-FAMILY HOUSE LOTS	2	4 UNITS
PLANNED RESIDENTIAL UNIT DEVELOPMENT (PRUD)	1	25 UNITS
OPEN SPACE LOTS	2	0 UNITS
TOTAL	100	124 UNITS

PHASING SUMMARY		
PHASE 1	51 LOTS	53 UNITS
PHASE II	1 LOTS	25 UNITS
PHASE III	46 LOTS	46 UNITS

Potential Phase III IZ Unit Highlighted Orange, Typ. Minimum 4 of 46 units will be constructed under IZ Guidelines. Minimum 5 will be constructed only if phase I & II minimum requirement is satisfied for minimum site total of 12 IZ units.

Potential Phase II IZ Unit Highlighted Red, Typ. Minimum 2 of 25 units will be constructed under IZ Guidelines

Potential Phase I IZ Unit Highlighted Yellow, Typ. Minimum 5 of 53 units will be constructed under IZ Guidelines

EXTENT OF REGULATORY FLOODWAY PER THE NATIONAL FLOOD INSURANCE PROGRAM
ZONE AE
ZONE A
EXTENT OF 100-YR FEMA FLOODPLAIN PER THE NATIONAL FLOOD INSURANCE PROGRAM, PRELIMINARY FLOOD INSURANCE RATE MAP DATED 4/14/2017 (APPROX. 27')
EX. STROUDWATER HIGH LEVEL WATER MARK PER THE EXISTING CONDITIONS PLAN
EXTENT OF THE RESOURCE PROTECTION OVERLAY ZONE PER CITY OF PORTLAND GIS
STROUDWATER RIVER
EXTENT OF SHORELAND OVERLAY ZONE (250' SETBACK FROM THE STROUDWATER RIVER HIGH WATER MARK)
PHASE II: PRUD LOT
EXTENT OF DRAINAGE EASEMENT
EXTENT OF DRAINAGE EASEMENT
STORMWATER INFRASTRUCTURE WITHIN OPEN SPACE LOT SUBJECT TO ACCESS, DRAINAGE, AND MAINTENANCE EASEMENT, TYP.
PROP. LEVEL GRAVEL PARKING (2 SPACES)
PROPERTY LINE, TYP.
EXTENT OF DRAINAGE EASEMENT
PROP. DETENTION BASIN DESIGNED FOR RECREATIONAL SKATING POND USE
EX. 50.00' EASEMENT TO PORTLAND PIPELINE (PPL) TO REMAIN. REFER TO EXISTING CONDITIONS PLAN.
PROP. EXTENT OF ACCESS ROAD. SEE C-32
EXTENT OF OPEN SPACE EASEMENT
N/F Maria Shabazz, Michael A. Soannell 23332/37
ROS
R-3
PROP. EXTENT OF ACCESS ROAD. SEE C-31
EXTENT OF OPEN SPACE LOT
PRIMARY BUILDING SETBACKS NOT TO EXTEND INTO BUFFER, TYP.
30' DRAINAGE EASEMENT
PROP. BIKE HITCH (1) INSTALLED WITHIN ROW PER DETAIL, TYP. OF 3
PROP. LEVEL GRAVEL PARKING (3 SPACES)
PROP. LOT PROPERTY LINES, TYP.
PROP. DEED PROTECTED LANDSCAPE BUFFER, TYP. OF 2
N/F Alina Waterhouse, Raymond Waterhouse 6931/136
PROP. UTILITY EASEMENT, TYP
PHASE III
PHASE I
30' DRAINAGE EASEMENT
PROP. PRIVATE PRUD DRIVEWAY PER DETAIL
APPROX. 300' OF PROP. 6-FOOT CEDAR BOARD FENCE
LIMIT OF PHASE I BUILDOUT
PROP. 50.00' ROW
PROP. PUBLIC LOCAL ROAD BUILT TO CITY OF PORTLAND STANDARDS PER DETAIL
5' BITUMINOUS SIDEWALK PER DETAIL
EXTENT OF EXISTING SITE WETLANDS, TYP. REFER TO THE HIGH INTENSITY SOIL SURVEY FOR BORING LOGS AND DATA SHEETS
EX. 30.00' UTILITY EASEMENT TO PWD TO REMAIN. (REFER TO EXISTING CONDITIONS PLAN.)
N/F Stroudwater Christian Church 4346/315
PRINCIPAL BUILDING SETBACKS, TYP.
PROP. DRIVEWAY APRON PER DETAIL, TYP. FINAL LOCATION SUBJECT TO CHANGE DURING INDIVIDUAL LOT CONSTRUCTION. DRIVEWAY SEPARATION TO COMPLY WITH CITY TECHNICAL STANDARDS.
EX. 45.00' UTILITY EASEMENT TO PWD TO REMAIN. (REFER TO EXISTING CONDITIONS PLAN.)
30.00' DEED PROTECTED LANDSCAPED BUFFER ALONG WESTBROOK ST, TYP. OF 3
LIMIT OF PHASE I BUILDOUT
N/F Portland Water District 98/395
N/F Bruce L. Harrington 10904/302
N/F Jacqueline D. Day 33513/280
Kevin A. Regan 31253/9
Mary A. Davis Stuart W. Tisdale Jr. 21186/321
30.00' PUBLIC ACCESS EASEMENT GRANTED TO PORTLAND TRAILS
35.00' OPEN SPACE EASEMENT
APPROX. EXTENT OF PROP. DRIVEWAY WITH TURNAROUNDS, TYP. OF 5. PROP. DRIVEWAYS TO BE SPACED AT LEAST 20' FROM OTHER DRIVEWAYS PER CITY OF PORTLAND STANDARD
EX. GRAVEL ROAD. SPACE FOR APPROX. 8 PARKING SPACES AT TRAILHEAD
WESTBROOK STREET
EX. PROPERTY LINE
PROP. PROPERTY LINE SUBJECT TO BOUNDARY AGREEMENT WITH THE ABUTTING PROPERTIES
APPROX. EX. EDGE OF PAVEMENT
EX. BITUMINOUS SIDEWALK AND CURBING TO REMAIN
CONSTRUCTION OF NEW SIDEWALK SHALL REQUIRE DRIVEWAY APRONS TO BE REBUILT (PER DETAIL), RELOCATION OF MAILBOXES (AS NECESSARY). CONTRACTOR TO COORDINATE AND CARRY THE COST FOR RELOCATION OF UTILITY POLES TO MAINTAIN 5' SIDEWALK WIDTH (APPROX. 7 POLES)
PROP. BITUMINOUS SIDEWALK AND VERTICAL GRANITE CURB PER DETAIL. EX. CURB TO BE REMOVED AND REPLACED PER CITY OF PORTLAND TECHNICAL STANDARDS. EX. CURB CUTS TO REMAIN
EX. LANDSCAPED ISLAND, TYP. OF 2
VERTICAL GRANITE CURB WITH UNDERDRAIN PER DETAIL
SWAN ST
OPEN SPACE LOT WITH PUBLIC ACCESS FROM WESTBROOK STREET
PROP. BIKE HITCH (1) INSTALLED WITHIN ROW PER DETAIL, TYP. OF 3
PROP. LOCATION OF FUTURE METRO BUS STATION
134.89'
115.56'
8.00', TYP.
PROP. BLOCK CROSSWALK: 24" LINES, 4' O.C., TYP.
OLD WESTBROOK STREET
REFER TO TRAFFIC ENGINEER'S REPORT FOR PEDESTRIAN SAFETY IMPROVEMENTS
APPROX. LOCATION OF EX. PORTLAND TRAILS FORE SANCTUARY TRAIL SYSTEM
PROP. BIKE HITCH (1) INSTALLED WITHIN ROW PER DETAIL, TYP. OF 3
N/F Maine Turnpike Authority 2166/135
PROP. EARTHERN SOUND BERM
MAINE TURNPIKE (I-95)

LEGEND:
- EX. WETLANDS
- DEED PROTECTED LANDSCAPED BUFFERS
- PUBLIC TRAIL ACCESS TO OPEN SPACE
- VERTICAL GRANITE CURB
- PROP PRUD BUILDING
- LOT LINE
- PRIMARY BUILDING SETBACK
- BLOCK CROSSWALK
- WOODEN GUARDRAILS

100 0 100 100
SCALE: 1" = 100'

FINAL APP
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
TRAFFIC	WHS 8/3/17
FEMA	WHS 8/8/17
PHOTOMETRIC	OJD 8/16/17
PRELIM APP	WHS 8/25/17
FINAL APP	WHS 10/25/17
TRAFFIC REVIEW	WHS 11/8/17
DPW REVIEW	WHS 11/9/17

DRAWING NAME: SUBDIVISION PLAN
PROJECT NAME: STROUDWATER PRESERVE
CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, MAINE 04043

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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FILE:	1079_CIVIL
JN:	1079
SCALE:	1"=100'
DESIGNED BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

DRAWING NO.
C-10

Statement from Stroudwater Village Association Regarding Proposed Camelot Farms Master Site Plan
November 2017

The SVA continues to believe that there is far too much volume of construction proposed as part of the Camelot Farms (Stroudwater Preserve) project. As we have advocated in the past, a smaller development of closer to 40-50 homes (similar in scale to River's Edge and Tide Mill developments) would be much more appropriate. While the concerns we note below would be applicable to any development, they are particularly acute with an over-developed project like the current proposal.

We recommend that the project only be permitted to build to a maximum of 50 units of housing (roughly corresponding to its Phase I and II), with any additional building contingent on specifically addressing the issues below related to impact of both the construction and operational aspects of the project.

Buffering and Noise Reduction

In neighborhood discussions we have been told a significant buffer planting of trees will be placed to screen the view. At the last meeting in September, the plans showed did not reflect this at all, and the latest plans show only 8 trees (sugar maples) in single depth only. That does not qualify as a buffer.

In addition, abutting residents have specifically requested that the developer plant an evergreen tree screening buffer between the existing homes and the development and that the existing two stands of old pine along Westbrook Street will be spared.

The SVA requests the Planning Board increase the buffer requirements for the project, both along Westbrook Street and near to existing homeowners, and specifically requests that abutters' requests for an evergreen screen and preservation of Westbrook Street pine stands be honored.

Traffic Volume

To date, we have seen no evidence that either the City or the developer has given any thought to how it will be possible for homeowners in the new properties will actually be able to get into and out of their development at rush hour. Given that these homes are supposedly targeted toward middle-income, working families with children, it is likely that a significant percentage of them will have rush-hour commitments. Given that reality, the existing over-burdening of Westbrook Street with commuter traffic must be addressed – otherwise, these homeowners will be simply by idling in the their development while waiting their turn to get onto Westbrook Street. Consider the following – if 1 car gets out every 30 seconds or so, at 1.5 cars/household, a conservative estimate of 150 rush-hour trips daily would take over 75 minutes to fully clear out of the development. Even if a METRO route is extended to the area, it still has to use the same roads – so unless there are meaningful steps to clear out existing commuter traffic, the concern still holds. The traffic studies cited during the application process, which considered only the delta between a fully-built-out R-1 and R-3 zone, missed the point entirely. Every single car in this new development is incremental to an already overloaded road.

The SVA requests a comprehensive plan to divert existing commuter traffic off of Westbrook Street before any new homes are built that require Westbrook Street access.

Pedestrian Safety

In terms of pedestrian safety, one only needs to read about the recent tragedy on outer Congress Street to understand that our existing planning bias toward high-speed commuters is not sufficient to ensure pedestrian safety. We understand that even though the city has asked for greater detail about crosswalks, it appears that the developers may not be able to put in sidewalks on both sides of the street, citing section XII of the 10 page memorandum: "The applicant has provided a waiver request for Stroudwater Preserve - Notes on Site Plans, etc. some roadways to have sidewalks on only one side." We also note that the PRUD units have NO plan for any handicapped parking slots.

The SVA requests a more complete review of Westbrook Street and Congress Street pedestrian safety enhancements, including traffic calming on Westbrook Street proper as well as a complete set of sidewalks that does not leave gaps in which pedestrians need to walk on the main roadway.

Loss of habitat

Section 6 notes that the scenic character will be preserved, with minimal tree cutting. However, most, if not all, of the existing white pines within the development perimeter will be removed. The site plans submitted show a cluster of trees in the center of the 2 single story buildout areas. These are labeled as "swamp oak." Early site studies stated that no significant species dwell here. However, the long-eared bat probably does, and uses tall trees for nesting/brooding.

> Molly Docherty (Maine Natural Areas Program) "This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed."
>
> Verdanterra (Freeport wildlife consultant) "The report indicated that northern long-eared bat (Myotis septentrionalis; threatened) has the potential to occur in the Project Area. There are no critical habitats for protected species in the Project Area, however there are a number of migratory birds of conservation concern protected under the Migratory Bird Treaty Act with the potential to occur in the Project Area. USFWS stresses the importance to avoid and minimize impacts to birds of conservation concern. Their report was done on March 13th, prior to end of winter."

The SVA requests a more detailed environmental survey that does not take place during the winter months.

River ecology

As the Planning Board is aware, the Stroudwater River is an impaired water body, so runoff is a major concern. Quoting from "The Stroudwater River Watershed Survey, "The section of Stroudwater River in Portland/South Portland is listed in the 2010 Maine Integrated Water Quality Report for a TMDL to be developed in 2012 to address dissolved oxygen…the 2012 Maine Integrated Water Quality Report lists the portion of the Stroudwater River in Gorham for not meeting its classification for biological monitoring in 2005 and 2010…these findings resulted in Maine DEP listing Stroudwater River on the 303d list, which identifies Maine's impaired water bodies."

The applicant's plans submitted include detailed technical diagrams on how run-off will be managed, as well as info on the retention ponds. Site plans also mentioned that developers are willing to place restrictions on which landscape maintenance products are allowed for home-owner use, but in neighborhood meeting discussions, it seems that both maintenance of retention ponds and enforcement of any proposed restrictions will be delegated to a future homeowners association, making it not the responsibility of the developer.

The SVA requests that the project conditions include set-asides of funding and resources for ongoing runoff protection, enforcement of landscape restrictions, retention pond maintenance and river cleanup. These set-asides should be the responsibility of the developer for a minimum of ten years from project commencement.

Project Feasibility and Transparency

The rezoning approval was advocated for by Mike Barton, but the marketing website now list Hilary Rocket as the primary developer. To date, the neighborhood has had absolutely no direct contact with Mr. Rocket, which is a bit surprising given the bio posted on the web site that says … "he [Mr. Rocket] makes it a priority to build relationships and hear the voices of neighborhood groups, town officials, town planners, historic commissions, and others." Since our only exposure has been reading about Mr. Rocket in the papers, residents are concerned about the developer's background and plans, and would like the opportunity to question him in person.

The SVA requests that Mr. Rocket appear before residents in person to discuss the relationship of Stroudwater Preserve to the existing Stroudwater neighborhood.

In addition, residents have commented that the "affordable" housing may not be very "affordable," which places project feasibility in doubt. We have been told price ranges from $315K and up, most likely being $350k -$450k, with around a dozen "affordable" units. We also have concerns about the viability of the PRUD units which are so close to the Maine Turnpike, and are concerned that the project may be abandoned midway, but only after the environmental damage (clear-cutting, grading, etc.) has already been completed. *Lest the Planning Board think this is an unfounded concern, we point just down Westbrook Street to the previous Stroudwater Christian Church expansion project that was abandoned midway, but only after clear-cutting and a concrete slab were laid down – damage that cannot be undone.*

The SVA requests that the developer demonstrate demand (via pre-sold units) before making any infrastructure investments beyond the first 50 houses (Phases I and II). The SVA further requests that the developer provide more detail in the viability of the PRUD units w.r.t. highway noise and light pollution before any development is started on that portion of the project.

Throughout the re-zoning process, the SVA has attempted to be clear in our view that **the SVA continues to believe that there is far too much volume of construction proposed as part of the Camelot Farms (Stroudwater Preserve) project.** As we have advocated in the past, a smaller development of closer to 40-50 homes (similar in scale to River's Edge and Tide Mill developments) would be much more appropriate. While the concerns we note above would be applicable to any development, they are particularly acute with an over-developed project like the current proposal.

The SVA recommend that the project only be permitted to build to a maximum of 50 units of housing (roughly corresponding to its Phase I and II), with any additional building contingent on specifically addressing the issues above related to impact of both the construction and operational aspects of the project.

Portland Maine Yes. Google's good here.

Jennifer Munson <jmy@portlandmaine.gov>

Fwd: Camelot Fatms

td@maine.rr.com <td@maine.rr.com> Fri, Nov 24, 2017 at 12:16 PM
To: planning@portlandmaine.gov

Sent from my iPhone

Begin forwarded message:

From: td@maine.rr.com
Date: November 22, 2017 at 8:38:33 AM EST
To: td@maine.rr.com
Subject: Camelot Fatms

Four property owners along Westbrook Street, whose property abuts the proposed development, had the zone changed from R-1 to R-3 without their consent. I am one of them. I ask that the developer plant an evergreen tree screening buffer between the existing homes and the development.
I also hope that two stands of old pine along Westbrook Street will be spared.
Mary Davis
1666 Westbrook Street
Sent from my iPhone

PLANNING BOARD REPORT
PORTLAND, MAINE

55-Unit Affordable Housing Development
58 Boyd Street
Level III Site Plan and Subdivision and Conditional Use Application

Submitted to: Portland Planning Board Date: November 22, 2017 Public Hearing Date: November 28, 2017	Prepared by: Matthew Grooms, Planner CBL: 022-F-001 Project #: 2017-217, 2017-223

I. INTRODUCTION

The Portland Housing Authority has submitted a preliminary Level III Site Plan/Subdivision/Conditional Use application for a six-story, 55-unit affordable housing project with ground-floor offices and neighborhood space at 58 Boyd Street in the R-7 Compact Urban Residential Overlay Zone. This proposal is further subject to the City's Inclusionary Zoning ordinance.

Figure 1: Development Site in Current Context with Boyd Street Community Garden

A Planning Board workshop for this project was held on October 24, 2017 where the applicant received feedback regarding the project's design, street tree placement, proposed parking configuration and compliance with the Franklin Arterial Master Plan. The required neighborhood meeting was held on October 30, 2017 at the 58 Boyd Street Community Room.

This Public Hearing was noticed to 59 neighbors and interested parties, and the public notice appeared in the *Portland Press-Herald* on November 20 & 21, 2017..

Applicant: Portland Housing Authority
Agent and Engineer: Pat Carroll, Carroll Associates
Architect: Ben Walter, CWS Architects

II. REQUIRED REVIEWS AND REQUESTED WAIVERS:

Applicant's Proposal	Applicable Standards
New structure of 55 dwelling units	Subdivision Review
Multifamily building of 47,800 sq ft	Level III Site Plan Review and R-7 Design Review
New structure of 55 dwelling units	Inclusionary Zoning Section 14-484
Waiver Request: To reduce driveway aisle width from 24' feet as required under Figure I-27, Section 1 of the Technical Manual, Transportation and Street Design Systems, down to 22' feet.	Figure I-27 under Section 1 of the Technical Manual, Transportation and Street Design Systems, requires that driveway aisle widths be a minimum of 24' feet in width where two-way aisles exist with standard sized parking spaces.

Staff Recommendation: Given low parking turnover and site conditions, Tom Errico, the City's consulting traffic engineer, supports a waiver from City standards.	
Waiver Request: Sidewalk waiver from termination of sidewalk along Lancaster Street to Franklin Street, and along property's Franklin Street frontage. **Staff Recommendation:** The applicant has provided supporting information and given the schedule of the Franklin Street improvement project, construction of a sidewalk on Franklin Street at the time of this project is not recommended. Given that a formal pedestrian crossing of Franklin Street is not provided, a sidewalk on Lancaster Street to Franklin Street is not recommended. Tom Errico, the City's consulting traffic engineer, supports the request for sidewalk waivers.	Ordinance Subdivision 14- 498(b)(8) *Sidewalks and* Curbs, requiring that sidewalks be constructed on each side of each street in accordance with article III of Chapter 25.

III. PROJECT DATA

Existing Zoning	R-7, Compact Urban Residential Overlay			
Existing Use	Unoccupied single-story building			
Proposed Use	55 residential units with shared community space, telemedicine room, and Cultivating Community offices			
Proposed Unit Mix	Efficiency	One-Bedroom	Two-Bedroom	Three-Bedroom
	23	10	13	9
Parcel Size	20,934 SF			

	Existing	*Proposed*	*Net Change*
Building Footprint	2,981 SF	7,796 SF	4,815 SF
Building Floor Area	2,981 SF	47,800 SF	44,819 SF
Impervious Surface Area	6,655 SF	17,388 SF	10,733 SF
Parking Spaces (on site)	5	23	17
Bicycle Parking Spaces	0	18	18
Estimated Cost of Project	$11,300,000		

IV. EXISTING CONDITIONS

The proposal site is situated west of Franklin Arterial, north of Lancaster Street and east of Boyd Street, with principal frontage on Boyd Street. At present, the lot is occupied by a single-story office building which previously served as the administrative office of the Portland Housing Authority and a small parking area with space for five vehicles, accessible via an existing curb cut located on Boyd Street. To the south of the project site is the Boyd Street Urban Farm complex and community garden, an important amenity for the surrounding neighborhood.

Figure 2: View of Site from Lancaster Street

The development site lies fairly low in elevation, with a high point of 22' feet above mean sea level at the southwestern corner of the site, adjacent to the right-of-way for Franklin Arterial and a low point of approximately 10' feet at the northeastern corner of the site. According to the applicant's stormwater report (*Attachments S and T*), the site drains from the southeast to the northwest, with the eastern portion of the site draining into an existing catch basin within the parking area and the western portion of the site sheet flows to storm drains located in Lancaster Street. The entire site is served by a 44" combined sewer running along the Lancaster Street alignment.

Figure 3: View of Site from Boyd Street with Boyd Street Garden

Figure 4: View of Site from Franklin Arterial. Future Phase II of this development may include building where current parking is proposed.

V. PROPOSED DEVELOPMENT

The proposals, including floor plans and elevations, are shown in the Plan set and described in the applicant's submittal. The proposed building is six stories tall and ranges from between 72' and 75' feet in height with finished floor elevations of between 12.25' and 15.16' feet (project datum). The development features 55 residential units including; 23 efficiency units, 10 one-bedroom units, 13 two-bedroom units and 9 three-bedroom units, spread across all floors with two handicap accessible units located on the ground floor. The ground floor also includes a residential lobby, waste management room, bicycle storage room, community meeting space and offices for Cultivating Community, which includes a Telemedicine room. The building features one elevator and two stairwells located at the front and rear of the building so as to be accessible via Boyd Street and the proposed parking area respectively.

In terms of unit affordability, 65% of all proposed units will be for households making at or below 50% of the Area Median Income (AMI), approximately $41,500 for a family of 4. A further 15% of the units are restricted to households earning up to 60% AMI and 20% of the units would be market rate. The applicant proposes to set aside 10% of the units for homeless households and a further 10% would have a preference for homeless or disabled households. The market rate units will feature rents 5-10% below market rate, so as to appeal to 'workforce housing' households, a target of the City of Portland in its

Figure 5: View of building's northeast corner

Figure 6: View of easterly facde looking northwest

Figure 7: View of westerly facade looking north

housing needs study. The proposed composition is intended to foster income diversity within the development.

Vehicular access to the site is proposed off of Lancaster Street where a new curb cut and driveway will provide both ingress and egress. Parking for 23 vehicles is provided on-site, including four compact and six Handicap parking spaces. Nine additional on-street spaces are being provided. The existing sidewalks, which run along the property's Lancaster Street and Boyd Street frontage will be replaced with a brick sidewalk/esplanade feature along Lancaster Street, measuring approximately 6' and 3.5' feet respectively, and a wider brick sidewalk measuring between 6.5' and 8' feet in width along Boyd Street. The sidewalk at various points is constructed within the applicant's property, for which the applicant is proposing to provide a public access easement. Additional right-of-way improvements include a curb-extension at the southwest corner of the Boyd and Lancaster Street intersection as well as sidewalk ramp improvements and new cross-walk construction within this intersection.

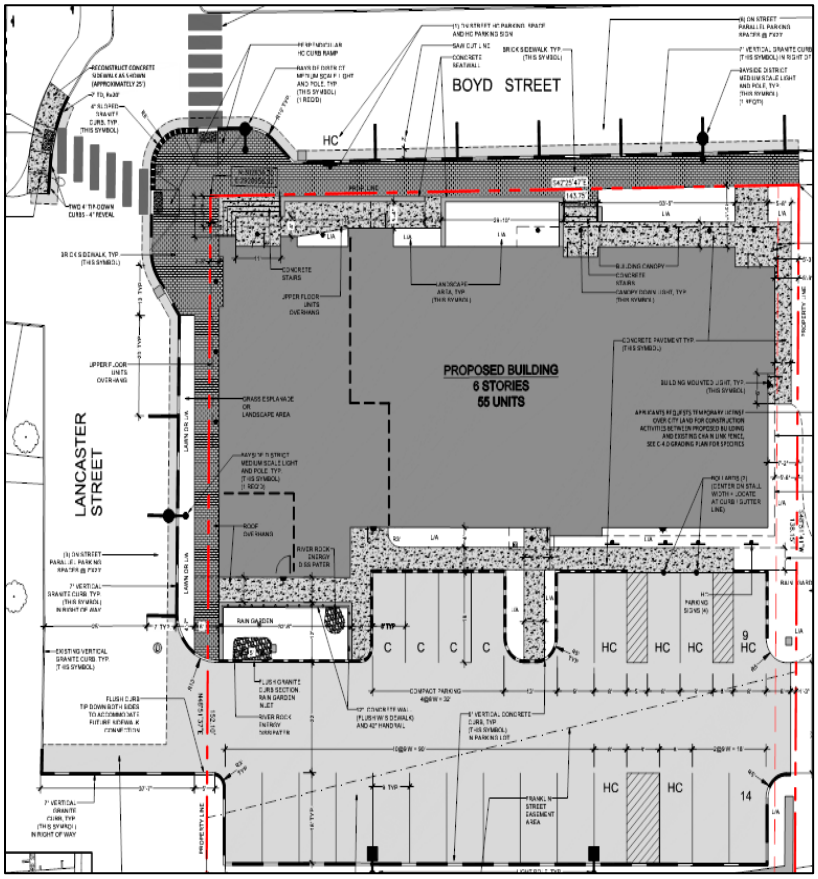

Figure 3: Proposed Site Plan

This site will be served by a new stormwater management system, composed of a rain garden feature to be located at the entrance of the proposed parking lot. This garden will provide quality treatment for the entire parking area, as well as the building roof area. Once treated, stormwater will be direct to the city's combined sewer system located beneath Lancaster Street. Overhead electrical service will be relocated underground per city standards, and the building will connect into existing water and wastewater lines located beneath Boyd Street.

Additional site improvements include significant site landscaping along the perimeter of the proposed building and within the proposed parking area, the installation of three Bayside District street lamps and a variety of canopy and building mounted light fixtures. The building will feature direct access to the Boyd Street community garden as well, located immediately south of the project site.

VI. PUBLIC COMMENT

The Planning Division has received one written comment in support of this project (*Attachment 12*). The neighborhood meeting for this project was held on October 30, 2017 at the 58 Boyd Street Community Room. The meeting was attended by eight (8) individuals. The neighborhood meeting minutes indicate that a number of topics were discussed by those in attendance, including anticipated use of the telemedicine room and other community spaces, on-street parking by tenants, safety concerns regarding Franklin Street and the project's impact on the availability of neighborhood open space. The minutes for this meeting are attached (*Attachment DD*).

VII. RIGHT, TITLE & INTEREST

The applicant has provided the deed to the property which demonstrates that at present the Portland Housing Authority owns the property in question. They have also provided the purchase and sale agreement which indicates that the Portland Housing Authority is selling the property to the Portland Housing Development Corporation (*Attachment H*).

VIII. FINANCIAL & TECHNICAL CAPACITY

The estimated cost of the development is $11,300,000.00. The applicant has supplied a letter from Bangor Savings Bank which indicates that they may provide up to $6,850,000. The letter supplied does not indicate that Bangor Savings Bank has agreed to the provision of this loan. Additional funding sources include $30,000 in CDBG funds intended for the demolition of the existing building and site preparation, as well as a $750,000 direct subsidy from the Federal Home Loan Bank of Boston's AHP program with additional subsidy buying down the rate for a permanent loan in the amount of $2,932,139 from Bangor Savings Bank. Additional resources may be provided under Low Income Housing Tax Credits (*Attachments M, N and O*).

IX. STAFF REVIEW

A. ZONING ASSESSMENT

The proposed development is located within the R7 Compact Residential Overlay Zone. The R7 zone is intended to encourage and accommodate compact residential development within appropriate locations on Portland's peninsula, and contains standards which foster infill development. For example, this district does not contain minimum lot size or minimum frontage requirements, allow for minimal building setbacks and permit up to 100% lot coverage. The R-7 district has a reduced lot area per dwelling unit requirement when compared with the R-6 zone, requiring just 435 square feet of land area per unit as opposed to 725 square feet for the R-6, and also permits building heights of up to 50 feet as opposed to 45 feet.

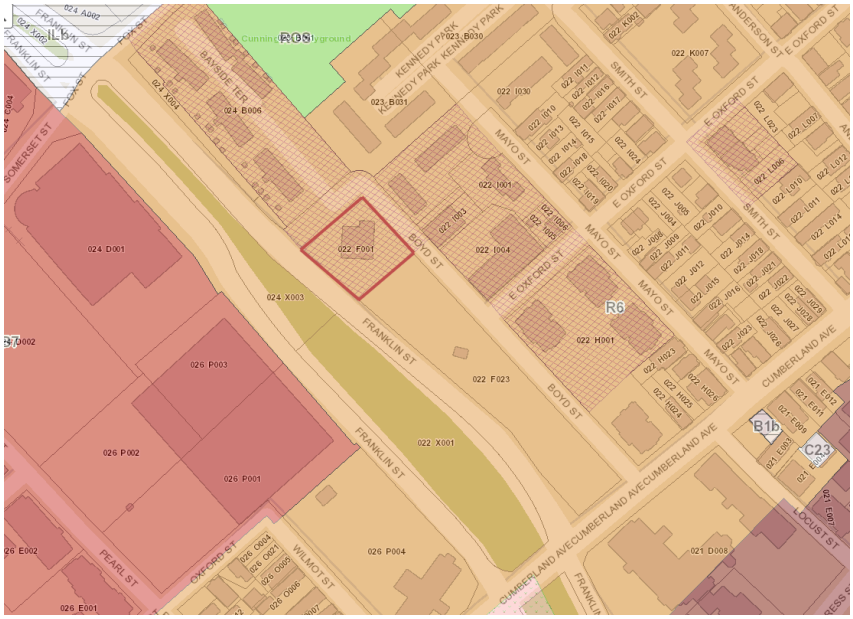

Figure 4: Project Zoning Map

In part to mitigate development intensity, the R-7 zone also contains a series of design standards intended to foster a pedestrian-oriented environment that contributes to the attractiveness and comfortability of Portland's neighborhoods. These design standards take into consideration building articulation, the orientation of principal and secondary building entrances and contextual harmony. The design review for this project is discussed in greater detail below.

The applicant has submitted a Zoning Analysis (*Attachment J*) in which it is stated that the project will exceed several of the dimensional standards for the R-7, including building height and unit density, through bonus mechanisms recently approved by the Planning Board and City Council found in Division 30, Affordable Housing, of the City's Land Use Code. The R-7 district would permit a maximum of 48

residential units in this location, however Division 30 allows a density bonus of 2.5X the base density, or in this case up to 120 units. Recent revisions to Division 30 also allow for an increase in building height of up to 25 feet, allowing for the proposed structure which ranges from between 72 and 75 feet.

This project is seeking a reduced parking requirement from the Planning Board. Division 20, Off-Street Parking, of the City's Land Use Code, requires that residential developments on Peninsula provide a minimum of one (1) parking space per residential unit, however, under Division 20, Section 14-332.2(b), it states that the Planning Board may establish a parking requirement for affordable housing units for rent or sale within an eligible project that is less than one (1) parking space per affordable housing unit, regardless of the size of the structure. Twenty-three (23) on-site parking spaces are being provided. It is proposed that one on-street parking space will be set aside for use by a shared-use U-Haul vehicle, which under Division 20, would count for eight (8) required parking spaces. The equivalent of 31 parking spaces are being provided.

Staff have reviewed the applicant's zoning analysis and consider that the proposed development meets all dimensional requirements of the R-7 District when considered in conjunction with bonus mechanisms under Division 30 as well as applicable standards of the R-6 District.

B. SUBDIVISION STANDARDS

14-496. Subdivision Plat Requirements

Review of the recording plat and final subdivision plan have been made a condition of approval subject to review by the Planning Authority and the Department of Public Works.

14-497. General Requirements (a) Review Criteria

Water, Air Pollution and Soil Erosion
An Erosion Control Plan has been submitted which is acceptable.

Traffic
The applicant has submitted a Traffic Assessment (*Attachment 3*) and the Traffic Engineering reviewer Tom Errico has offered the following comment:

> *The applicant has conducted a trip generation analysis and estimates the project will add 10 vehicle trips during the AM peak hour and 23 vehicle trips during the PM peak hour. I find the base ITE Trip Generation methodology to be acceptable, but continue to review local trip generation adjustment factors. This level of trip generation would not be expected to create or significantly worsen traffic congestion or safety deficiencies.*

Parking
The applicant has indicated that there will be 23 on-site parking spaces which will count towards the required parking for this development. Under this proposal, the applicant intends to provide one (1) car-share vehicle, which in turn would count for eight (8) required vehicle spaces each. The total number of countable spaces being provided is 31, whereas the requirement under zoning is 55 for the residential component of the project, and two (2) for the ground-floor neighborhood meeting areas for a total of 57 parking spaces. To off-set this requirement, the applicant is asking that the Board consider a reduced parking requirement as permitted under Division 20, for affordable housing projects. The applicant has also indicated that some parking demand will be met through existing on-street parking and parking found elsewhere on PHA properties. A parking assessment has been provided in support of this request. Mr. Errico has reviewed the parking demand calculations supplied by the applicant and offers the following comment (*Attachment 3*):

The applicant has conducted a parking demand and supply analysis and notes (per City Ordinance) that 47 parking spaces are required. The applicant also notes that 0.75 parking spaces per residential unit or 42 parking spaces can be expected. In general, I find the general approach to be reasonable, although I need to review the data in greater detail. I would note that use of on-street public parking spaces is generally not permitted as part of satisfying Site Plan parking requirements.

Updated Status: I find the parking demand and supply analysis to be acceptable given the campus-wide parking management provisions. I have no further comment.

Sanitary Sewer/Soils

The application has been reviewed by the consulting Peer Engineer (*Attachment 5*) and is acceptable subject to minor revisions and confirmation of wastewater capacity.

Storm water

The applicant proposes to manage stormwater impacts by collecting and treating the stormwater in a rain garden proposed adjacent to the parking lot entrance off of Lancaster Street (*Attachment 5*).

Scenic Beauty and Street Trees

The Landscape Plan indicates that twelve (12) new street trees are being provided for this development with significant additional landscaping (in the form of low lying shrubs and ornamental grasses) being provided around the perimeter of the proposed building and within the proposed parking area. The applicant has agreed to provide a payment in lieu of the additional required forty-three (43) street trees, asking that this contribution be used for landscaping improvements to the Boyd Street Urban Farm site.

Comprehensive Plan

The project is consistent with both the state and local Housing Goals and Policies of the Comprehensive Plan and specifically is supportive of the following goals:

- Increase, preserve, and modify the overall supply of housing City-wide to meet the needs, preferences and financial capabilities of all Portland Households; and
- Encourage additional contextually appropriate housing density in and proximate to neighborhood centers, concentrations of services and transit nodes and corridors as a means of supporting complete neighborhoods; and
- Pursue policies to enable people who work in Portland to have the option to live in Portland.

Electrical Service

The Subdivision ordinance requires electrical service to be underground which is being met with this proposal.

C. SITE PLAN STANDARDS

<u>14-526 Site Plan Standards</u>

Traffic - Access, Circulation, Loading and Servicing

Staff have not identified any concerns with the proposed site layout as it related to access, circulation, loading and servicing. Following the October 24th workshop, the applicant provided a waiver request seeking a drive aisle width reduction of two (2) feet within the proposed parking area. The waiver request was review by Tom Errico who provided the following recommendation:

Given low parking turnover and site conditions, I support a waiver from City standards.

Sidewalks
The applicant is proposing to reconstruct the sidewalk in brick along Boyd Street and Lancaster Street where impacted by the proposals. The proposed sidewalk width varies from 6' feet in width with a 4' 7" esplanade along Lancaster Street, to between 6' feet and 7.6' feet along Boyd Street. Portions of the sidewalk will be located on the applicant's property, and it has been stated that a public access easement will be provided for those areas. A curb extension is proposed at the intersection of Boyd Street, which enables the proposed ramps to meet ADA standards. Staff are asking for a contribution to improve the southeast corner of the Boyd Street and Lancaster Street intersection.

Staff find the proposed sidewalks to be acceptable in their proposed configuration. Sidewalks are not proposed along the property's Franklin Street frontage or between the terminus of Lancaster Street and Franklin Street. In response, Tom Errico asked that the applicant provide a sidewalk waiver criteria analysis for these segments. This information was provided. Mr. Errico supports a waiver of this requirement as listed below (*Attachment 3*):

> *The applicant has provided supporting information and given the schedule of the Franklin Street improvement project, construction of a sidewalk on Franklin Street at the time of this project is not recommended. Given that a formal pedestrian crossing of Franklin Street is not provided, a sidewalk on Lancaster Street to Franklin Street is not recommended. I support the request for sidewalk waivers.*

Public Transit Access - This project is not located along a transit route. The nearest transit shelter is 0.20 miles from this development, located at the Franklin Towers. The site plan ordinance requires that transit shelters be located no more than 0.25 miles away, thus no new shelters are required.

Parking
The applicant is proposing twenty-three (23) on-site parking spaces, which includes four (4) compact parking spaces and six (6) handicap accessible parking spaces. One on-street space would be occupied by a car-share vehicles under this proposal, counting for eight (8) required spaces. The applicant has also factored in nine (9) on-street spaces as part of their parking schedule.

Division 20, Off-Street Parking Standards, requires a total of one (1) parking space per residential unit for developments on peninsula, with an additional requirement for neighborhood centers which primarily serve clientele from the surrounding neighborhood, at a rate of one (1) parking space per 1,000 square feet of floor area. With fifty-five (55) residential units and approximately 2,000 square feet of ground floor space dedicated to the neighborhood center, this development is required under zoning to provide fifty-seven (57) parking spaces.

In order to off-set this discrepancy, the applicant is seeking to apply Division 20, Section 14-332.2(b), Categorical exceptions and modifications to off-street parking requirements which states:

> *For each low-income or workforce housing unit for rent or sale within an eligible project under the Affordable Housing Ordinance established in Division 30 of this article, no more than one (1) parking space shall be required. The Planning Board may establish a parking requirement for affordable housing units for rent or sale within an eligible project that is less than one (1) parking space per affordable housing unit, regardless of the size of the structure.*

As stated in the application, a total of forty-four (44) affordable units are being provided requiring a maximum of forty-four (44) parking spaces and as few as zero (0). With eleven (11) market rate units and approximately 2,000 square feet of space dedicated as a neighborhood center, the development is required to provide a minimum of thirteen (13) spaces to accommodate those uses. The remaining parking

requirement may be established by the Planning Board as stipulated under the Division 20 standard listed above. In support of this parking reduction, the applicant has supplied a TDM document with parking analysis (*Attachment O*). The City's consulting traffic engineer, Tom Errico, has reviewed the document and offers the following comment (*Attachment 3*):

> *The applicant has conducted a parking demand and supply analysis and notes (per City Ordinance) that 47 parking spaces are required. The applicant also notes that 0.75 parking spaces per residential unit or 42 parking spaces can be expected. In general, I find the general approach to be reasonable, although I need to review the data in greater detail. I would note that use of on-street public parking spaces is generally not permitted as part of satisfying Site Plan parking requirements.*
> ***Updated Status: I find the parking demand and supply analysis to be acceptable given the campus-wide parking management provisions. I have no further comment.***

Bicycle Parking
The proposals include an interior bicycle storage room capable of accommodating 18 bicycle spaces which does not meet city standards for bicycle parking as listed under Section 14-526(a)(4)(b), which requires that two (2) bicycle parking spaces be provided for every five (5) residential units for a total of twenty-two (22) bicycle spaces. Staff recommends that the applicant provide additional exterior bicycle parking for visitors to the development and or patrons of the ground-floor neighborhood center space. In response, the revised site plan shows two (2) additional exterior bicycle racks which meet city standards for bicycle racks located within the public right-of-way.

Snow Storage
Snow storage areas are clearly indicated on the site plan.

Transportation Demand Management
The Site Plan ordinance does not require a TDM for developments of this scale and scope within the R-7 District. However, the applicant has supplied a TDM in support of parking reduction for this project. Tom Errico has reviewed the TDM and offers the following comment (*Attachment 3*):

> *I have reviewed the TDM plan and I generally find it to be acceptable. The Plan notes annual monitoring and accordingly the applicant should provide any monitoring studies conducted for their other properties.*

Landscape Preservation / Site Landscaping and Screening
The project site is a previously developed urban site. There are no significant plant species, communities or specimens within the site.
The landscape schedule for this project includes twelve (12) street trees with three (3) Honeylocust being provided along the Franklin Street Frontage, three (3) American Hornbeam being provided along the Lancaster Street Frontage and five (5) Regal Prince Oak being provided along Boyd Street. At the rear of the building adjacent to the proposed parking area, within the two proposed rain gardens and along the southerly façade of the proposed building, the applicant is proposing a mixture of shrubs, perennials and ground covers which include; Sweet Pepperbush, Sweetfern and Northern Bayberry. Perennials and ground cover are proposed along the building's easterly façade where the building fronts Boyd Street.

Street Trees
The applicant is providing twelve (12) street trees on site and will contribute a fee in lieu of the remaining forty-three (43) required street trees. The applicant is requesting that this contribution go toward landscaping improvements to the Boyd Street Urban Farm complex.

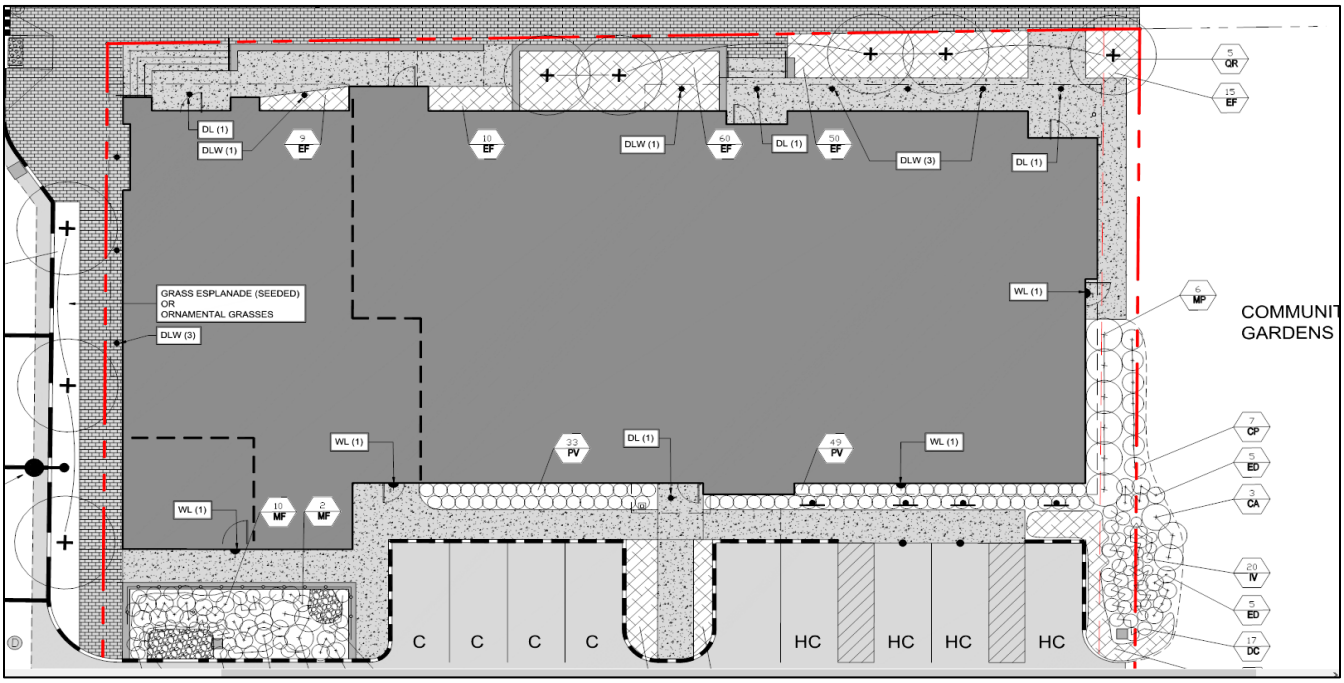

Figure 5: Proposed Landscaping Plan

Water quality, Stormwater Management and Erosion Control - see discussion under Subdivision Review above.

Public Safety

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime.

Fire Prevention

The Fire Department has reviewed the final plans submitted for this project and finds them to be acceptable.

Public Utilities

Keith Gray, Senior Engineer with the Department of Public Works, has reviewed the proposed utility connections for this project and finds them to be acceptable. Utility capacity letters have been made a condition of approval.

Massing, Ventilation and Wind Impact

The Site Plan ordinance includes the following requirement in respect of wind impacts:

> *The bulk, location or height of proposed buildings and structures shall not result in health or safety problems from a reduction in ventilation to abutting structures or changes to the existing wind climate that would result in unsafe wind conditions for users of the site and/or adjacent public spaces.*

The applicant has submitted documentation which supports their claim that the building as proposed will not have any adverse impacts from wind or ventilation due to the massing scheme of this six-story building.

Shadows
It is not anticipated that this project will generate detrimental shadow impacts on surrounding properties. Additional information was supplied by the applicant addressing this concern with their resubmitted plans (*Attachment FF*).

Historic Resources- This site is not located within a historic district and is not known to contain historic or archaeological resources.

Exterior Lighting including Street Lighting
The applicant has submitted light specifications for canopy and building mounted light fixtures as well as proposed street and parking lot lamps. In accordance with Section 10 of the Technical Manual, the applicant is providing three (3) Bayside District Medium Scale Light poles on Lancaster Street and Boyd Street. The parking lot will be illuminated with LED light poles with Viper S series fixtures. Building entrances will be illuminated by either LED recessed down lights built into the canopies or mounted to the building façade. The canopy down lights will be ID+ by Focal Point and the wall mount lights will be LNC Series fixtures. The photometric plan submitted as part of this application demonstrates acceptable light trespass as permitted under Section 12 of the Technical Manual.

Noise and Vibration
The applicant has confirmed that rooftop appurtenances will be located on the roof setback away from the building's edge. Additional information has been requested to determine compliance with applicable site plan standards.

D. DESIGN STANDARDS

R-7 Zone Design Principles and Standards
The applicant has submitted a narrative outlining how the proposal meets the architectural standards (*Attachment U*). The following design review comments from Caitlin Cameron, Urban Designer, relate to the final proposed elevations and renderings below (*Attachment 2*):

> *Standard b. Primary ground floor residential entries to multi-family buildings must orient to street – Met – Primary residential entrance faces Boyd Street. A secondary, ADA entrance is provided from the surface parking lot. Several more entrances to office, meeting rooms, and medical office are provided on Boyd Street. Staff is concerned that the residential entrance is not legible among*

Figure 6: View of the project from Franklin Arterial

all the entrances on the Boyd Street façade – can the hierarchy of that entrance be made more prominent?

Standard c. Design approach, visible and permanent expression of the character of the neighborhood – This standard is a challenge to interpret in that the building is the first multi-family building of this scale in this neighborhood and should not be expected to adopt the architectural language of a single-family, or smaller-scale building. The project is meeting the goal of providing taller development on Franklin Street, a pattern begun further down towards the India Street neighborhood. The building is introducing some new architectural expressions for this neighborhood. Planning Board members commented during the workshop on the roofline – some height variation has been added to the roofline in response.

Standard e. Reinforce the public realm – appropriately scaled entries, porches, fenestration, landscaping, and architectural details – Public realm is defined with landscaped areas, high level of fenestration on ground floor, active ground floor uses with frequent entries, and canopies/overhangs. Fenestration patterns and types were revised in response to staff comment to improve the scale and proportional relationship to the pedestrian level and the overall building composition. Score lines are also proposed in the façade to add some texture, scale, and visual interest.

Figure 7: East and North Elevations

Figure 8: West and South Elevations

E. CONDITIONAL USE STANDARDS

Neighborhood Center

Section 14-142 states that permitted uses in the R-7 shall be identical to the permitted uses allowed within the R-6 zone. Under Section 14-137(b) of Division 7, it states that "Places of Assembly" are to be considered a condition use for the R-6 zone and subsequently the R-7 zone. The applicant is proposing a shared community meeting space of approximately 1,000 square feet, a Telemedicine Room designed to accommodate health care examinations and consultations for building residents and neighbors, and administrative offices for the organization, 'Cultivating Community'. These spaces fall under the category "Places of Assembly". As defined within the City's land use code, a neighborhood center is:

A building or portion of a building used for recreational, artistic, social, educational, health, culture, or similar activities and services, usually owned and operated by a public or nonprofit group or agency. A neighborhood center is 10,000 square feet or less.

The Planning Board shall consider approval of the conditional use application based upon compliance with the Conditional Use Standards as stated under Section 14-474.C. The applicant has provided a written narrative to demonstrate compliance with these standards (Attachment BB). The standards and responses are listed below:

1. Authorized uses. A conditional use permit may be issued for any use denominated as a conditional use in the regulations applicable to the zone in which it is proposed to be located.

   Applicant Response: Proposed conditional use is Place of Assembly – Neighborhood Center

2. Standards. The Board shall, after review of required materials, authorize issuance of a conditional use permit, upon a showing that the proposed use, at the size and intensity contemplated at the proposed location, will not have substantially greater negative impacts than would normally occur from surrounding uses or other allowable uses in the same zoning district. The Board shall find that this standard is satisfied if it finds that:

   a. The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone: and

      Applicant Response: The proposed conditional use will not generate significant additional traffic above that of a typical 55-unit building and the adjacent high-density Portland Housing residential campus. The proposed conditional use will be integrated into the proposed building and should be a seamless and essential part of the neighborhood.

   b. The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter; and

      Applicant Response: The proposed conditional use is a benign use from the view point of creating an unsanitary or harmful environmental condition. The neighborhood center will not generate much sewerage, noise, or solid waste. It will be integrated into the proposed building so will not generate additional stand-alone noise, glare, dust or the like beyond the normal expected from a 55-unit residential building. All solid waste will be stored internally in a trash/recycling room. The proposed conditional use will not be a detriment to the neighborhood or zoning district but rather a benefit to the community as a neighborhood hub of services.

   c. The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.

      Applicant Response: The proposed conditional use's design and operations will not have greater effects or significant impacts on the surrounding properties/uses more so than the approved residential use. Since the conditional use is integrated into

the building and community to such a high degree the proposed use will be a significant benefit for the building's residences and the adjacent neighborhoods.

Staff have reviewed the applicant's conditional use application and find that the standards as listed under Section 14-474.C are being met. The proposed neighborhood center constitutes an accessory use found in numerous other residential developments and is further supported by the City's Housing Section of the Comprehensive Plan, which states a key goal is to, "encourage additional contextually appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neigborhoods." The development of a neighborhood center and telemedicine facility at this location would provide an important community amenity within a densely populated on-peninsula neighborhood.

Inclusionary Zoning Conditional Use

This project proposes to provide fifty-five (55) residential units, which under Section 14-487, triggers the City's Inclusionary Zoning requirements to ensure workforce housing. The city is requesting that the applicant provide a formal conditional use application to satisfy this requirement.

The city's Housing Program Manager, Victoria Volent, has reviewed the material provided and offers the following comments (*Attachment 4*):

The development located at 58 Boyd Street is proposing the creation of 55 units of rental housing. The applicant has elected to provide forty-four (44) units of low-income housing. Of those units, thirty-seven (37) are targeted towards households earning 50% AMI, and seven (7) units target households earning 60% AMI. Eleven (11) out of the 55 units will remain unrestricted. Twenty-three (23) units will be efficiencies, ten (10) will be one-bedroom, thirteen (13) will be two-bedroom, and nine (9) will be three-bedroom units.

The applicant has satisfied the requirement that all developments of ten or more units comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.

XIV. PROPOSED MOTIONS

A. CONDITIONAL USE

1. On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on November 28, 2017 for application 2017-223 relevant to the Conditional Use as authorized by Division 30, Section 14-487 Ensuring Workforce Housing; and the testimony presented at the Planning Board Hearing, the Planning Board finds the proposed conditional use for workforce housing **[does or does not]** meet the standards of Section 14-484 with the following conditions:

    a. That the Applicant shall provide a minimum of five (5) units of on-site workforce housing restricted to households earning up to 120% of the Area Median Income (AMI) per the submitted application prior.

    b. The applicant shall enter into an Affordable Housing Agreement (AHA) with the City. This agreement shall outline the details of the affordability restrictions placed on Workforce Units and will be filed as covenant to the property's deed with the Cumberland Country Registry of Deeds before a Certificate of Occupancy shall be issued.

2. On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on November 28, 2017 for application 2017-217 relevant to the Conditional Use standards as listed under Division 28, Section 14-474, Conditional Uses; and the testimony presented at the Planning Board Hearing, the Planning Board finds the proposed conditional use for Place of Assembly **[does or does not]** meet the standards of Section 14-474.

B. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-217 relevant to Portland's site plan ordinance and subdivision ordinance and other regulations; and the testimony presented at the Planning Board hearing:

1. The Planning Board [**finds/does not find]**, based upon the consulting transportation engineer's review (Attachment 3), that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard, (Section 1.14) which requires that aisle width for right-angle parking be 24 feet per Figure I-27. The Planning Board [**waives/does not waive]** the Technical Manual Standard (Section 1.14) to allow an aisle width measuring 22 feet within the proposed surface parking lot; and

2. The Planning Board [**finds/does not find]**, based upon the consulting transportation engineer's review (Attachment 3), that extraordinary conditions exist or undue hardship may result from strict compliance with the Subdivision standard, (Section 14-498(b)(8)(a)) which requires that sidewalks be constructed on each side of each street. The Planning Board **[waives/does not waive]** the Subdivision standard (Section 14-498(b)(8)(a)) to provide a sidewalk along the east side of Franklin Street and south side of Lancaster Street between the existing termination point and Franklin Street.

B. SUBDIVSION

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-217 relevant to the subdivision regulations; and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the subdivision standards of the land use code, subject to the following conditions of approval, which must be met prior to the signing of the plat:

1. A final subdivision plan and recording plat shall be reviewed and approved by the Department of Public Works and the Planning Authority.

C. DEVELOPMENT REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on November 28, 2017 for application 2017-217 relevant to the site plan regulations; and the testimony presented at the planning board hearing, the Planning Board

finds that the plan **[is/is not]** in conformance with the site plan standards of the land use code, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. The applicant shall provide a revised construction management plan per comments listed the memo from DPW dated November 21, 2017 (*Attachment 6*), which asks that the applicant acquire authorization from the Parks and Recreation Department for their proposed "materials storage and staging area" to be located within the Community Garden site, that proposed utility connections and their projected impacts within the public right-of-way be shown and that temporary toilets be screened from the Franklin Street; and

2. The applicant shall provide a stormwater maintenance agreement for the stormwater drainage system, which shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Works; and

3. The applicant shall work with DPW to convert the existing sewer within Lancaster Street into a separated stormdrain. This design shall be reviewed and approved by DPW.

4. The applicant shall provide a street tree contribution of $17,200, calculated at a rate of $400 per street tree. Funds from this contribution are to be put towards acceptable landscaping improvements, as defined under Section 14-526(b)(2)(iii)(b), within Franklin Preserve/Boyd Street Urban Farm; and

5. The applicant shall be responsible for the construction of the curb extension proposed at the southwest corner of the Boyd Street and Lancaster Street intersection. Public infrastructure improvements are proposed within Lancaster Street in 2019. In the event that these improvements are completed prior to full construction of this development, then the applicant shall be fully responsible for the design and construction of the curb extension. If, however these public infrastructure improvements are not yet complete, then the applicant shall provide a monetary contribution to the City in the full amount of the proposed work to complete the proposed improvement; and

6. A signed agreement with a car-share provider shall be submitted to the Planning Authority for review and approval. In the event that no car-share is provided, the Planning Authority is to be notified; and

7. Temporary construction licenses, footing licenses and public access easements for portions of the public sidewalk to be located on the applicant's property shall be submitted for review and approval by Corporation Counsel, the Department of Public Works and the Planning Authority; and

8. Based upon a projected trip generation of 23 PM peak hour trips, the applicant shall provide a contribution of $14,950 towards implementation of adopted improvements to Franklin Street (*Attachment 3*).

ATTACHMENTS:

Attachments to Memorandum

1. Final Planning Review Comments
2. Final Design Review Comments
3. Final Traffic Engineering Review Comments
4. Housing Program Manager Comments
5. Final Peer Review Comments
6. Final DPW Comments
7. Preliminary Planning Review Comments
8. Preliminary Design Review Comments
9. Preliminary Traffic Review Comments
10. Preliminary Peer Review Comments
11. Preliminary DPW Comments
12. Public Comment
    a. PC1: Ellen Bailey (10/22/2017)

Applicant's Submittal

A. Application Cover
B. Table of Contents
C. Cover Letter
D. Response Letter
E. Application
F. LOC Maps
G. Project Description
H. Right, Title & Interest
I. State and Federal Permits
J. Zoning Site Plan
K. Easements
L. Waivers
M. Financial Capacity Update
N. Financial Capacity
O. Technical Capacity
P. Construction Management
Q. Traffic and Parking
R. Significant Natural Features
S. Stormwater I
T. Stormwater II
U. City Master Plans
V. Utility Capacity Letters
W. Solid Waste
X. Fire Safety and Code Summary
Y. City Design Manual Standards
Z. HVAC
AA. Geotechnical Report
BB. Soils Management Plan
CC. Site Lighting
DD. Neighborhood Meeting I
EE. Neighborhood Meeting II
FF. Architectural Renderings
GG. Conditional Use Application
HH. Conditional Use Zoning Analysis

Plans

1. Survey
2. First Floor Site Plan
3. Second Floor Site Plan
4. Third Floor Site Plan
5. Fourth Floor Site Plan
6. Fifth Floor Site Plan
7. Sixth Floor Site Plan
8. Roof Plan
9. Building Elevations I
10. Building Elevations II
11. Demolition Plan
12. Site Plan
13. Subdivision Plan
14. Grading Plan
15. Stormwater and Erosion Control Plan
16. Utility Plan
17. Utility Details
18. Civil Details I
19. Civil Details II
20. Cover Sheet
21. Landscape and Lighting Plan
22. Site Details I
23. Site Details II
24. Site Details III
25. Photometric Plan
26. Life Safety Floor Plans

Planning and Urban Development Department
Planning Division

November 22, 2017

Jay Waterman
58 Boyd Street, LP
14 Baxter Blvd.
Portland, ME 04101

Pat Carroll, P.E.
Carroll Associates
217 Commercial Street, Suite 200
Portland, ME 04101

RE: Staff Review Comments for 58 Boyd Street – 55-Unit Affordable Housing Development (2017-217 and 2017-225) – Planning Board Review

Project Name:	58 Boyd Street	Project ID:	(2017-217, 2017-225)
Project Address:	58 Boyd Street	CBL:	022-F001
Applicant:	Jay Waterman		
Planner:	Matthew Grooms		

Dear Mr. Waterman and Mr. Carroll,

Thank you for submitting a final Level III Site Plan application for a new six-story 55 unit affordable housing project with ground-floor community space and 23 off-street parking spaces at 58 Boyd Street in the R-7 Compact Urban Residential Overlay District. This project is being reviewed as a preliminary plan subject to the following applicable Land Use Code provisions:

- Subdivision Ordinance, Article IV
- Site Plan Ordinance, Article V
- Division 7, R-6 Residential Zone
- Division 7.01, R-7 Compact Urban Residential Zone
- Division 20, Off-Street Parking Standards
- Division 30, Affordable Housing Standards
- Division 28, Jurisdiction of Board of Appeals
- Neighborhood Meeting Regulations, Section 14-32

Preliminary Plan for Planning Board Review: Staff Review Comments

I. Site Design Standards

1. The proposed site plan shows twenty-three (23) off-street parking spaces, including two spaces allocated for a shared-use vehicle. On-Street parking spaces are also counted towards the required number of spaces. Please be aware that on-street spaces are not considered when accounting for required parking under Division 20, Off-Street Parking Standards.

Status Update: It is noted that only one shared-use vehicle is being provided and that that vehicle will be located on-street. Twenty-three off-street parking spaces are being provided, and a minimum of thirteen (13) spaces are required per Division 20 for both the market rate units and neighborhood center use. It is understood that the Planning Board will establish a requirement for the remaining affordable housing units.

2. Under Division 20, Off-Street Parking Standards, this project is required to provide fifty-five (55) parking spaces at a rate of one space/residential unit, and two (2) spaces to account for the ground-floor neighborhood center uses. At present, the equivalent of thirty-six spaces are being provided, when considered in conjunction with the two (2) shared-use vehicles. Note, the Planning Board, under Section 14-332.2(b), can reduce the parking requirement for affordable housing projects. Given that eleven (11) of the units being provided are market rate, and that two (2) spaces are required for the ground-floor neighborhood space, the applicant shall provide a minimum of thirteen (13) parking spaces for these uses. The remaining discrepancy would require Planning Board approval.
   Status Update: See previous comment

3. A temporary construction easement will be required for any proposed work on City property, and any element of the applicant's design which crosses the property boundary shall require an easement.
   Status Update: The temporary construction easement has been made a condition of approval.

4. The Site Plan Ordinance requires that a minimum of two (2) bicycle parking spaces be provided for every five (5) residential units for a total requirement of twenty-two (22) bicycles. Staff requests that additional exterior bicycle racks be installed to serve guests and patrons of the neighborhood center.
   Status Update: Comment has been addressed with two exterior bicycle racks

5. The applicant should provide a written agreement with a shared-use vehicle provider which demonstrates that the two (2) shared-use vehicles have been secured.
   Status Update: The shared-use vehicle agreement has been made a condition of approval.

6. 'Ability to serve' letters shall be provided either with the final submission, or shall be made a condition of approval for this project.
   Status Update: Submission of the 'ability to serve' letters has been made a condition of approval.

7. Will any of the Boyd Street entrances be ADA accessible?
   Status Update: Comment has been addressed (see architectural renderings and site plan)

8. In regards to shadows generated by this structure, the applicant should provide a narrative and or analysis which demonstrates compliance with Section 14-526(d)(2) of the Site Plan Ordinance and Section 11 of the Technical Manual.
   Status Update: Comment has been addressed (see architectural renderings document)

9. Please note, roof-mounted mechanical equipment shall be screened from the public view in accordance with Section 14-526(d)(7).
   Status Update: Comment has been addressed (see applicant's response letter)

10. The Financial Capacity document does not appear to demonstrate sufficient funding for the proposed project. Please provide additional information for how the applicant intends to fund this development.
    Status Update: Comment has been addressed (see revised financial capacity document)

11. Please note, under Division 30, Section 14-487, it states that projects providing ten (10) or more residential units for sale or rent, shall submit a conditional use application for Inclusionary Zoning to be reviewed by the Planning Board. The Housing Program Manager has reviewed the submitted materials and finds the project as proposed in compliance with the standards of Section 14-487.
    Status Update: Application was submitted separate from site plan/subdivision application, and was received with preliminary submittal. Comment has been addressed.

12. Please label the ground-floor site plan with relevant square footage figures. These figures are utilized in zoning calculations.
    Status Update: Ground floor site plan has been revised as requested. Comment has been addressed.

13. The applicant should provide a written narrative elaborating how the propose project is compliant with the City Council approved Franklin Street Redevelopment Plan.
    Status Update: Written explanation was provided with applicant's response letter. It is anticipated that site integration will occur following redevelopment of Franklin Arterial. A contribution has been calculated by the city's consulting traffic engineer for those improvements. Payment of this contribution has been made a condition of approval.

Additional Submittals Required: Final plans and revised documents addressing Planning Board conditions of approval.

Please upload the digital plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made and only *one set of revised plans* may be submitted for review. This item is scheduled to go before the Planning Board as a public hearing item on November 28, 2017.

If you have any questions, feel free to contact me at (207) 874-8725 or by email at mgrooms@portlandmaine.gov.

Sincerely,
Matthew Grooms
Planner

Planning and Urban Development Department
Planning Division

Subject: R-7 Preliminary Design Review – 58 Boyd Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, November 15 2017

The project at 58 Boyd Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Matt Grooms, Planner, and Nell Donaldson, Senior Planner against the R-7 Design Standards and the *Multiple-family Design Standards* (Section (i) of the Design Manual).

Design Review Comments*:*

Sec. 14-143. R-7 Design Standards

Residential development in the R-7 Zone shall be reviewed by the Planning Board . . . The general intent of these development standards is to achieve an **attractive and comfortable city neighborhood environment**. **Varied** and **human-scaled building facades** are key to making a place **"pedestrian-oriented."** Building designs should provide a **high level of visual interest**, without creating a chaotic image. Residences should include **design elements that enhance the streetscape and address the street.**

Standard a. Porches and bays should face the street. – Not applicable

Standard b. Primary ground floor residential entries to multi-family buildings must orient to street – Met – Primary residential entrance faces Boyd Street. A secondary, ADA entrance is provided from the surface parking lot. Several more entrances to office, meeting rooms, and medical office are provided on Boyd Street. Staff is concerned that the residential entrance is not legible among all the entrances on the Boyd Street façade – can the hierarchy of that entrance be made more prominent?

Standard c. Design approach, visible and permanent expression of the character of the neighborhood – This standard is a challenge to interpret in that the building is the first multi-family building of this scale in this neighborhood and should not be expected to adopt the architectural language of a single-family, or smaller-scale building. The project is meeting the goal of providing taller development on Franklin Street, a pattern begun further down towards the India Street neighborhood. The building is introducing some new architectural expressions for this neighborhood. Planning Board members commented during the workshop on the roofline – some height variation has been added to the roofline in response.

Standard d. Façade shall be varied and articulated to provide visual interest to pedestrians – The project does use a combination of change in materials, massing and plane changes, recessed entries, and canopies to create visual interest.

Standard e. Reinforce the public realm – appropriately scaled entries, porches, fenestration, landscaping, and architectural details – Public realm is defined with landscaped areas, high level of fenestration on ground floor, active ground floor uses with frequent entries, and canopies/overhangs. Fenestration patterns and types were revised in response to staff comment to improve the scale and proportional relationship to the pedestrian level and the overall building composition. Score lines are also proposed in the façade to add some texture, scale, and visual interest.

Standard f. Visual and acoustical privacy – Met

Standard g. Natural Light and Ventilation – Met

(i) Multiple-Family Design Standards

(1)a.1. Building Design: There are a limited number of residential buildings near this site – predominantly townhouses or duplexes often setback from the street and with a stoop. Multi-family buildings are closer to the street with three to four stories, orientation to the street, and flat roofs. The proposed building is significantly bigger than most residential projects in this neighborhood at 6 stories but includes features that complement the nearest residential types such as vertically proportioned windows, flat roof, raised stoop with canopy. The proposal is also a mixed-use building and has an active ground floor providing variation in the window pattern and spacing, articulation, and landscaping – incorporating positive visual interest.

(1)a.2. Building Relationship to the Street: The project is oriented to Boyd Street though also has a prominent face to Franklin Street. On Boyd Street, the project is located 5' to 12' from the sidewalk to allow room for stoops, ramps, and landscaped areas. The building is close to the property line on Lancaster. There are no other buildings on this side of the street and only a handful on the street as a whole – the project reasonably establishes a street wall close to the sidewalk similar to the limited pattern established and in proportion to the scale of the building height.

(1)a.3. Open Space: Met - Some landscaped areas provided between sidewalk and building.

(1)a.4. Light and Air: Met – Each unit has adequate windows.

(1)a.5. Screened Parking: Per design and site plan standards, the surface parking is screened from Franklin Street and the adjacent properties with landscape buffers.

(1)a.6. Lodging House Conversion: Not applicable

Portland Maine | Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

58 Boyd Street - Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Tue, Nov 21, 2017 at 9:04 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>

Hi Matt – The following represents our Final Traffic comments following a review of revised application materials.

- It is my understanding that Lancaster Street is designated as an accepted street and thus design details should meet City standards. Some comments include:
    - The roadway cross-section width.
    - Typically, the back of sidewalk is located on the property boundary.
    - Vehicle turnaround accommodations shall be included.

  Status: Given site conditions, coordination with DPW staff, and that Lancaster Street is currently a dead end street, the street design is acceptable. I have no further comment.

- Dimensions for roadway width shall be provided for all areas, including but not limited to, the turn area from Boyd Street onto Lancaster Street.

  Status: The plans have been revised and I have no further comment.

- The applicant shall provide a sidewalk waiver criteria analysis for Lancaster Street (to Franklin Street) and along the Franklin Street property boundary.

  Status: The applicant has provided supporting information and given the schedule of the Franklin Street improvement project, construction of a sidewalk on Franklin Street at the time of this project is not recommended. Given that a formal pedestrian crossing of Franklin Street is not provided, a sidewalk on Lancaster Street to Franklin Street is not recommended. I support the request for sidewalk waivers.

- The City acknowledges the need to work collaboratively in developing an ADA compliant ramp on the southeastern corner of Boyd Street and Lancaster Street.

  Status: The applicant has committed to working with the City in the future during the City's Storm Water project. I have no further comment.

- The applicant shall provide documentation in support of a waiver request for the parking lot aisle width. Greater justification on constraints should be provided than provided in the current application.

  Status: Given low parking turnover and site conditions, I support a waiver from City standards.

- The plans should note that delineation of the on-street parking spaces is for illustrative purposes only. The City does not mark on-street parking spaces.

Status: The plans have been revised and I have no further comment.

- The applicant should provide documentation for providing the on-street handicap parking space, when on-site handicap parking spaces are provided.

Status: The applicant has provided supporting documentation on need and I find the provision of a space to be reasonable.

- The applicant shall provide details on changes to on-street parking signage in the project area.

Status: The plans have been revised and I have no further comment.

- Construction details for the sidewalk ramps shall be provided by the applicant.

Status: It is my understanding that Bruce Hyman has reviewed the sidewalk details and is providing comments.

- It is my understanding that DPW staff will be providing comments regarding the proposed curb extension and future City projects that may disturb the area.

Status: I have no further comment.

- The applicant has conducted a parking demand and supply analysis and notes (per City Ordinance) that 47 parking spaces are required. The applicant also notes that 0.75 parking spaces per residential unit or 42 parking spaces can be expected. In general, I find the general approach to be reasonable, although I need to review the data in greater detail. I would note that use of on-street public parking spaces is generally not permitted as part of satisfying Site Plan parking requirements.

Status: I find the parking demand and supply analysis to be acceptable given the campus-wide parking management provisions. I have no further comment.

- The applicant has conducted a trip generation analysis and estimates the project will add 10 vehicle trips during the AM peak hour and 23 vehicle trips during the PM peak hour. I find the base ITE Trip Generation methodology to be acceptable, but continue to review local trip generation adjustment factors. This level of trip generation would not be expected to create or significantly worsen traffic congestion or safety deficiencies.

Status: I have no further comment.

- The City has been requiring applicants to provide monetary contributions towards the implementation of Franklin Street improvements. A contribution amount will be provided in the future.

Status: The applicant has provided a PM peak hour trip generation estimate according accepted methods. I find the estimate to be reasonable. The project is expected to generate 23 weekday PM peak hour trips. Based upon trip generation estimates provided by the applicant, the applicant shall contribute $14,950 towards implementation of adopted improvements to Franklin Street.

- I have reviewed the TDM plan and I generally find it to be acceptable. The Plan notes annual monitoring and accordingly the applicant should provide any monitoring studies conducted for their other properties.

Status: I have no further comment.

- The construction management plan provided is not acceptable. Site specific details noted in the City's template shall be provided.

Status: It is my understanding that DPW is providing comments.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

58 Boyd Street

Victoria Volent <vvolent@portlandmaine.gov> Thu, Oct 19, 2017 at 3:26 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

Matthew,

The development located at 58 Boyd Street is proposing the creation of 55 units of rental housing The applicant has elected to provide forty-four (44) units of low-income housing. Of those units, thirty-seven (37) are targeted towards households earning 50% AMI, and seven (7) units target households earning 60% AMI. Eleven (11) out of the 55 units will remain unrestricted. Twenty-three (23) units will be efficiencies, ten (10) will be one-bedroom, thirteen (13) will be two-bedroom, and nine (9) will be three-bedroom units.

The applicant has satisfied the requirement that all developments of ten or more units comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.

Please let me know if I may be of further assistance.

Victoria Volent

Victoria Volent
Housing Program Manager
Housing and Community Development
Phone: 207-482-5028
Fax: 207-874-8949
www.portlandmaine.gov

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41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Matt Grooms, Planner
FROM: Lauren Swett, PE & Loren Joyce, EIT
DATE: November 21, 2017
RE: 58 Boyd Street Apartments, Level III Site Plan

Woodard & Curran has reviewed the Level III Site Plan for the proposed development located at 58 Boyd Street in Portland, Maine. The project involves the construction of a 55 unit multi-family affordable housing apartment building and associated site work.

Documents Reviewed by Woodard & Curran

- Level III Site Plan and attachments, dated September 29, 2017, prepared by Carroll Associates on behalf of 58 Boyd Street, LP.
- Project Plans, Sheets 1-23, dated November 7, 207, prepared by Carroll Associates and Ransom Consulting, on behalf of 58 Boyd Street, LP.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III Site Plan project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include specific stormwater management features for stormwater quality control. The Applicant is proposing the use of a rain garden and a FocalPoint system to treat stormwater runoff generated onsite.
   c) Flooding Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant has requested a waiver from the flooding standards. We understand that the Applicant is specifically working with the Department of Public Works to address the possibility of converting sewer in Lancaster Street into a separated stormdrain. Additional information is needed by the Applicant from the City. Once this information is provided and the Applicant can provide a final design for the converted stormdrain, the issue of capacity can be addressed. This final design could be a condition of approval.
2) The Applicant has noted that drafts of temporary construction license and access easements are in progress and will be provided when complete. These final documents will likely need to be a condition of approval.
3) All other comments have been addressed at this time.

City of Portland Maine
Dept. of Public Works
Engineering Division

Memo

To: Matthew Grooms - Planner

From: Keith Gray, PE – Senior Engineer, DPW

Date: November 21, 2017

Re: 58 Boyd Street (2017-217) – Level III Site Plan Application

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The following comments/concerns are in regards to the Level III Site Plan Application prepared by Carroll Associates & Ransom Consultants, on behalf of the applicant, 58 Boyd Street, LP and the owner, Portland Housing Authority, with last plan revision submitted on November 10th, 2017. Please feel free to contact me with questions. Thank you.

Construction Management Plan:

- The applicant has submitted a Construction Management Plan (CMPlan) prepared by Carroll Associates. We have the following concerns/comments:
  - The "materials storage and staging area" proposed within the Community Gardens requires authorization from the Parks & Recreation Department.
  - All proposed utility connections shall be shown on the CMPlan. What are the impacts to the ROW? Proposed parking occupancy, lane closures?
  - Screening of temporary toilets from Franklin Street.

Planning and Urban Development Department
Planning Division

October 19, 2017

Jay Waterman
58 Boyd Street, LP
14 Baxter Blvd.
Portland, ME 04101

Pat Carroll, P.E.
Carroll Associates
217 Commercial Street, Suite 200
Portland, ME 04101

RE: Staff Review Comments for 58 Boyd Street – 55-Unit Affordable Housing Development (2017-217 and 2017-225) – Planning Board Review

Project Name:	58 Boyd Street	Project ID:	(2017-217, 2017-225)
Project Address:	58 Boyd Street	CBL:	022-F001
Applicant:	Jay Waterman		
Planner:	Matthew Grooms		

Dear Mr. Waterman and Mr. Carroll,

Thank you for submitting a preliminary Level III Site Plan application for a new six-story 55 unit affordable housing project with ground-floor community space and 23 off-street parking spaces at 58 Boyd Street in the R-7 Compact Urban Residential Overlay District. This project is being reviewed as a preliminary plan subject to the following applicable Land Use Code provisions:

- Subdivision Ordinance, Article IV
- Site Plan Ordinance, Article V
- Division 7, R-6 Residential Zone
- Division 7.01, R-7 Compact Urban Residential Zone
- Division 20, Off-Street Parking Standards
- Division 30, Affordable Housing Standards
- Division 28, Jurisdiction of Board of Appeals
- Neighborhood Meeting Regulations, Section 14-32

Preliminary Plan for Planning Board Review: Staff Review Comments

I. Site Design Standards

1. The proposed site plan shows twenty-three (23) off-street parking spaces, including two spaces allocated for a shared-use vehicle. On-Street parking spaces are also counted towards the required number of spaces. Please be aware that on-street spaces are not considered when accounting for required parking under Division 20, Off-Street Parking Standards.

2. Under Division 20, Off-Street Parking Standards, this project is required to provide fifty-five (55) parking spaces at a rate of one space/residential unit, and two (2) spaces to account for the ground-floor neighborhood center uses. At present, the equivalent of thirty-six spaces are being provided, when considered in conjunction with the two (2) shared-use vehicles. Note, the Planning Board, under Section 14-332.2(b), can reduce the parking requirement for affordable housing projects. Given that eleven (11) of the units being provided are market rate, and that two (2) spaces are required for the ground-floor neighborhood space, the applicant shall provide a minimum of thirteen (13) parking spaces for these uses. The remaining discrepancy would require Planning Board approval.
3. A temporary construction easement will be required for any proposed work on City property, and any element of the applicant's design which crosses the property boundary shall require an easement.
4. The Site Plan Ordinance requires that a minimum of two (2) bicycle parking spaces be provided for every five (5) residential units for a total requirement of twenty-two (22) bicycles. Staff requests that additional exterior bicycle racks be installed to serve guests and patrons of the neighborhood center.
5. The applicant should provide a written agreement with a shared-use vehicle provider which demonstrates that the two (2) shared-use vehicles have been secured.
6. 'Ability to serve' letters shall be provided either with the final submission, or shall be made a condition of approval for this project.
7. Will any of the Boyd Street entrances be ADA accessible?
8. In regards to shadows generated by this structure, the applicant should provide a narrative and or analysis which demonstrates compliance with Section 14-526(d)(2) of the Site Plan Ordinance and Section 11 of the Technical Manual.
9. Please note, roof-mounted mechanical equipment shall be screened from the public view in accordance with Section 14-526(d)(7).
10. The Financial Capacity document does not appear to demonstrate sufficient funding for the proposed project. Please provide additional information for how the applicant intends to fund this development.
11. Please note, under Division 30, Section 14-487, it states that projects providing ten (10) or more residential units for sale or rent, shall submit a conditional use application for Inclusionary Zoning to be reviewed by the Planning Board. The Housing Program Manager has reviewed the submitted materials and finds the project as proposed in compliance with the standards of Section 14-487.
12. Please label the ground-floor site plan with relevant square footage figures. These figures are utilized in zoning calculations.
13. The applicant should provide a written narrative elaborating how the propose project is compliant with the City Council approved Franklin Street Redevelopment Plan.

Additional Submittals Required:

Please upload the digital plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made and only *one set of revised plans* may be submitted for review. This item is scheduled to go before the Planning Board as a workshop item on October 24, 2017. Following the workshop process, this item will be scheduled for a public hearing at the Planning Board's next available meeting and the staff will provide the Planning Board with a recommendation to approve, approve with conditions, or deny the final site plan.

If you have any questions, feel free to contact me at (207) 874-8725 or by email at mgrooms@portlandmaine.gov.

Sincerely,
Matthew Grooms
Planner

Planning and Urban Development Department
Planning Division

Subject: R-7 Preliminary Design Review – 58 Boyd Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Monday, October 16 2017

The project at 58 Boyd Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Matt Grooms, Planner, and Nell Donaldson, Senior Planner against the R-7 Design Standards and the *Multiple-family Design Standards* (Section (i) of the Design Manual).

Design Review Comments*:*

- The applicant is asked to provide the renderings that show the project in context.
- Please provide more information regarding building materials (labeled on elevations)

Sec. 14-143. R-7 Design Standards

Residential development in the R-7 Zone shall be reviewed by the Planning Board . . . The general intent of these development standards is to achieve an **attractive and comfortable city neighborhood environment**. **Varied** and **human-scaled building facades** are key to making a place **"pedestrian-oriented."** Building designs should provide a **high level of visual interest**, without creating a chaotic image. Residences should include **design elements that enhance the streetscape and address the street.**

Standard a. Porches and bays should face the street. – Not applicable

Standard b. Primary ground floor residential entries to multi-family buildings must orient to street – Met – Primary residential entrance faces Boyd Street. A secondary, ADA entrance is provided from the surface parking lot. Several more entrances to office, meeting rooms, and medical office are provided on Boyd Street. Staff is concerned that the residential entrance is not legible among all the entrances on the Boyd Street façade – can the hierarchy of that entrance be made more prominent?

Standard c. Design approach, visible and permanent expression of the character of the neighborhood – This standard is a challenge to interpret in that the building is the first multi-family building of this scale in this neighborhood and should not be expected to adopt the architectural language of a single-family, or smaller-scale building. The project is meeting the goal of providing taller development on Franklin Street, a pattern begun further down towards the India Street neighborhood. The building is introducing some new architectural expressions for this neighborhood.

Standard d. Façade shall be varied and articulated to provide visual interest to pedestrians – The project does use a combination of change in materials, massing and plane changes, recessed entries, and canopies to create visual interest.

Standard e. Reinforce the public realm – appropriately scaled entries, porches, fenestration, landscaping, and architectural details – Public realm is defined with landscaped areas, high level of fenestration on ground floor, active ground floor uses with frequent entries, and canopies/overhangs. Staff suggest the scale/proportion of the clerestory windows on the Boyd Street and Franklin Street facades be revised to be more similar to the other window types in the building. Additionally, the storefront placement on Boyd Street is asymmetrical – revise the pattern of windows to be more regular or rational (the single window appears arbitrary from the street).

Standard f. Visual and acoustical privacy – Met

Standard g. Natural Light and Ventilation – Met

(i) Multiple-Family Design Standards

(1)a.1. Building Design: There are a limited number of residential buildings near this site – predominantly townhouses or duplexes often setback from the street and with a stoop. Multi-family buildings are closer to the street with three to four stories, orientation to the street, and flat roofs. The proposed building is significantly bigger than most residential projects in this neighborhood at 6 stories but includes features that complement the nearest residential types such as vertically proportioned windows, flat roof, raised stoop with canopy. The proposal is also a mixed-use building and has an active ground floor providing variation in the window pattern and spacing, articulation, and landscaping – incorporating positive visual interest.

(1)a.2. Building Relationship to the Street: The project is oriented to Boyd Street though also has a prominent face to Franklin Street. On Boyd Street, the project is located 5' to 12' from the sidewalk to allow room for stoops, ramps, and landscaped areas. The building is close to the property line on Lancaster. There are no other buildings on this side of the street and only a handful on the street as a whole – the project reasonably establishes a street wall close to the sidewalk similar to the limited pattern established and in proportion to the scale of the building height.

(1)a.3. Open Space: Met - Some landscaped areas provided between sidewalk and building.

(1)a.4. Light and Air: Met – Each unit has adequate windows.

(1)a.5. Screened Parking: Per design and site plan standards, the surface parking should be screened from Franklin Street and the adjacent properties.

(1)a.6. Lodging House Conversion: Not applicable

Portland Maine | Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

58 Boyd Street - Preliminary Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Oct 18, 2017 at 3:38 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Lauren Swett <lswett@woodardcurran.com>

Hi Matt – The following represents our preliminary traffic comments following a review of application materials.

- It is my understanding that Lancaster Street is designated as an accepted street and thus design details should meet City standards. Some comments include:
    - The roadway cross-section width.
    - Typically, the back of sidewalk is located on the property boundary.
    - Vehicle turnaround accommodations shall be included.

- Dimensions for roadway width shall be provided for all areas, including but not limited to, the turn area from Boyd Street onto Lancaster Street.

- The applicant shall provide a sidewalk waiver criteria analysis for Lancaster Street (to Franklin Street) and along the Franklin Street property boundary.

- The City acknowledges the need to work collaboratively in developing an ADA compliant ramp on the southeastern corner of Boyd Street and Lancaster Street.

- The applicant shall provide documentation in support of a waiver request for the parking lot aisle width. Greater justification on constraints should be provided than provided in the current application.

- The plans should note that delineation of the on-street parking spaces is for illustrative purposes only. The City does not mark on-street parking spaces.

- The applicant should provide documentation for providing the on-street handicap parking space, when on-site handicap parking spaces are provided.

- The applicant shall provide details on changes to on-street parking signage in the project area.

- Construction details for the sidewalk ramps shall be provided by the applicant.

- It is my understanding that DPW staff will be providing comments regarding the proposed curb extension and future City projects that may disturb the area.

- The applicant has conducted a parking demand and supply analysis and notes (per City Ordinance) that 47 parking spaces are required. The applicant also notes that 0.75 parking spaces per residential unit or 42 parking spaces can be expected. In general, I find the general approach to be reasonable, although I need to review the data in greater detail. I would note that use of on-street public parking spaces is generally not permitted as part of satisfying Site Plan parking requirements.

- The applicant has conducted a trip generation analysis and estimates the project will add 10 vehicle trips during the AM peak hour and 23 vehicle trips during the PM peak hour. I find the base ITE Trip Generation methodology to be acceptable, but continue to review local trip generation adjustment factors. This level of trip generation would not be expected to create or significantly worsen traffic congestion or safety deficiencies.

- The City has been requiring applicants to provide monetary contributions towards the implementation of Franklin Street improvements. A contribution amount will be provided in the future.

- I have reviewed the TDM plan and I generally find it to be acceptable. The Plan notes annual monitoring and accordingly the applicant should provide any monitoring studies conducted for their other properties.

- The construction management plan provided is not acceptable. Site specific details noted in the City's template shall be provided.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Matt Grooms, Planner
FROM: Lauren Swett, PE & Craig Sweet, EIT
DATE: October 19, 2017
RE: 58 Boyd Street Apartments, Level III Site Plan

Woodard & Curran has reviewed the Level III Site Plan for the proposed development located at 58 Boyd Street in Portland, Maine. The project involves the construction of a 55 unit multi-family affordable housing apartment building and associated site work.

Documents Reviewed by Woodard & Curran

- Level III Site Plan and attachments, dated September 29, 2017, prepared by Carroll Associates on behalf of 58 Boyd Street, LP.
- Project Plans, Sheets 1-25, dated September 15, 207, prepared by Carroll Associates and Ransom Consulting, on behalf of 58 Boyd Street, LP.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III Site Plan project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: Plans, notes, and details should be provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. At a minimum, catch basin protection will be required, but the Applicant should evaluate the need for downstream erosion control barrier in some areas of the site.
   b) General Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include specific stormwater management features for stormwater quality control. The Applicant is proposing the use of a rain garden and a FocalPoint system to treat stormwater runoff generated onsite. Calculations for the sizing of the stormwater treatment systems, as well as calculations verifying the amount of treatment provided on the site should be provided. The Applicant has verified that a sizing spreadsheet will be provided – we will review when it is made available.
   c) Flooding Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include specific stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant has requested a waiver from the flooding standards. Please see the following comment on stormwater.
2) The Applicant has started coordinating with the Department of Public Works on the stormwater management system located in Boyd Street. Additional discussions are required with regards to the separation of the combined sewer and with the potential waiver of the flooding standard. We recommend, based on discussions with the Applicant, that a meeting be held following the workshop.
3) The Stormwater Management Plan should include a project-specific stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.
4) All work within the City of Portland Right of Way should be in conformance with the City of Portland Technical Manual. Details in conformance with the standards should be provided for the following:
   a) Pavement Cross Section (note that 9.5mm HMA is not allowed as surface pavement)
   b) Utility details including pipe trench, structures, and lateral connections

5) The Applicant has noted that a temporary construction easement will be required from the City of Portland to facilitate Construction. A permanent easement or agreement will be required for the rain garden and landscaping proposed to cross the eastern property boundary.
6) In accordance with the current sidewalk material policy, driveway aprons are required to be of the same material as the sidewalk. A brick apron should be provided.

City of Portland Maine
Dept. of Public Works
Engineering Division

Memo

To: Matthew Grooms - Planner

From: Keith Gray, PE – Senior Engineer, DPW

Date: October 19, 2017

Re: 58 Boyd Street (2017-217) – Level III Site Plan Application

---

The following comments/concerns are in regards to the Level III Site Plan Application prepared by Carroll Associates & Ransom Consultants, on behalf of the applicant, 58 Boyd Street, LP and the owner, Portland Housing Authority, with last plan revision submitted on October 19, 2017. Please feel free to contact me with questions. Thank you.

Construction Management Plan:

- The applicant has submitted a Construction Management Plan (CMPlan). Please note that the Construction Management Plan includes: 1) **a construction management site plan**, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories identified within the enclosed CMPlan Template.

General Comments:

- There is a high probability that DPW will be designing and constructing a stromdrain down Lancaster Street and connect into Franklin Street. The stormdrain would collect the separated systems in Boyd and Mayo Street. This construction is anticipated to start in 2019.
    - The "future" stormdrain in Lancaster Street would most likely be oriented under the proposed curb extension at Lancaster and Boyd Street. If the projects to do not coincide, DPW recommends that the construction cost of the curb extension be put into infrastructure account and constructed during the stormdrain extension.
- Provide additional information on the existing size and type of the sewer main within Boyd Street and Lancaster Street.
- The note on Sheet 6 refers to installing a backflow preventer on the foundation drain that points to the proposed 6" sewer service. The note should be revised to include only the sewer as the foundation drain is separately discharged to Lancaster Street.
- Will the power feed from the Bayside Anchor transformer require a pull electrical vault in Boyd Street?

Google Groups

58 Boyd Street

Bailey, Ellen <ebailey@eastbayside.org> Oct 22, 2017 12:03 PM
Posted in group: **Planning Board**

To Whom it May Concern,

I just wanted to express my support for the proposed development for 58 Boyd Street. We are in desperate need of affordable housing in Portland and the type of development being proposed at this location will certainly help meet that need.

The mixed-income units, space for community to use, proximity to a transit corridor and the fact that the building will abut the Urban Gardens on Boyd Street make this a great project.

My expectation is that 58 Boyd Street will fulfill a similar need as the Bayside Anchor Project already has and I know from first hand conversations that people who have been homeless for years, now have a place to live in Bayside Anchor.

My hope is that 58 Boyd Street will help more of our homeless population find shelter and safety.

I am wholeheartedly in support of this project and look forward to continued conversations and planning with the Portland Housing Authority to make our neighborhood welcoming and safe for all who live here.

Please note, I am not speaking for the East Bayside Neighborhood Organization at this time. I am speaking of my personal viewpoints.

Thank you,

Ellen Bailey
President, East Bayside Neighborhood Organization

Web Site: http://eastbayside.org
Facebook: https://www.facebook.com/eastbayside/

58 BOYD STREET APARTMENTS

Level III - Final Site Plan / Subdivision + Conditional Use Applications

September 29, 2017

Submitted To:
City of Portland Planning Department

Applicant:
58 Boyd Street, LP
14 Baxter Blvd., Portland, Maine 04101

Owner:
Portland Housing Authority
14 Baxter Blvd., Portland, Maine 04101

Prepared by:
Carroll Associates
217 Commercial Street, Portland, ME 04101

Ransom Consulting Engineers and Scientists
400 Commercial Street, Portland, ME 04101

CWS Architects
264 US Route One, suite 100 2A, Scarborough, Maine 04074

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CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS

September 29, 2017

Ms. Barbara Barhydt
Mr. Tuck O'Brien
City of Portland Planning Authority
4th Floor, City Hall
389 Congress Street
Portland, ME 04101

RE: 58 Boyd Street Apartments
58 Boyd Street / 54 Lancaster Street
Tax Map 22, Block F, Lot 1

Dear Barbara / Tuck,

On behalf of The Portland Housing Authority and 58 Boyd Street, LP we are pleased to submit this Level III - Final Site Plan and Subdivision and Conditional Use Applications along with supporting materials relating to a new affordable housing building located at 58 Boyd / 54 Lancaster Street.

The subject property is located in an R-7 overlay district in East Bayside. The parcel is approximately 0.48 acres in size and contains a single building and parking that previously contained the Portland Housing Authority's administrative offices. The current proposal calls for a new six (6) story building which will contain 55 units of apartment style housing, along with shared community space, a telemedicine room, bike storage, and the offices of Cultivating Community.

The subject property is bound on the north side by Boyd Street Extension (Lancaster Street) and Bayside Terrace; on the east side by Boyd Street and other Portland Housing units; on the south by City of Portland land which contains the Boyd Street Community Gardens; and to the west by Franklin Street Arterial. The property is gently sloping from the south and west to the north and east.

The proposed building will front along Boyd Street Extension (Lancaster Street) and Boyd Street. It will include 55 units of housing on levels 1-6 and other community oriented uses on the ground floor. The building footprint is approximately 7,825 sf and has a total floor area of approximately 48,358 sf. A parking lot for 23 cars will be located on the west side of the property along Franklin Street; it will have access from a new driveway off of Boyd Street Extension / Lancaster Street.

In June 2017 City Planning staff and the Planning Board unanimously recommended to the City Council certain changes to Division 30 of the City's zoning code providing height bonuses, density bonuses and other incentives for affordable housing for households earning less than 100% of the Area Median Income. The project's affordability targeting meets the requirements of the Division 30 changes. The Council passed the amendments in September 2017.

These zoning incentives provide a height bonus in the R-7 of 25 feet allowing a maximum building height of 75 feet. The project is proposed to be 72-75 feet in height. Other dimensional requirements are also

waived in Division 30. The new density bonus provides for 2.5 times the base density allowed or 2.5 X 48 units or up to 120 units (the current proposal calls for 55 units).

These changes will be effective 30 days after passage, during the planning board submission process for 58 Boyd Street Apartments.

We look forward to working with you and the Planning Staff in the review of this project. Please feel free to contact me to discuss any questions or concerns you may have regarding the attached application materials.

Sincerely,
CARROLL ASSOCIATES

Patrick J. Carroll
Principal

Enc.

Cc: Jay Waterman, Portland Housing Authority / 58 Boyd Street, LP
Ben Walter, CWS Architects
John Mahoney, Ransom Consulting Engineers

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS

November 10, 2017

Mr. Matthew Grooms
City of Portland Planning Authority
4th Floor, City Hall
389 Congress Street
Portland, ME 04101

RE: 58 Boyd Street Apartments
Response to Staff Review Comments

Dear Matt,

On behalf of The Portland Housing Authority and 58 Boyd Street, LP we are pleased to submit this this response letter to the Staff Review Comments. Below are the comments taken from the Staff Final Plan Review *(in italics)* along with responses from the applicant **(in bold)**.

Planning (Matthew Grooms)

1. *The proposed site plan shows twenty-three (23) off-street parking spaces, including two spaces allocated for a shared-use vehicle. On-Street parking spaces are also counted towards the required number of spaces. Please be aware that on-street spaces are not considered when accounting for required parking under Division 20, Off-Street Parking Standards.*
   RESPONSE: For clarification, the proposal calls for one (1) shared-use vehicle. We are not counting on-street parking spaces towards the project total, but graphically depicting them to show the number of spaces available to the public on the adjacent streets. The spaces are shown for illustrative purposes only and will not be marked on the actual street (this has been indicated on the Site Plan). We are proposing a total of twenty-three (23) off-street parking spaces.

2. *Under Division 20, Off-Street Parking Standards, this project is required to provide fifty-five (55) parking spaces at a rate of one space/residential unit, and two (2) spaces to account for the ground-floor neighborhood center uses. At present, the equivalent of thirty-six spaces are being provided, when considered in conjunction with the two (2) shared-use vehicles. Note, the Planning Board, under Section 14-332.2(b), can reduce the parking requirement for affordable housing projects. Given that eleven (11) of the units being provided are market rate, and that two (2) spaces are required for the ground-floor neighborhood space, the applicant shall provide a minimum of thirteen (13) parking spaces for these uses. The remaining discrepancy would require Planning Board approval.*
   RESPONSE: The proposal calls for twenty-three (23) parking spaces on-site, including one (1) shared-use vehicle for the equivalent of twenty-nine (29) spaces; or the equivalent of sixteen (16) more than the minimum required.

3. *A temporary construction easement will be required for any proposed work on City property, and any element of the applicant's design which crosses the property boundary shall require an easement.*
   RESPONSE: Temporary construction license areas, footing license areas, and public access easements are shown on the site plans. Drafts of these legal documents are being prepared and will be submitted to the City for review when complete.

4. *The Site Plan Ordinance requires that a minimum of two (2) bicycle parking spaces be provided for every five (5) residential units for a total requirement of twenty-two (22) bicycles. Staff requests that additional exterior bicycle racks be installed to serve guests and patrons of the neighborhood center.*
   RESPONSE: Two additional bike racks (four bike parking spaces) have been proposed for the curb extension on Lancaster Street and three additional on-sided bike racks (three bike parking spaces) are proposed along the main residential entry area on Boyd street; bringing the total bike parking to twenty-four (25) when combined with the interior bike parking (18 spaces). See C-2.0 Site Plan for location of additional on-site bike racks and A1.10 First Floor Plan for location of interior bike room.

5. *The applicant should provide a written agreement with a shared-use vehicle provider which demonstrates that the two (2) shared-use vehicles have been secured.*
   RESPONSE: 58 Boyd Street, LP and Portland Housing Development Corporation have proposed moving one U-Haul car share parking space from Elm Street, near the Portland Public Library, to Boyd Street in East Bayside. This residential area has a higher concentration of residents versus commercial buildings, and it is residents who will most likely use a shared car. Also, East Bayside is a neighborhood that does not currently have a shared car. The Developer has spoken with John Peverada, the City's Parking Manager, and it appears the City is willing to move a car to Boyd Street. We are waiting on confirmation from U-Haul regarding this contract change.

6. *'Ability to serve' letters shall be provided either with the final submission, or shall be made a condition of approval for this project.*
   RESPONSE:
   <u>Water:</u> We anticipate a letter from Portland Water District in the near future.
   <u>Sewer:</u> We submitted a Wastewater Capacity Application to the City with our Site Plan application. Please let us know if additional information is needed and/or if we should reach out to Water Resources directly.
   <u>Electric:</u> The transformer that was installed for the Bayside Anchor Project was designed by CMP to also serve this project.

   As letters become available we will submit them to Staff for review.

7. *Will any of the Boyd Street entrances be ADA accessible?*
   RESPONSE: Yes. All entrances will be ADA accessible. See C-4.0 Grading Plan and A1.10 First Floor Plan.

8. *In regards to shadows generated by this structure, the applicant should provide a narrative and or analysis which demonstrates compliance with Section 14-526(d)(2) of the Site Plan Ordinance and Section 11 of the Technical Manual.*

RESPONSE: The buildings mass is designed within the envelope permitted by the Zoning Ordinance for the site. Attached is a series of images that illustrate the shadows of the building throughout the year and morning, noon and evening, see Exhibit #28.

9. *Please note, roof-mounted mechanical equipment shall be screened from the public view in accordance with Section 14-526 (d) (7).*
   RESPONSE: The final mechanical systems will be determined during the Design Development phase of the project. Due to the buildings height it is expected that the building will screen any expected equipment from ground level view and no additional screening will be required.

10. *The Financial Capacity document does not appear to demonstrate sufficient funding for the proposed project. Please provide additional information for how the applicant intends to fund this development.*
    RESPONSE: 58 Boyd Street has submitted financial information for the project to the City's Housing Division for a HOME Funds application and a Tax Increment Financing application. The City had a third-party underwriter review the project for financial feasibility. Please see this letter, attached, as exhibit # 12.

11. *Please note, under Division 30, Section 14-487, it states that projects providing ten (10) or more residential units for sale or rent, shall submit a conditional use application for Inclusionary Zoning to be reviewed by the Planning Board. The Housing Program Manager has reviewed the submitted materials and finds the project as proposed in compliance with the standards of Section 14-487.*
    RESPONSE: No response necessary.

12. *Please label the ground-floor site plan with relevant square footage figures. These figures are utilized in zoning calculations.*
    RESPONSE: The first floor plan has been labeled with relevant square footages, see A1.10.

13. *The applicant should provide a written narrative elaborating how the propose project is compliant with the City Council approved Franklin Street Redevelopment Plan.*
    RESPONSE: The current project provides important pedestrian infrastructure for the future extension of Lancaster Street through to Mayo and Smith Streets. A curb extension at Lancaster and Boyd sets the table for future street extensions. A new brick sidewalk along the east side of Lancaster Street (to the project driveway) sets the stage for future pedestrian connections and helps to eliminate random desire lines. Both of these items help to reinforce the gridded street system and help to reconnect historic neighborhoods bisected by Franklin Street.

    The building has been designed such that a second building could be constructed on the property incorporating land freed up from the Franklin Street redesign. The intent with the second building would be to focus its entrances on Franklin Street, providing a strong building edge and increased vitality along the Franklin Street corridor.

14. *Street Trees - Where would they be planted within Franklin Preserve, which types of trees and how many? There are a series of 'alternative' options available under the site plan ordinance for meeting this requirement.*
   RESPONSE: The applicant will work with the City Arborist to determine an appropriate number of trees or financial contribution to be put into the City's Tree Fund for future tree

planting in the Preserve or immediate area. The Landscape Plan has been revised to add one (1) additional tree to the parking lot near the south corner of the building adjacent to the City land, bringing the total proposed tree count to twelve (12).

15. *Parking - The Board is highly supportive of reducing the parking requirement for this project and unlike other exceptions outlined under Division 20, the affordable housing exception gives the Board great discretion in choosing a reduced requirement. My concern however that is the parking analysis that was provided indicates a parking demand of 0.75 spaces/unit, which is not currently being proposed. I would be prepared to speak on this further at the hearing.*
RESPONSE: The project calls for twenty-three (23) parking spaces on-site, including one (1) shared-use vehicle for the equivalent of twenty-nine (29) spaces. This ratio is similar to parking demands at Bayside Anchor and other Portland Housing developments in the East Bayside Neighborhood.

16. *Waiver Requests - Again, the Board is generally supportive of a waiver request to not provide sidewalks along Franklin Street and between Lancaster and Franklin Street. There are specific waiver criteria listed within the site plan ordinance, and our traffic engineer reviews those criteria in making a recommendation to the Board. My recommendation would be to provide a waiver request based upon those criteria. This applies to the waiver request for driveway aisle width reduction.*
RESPONSE: A waiver request analysis has been prepared, see exhibit # 11. We are also requesting a waiver to the flooding standard, which is included in the stormwater management narrative.

Urban Designer (Caitlin Cameron)

1. *The applicant is asked to provide the renderings that show the project in context.*
RESPONSE: The applicant has provided images of the building in context, see Exhibit #28.

2. *Please provide more information regarding building materials (labeled on elevations)*
RESPONSE: The building's first floor will be clad with a combination of porcelain tiles at the street frontages and painted fiber cement siding at the rear. The upper floors will be clad with painted fiber cement siding utilizing a) board and batten at 16" c/c vertically; b) staggered reveal panels of various widths and lengths; and c) lap siding with a 10" exposure, see Exhibit #28.

Sec. 14-143. R-7 Design Standards

1. *Residential development in the R-7 Zone shall be reviewed by the Planning Board . . . The general intent of these development standards is to achieve an **attractive and comfortable city neighborhood environment**. **Varied** and **human-scaled building facades** are key to making a place **"pedestrian-oriented."** Building designs should provide a **high level of visual interest**, without creating a chaotic image. Residences should include **design elements that enhance the streetscape and address the street.***
RESPONSE: The building's streetscape design, pedestrian way, building forms, materials and textures have been updated based on comments by the planning board. Emphasis

has been placed on the pedestrian experience, identity of the entrance points and overall massing of the building, see Exhibit #28.

2. *Standard a. Porches and bays should face the street. – Not applicable*
   RESPONSE: No response necessary.

3. *Standard b. Primary ground floor residential entries to multi-family buildings must orient to street – Met – Primary residential entrance faces Boyd Street. A secondary, ADA entrance is provided from the surface parking lot. Several more entrances to office, meeting rooms, and medical office are provided on Boyd Street. Staff is concerned that the residential entrance is not legible among all the entrances on the Boyd Street façade – can the hierarchy of that entrance be made more prominent?*
   RESPONSE: The building's first level has been clearly distinguished from the mass of the building above and the entrance points have been given more focal prominence based on comments by the board, see Exhibit #28.

4. *Standard c. Design approach, visible and permanent expression of the character of the neighborhood – This standard is a challenge to interpret in that the building is the first multi-family building of this scale in this neighborhood and should not be expected to adopt the architectural language of a single-family, or smaller-scale building. The project is meeting the goal of providing taller development on Franklin Street, a pattern begun further down towards the India Street neighborhood. The building is introducing some new architectural expressions for this neighborhood.*
   RESPONSE: The building's materials have been selected carefully for long term durability, a new-urban character and an aesthetic approach that expresses a contemporary feel but allows future adjacent developments the latitude in defining their own, but similar, character. As an example, future neighboring developments should provide residential uses on the upper floors and a strong street frontage with public pedestrian uses and the street level, see Exhibit #28.

5. *Standard d. Façade shall be varied and articulated to provide visual interest to pedestrians – The project does use a combination of change in materials, massing and plane changes, recessed entries, and canopies to create visual interest.*
   RESPONSE: The building's façade has updated and elaborated based on comments from the board and provides multiple materials, plane changes, massing, textures and colors in keeping with the Owner's desire to create a lively pedestrian oriented residential neighborhood as part of its redevelopment master plan for the area, see Exhibit #28.

6. *Standard e. Reinforce the public realm – appropriately scaled entries, porches, fenestration, landscaping, and architectural details – Public realm is defined with landscaped areas, high level of fenestration on ground floor, active ground floor uses with frequent entries, and canopies/overhangs. Staff suggests the scale/proportion of the clerestory windows on the Boyd Street and Franklin Street facades be revised to be more similar to the other window types in the building. Additionally, the storefront placement on Boyd Street is asymmetrical – revise the pattern of windows to be more regular or rational (the single window appears arbitrary from the street).*
   RESPONSE: The building's fenestration rhythms on the first floor have been updated based on the comments from staff and the board in conjunction with the provision of additional seatwalls and bicycle racks on Boyd Street. Window above the site line are limited to the

rear of the building where the internal uses would benefit from natural lighting but would not be amenable to public viewing, see Exhibit #28.

7. *Standard f. Visual and acoustical privacy – Met*
   RESPONSE: No response necessary.

8. *Standard g. Natural Light and Ventilation – Met*
   RESPONSE: No response necessary.

(i) Multiple-Family Design Standards

(1)a.1. Building Design: There are a limited number of residential buildings near this site – predominantly townhouses or duplexes often setback from the street and with a stoop. Multi-family buildings are closer to the street with three to four stories, orientation to the street, and flat roofs. The proposed building is significantly bigger than most residential projects in this neighborhood at 6 stories but includes features that complement the nearest residential types such as vertically proportioned windows, flat roof, raised stoop with canopy. The proposal is also a mixed-use building and has an active ground floor providing variation in the window pattern and spacing, articulation, and landscaping – incorporating positive visual interest.
RESPONSE: The building's design incorporates the concepts designed to plant the seeds for a new-urban, vital residential community that is clearly defined by window patterns above the first floor as a medium density urban district and an active pedestrian oriented community, see Exhibit #28.

(1)a.2. Building Relationship to the Street: The project is oriented to Boyd Street though also has a prominent face to Franklin Street. On Boyd Street, the project is located 5' to 12' from the sidewalk to allow room for stoops, ramps, and landscaped areas. The building is close to the property line on Lancaster. There are no other buildings on this side of the street and only a handful on the street as a whole – the project reasonably establishes a street wall close to the sidewalk similar to the limited pattern established and in proportion to the scale of the building height.
RESPONSE: The master plan for the long term redevelopment of the area contemplates the possibility that Franklin Street will someday be redeveloped as a narrower, slower street that will support commercial, pedestrian oriented storefronts. The current context supports the development of a more residentially oriented 'center' which is proposed at the corner of Boyd and Lancaster, it is envisioned that when Franklin is narrowed that additional land will be made available for a new mixed uses commercial/residential facility facing Franklins Street, which in turn will create a smaller 'mews' in the future between the two buildings.

(1)a.3. Open Space: Met - Some landscaped areas provided between sidewalk and building.
RESPONSE: No response necessary.

(1)a.4. Light and Air: Met – Each unit has adequate windows.
RESPONSE: No response necessary.

(1)a.5. Screened Parking: Per design and site plan standards, the surface parking should be screened from Franklin Street and the adjacent properties.
RESPONSE: Screening of the parking lot has been enhanced; see L-1.0 Landscape and Lighting Plan.

Traffic Engineer (Thomas Errico)

1. *It is my understanding that Lancaster Street is designated as an accepted street and thus design details should meet City standards. Some comments include:*

   a) *The roadway cross-section width.*
   RESPONSE: Existing Lancaster Street is +/-33'-7" wide (curb to curb) with on-street parking on both sides. We are proposing the new reset curb on Lancaster Street section to be \ +/-32' wide (curb to curb – which is a very common dimension throughout Bayside and the East End) with parking on both sides. Based on estimates from aerial photography, East Lancaster Street appears to be approximately 32' wide. Existing Boyd Street is +/- 29'-6" wide (curb to curb) with on-street parking on both sides. We are proposing to maintain the existing road section width and on-street parking on both sides, while setting new/resetting curbing as necessary. It is our opinion that maintaining Boyd Street width is appropriate and reducing Lancaster Street width by +/-1'-7" is also appropriate. This new Lancaster width is in-line with many existing low speed/low volume local streets in the East End and Bayside. This configuration will allow the existing curb on the west side of Lancaster to remain, provide appropriate parking and travel lane dimensions, and to provide for a planted esplanade and 6' sidewalk.

   b) *Typically, the back of sidewalk is located on the property boundary.*
   RESPONSE: Portions of the proposed sidewalks straddle the property line. The sidewalk along Lancaster Street cannot be located at the back of curb as the proposed esplanade is needed to help transition the grade to the sidewalk level at the same time as providing a planting area for street trees. The applicant will provide the City with public access easements over both the Lancaster and Boyd Street sidewalks where they cross the property lines onto private property, see exhibit # 10.

   c) *Vehicle turnaround accommodations shall be included.*
   RESPONSE: We are proposing that the turnaround accommodations currently in use by the City and others is maintained going forward. Currently the City plows to the end of Lancaster and then backs in to the driveway at Bayside Terrance to turnaround. The existing driveway is 25' wide and can accommodate large City vehicles. In our opinion this is the best option as the turnaround is on the right (correct) side of the street per the City turnaround, is wide, and the anticipated volume of traffic is low and slow. Truck turning templates can be provided if necessary.

   In addition, the Future of Lancaster Street is uncertain at this time. It is possible that Lancaster may be extended to the west to connect with Franklin Street (right-in, right-out). It is also possible that Lancaster may be extended to the east or realigned as the PHA campus redevelops. As such, we are reluctant to construct a turnaround that would add impervious area and may not be needed in the future

2. *Dimensions for roadway width shall be provided for all areas, including but not limited to, the turn area from Boyd Street onto Lancaster Street.*
   RESPONSE: Additional roadway dimensions have been added to C-2.0 Site Plan.

3. *The applicant shall provide a sidewalk waiver criteria analysis for Lancaster Street (to Franklin Street) and along the Franklin Street property boundary.*

RESPONSE: A waiver request analysis has been prepared, see exhibit # 11.

4. *The City acknowledges the need to work collaboratively in developing an ADA compliant ramp on the southeastern corner of Boyd Street and Lancaster Street.*
   RESPONSE: The project proposes a 6' curb extension on the southeast corner of Boyd and Lancaster Streets. We are currently in discussions with the Department of Public Works about future storm drain upgrades in the vicinity and an ADA compliant ramp on the SE corner of Boyd / Lancaster; we will work collaboratively trying to coordinate the timing of the projects.

5. *The applicant shall provide documentation in support of a waiver request for the parking lot aisle width. Greater justification on constraints should be provided than provided in the current application.*
   RESPONSE: An updated waiver request has been prepared, see exhibit # 11.

6. *The plans should note that delineation of the on-street parking spaces is for illustrative purposes only. The City does not mark on-street parking spaces.*
   RESPONSE: The Site Plan C-2.0 has been updated to indicate that all on-street parking stripes and markings are shown for illustrative purposes only and should not be striped on the actual street. These are shown for permitting purposes only. These lines will be removed from the plans before issuing biding/construction documents.

7. *The applicant should provide documentation for providing the on-street handicap parking space, when on-site handicap parking spaces are provided.*
   RESPONSE: To the best of our knowledge there are no on-street handicap parking spaces in the immediate project vicinity. The nearest on-street handicap parking space is located on Oxford Street in front of Bayside Anchor, which would be a long walk down a relatively steep hill for physically challenged individuals. The applicant feels this is an important aspect for the project as well as the neighborhood especially since the ground floor will house Cultivating Community, a telemedicine office, a shared community meeting room, and the residential lobby for the entire building. The proposed on-street handicap parking space should be used frequently.

8. *The applicant shall provide details on changes to on-street parking signage in the project area.*
   RESPONSE: Street signage (no parking + HC parking) has been added to both C-2.0 Site Plan and L-2.0 Site Details.

9. *Construction details for the sidewalk ramps shall be provided by the applicant.*
   RESPONSE: Sidewalk curb ramps details are provided on sheets C-2.0 Site Plan and L-2.0 Site Details. Additional spot grades have been added to C-4.0 Grading Plan.

10. *It is my understanding that DPW staff will be providing comments regarding the proposed curb extension and future City projects that may disturb the area.*
    RESPONSE: We are currently in discussions with the Department of Public Works about future storm drain upgrades in the vicinity and are hopeful that the construction sequencing of these two projects can be coordinated in a way that minimizes rework.

11. *The applicant has conducted a parking demand and supply analysis and notes (per City Ordinance) that 47 parking spaces are required. The applicant also notes that 0.75 parking spaces per residential unit or 42 parking spaces can be expected. In general, I find the general*

approach to be reasonable, although I need to review the data in greater detail. I would note that use of on-street public parking spaces is generally not permitted as part of satisfying Site Plan parking requirements.
RESPONSE: The project is not counting on-street parking spaces towards the project total, only graphically depicting them to show the number of spaces available to the general public on the adjacent frontages. The spaces are shown for illustrative purposes and will not be marked on the actual road. The project is proposing twenty-three (23) parking spaces on-site. This ratio of parking is consistent with observed use by residents at Bayside Anchor and other East Bayside developments.

12. *The applicant has conducted a trip generation analysis and estimates the project will add 10 vehicle trips during the AM peak hour and 23 vehicle trips during the PM peak hour. I find the base ITE Trip Generation methodology to be acceptable, but continue to review local trip generation adjustment factors. This level of trip generation would not be expected to create or significantly worsen traffic congestion or safety deficiencies.*
    RESPONSE: No response necessary.

13. *The City has been requiring applicants to provide monetary contributions towards the implementation of Franklin Street improvements. A contribution amount will be provided in the future.*
    RESPONSE: Please forward contribution amount to applicant when it has been calculated.

14. *I have reviewed the TDM plan and I generally find it to be acceptable. The Plan notes annual monitoring and accordingly the applicant should provide any monitoring studies conducted for their other properties.*
    RESPONSE: Results of monitoring for this site as well as other Portland Housing Authority properties will be made available annually when conducted and completed.

15. *The construction management plan provided is not acceptable. Site specific details noted in the City's template shall be provided.*
    RESPONSE: Both a Construction Management Narrative and Construction Management Site Plan have been prepared per the City's template and are attached to the response letter.

Housing Program Manager (Victoria Volent)

The development located at 58 Boyd Street is proposing the creation of 55 units of rental housing The applicant has elected to provide forty-four (44) units of low-income housing. Of those units, thirty-seven (37) are targeted towards households earning 50% AMI, and seven (7) units target households earning 60% AMI. Eleven (11) out of the 55 units will remain unrestricted. Twenty-three (23) units will be efficiencies, ten (10) will be one-bedroom, thirteen (13) will be two-bedroom, and nine (9) will be three-bedroom units.

The applicant has satisfied the requirement that all developments of ten or more units comply with the requirements set forth in Division 30, Section 14-487 of the Zoning Ordinance.
RESPONSE: No response necessary.

Third Party Engineer (Woodard & Curran, Lauren Swett + Craig Sweet)

1. *In accordance with Section 5 of the City of Portland Technical Manual, a Level III Site Plan project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards.*

We offer the following comments:

a) Basic Standard: Plans, notes, and details should be provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. At a minimum, catch basin protection will be required, but the Applicant should evaluate the need for downstream erosion control barrier in some areas of the site.

RESPONSE: Because the site drains entirely to the north and the east, where the building will be directly on the sidewalk, it may not be feasible to maintain a continuous downstream erosion control barrier while constructing the building without further encroaching into Boyd and Lancaster Streets. As such, we are reluctant to commit to a specific erosion control barrier. Rather, the intent is that our erosion control program allows the contractor to utilize various BMPs to meet ESC requirements, depending on day-to-day site conditions (essentially a performance specification). Additional notes on catch basin protection have been added.

b) General Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include specific stormwater management features for stormwater quality control. The Applicant is proposing the use of a rain garden and a FocalPoint system to treat stormwater runoff generated onsite. Calculations for the sizing of the stormwater treatment systems, as well as calculations verifying the amount of treatment provided on the site should be provided. The Applicant has verified that a sizing spreadsheet will be provided – we will review when it is made available.

RESPONSE: The spreadsheet has been provided, see exhibit # 17A.

c) Flooding Standard: The project will result in an increase in impervious area of approximately 10,733 square feet. As such, the project is required to include specific stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant has requested a waiver from the flooding standards. Please see the following comment on stormwater.

RESPONSE: No response needed.

2) The Applicant has started coordinating with the Department of Public Works on the stormwater management system located in Boyd Street. Additional discussions are required with regards to the separation of the combined sewer and with the potential waiver of the flooding standard. We recommend, based on discussions with the Applicant, that a meeting be held following the workshop.

RESPONSE: Ransom met with Keith Gray and Brad Roland on November 2 as suggested. The consensus was that it makes sense to convert one of the three sewers in Lancaster Street into a separated stormdrain as part of this project, but additional information is needed. The City plans to televise this sewer to determine if stormdrain conversion is feasible. We suggest proceeding with the site plan approval process based on the current concept and adjusting the plan during final design as/if needed in close coordination with City staff.

Please let us know if additional information is needed to reach a consensus on our request for a waiver to the flooding standard.

3) The Stormwater Management Plan should include a project-specific stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.
RESPONSE: Stormwater inspection requirements are included in the stormwater inspection log. The revised log has been updated to include additional details. Our thought is that this document will be used by the site inspector.

4) All work within the City of Portland Right of Way should be in conformance with the City of Portland Technical Manual. Details in conformance with the standards should be provided for the following:

a) Pavement Cross Section (note that 9.5mm HMA is not allowed as surface pavement)
RESPONSE: Detail 1/L-2.0 Bituminous Concrete Paving has been revised to show the finish course to be 12.5mm HMA.

b) Utility details including pipe trench, structures, and lateral connections
RESPONSE: The civil detail sheets have been updated to include all required details, see sheets C-7.0 + C-8.0 Civil Details.

5) The Applicant has noted that a temporary construction easement will be required from the City of Portland to facilitate Construction. A permanent easement or agreement will be required for the rain garden and landscaping proposed to cross the eastern property boundary.
RESPONSE: Temporary construction license areas, footing license areas, and public access easements are shown on the site plans. Drafts of these legal documents are being prepared and will be submitted to the City for review when complete.

Based on the discussion at the November 3 meeting, the catch basin, piping, and rain garden landscaping will be constructed on City land, built to City standards and conveyed to the City upon completion and acceptance. Runoff will be routed directly to Boyd Street and will not cross PHA land. Therefore, we do not believe that a permanent easement will be necessary.

6) In accordance with the current sidewalk material policy, driveway aprons are required to be of the same material as the sidewalk. A brick apron should be provided.
RESPONSE: The site plans have been revised to show a brick driveway apron.

Department of Public Works, Senior Engineer (Keith Gray)

Construction Management Plan
The applicant has submitted a Construction Management Plan (CMPlan). Please note that the Construction Management Plan includes:

1) Construction management site plan,
RESPONSE: A CMP Site Plan has been prepared and is attached to this response letter.

2) Construction schedule (time frame);
RESPONSE: Unknown at this time. Commencement of construction depends on when Maine State Housing funding becomes available.

3) Written narrative addressing the categories identified within the enclosed CMPlan Template.
RESPONSE: A CMP Narrative has been prepared and is attached to this response letter.

General Comments

1. There is a high probability that DPW will be designing and constructing a stromdrain down Lancaster Street and connect into Franklin Street. The stormdrain would collect the separated systems in Boyd and Mayo Street. This construction is anticipated to start in 2019.
   RESPONSE: We fully support the development of a separated stormdrain, see discussion above.

2. The "future" stormdrain in Lancaster Street would most likely be oriented under the proposed curb extension at Lancaster and Boyd Street. If the projects to do not coincide, DPW recommend that the construction cost of the curb extension be put into infrastructure account and constructed during the stormdrain extension.
   RESPONSE: As discussed on November 2, this curb extension is necessary to develop ADA compliant sidewalks and to meet and match our finish floor elevation. That said, the City's 2019 schedule for the stormdrain work may be compatible with this project's schedule. We suggest that close coordination between the 58 Boyd Street project and the City's stormdrain project is the best way to develop a sequence of construction that eliminates/minimizes rework.

3. Provide additional information on the existing size and type of the sewer main within Boyd Street and Lancaster Street.
   RESPONSE: We have provided additional information on the City's stormdrain system based on available data, including the City's GIS drainage database.

4. The note on Sheet 6 refers to installing a backflow preventer on the foundation drain that points to the proposed 6" sewer service. The note should be revised to include only the sewer as the foundation drain is separately discharged to Lancaster Street.
   RESPONSE: This note has been revised.

5. Will the power feed from the Bayside Anchor transformer require a pull electrical vault in Boyd Street?
   RESPONSE: The Bayside Anchor electrical design specified an electrical vault adjacent to the power drop at Pole #4. This vault was not installed due to a conflict with a gas main which appears to be just outside the right of way on City property. The Civil drawings for this project have been revised to show an electrical vault shifted towards centerline to provide clearance from the gas main.

We look forward to working with you and the Planning Staff in the review of this project. Please feel free to contact me to discuss any questions or concerns you may have regarding the attached application materials.

Sincerely,
CARROLL ASSOCIATES

Patrick J. Carroll
Principal

Enc.

Cc: Jay Waterman, Portland Housing Authority / 58 Boyd Street, LP
Ben Walter, CWS Architects
John Mahoney, Ransom Consulting Engineers

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	58 BOYD STREET APARTMENTS
Proposed Development Address:	58 BOYD STREET
Project Description:	55 RENTAL APARTMENTS, OFFICE SPACE, AND SHARED MEETING ROOM
Chart/Block/Lot:	CHART 69SE, TAX MAP 22, BLOCK F, LOT 1
Preliminary Plan	N/A
Final Plan	SEPTEMBER 15, 2017

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	JAY WATERMAN
Business Name:	58 BOYD STREET, LP
Address:	14 BAXTER BLVD
City/State:	PORTLAND, MAINE
Zip Code:	04101
Work #:	207.773.4753
Home #:	
Cell #:	207.272.2562
Fax #:	207.761.5886
E-mail:	jwaterman@porthouse.org

OWNER

Name:	PORTLAND HOUSING AUTHORITY
Address:	14 BAXTER BLVD
City/State:	PORTLAND, MAINE
Zip Code:	04101
Work #:	207.773.4753
Home #:	
Cell #:	
Fax #:	
E-mail:	jwaterman@porthouse.org

AGENT/REPRESENTATIVE

Name:	PATRICK CARROLL, CARROLL ASSOCIATES
Address:	217 COMMERICAL STREET, SUITE 200
City/State:	PORTLAND, MAINE
Zip Code:	04101
Work #:	207.772.1552
Home #:	
Cell #:	
Fax #:	
E-mail:	pcarroll@carroll-assoc.com

BILLING (to whom invoices will be forwarded to)

Name:	58 BOYD STREET, LP C/O PORTLAND HOUSING DEVELOPMENT CORP.
Address:	14 BAXTER BLVD.
City/State:	PORTLAND, MAINE
Zip Code:	04101
Work #:	207.773.4753
Home #:	
Cell #:	
Fax #:	
E-mail:	jwaterman@porthouse.org

ENGINEER

Name:	JOHN MAHONEY, RANSOM CONSULTING, INC.
Address:	400 COMMERICAL STREET, SUITE 404
City/State:	PORTLAND, MAINE
Zip Code:	04101
Work #:	207.772.2891
Home #:	
Cell #:	
Fax #:	
E-mail:	john.mahoney@ransomenv.com

SURVEYOR

Name:	RANDY LOUBIER, OWEN HASKELL, INC.
Address:	390 US ROUTE ONE, UNIT 10
City/State:	FALMOUTH, MAINE
Zip Code:	04105
Work #:	207.774.0424
Home #:	
Cell #:	
Fax #:	
E-mail:	rloubier@owenhaskell.com

ARCHITECT

Name:	BEN WALTER, CWS ARCHITECTS
Address:	264 US ROUTE ONE, SUITE 100 2a
City/State:	SCARBOROUGH, MAINE
Zip Code:	04074
Work #:	207.774.4441
Home #:	
Cell #:	
Fax #:	
E-mail:	bwalter@cwsarch.com

ATTORNEY

Name:	GARY VOGEL
Address:	84 MARGINAL WAY, SUITE 600
City/State:	PORTLAND, MAINE
Zip Code:	04101-2480
Work #:	207.772.1941
Home #:	
Cell #:	
Fax #:	
E-mail:	gvogel@dwmlaw.com

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	MATTHEW PHILLIPS, CARROLL ASSOCIATES
E-mail:	mphillips@carroll-assoc.com
Name:	PATRICK CARROLL, CARROLL ASSOCIATES
E-mail:	pcarroll@carroll-assoc.com
Name:	JAY WATERMAN, PORTLAND HOUSING DEVELOPMENT CORPORATON
E-mail:	jwaterman@porthouse.org

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☑	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☐	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☐	Traffic Movement	$1,500.00
☑	Stormwater Quality	$250.00
☑	Subdivision	$500.00 + applicable fee for lots/units below
	# of Subdivision Lots/Units [55] x $25.00 each	$ 1375
☐	Site Location	$3,500.00 + applicable fee for lots/units below
	# of Site Location Lots/Units [ ] x $200.00 each	$
☐	Change of Use	**2875.00 - 25% discount (718.75) = <u>2156.25</u>**
☐	Flood Plain	
☐	Shoreland	
☐	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$ 2156.25

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($52.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	20,934	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	20,201	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	6,655	sq. ft.
Impervious Area (Total Proposed)	17,388	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	2981	sq. ft.
Building Footprint (Total Proposed)	7796	sq. ft.
Building Floor Area (Total Existing)	2981	sq. ft.
Building Floor Area (Total Proposed)	47800	sq. ft.
ZONING		
Existing	R7	
Proposed, if applicable	R7	
LAND USE		
Existing	UNOCCUPIED	
Proposed	55 RESIDENTIAL APTS	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	0	
# of Residential Units (Total Proposed)	55 UNITS	
# of Lots (Total Proposed)	1	
# of Affordable Housing Units (Total Proposed)	44 UNITS	
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	23	
# of One-Bedroom Units (Total Proposed)	10	
# of Two-Bedroom Units (Total Proposed)	13	
# of Three-Bedroom Units (Total Proposed)	9	
PARKING SPACES		
# of Parking Spaces (Total Existing)	5	
# of Parking Spaces (Total Proposed)	23	
# of Handicapped Spaces (Total Proposed)	6	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	UNKNOWN	
# of Bicycle Spaces (Total Proposed)	18 (IN BUILDING)	
ESTIMATED COST OF THE PROJECT	$11,300,000	

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	
Date:	9/13/17

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
X		1	* Completed Application form
X		1	* Application fees
X		1	* Written description of project
X		1	* Evidence of right, title and interest
X		1	* Evidence of state and/or federal permits
X		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
X		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
X		1	* Evidence of financial and technical capacity
X		1	Construction Management Plan
X		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
X		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
X		1	Stormwater management plan and stormwater calculations
X		1	Written summary of project's consistency with related city master plans
X		1	Evidence of utility capacity to serve
X		1	Written summary of solid waste generation and proposed management of solid waste
X		1	A code summary referencing NFPA 1 and all Fire Department technical standards
X		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
X		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
X		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
X		1	**Final Site Plans including the following:**
X		Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);	
X		Existing and proposed structures on parcels abutting site;	
X		All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;	
X		Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;	
X		Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;	
N/A		Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;	
N/A		Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;	
X		Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;	
X		Location of all snow storage areas and/or a snow removal plan;	
X		A traffic control plan as detailed in Section 1 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);	
N/A		Location and proposed alteration to any watercourse;	
N/A		A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for wetlands;	
X		Existing soil conditions and location of test pits and test borings;	
X		Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;	
X		A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;	
X		Grading plan;	
X		Ground water protection measures;	
X		Existing and proposed sewer mains and connections;	

- Continued on next page -

X		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
X		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
X		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
X		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
X		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
N/A		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
N/A		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
X		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
X		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
N/A		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
X		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review.

1. Name, address, telephone number of applicant
2. **PORTLAND HOUSING AUTHORITY, 14 BAXTER BLVD, PORTLAND 773.4753**
3. Name address, telephone number of architect
   BEN WALTER, CWS ARCHITECTS, 774.4441
4. Proposed uses of any structures [NFPA and IBC classification]
5. **RESIDENTIAL APTS, OFFICE SPACE, AND MEETING SPACE**
6. Square footage of all structures [total and per story]
   47,800 sf building floor area + 7,795 sf footprint
7. Elevation of all structures **FINISH FLOOR ELEVATIONS of 12.75, 13.58, and 15.33**
   SEE GRADING PLAN AND BUILDING ELEVATIONS
8. Proposed fire protection of all structures
   - ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***
9. Hydrant locations
   1 AT END OF BAYSIDE TERRACE PARKING LOT AND 1 AT INTERSECTION OF OXFORD + BOYD ST.
10. Water main[s] size and location
    6" MAIN IN BOYD ST
11. Access to all structures [min. 2 sides]
    YES, THREE SIDES: BOYD STREET, LANCASTER STREET, AND FRANKLIN STREET
12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.
    SEE ATTACHED CODE SUMMARY, EXHIBIT #21

Some structures may require Fire flows using annex H of NFPA 1

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division

Date: SEPT 2017

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 58 BOYD STREET

Chart Block Lot Number: MAP 69SE, BLK 002, LOT F001

Proposed Use: RESIDENTIAL APTS
Previous Use: OFFICE
Existing Sanitary Flows: UNKNOWN GPD
Existing Process Flows: N/A GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

12" LINE IN BOYD STREET

Site Category		
	Commercial *(see part 4 below)*	
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	X
	Other *(specify)*	X

Community room, office, telemedicine room

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: TBD Phone: _____
Owner/Developer Name: PORTLAND HOUSING AUTHORITY
Owner/Developer Address: 14 BAXTER BLVD
Phone: 773.4753 Fax: _____ E-mail: jwaterman@porthouse.org
Engineering Consultant Name: JOHN MAHONEY, RANSOM CONSULTANT
Engineering Consultant Address: 400 COMMERCIAL STREET, PORTLAND, MAINE 04101
Phone: 772.2891 Fax: _____ E-mail: john.mahoney@ransomenv.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated 8216 GPD
Peaking Factor/ Peak Times: N/A
Specify the source of design guidelines: *(i.e.*X*"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, Other (specify)* _____

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: N/A

Size of External Grease Interceptor: N/A

Retention Time: N/A

Peaking Factor/ Peak Times: N/A

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: N/A GPD

Do you currently hold Federal or State discharge permits? Yes ____ No N/A

Is the process wastewater termed categorical under CFR 40? Yes ____ No N/A

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: N/A

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

Please see attached.

Wastewater usage calculations:

Bedrooms (90gpd/bedroom)						
23	Efficiencies	X	90	gpd	=	2,070
10	1 Bedroom	X	90	gpd	=	900
13	2 Bedroom	X	180	gpd	=	2,340
9	3 Bedroom	X	270	gpd	=	2,430
86 Bedroom Subtotal						**7,740**

Common Spaces						
Meeting Rooms (5gpd/occupant)						
48	Max Occupants	X	5	gpd	=	240

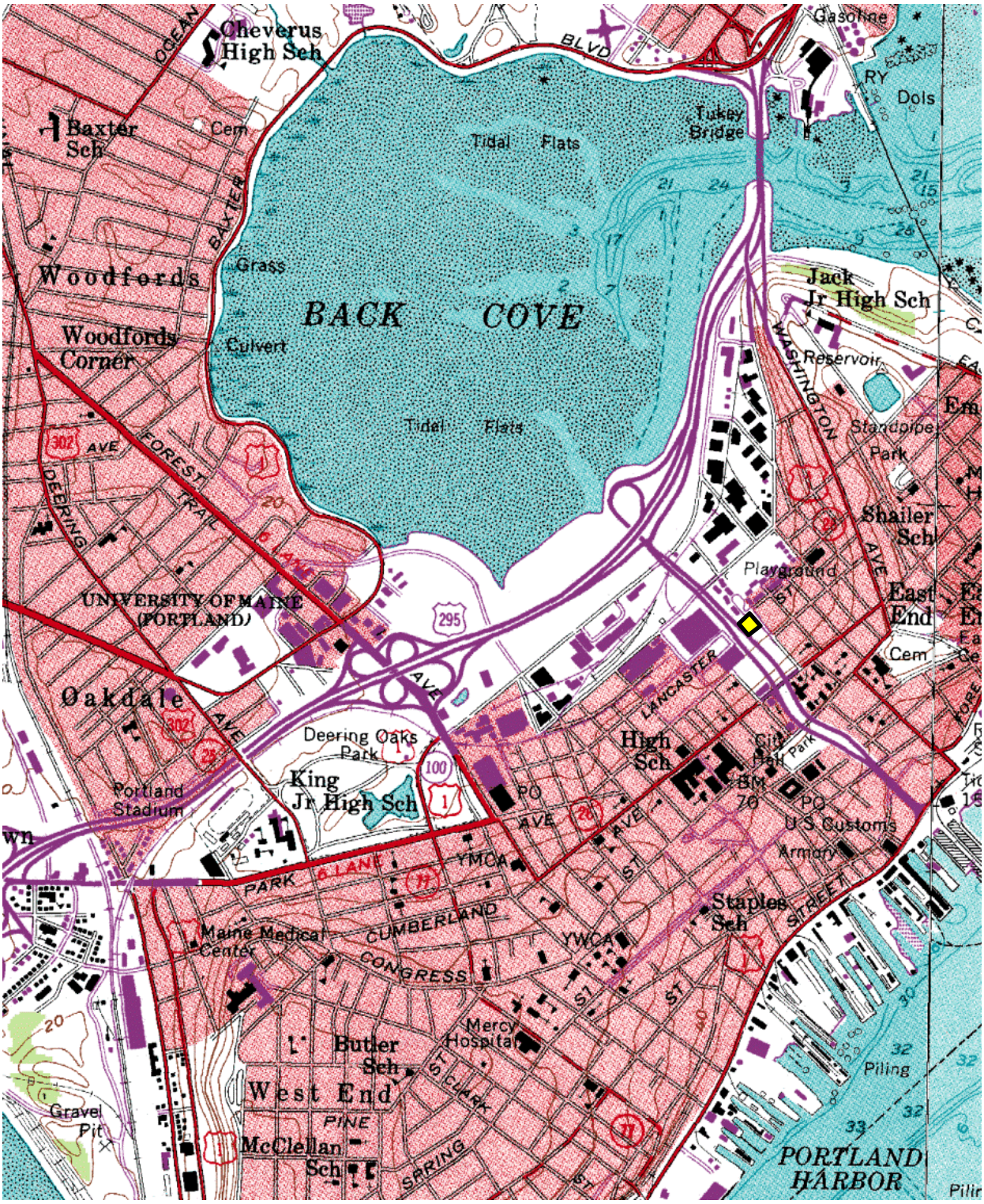
Building Office (12gpd/employee)						
3	Employee	X	12	gpd	=	36

Community Office (12gpd/occupant)						
10	Max Occupants	X	12	gpd	=	120

Tel-Med Office* (80gpd/occupant)						
1	Med Staff	X	80	gpd	=	80

* available to residents only

5. Location Map – USGS



USGS map of approximate subject property (outlined in black and filled with yellow).

Location Map – Aerial photograph

Aerial photograph of approximate subject property (outlined in red and filled with yellow).

6. Project Description

Overview of Development Proposal

Portland Housing Development Corporation is initiating the next phase of development in the East Bayside neighborhood to continue to strive for one of our strategic planning goals of increasing the supply of affordable housing in the City of Portland.

Unit Mix

We are proposing to develop a 55 unit multi-family apartment building for families with the following tentative unit mix: Efficiency – 23 units; 1 bedroom – 10 units; 2 bedroom – 13 units; 3 bedroom – 9 units; TOTAL - 55 units

Affordability

- 65% of the units will be for households making at or below 50% of the Area Median Income (about $41,500 for a family of 4).
- Of the 65%, half of the units (28) will have Project Based Rental Assistance.
- 15% of the units would be for households earning up to 60% AMI.
- 20% of the units would be market rate.
- 10% of the units will have a set-aside for homeless households
- Another 10% of the units will have a preference for homeless or disabled households

Achieving City Goals and Addressing Demonstrated Need

Economic diversity - Our program includes 10 market rate units (20%) in a census tract that had 54% of its residents living below the poverty line as of the 2010 Census. We have also discounted our market rate rents by 5%-10% below what a recent market study showed for market-rate rents. By doing this, we are trying to reach the "workforce housing" households that the City is targeting in their recent housing needs study. Remaining units are targeted to households earning below 50% and 60% of area median income allowing for additional income diversity.

Financial Feasibility

The financial projections included herein have been developed directly with our architectural design team and looking at current development and operating budgets of active projects. Hard and soft costs of development are based on both the specifics of the conceptual plans as well as experience with comparable developments in Portland. Operating expenses are consistent with area developer experience and using data from partners on the Bayside Anchor project. Rents are 11% to 64% below market (ensuring a strong competitive position within the market). Finally, the financial projections - including prefunded replacement and operating reserves - conform to MSHA underwriting standards and the project characteristics should yield an extremely competitive application in the upcoming LIHTC round at MSHA.

Applicant Ability and Project Readiness

The development team assembled for 58 Boyd Street Apartments features many of the most experienced and capable players in affordable housing in Portland and Maine.

Owner/Developer **PHDC** is the development subsidiary of Portland Housing Authority (PHA). PHA is the largest landlord in Portland and also manages the largest Section 8 program in Maine. **Jay Waterman**, PHDC's Director of Development, brings 6 years of experience as Avesta Housing's Director of Development and another 6 years as a leader in green building construction while at Thornton Tomasetti, an international engineering and green building consulting firm based in New York. Jay developed one of the recent affordable multi-family communities in the Bayside neighborhood, Pearl Place Phase I and recently completed the Bayside Anchor project for the Housing Authority.

The project's Management Agent, **Hallkeen Management Corporation** manages properties and reviews operating budgets for over 2,400 units in New England including over a hundred in Portland, including our 100 State Street senior housing development. PHDC will work closely with Hallkeen to ensure a financially viable project for the long-term.

CWS Architects is the premier architectural firm in the Portland area working on the design of multi-family buildings. They are designing the first ever multi-family *Passive House* project in the State of Maine and will use this knowledge to design 58 Boyd Street Apartments to the same standard. Sub-consultants to CWS include **Carroll Associates Landscape Architects, Becker Structural Engineering, Bennett Engineering and Ransom Civil Engineering**.

58 Boyd Street Apartments is well positioned to move from planning and design into production upon receipt of City and LIHTC funding. HUD approval for the transfer of the site will be received in advance of the LIHTC award, which will allow for unimpeded progress through the local development review process. The team is submitting a site plan application in mid-September, 2017 and, pending approval of MaineHousing tax credits, will be ready for construction in the Fall of 2018.

Impact on Surrounding Neighborhood, Design Compatibility and Environmental Issues

The site is in an existing residential neighborhood with a mix of owner-occupied and rental housing. Multifamily rental is appropriate for and compatible with the site. 58 Boyd Street Apartments' design is consistent with the style and type of construction historically found in East Bayside and other residential neighborhoods on the Peninsula. Our Site Plan submission to the planning board will use the new height bonus proved by the City Council in Division 30 of the zoning ordinance. Given other projects along the same Franklin Street corridor (Illuminato Condos) increasing to 77 feet in height and the West Bayside Height Overlay anywhere from 85 feet to 125 feet in height, we feel our building should enhance the higher density areas such as the Franklin transportation corridor with a building that is over 70 feet tall.

Replacing a relocating office building and Head Start School with a high performance, human-scaled apartment building that will have an active connection to the adjacent gardens represents a significant step in the process of restoring the neighborhood fabric that existed in East Bayside before Urban Renewal. Units are designed to serve the needs of residents with a focus on comfortable temperatures and excellent indoor air quality. Amenities include community facilities, common laundry room and community/event space.

58 Boyd Street Apartments' design will meet and significantly exceed the City's Green Building Code. The team's design professionals (CWS Architects) are leaders in the *Passive House* ultra-low-energy building movement including Community Housing of Maine's first Passive House building in the State of Maine, which opened in 2016. 58 Boyd Street Apartments employs the *Passive House* principles of

plentiful fresh air, passive solar design, superinsulation and airtightness, used in conjunction with highly efficient energy recovery ventilation, to dramatically reduce energy demand and simplify overly complex and expensive multifamily mechanical systems.

7. Right, Title, or Interest

Site Control: **Portland Housing Authority (owner) selling to Portland Housing Development Corp.**

Portland Housing Development Corp. ground leasing to 58 Boyd Street, LP (applicant)

Property Deed

SEE PAGE 10, DESCRIPTION OF PARCEL 20P (SUBJECT PROPERTY)

374

8334

THIS INDENTURE, dated as of the **second** day of **June**, 1970, by and between the PORTLAND RENEWAL AUTHORITY, a corporation incorporated and existing under and by virtue of the Private and Special Laws of the State of Maine, 1951, Chapter 217 and Amendments thereto (hereinafter sometimes referred to as the Authority) and the PORTLAND HOUSING AUTHORITY, a public body corporate and politic, duly organized and existing under the laws of the State of Maine and exercising public and essential governmental functions, of said Portland, County of Cumberland and State of Maine (hereinafter sometimes referred to as the "Redeveloper"):

WITNESSETH, That:

WHEREAS the Authority is the owner of the below described parcels of land and is desirous of conveying the same to the Redeveloper; and

WHEREAS the Authority has been duly authorized by virtue of an order by the City Council for the City of Portland which approved and authorized the execution and delivery of a quit claim deed with covenants from the Authority to the Redeveloper, duly passed on **May 4, 1970** and which order became effective on **May 14, 1970** and by virtue of a resolution of the Board of Commissioners of said Authority which approved and authorized the execution and delivery of a quit claim deed with covenants from said Authority to the Redeveloper adopted on **April 23, 1970** ; and

WHEREAS the Redeveloper is desirous of purchasing said parcels of land, subject to the encumbrances set forth herein,

NOW, THEREFORE, in consideration of the premises and of the mutual covenants herein contained and of the sum of Nine Thousand Two Hundred Forty ($9,240.00) Dollars paid by the Redeveloper to the Authority, the receipt whereof upon delivery hereof the Authority hereby acknowledges, the Authority does hereby remise, release, bargain, sell and convey, and forever quitclaim unto the Redeveloper, its successors and assigns, forever, the following described parcels of land:

1. Description of Parcel 38E

A certain lot or parcel of land situated on the northerly sideline of Cumberland Avenue, lying between Boyd Street and Mayo Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Cumberland Avenue and the easterly sideline of Boyd Street; thence northwesterly by the easterly sideline of Boyd Street 158 feet, more or less, to land now or formerly of Arthur H. Wakefield and Eiryl Wakefield; thence in a general easterly direction by the southerly sideline of land now or formerly of said Arthur H. Wakefield et al 110 feet to the southeasterly corner of land of said Wakefield et al; thence northwesterly by the easterly sideline of land of said Arthur H. Wakefield et al 38 feet, more or less, to the southwesterly corner of land now or formerly of Giovina Ferrante; thence in a general easterly direction by the southerly sideline of said Ferrante 111 feet

more or less, to the westerly sideline of Mayo Street; thence in a general southerly direction by the westerly sideline of Mayo Street 58 feet, more or less, to the northeasterly corner of land now or formerly of the Portland Congregation of Jehovah's Witnesses, Inc; thence in a general westerly direction by the northerly sideline of land of said Jehovah's Witnesses Inc., to the northwesterly corner of land of said Jehovah's Witnesses, Inc.; thence in a general southerly direction by the westerly sideline of land of said Jehovah's Witnesses, Inc., and by land now or formerly of warren DiPietro and Grace DiPietro 144 feet, more or less, to the northerly sideline of Cumberland Avenue; thence in a general westerly direction by the northerly sideline of Cumberland Avenue 110 feet, more or less, to the intersection formed by said northerly sideline of Cumberland Avenue and the easterly sideline of Boyd Street and the point of beginning.

Together with all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises, and including all right, title and interest conveyed in any and to so much of Cumberland Avenue and Fox Street as was acquired by the Portland Renewal Authority as is described in a Statement of Taking dated November 30, 1962, and recorded in Cumberland County Registry of Deeds in Book 2720, page 251. Plan of said area being recorded in said Registry in Plan Book 61, pages 64 and 65.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Hattie Branch by warranty deed dated May 3, 1963, and recorded in Cumberland County Registry of Deeds in Book 2747, Page 180, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by William H. Ham et al, by Warranty Deed dated June 23, 1960, and recorded in Cumberland County Registry of Deeds in Book 2548, page 41, the lot of land conveyed to this Authority by Richard P. Twomey et al by Warranty Deed dated April 25, 1963 and recorded in Cumberland County Registry of Deeds in Book 2744, page 128, the lot of land conveyed to this Authority by Richard P. Twomey et al by Warranty Deed dated March 30, 1962 and recorded in Cumberland County Registry of Deeds in Book 2664, page 370, the lot of land conveyed to this Authority by Gordon T. Taylor et als, by deeds dated June 27, 1963 and recorded in Cumberland County Registry of Deeds in Book 2765, pages 351, 362, 367 and 373, the lot of land conveyed to this Authority by Laurina Ferrante et al by Warranty Deed dated February 10, 1962 and recorded in Cumberland County Registry of Deeds in Book 2660 page 479, and the lot of land conveyed to this Authority by Carmine DiLallo by Administrator's Deed dated October 17, 1967 and recorded in Cumberland County Registry of Deeds in Book 3016, page 339.

2. <u>Description of Parcel 36E</u>

A certain lot or parcel of land, situated on the southerly sideline of Oxford Street adjoining the easterly sideline of Boyd Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the southerly sideline of Oxford Street and the easterly sideline of Boyd Street; thence in a general easterly direction by the southerly

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sideline of Oxford Street 145 feet, more or less, to land now or formerly of Gertrude M. Grady; thence in a general southerly direction by the westerly sideline of land of said Gertrude M. Grady 60 feet, more or less, to land now or formerly of Vincent Black and Laurebelle Black; thence in a general westerly direction by the northerly sideline of land of said Vincent Black et al 36.1 feet to land now or formerly of Clyde Harriman and Ethel Harriman; thence in a general northerly direction by the easterly sideline of land of said Clyde Harriman et al 10 feet, more or less to the northeasterly corner of land of said Clyde Harriman et al; thence in a general westerly direction by the northerly sideline of land of said Clyde Harriman et al 108 feet, more or less, to the easterly sideline of Boyd Street; thence in a general northerly direction by the easterly sideline of Boyd Street 47 feet, more or less, to the intersection formed by said easterly sideline of Boyd Street and the southerly sideline of Mayo Street, and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises. Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Arthur W. Simmons by Warranty Deed dated April 1, 1960 and recorded in Cumberland County Registry of Deeds in Book 2531, page 308, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Mitchell D. Goffin by Warranty Deed dated April 1, 1960 and recorded in Cumberland County Registry of Deeds in Book 2531, page 310, the lot of land conveyed to the Portland Renewal Authority by Ralph Amergian by Warranty Deed dated September 17, 1965 and recorded in Cumberland County Registry of Deeds in Book 2922, page 268, and the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Mollie D. Finkelman by Warranty Deed dated May 6, 1960 and recorded in Cumberland County Registry of Deeds in Book 2535, page 479.

3. Description of Parcel 60

A certain lot or parcel of land situated on the southerly sideline of Oxford Street adjoining the westerly sideline of Mayo Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the southerly sideline of Oxford Street and the westerly sideline of Mayo Street; thence in a general westerly direction by the southerly sideline of Oxford Street 38 feet, more or less, to land now or formerly of Gertrude M. Grady; thence in a general southerly direction by the easterly sideline of land of said Grady 75 feet, more or less, to land now or formerly of Vincent Black and Laurebelle Black; thence in a general easterly direction by the northerly sideline of land of said Vincent Black et al 38 feet, more or less to the westerly sideline of Mayo Street; thence in a general northerly direction by the westerly sideline of Mayo Street 75 feet, more or less, to the southerly sideline of Oxford Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Val Valeriani et al, by Warranty Deed dated December 4, 1964, and recorded in Cumberland County Registry of Deeds in Book 2869, page 247.

4. Description of Parcel 26E

A certain lot or parcel of land situated on the northerly sideline of Oxford Street adjoining, in part, the easterly sideline of Boyd Street in the City of Portland, County of Cumberland and State of Maine, being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Oxford Street and the easterly sideline of Boyd Street; thence in a general northerly direction by the easterly sideline of Boyd Street 105 feet, more or less, to land now or formerly of Maria Pesce; thence in a general easterly direction by the southerly sideline of land of said Pesce 110 feet, more or less, to land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general southerly direction by the westerly sideline of land of said Nicholas DiPietro et al 35 feet, more or less, to the southwesterly corner thereof; thence in a general easterly direction by the southerly sideline of land of said Nicholas DiPietro et al 45 feet, more or less, to land now or formerly of Mekail Amergian; thence in a general southerly direction by the westerly sideline of land of said Amergian 70 feet, more or less, to the northerly sideline of Oxford Stree; thence in a general westerly direction by the northerly sideline of Oxford Street 90 feet, more or less, to land now or formerly of Charles Rosenbloom; thence in a general northerly direction by the easterly sideline of land of said Rosenbloom 75 feet, more or less, to the northeasterly corner thereof; thence in a general westerly direction by the northerly sideline of land of said Rosenbloom 20 feet, more or less, to the northwesterly corner thereof; thence in a general southerly direction by the westerly sideline of land of said Rosenbloom, 75 feet, more or less to the northerly sideline of Oxford Street; thence in a general westerly direction by the northerly sideline of Oxford Street 31 feet, more or less, to its intersection with the easterly sideline of Boyd Street and the point of beginning.

This conveyance is made, subject to whatever rights the owners of the property at 81-83 Oxford Street may have to use and maintain a sewer line leading from their property to the sewer line in Boyd Street.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Santo DiDonato by Warranty Deed dated April 18, 1962, and recorded in Cumberland County Registry of Deeds in Book 2668, page 147, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now

Portland Renewal Authority) by Bella R. Finkelman et al, by Warranty Deed dated September 21, 1960, and recorded in Cumberland County Registry of Deeds in Book 2564, page 42, the lot of land conveyed to this Authority by Steve A. Notis by Warranty Deed dated November 19, 1965, and recorded in Cumberland County Registry of Deeds in Book 2935, page 229, and the lot of land conveyed to this Authority by Mekail Amerikian et al by Warranty Deed dated June 7, 1966, and recorded in Cumberland County Registry of Deeds in Book 2960, page 403.

5. Description of Parcel 61

A certain lot or parcel of land situated on the westerly sideline of Mayo Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the westerly sideline of Mayo Street, said point being 115 feet northerly of the point of intersection formed by said westerly sideline of Mayo Street and the northerly sideline of Oxford Street, said point also marking the northeasterly corner of land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general westerly direction by the northerly sideline of said Nicholas DiPietro et al 100 feet, more or less, to land now or formerly of Maria Pesce; thence in a general northerly direction by the easterly sideline of land of said Pesce and by land of Frank P. Briggs 45 feet, more or less to land now or formerly of Esther Pearl Hensley; thence in a general easterly direction by the southerly line of said Hensley 100 feet, more or less, to the westerly sideline of Mayo Street; thence in a general southerly direction by the westerly sideline of Mayo Street 45 feet, more or less, to the northeasterly corner of land now or formerly of Nicholas DiPietro et al and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Paul J. McCormick, Jr. by deed dated December 13, 1961, and recorded in Cumberland County Registry of Deeds in Book 2649, page 346.

6. Description of Parcel 64

A certain lot or parcel of land situated on the northerly sideline of Oxford Street, adjoining the easterly sideline of Smith Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the monument at the junction of the northeasterly side of Smith Street with the northwesterly side of Oxford Street and running thence northwesterly by Smith Street seventy (70) feet to a stake; thence northeasterly and parallel with Oxford Street, seventy-four (74) feet, eleven (11) inches to a stake; thence southeasterly in the rear of the house and adjoining land formerly of Charlotte R. Shaw, seventy (70) feet to Oxford Street; thence southwesterly by said Oxford Street seventy-three (73) feet to the point of beginning.

Also a certain strip of land in the rear of said house; said strip of land is described in the deed recorded in Cumberland County Registry of Deeds in Book 309, Page 466, as being bound and described as follows:

Beginning at a point on the northwesterly sideline of the premises herein above described at a point which is sixty (60) feet northeasterly of Smith Street; thence northwesterly by land formerly of one Orr, thirty (30) feet to land formerly of one Pennell, thence northeasterly by said Pennell land fourteen (14) feet to land formerly of one Shaw; thence southeasterly by said Shaw land thirty (30) feet to the premises hereinabove described; thence southwesterly by said premises fourteen (14) feet to the point of beginning.

Together with a right and easement in common with Margaret F. Mulkern, her heirs and assigns, to use a five (5) foot strip northeasterly of the boundary of land herein conveyed, or described in deed of Margaret F. Mulkern to this Grantor, dated May 16, 1958, recorded in said Registry of Deeds in Book 2411, Page 128.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by YOUR HOME, INC., by Warranty Deed dated November 24, 1965, and recorded in Cumberland County Registry of Deeds in Book 2935, Page 227.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

7. Description of Parcel 29E

A certain lot or parcel of land situated on the northerly sideline of Oxford Street and the westerly sideline of Anderson Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Oxford Street and the westerly sideline of Anderson Street; thence in a general westerly direction by the northerly sideline of Oxford Street 81 feet, more or less, to land now or formerly of Anacam, Inc.; thence in a general northerly direction by the easterly sideline of land of sand Anacam, Inc., 100 feet, more or less, to land now or formerly of Pearl E. Flaherty; thence in a general easterly direction by the southerly sideline of land of said Flaherty 81 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 30 feet, more or less, to land now or formerly of Emma Florence Fitts; thence in a general westerly direction by the northerly sideline of land of said Fitts 45 feet, more or less, to the northwesterly corner of land of said Fitts; thence in a general southerly direction by the westerly sideline of land of said Fitts 30 feet, more or less, to the southwesterly corner of land of said Fitts; thence in a general easterly direction by the southerly sideline of land of said Fitts 45 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 38 feet, more or less, to the northerly sideline of Oxford Street and the point of beginning.

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Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Margaret A. Mullen by Warranty Deed dated June 1, 1960, and recorded in Cumberland County Registry of Deeds in Book 2542, page 173, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Peter E. Carpenter by Warranty Deed dated April 8, 1960, and recorded in said Registry in Book 2532, page 145, and the lot of land conveyed to this Authority by Maybelle E. Haley et al by Warranty Deed dated February 25, 1965, and recorded in said Registry in Book 2940, page 11.

8. Description of Parcel 48E

A certain lot or parcel of land situated on the easterly sideline of Smith Street, northerly of Oxford Street, and extending in part to the westerly sideline of Mayo Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the easterly sideline of Smith Street, said point being 100 feet, more or less, northwesterly of the intersection formed by said easterly sideline of Smith Street and the northerly sideline of Oxford Street, said point also marking the northwesterly corner of land now or formerly of Anthony G. Ciazzo and Mary R. Ciazzo; thence in a general northerly direction by the easterly sideline of Smith Street 100 feet, more or less, to land now or formerly of Robert W. Gunn; thence in a general easterly direction by the southerly sideline of land of said Gunn and by land now or formerly of Bronet Sanuk and Margaret L. Sanuk 115 feet, more or less, to the southeasterly corner of land of said Bronet Sanuk et al; thence in a general northerly direction by the easterly sideline of land of said Bronet Sanuk et al 30 feet, more or less, to land now or formerly of Jacob Lamport et al; thence in a general easterly direction by the southerly sideline of land of said Jacob Lamport et al 60 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 65 feet, more or less, to land now or formerly of John F. Hughes; thence in a general westerly direction by the northerly sideline of land of said Hughes 84 feet, more or less, to the northwesterly corner thereof; thence in a general southerly direction by the westerly sideline of land of said Hughes and by land now or formerly of Pearl E. Flaherty 62 feet, more or less, to the southwesterly corner of land of said Flaherty and to a point on the northerly sideline of land now or formerly of Anacam, Inc; thence in a general westerly direction by the northerly sidelines of land now or formerly of Anacam, Inc., of Your Home, Inc., and of Anthony G. Ciazzo and Mary R. Ciazzo 110 feet, more or less, to the easterly sideline of Smith Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lo

of land conveyed to this Authority by the Administrator of Veterans' Affairs by deed dated February 13, 1968 and recorded in Cumberland County Registry of Deeds in Book 3030, page 108, the lot of land conveyed to this Authority by Salvatore, Inc., by Warranty Deed dated January 10, 1963, and recorded in Cumberland County Registry of Deeds in Book 2727, page 46, the lot of land conveyed to this Authority by Linwood B. Whitney et al, by Warranty Deed dated November 29, 1962, and recorded in Cumberland County Registry of Deeds in Book 2720, page 49, and the lot of land acquired by the Authority by condemnation action on June 9, 1965.

9. Description of Parcel 18C

A certain lot or parcel of land situated on the northerly sideline of Lancaster Street, adjoining the westerly sideline of Anderson Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the northerly sideline of Lancaster Street and the westerly sideline of Anderson Street; thence in a general westerly direction by the northerly sideline of Lancaster Street 105 feet, more or less, to land of the Portland Housing Authority; thence in a general northerly direction by the easterly sideline of land of said Portland Housing Authority 80 feet, more or less, to the southerly sideline of Anderson Lane; thence in a general easterly direction by the southerly sideline of Anderson Lane 69 feet, more or less, to land formerly of George Durfee and Mary Pinkham, now of the Portland Housing Authority; thence in a general southerly direction by the westerly sideline of land formerly of said George Durfee et al, on the following three courses: first, in a general southerly direction 23 feet to a point; thence in a general easterly direction 3 feet to a point, and, finally, in a general southerly direction 10 feet to the southwesterly corner of land formerly of said George Durfee et al; thence in a general easterly direction by the southerly sideline of land formerly of said George Durfee et al 33 feet to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 47 feet, more or less, to the northerly sideline of Lancaster Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now the Portland Renewal Authority), by A. Frances Robishaw, by Warranty Deed dated October 4, 1960, and recorded in Cumberland County Registry of Deeds in Book 2566, page 381, and the lot of land conveyed to this Authority by Constantino Piacentini, by Warranty Deed dated February 6, 1964, and recorded in said Registry in Book 2803, page 135.

10. Description of Parcel 12

A certain lot or parcel of land situated on the southerly sideline of Madison Street and lying between Anderson Street and Greenleaf Street, in the City of Portland, County of Cumberland

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and State of Maine, and being more particularly described as follows:

Beginning at the corner formed by the intersection of the easterly sideline of Anderson Street with the southerly sideline of Madison Street; thence by said Madison Street N 66° 36' E 239.76 feet to the corner formed by the intersection of the southerly sideline of said Madison Street with the westerly sideline of Greenleaf Street; thence by said Greenleaf Street S 23° 27' 30" E 160.19 feet to the corner formed by the intersection of the westerly sideline of said Greenleaf Street with the northerly sideline of Monroe Street; thence by said Monroe Street S 66° 33' 30" W 239.69 feet to the corner formed by the intersection of the northerly sideline of said Monroe Street with the easterly sideline of said Anderson Street N 23° 29' W 160.36 feet to the point of beginning.

Said above described courses are magnetic and of the date of 1959.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by the County of Cumberland by warranty Deed dated September 7, 1965, and recorded in Cumberland County Registry of Deeds in Book 2920, page 581.

11. Description of Parcel 13E

A certain lot or parcel of land situated on the southerly sideline of Monroe Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the southerly sideline of Monroe Street, said point being distant 80 feet easterly from the point of intersection of said southerly sideline of Monroe Street and the easterly sideline of Anderson Street, said point also marking the northeasterly corner of land now or formerly of Beverly Ann Hayden; thence in a general southerly direction by the easterly sideline of land of said Hayden 100 feet to the northwesterly corner of land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general easterly direction by the northerly sideline of land of said Nicholas DiPietro et al 40 feet to the northeasterly corner thereof; thence in a general southerly direction by the easterly sideline of land of said Nicholas DiPietro 80 feet to the northerly sideline of Oxford Street; thence in a general easterly direction by the northerly sideline of Oxford Street 120 feet, more or less, to the westerly sideline of Greenleaf Street; thence in a general northerly direction by the westerly sideline of Greenleaf Street; thence in a general northerly direction by the westerly sideline of Greenleaf Street 83 feet, more or less, to land now or formerly of King Butland; thence in a general westerly direction by the southerly sideline of land of said Butland 80 feet, more or less, to the southwesterly corner thereof; thence in a general northerly direction by the westerly

sideline of land of said Butland 33 feet, more or less, to the northwesterly corner thereof; thence in a general easterly direction by the northerly sideline of land of said Butland 80 feet, more or less, to the westerly sideline of Greenleaf Street; thence in a general northerly direction by the westerly sideline of Greenleaf Street 33 feet, more or less, to land now or formerly of Maurice G. Harding; thence in a general westerly direction by the southerly sidelines of land of said Harding and by land now or formerly of Perley V. Patrick and Alice R. Patrick 80 feet, more or less, to the southwesterly corner of land of said Perley V. Patrick et al; thence in a general northerly direction by the westerly sideline of land of said Perley V. Patrick et al 32 feet, more or less, to the southerly sideline of Monroe Street; thence in a general westerly direction by the southerly sideline of Monroe Street 80 feet, more or less, to land now or formerly of Beverly Ann Hayden and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by the County of Cumberland by warranty Deed dated September 7, 1965, and recorded in Cumberland County Registry of Deeds in Book 2920, page 585, the lot of land conveyed to this Authority by Helen M. Jones, by Executor's Deed dated February 1, 1963, and recorded in said Registry in Book 2731, page 229, the lot of land conveyed to the Slum Clearance Authority (now Portland Renewal Authority) by Richard C. Payson et al by Quit Claim Deed dated November 3, 1960, and recorded in said Registry in Book 2575, page 167, the lot of land conveyed to this Authority by Annie M. Kelley, by warranty Deed dated November 24, 1961, and recorded in said Registry in Book 2645, page 412, and the lot of land conveyed to this Authority by Roland B. Roberts et al by Warranty Deed dated February 19, 1965, and recorded in said Registry in Book 2881, page 148.

12. Description of Parcel 20P

A certain lot or parcel of land situated on the southerly sideline of Lancaster Street westerly of Boyd Street in the City of Portland, County of Cumberland and State of Maine and being more particularly described as follows:

Beginning at a drill hole at the corner formed by the intersection of the westerly sideline of Boyd Street with the southerly sideline of Lancaster Street; thence from said point of beginning and by said Lancaster Street S 48° 56' 21" W 152.10 feet to an iron on the easterly sideline of the Franklin Street Arterial Highway; thence by said Franklin Street by a convex curve to the southeast, having a radius of 2,827.79 feet a distance of 112.77 feet measured on the arc thereof to an iron at a point of tangent in said Franklin Street; thence continuing by said Franklin Street S 48° 43' 15" E 31.98 feet to an iron at the former location of the northerly sideline of Heath Street; thence by said former location of Heath Street N 48° 56' 21" E 138.15 feet to a drill hole in the westerly sideline of Boyd Street; thence by said Boyd Street N 42° 21' 07" W 143.75 feet to the point of beginning. Said above described courses are based on true Meridian as determined by the Maine State Highway Commission.

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The above described premises are hereby conveyed subject to an easement granted to the City of Portland dated 1970 and recorded in Cumberland County Registry of Deeds in Book , Page

Also all right, title and interest, if any, in and to all passageways, alleys, streets and lanes adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority), by Sumner G. Whittier as Administrator of Veterans' Affairs, by Quit Claim Deed dated May 25, 1959, and recorded in Cumberland County Registry of Deeds in Book 2474, page 286, the lot of land conveyed to this Authority by Charles Boyd Coleman, by Quit Claim Deed dated January 17, 1962, and recorded in said Registry in Book 2656, Page 324; a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Terese Hubbard, by Warranty Deed dated January 11, 1960, and recorded in said Registry in Book 2520, page 139, a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Leonard Pelletier, by Warranty Deed dated April 7, 1960, and recorded in Said Registry in Book 2532, page 147, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Samuel C. Modes, by Warranty Deed dated October 28, 1959, and recorded in said Registry in Book 2508, page 265, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by V. Grace Wood, by Warranty Deed dated August 4, 1959, and recorded in said Registry in Book 2490, page 354, and the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority), by Edward L. Delaney, by Warranty Deed dated August 21, 1959, and recorded in said Registry in Book 2494, Page 316.

The above described premises are hereby conveyed subject to the following restrictions, covenants and agreements:

1. The redeveloper, its successors and assigns, will and shall devote the above described premises to the uses specified in the Redevelopment and Renewal Plan for the Bayside Park Urban Renewal Project, Me. R-1, dated the thirteenth day of February, AD 1958, approved by resolution of the Authority and by order of the City Council for the City of Portland under date of November 3, 1958, and duly recorded under date of November 3, 1958, in the Clerk's office for the City of Portland, Maine, in Volume 75, page 325, as amended to date and in accordance with the zoning ordinance for the City of Portland dated December 18, 1961.

2. The Redeveloper, its successors and assigns, will not and shall not devote the premises or any part thereof to any other use than the uses specified for the above described premises in accordance with said Plan, as amended to date or contrary to any of the applicable limitations or requirements of said plan.

3. The Redeveloper, its successors and assigns, will not

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and shall not effect any covenant, agreement, lease, or other instrument whereby the property is restricted on the basis of race, creed, color or national origin in the sale, lease or occupancy thereof, and will and shall comply with all Federal, State and local Laws, in effect from time to time, prohibiting discrimination or segregation by reason of race, religion, color or national origin in the sale, lease or occupancy of the property, and further, covenants and agrees not to discriminate on the basis of race, color, creed or national origin in the sale, lease or rental, or in the use or occupancy of the demised property or any improvement erected or to be erected therein, or any part thereof.

4. The Redeveloper, its successors and assigns, will not and shall not devote the premises or any part thereof except in accordance with the following special restrictions, covenants and agreements which are hereby made a part of this Indenture.

a) The Redeveloper shall construct on the premises hereby conveyed a housing project designated to provide housing for low-income families, in accordance with the Annual Contributions Contract as amended from time to time, between the Redeveloper and the Public Housing Administration.

b) The Redeveloper herein, its successors and assigns, shall not convey said premises to any person, firm or corporation other than a public body unless the deed by which such conveyance is effected shall contain the following covenant and restriction:

> "This conveyance is subject to all of the restrictions, covenants and agreements contained in the Indenture by which said premises were conveyed to the Portland Housing Authority, and in addition, the Grantee, its successors and assigns shall not reconstruct, demolish or subtract from the buildings and structures now on said land, nor make any additions thereto or extensions thereof without prior written approval of the Portland Renewal Authority, which approval shall not unreasonably be withheld.
>
> "The foregoing, like all of the other covenants contained in the aforesaid Indenture to the Portland

Housing Authority from the Portland Renewal Authority, shall be a covenant running with the land and shall be enforceable in the same manner as prescribed in the original Indenture from the Portland Renewal Authority for the enforcement of the covenants therein contained."

The covenants in this conveyance in Paragraphs 1, 2, 3, and 4 shall be covenants running with the land and covenants to the same effect, which shall be and shall be expressed to be covenants running with the land, shall be contained in any instruments from the Redeveloper or from its successors and assigns to any future Grantee or to its successors and assigns covering the premises or any portion thereof or interest therein. All such covenants shall be enforceable by the Portland Renewal Authority and its successors and assigns.

c) All covenants relating to discrimination as presented in paragraph three (3) of this instrument, shall be covenants running with the land in perpetuity.

It is intended and agreed that the covenants provided in Paragraphs 1, 2, 3, and 4 shall be covenants running with the land binding to the fullest extent permitted by law and equity for the benefit and in favor of, and enforceable by, the Authority , its successors and assigns, the City, and any successor in interest to the property, or any part thereof, and the owner of any other land (or of any interest in such land) in the project area which is subject to the land use requirements and restirctions of the Urban Renewal Plan and the United States (in the case of the covenant provided in paragraph 3) against the Redeveloper, its successors and assigns, and every successor in interest to the Property or any part thereof or any interest therein, and any party in possession or occupancy of the Property or any part thereof.

TO HAVE AND TO HOLD the same, together with all the privileges and appurtenances thereunto belonging, to the said Portland Housing Authority, its successors and assigns, to its use and behoof forever and the Authority does covenant with the said Portland Housing Authority, its successors and assigns, that it will warrant and forever defend the premises to it the said Portland Housing Authority, its successors and assigns

forever against the lawful claims and demands of all persons claiming by, through or under it.

ATTEST:

Thomas F. Valleau
Secretary

PORTLAND RENEWAL AUTHORITY

By Charles W. Redman, Jr.
Charles W. Redman, Jr.
Chairman

ATTEST:

George G. Mulligan
Secretary

PORTLAND HOUSING AUTHORITY

By Thomas F. Monaghan
Thomas F. Monaghan
Chairman

STATE OF MAINE
COUNTY OF CUMBERLAND, SS

Portland, Maine

On this 1st day of June, 1970, personally appeared Charles W. Redman, Jr., to me personally known, who, being by me duly sworn, did say that he is the Chairman of the Portland Renewal Authority; that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the authority of its commission; and that said Charles W. Redman, Jr. acknowledged said instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

Justice of the Peace
Notary Public

STATE OF MAINE
COUNTY OF CUMBERLAND, SS

Portland, Maine

On this 1st day of June, 1970, personally appeared Thomas F. Monaghan, to me personally know, who, being by me duly sworn, did say that he is the Chairman of the Portland Housing Authority; that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the authority of its commission; and that said Thomas F. Monaghan acknowledged said instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

Justice of the Peace
Notary Public

JUN 2 1970

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 1 H 41 M P.M. and recorded in
BOOK 3129 PAGE 374 Edward P. Thy Register

Purchase Agreement

AMENDED AND RESTATED OPTION TO PURCHASE AGREEMENT

THIS AMENDED AND RESTATED OPTION TO PURCHASE AGREEMENT is dated this 14th day of October 2016, is by and among PORTLAND HOUSING AUTHORITY, a Maine nonprofit corporation having a mailing address of 14 Baxter Boulevard, Portland, ME 04101 (the "Seller"), and PORTLAND HOUSING DEVELOPMENT CORPORATION, a Maine non-profit corporation having a mailing address of 14 Baxter Boulevard, Portland, ME 04101 or its assigns ("PHDC" or "Buyer") and amends and restates that certain Option to Purchase Agreement by and between Seller and 58 Boyd Street, LP, a Maine limited partnership dated June 12, 2015. 58 Boyd Street, LP joins in this Agreement to consent to the terms hereof, and the grant of the option to PHDC in place of 58 Boyd Street, LP.

RECITALS

WHEREAS, Seller is the owner of a certain parcel of land, and all improvements, buildings and fixtures presently on the real estate bounded by Boyd Street, Franklin Arterial and property of the City of Portland, Maine [and being a portion of its Bayside East Public Housing Project ME 003005], shown as the area on the Boundary and Topographic Survey attached hereto as Exhibit A, (the "Premises"); and

WHEREAS, Seller wishes to grant to Buyer, and Buyer wishes to accept, an option to purchase (the "Option") with respect to the Premises upon the terms and conditions as set forth herein.

NOW, THEREFORE, in consideration of one dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Option Period; Extension; Exercise of Option. Seller hereby grants Buyer the option to purchase the Premises for a period extending through June 30, 2019 (the "Option Period").

   a. The Option and the obligation of each of the Seller and Buyer shall be conditional upon (i) approval by the United States Department of Housing and Urban Development ("HUD") of a demolition disposition by Portland Housing Authority in order to remove the Premises from the Declaration of Trust currently encumbering the real estate and authority to transfer the Premises to Buyer or its assigns or to a lessee under a long term ground lease, for the development of multi-family housing thereon; (ii) receipt of all required municipal and state approvals by Buyer or such ground lessee for the development of a mixed-income multi-family housing project to be located on the Premises; and (iii) and an award of Low Income Housing Tax Credits for such development.

   b. Buyer may exercise the Option at any time during the Option Period by giving written notice to Seller of its intent to exercise the Option (the "Purchase Notice"). Notice delivered to Seller or sent to Seller by certified mail, return receipt requested, at the above address shall be sufficient.

2. Purchase Price. Subject to adjustment as set forth below, Buyer shall pay Seller a purchase price of One Dollar ($1.00) (the "Purchase Price") plus any additional amount that HUD requires in connection with the disposition of the Premises.

3. Closing. If Buyer exercises the Option, closing shall take place at a date and time and at a location agreed upon by the Buyer and the Seller, within ninety (90) days after the date of the Purchase Notice.

4. Conditions to Sale. If Buyer exercises the Option, the following terms and provisions shall apply:

a. Title to the Premises shall be conveyed to Buyer by good and sufficient Quitclaim Deed With Covenant, which deed shall convey good and clear record and marketable title to the Premises, free from encumbrances except provisions of existing building and zoning laws and any covenants and/or easements of record provided same do not interfere with Buyer's intended use of the Premises; such real estate taxes for the then current tax period which are not due and payable on the date of delivery of such deed; utility and access easements in common with Seller's adjoining developments, and any matters of record which in Buyer's opinion do not interfere with Buyer's plans to develop the property. Buyer shall notify Seller of any defects in title that would make Seller unable to give title to the Premises as herein stipulated. Seller shall be obligated to proceed in good faith to cure any such title defect(s). If required, the closing shall be extended to allow Seller time to cure any such title defects, but in no event shall the closing be extended more than thirty (30) days for such purposes. If a title defect exists that Seller is unable to reasonably cure, Buyer may elect, by written notice to Seller, either (i) to accept title to the Premises subject to any uncured defects in title or (ii) to terminate the Option, whereupon any extension fee(s) paid by Buyer to Seller shall be immediately refunded to Buyer, the obligations of all parties hereunder shall cease, and neither party shall have any claim against the other by reason of this Agreement.

b. Each party shall pay it share of the Maine real estate transfer tax, provided, however, that if either party is exempt from real estate transfer tax, such party shall not be obligated to pay any portion of any such tax.

c. Buyer shall have the right to enter into a long term ground lease of the Premises to 58 Boyd Street, LP, a Maine limited partnership (the "Ground Lessee"), upon the condition that the Ground Lessee develop the Premises into a mixed income or low income multi-family apartment complex. Buyer shall have the right, during the term of this Option, to enter into an option to lease or a letter of intent to lease to the Ground Lessee, conditioned upon Buyer's acquisition of the Premises in accordance with the terms of this Amended and Restated Option to Purchase.

5. Representations. Seller represents, covenants and warrants to and agrees with Buyer as follows:

   a. Seller is the current owner of the Premises, and; subject to approval by HUD, has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Seller of the obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Seller is a party or by which Seller is bound.

   b. There are no agreements or contracts affecting the Premises or any use of the Premises that would not be terminable at will by Buyer without penalty from and after the Closing, other than those for which Seller will be seeking approval from HUD in connection with its demolition disposition application.

Buyer represents, covenants and warrants to Seller that Buyer has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Buyer of its obligations hereunder: (i) have been duly authorized by all requisite action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of organization of Buyer or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Buyer is a party or by which it is bound.

6. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. All notices shall be effective upon hand delivery or mailing, whichever first occurs.

7. Further Assurances. The parties agree that up to and after the date of closing, they shall do such things and execute, acknowledge and deliver any and all additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

8. Buyer's Access. Buyer and others whom Buyer may designate shall have the right, at all reasonable times, at Buyer's sole cost and expense, risk and hazard, to enter upon the Premises to examine and/or show the same and make, or cause to be made, engineering studies with respect thereto, including, without limitation, surveying, conducting test borings in order to determine sub-soil conditions, and in general conducting all other tests, analysis and studies of the Premises which Buyer deems prudent in connection with Buyer's intended development or use of the Premises. Buyer shall restore the Premises following any testing as reasonably as possible to its pre-existing condition, unless otherwise agreed by Seller.

9. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be canceled, modified or amended only by a written instrument executed by both the Seller and Buyer. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it. Time is of the essence with respect to all dates set forth in this Agreement.

10. Risk of Loss. The risk of loss shall remain on Seller at all times until closing.

11. Assignment. Buyer may assign this Agreement to any party affiliated with Buyer on in which Buyer or an affiliate of Buyer has an interest.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

SELLER:

PORTLAND HOUSING AUTHORITY

By: _____
Mark Adelson
Its Executive Director

BUYER:

PORTLAND HOUSING DEVELOPMENT CORPORATION

By: _____
Mark Adelson
Its President

Consent of 58 Boyd Street, LP:

58 Boyd Street, LP joins in this Amended and Restated Option to Purchase Agreement for the purpose of consenting to the Amendments contained herein and to the consent of the grant of the

Option to Purchase to Portland Housing Development Corporation in place of 58 Boyd Street, LP.

58 BOYD STREET, LP

By: PORTLAND HOUSING DEVELOPMENT CORPORATION, its General Partner

By: _____
Mark Adelson
Its President

STATE OF MAINE
COUNTY OF CUMBERLAND, SS. October 14, 2016

Personally appeared the above-named, Mark Adelson, Executive Director of Portland Housing Authority, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said Portland Housing Authority.

Before me,

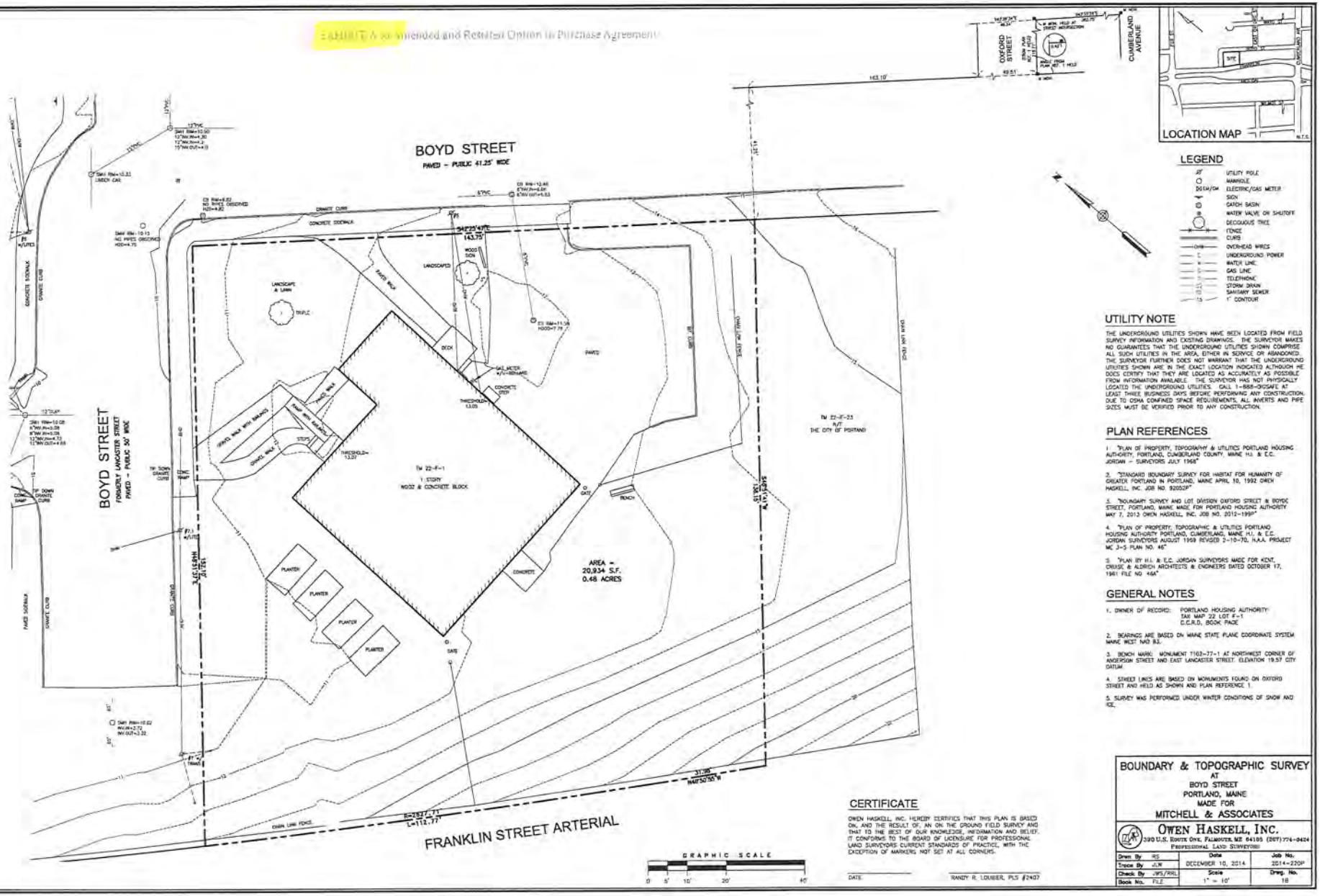
_____
Notary Public/Attorney at Law

JERE SIROIS
Notary Public, Maine
My Commission Expires July 25, 2021

_____
Printed Name

EXHIBIT A

EXHIBIT A to Amended and Restated Option to Purchase Agreement



LEGEND

- UTILITY POLE
- MANHOLE
- ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- WATER VALVE OR SHUTOFF
- DECIDUOUS TREE
- FENCE
- CURB
- OHW — OVERHEAD WIRES
- E — UNDERGROUND POWER
- W — WATER LINE
- G — GAS LINE
- T — TELEPHONE
- D — STORM DRAIN
- S — SANITARY SEWER
- 15 — 1' CONTOUR

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

PLAN REFERENCES

1. "PLAN OF PROPERTY, TOPOGRAPHY & UTILITIES PORTLAND HOUSING AUTHORITY, PORTLAND, CUMBERLAND COUNTY, MAINE H.J. & E.C. JORDAN – SURVEYORS JULY 1968"
2. "STANDARD BOUNDARY SURVEY FOR HABITAT FOR HUMANITY OF GREATER PORTLAND IN PORTLAND, MAINE APRIL 10, 1992 OWEN HASKELL, INC. JOB NO. 920529"
3. "BOUNDARY SURVEY AND LOT DIVISION OXFORD STREET & BOYDE STREET, PORTLAND, MAINE MADE FOR PORTLAND HOUSING AUTHORITY MAY 7, 2013 OWEN HASKELL, INC. JOB NO. 2012-199"
4. "PLAN OF PROPERTY, TOPOGRAPHIC & UTILITIES PORTLAND HOUSING AUTHORITY PORTLAND, CUMBERLAND, MAINE H.J. & E.C. JORDAN SURVEYORS AUGUST 1969 REVISED 2-10-70, N.A.A. PROJECT MC J-5 PLAN NO. 46"
5. "PLAN (BY H.J. & E.C. JORDAN SURVEYORS MADE FOR KENT, CRUISE & ALDRICH ARCHITECTS & ENGINEERS DATED OCTOBER 17, 1961 FILE NO. 46A"

GENERAL NOTES

1. OWNER OF RECORD: PORTLAND HOUSING AUTHORITY
   TAX MAP 22 LOT F-1
   C.C.R.D., BOOK PAGE
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM MAINE WEST NAD 83.
3. BENCH MARK: MONUMENT 7102-77-1 AT NORTHWEST CORNER OF ANDERSON STREET AND EAST LANCASTER STREET. ELEVATION 19.57 CITY DATUM.
4. STREET LINES ARE BASED ON MONUMENTS FOUND ON OXFORD STREET AND HELD AS SHOWN AND PLAN REFERENCE 1.
5. SURVEY WAS PERFORMED UNDER WINTER CONDITIONS OF SNOW AND ICE.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE, WITH THE EXCEPTION OF MARKERS NOT SET AT ALL CORNERS.

DATE

RANDY R. LOUBIER, PLS #2407

BOUNDARY & TOPOGRAPHIC SURVEY
AT
BOYD STREET
PORTLAND, MAINE
MADE FOR
MITCHELL & ASSOCIATES

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	RS	Date	Job No.
Trace By	JLW	DECEMBER 10, 2014	2014-220P
Check By	JWS/RRL	Scale	Dwg. No.
Book No.	FILE	1" = 10'	18

Lease Agreement

OPTION TO LEASE AGREEMENT

THIS OPTION TO LEASE AGREEMENT dated this 11th day of October, 2016 (the "Agreement"), is entered into by and between **PORTLAND HOUSING DEVELOPMENT CORPORATION**, a Maine non-profit corporation, having a mailing address of 14 Baxter Boulevard, Portland, ME 04101 ("Landlord"), and **58 BOYD STREET, L.P.**, a Maine limited partnership having a mailing address of 14 Baxter Boulevard, Portland, ME 04101 ("Tenant").

RECITALS

WHEREAS, Landlord is the holder of an option to purchase a certain parcel of land, and all improvements, buildings and fixtures presently on the real estate bounded by Boyd Street, Franklin Arterial and property of the City of Portland, Maine, shown on the Boundary and Topographic Survey attached hereto as Exhibit A (the "Premises"); and

WHEREAS, under the terms of Landlord's option to purchase, the Landlord has the right to grant an option to lease to the Tenant, and to enter into a long term ground lease of the Premises upon Landlord's acquisition of the Premises in accordance with the terms of Landlord's option to purchase;

WHEREAS, Landlord and Tenant wish to establish the terms upon which Tenant may lease the Premises, subject to the terms of this Agreement and subject to Tenant's exercise of the option provided in this Agreement;

NOW, THEREFORE, in consideration of one dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Grant of the Option; Option Period; Extension; Exercise of Option. The Landlord hereby grants to the Tenant the exclusive right and option to lease the Premises (the "Option"), substantially in accordance with terms contained in the form of Ground Lease attached as Exhibit B annexed hereto and made part hereof, for a period extending through June 30, 2019 (the "Option Period").

    a. The Option and the obligation of each of the Landlord and Tenant shall be conditional upon (i) approval by the United States Department of Housing and Urban Development ("HUD") of a demolition disposition by Portland Housing Authority in order to remove the Premises from the Declaration of Trust currently encumbering the real estate and authority to transfer the Premises to Tenant or its assigns, for the development of multi-family housing thereon; (ii) receipt of all required municipal and state approvals for the development of a mixed-income multi-family housing project to be located on the Premises; (iii) and an award of Low Income Housing Tax Credits for such development; and (iv) the exercise of the Landlord's Option to Purchase the Premises, and the conveyance of the Premises to Tenant.

b. Tenant may exercise the Option at any time during the Option Period by giving written notice to Landlord of its intent to exercise the Option (the "Option Notice"). Notice delivered to Landlord or sent to Landlord by certified mail, return receipt requested, at the above address shall be sufficient. Upon receipt of the Option Notice by Tenant, Landlord agrees that it will exercise its option to purchase, so that Landlord will have title to the Premises in order to enter into the Lease to Tenant.

2. Closing. If Tenant exercises the Option, the parties shall enter into a lease consistent with the terms of this Agreement and substantially in accordance with the terms of the form of Ground Lease attached hereto as Exhibit B within ninety (90) days after the date of the Option Notice.

3. Representations. Landlord represents, covenants and warrants to and agrees with Tenant as follows:

a. Landlord holds an option to purchase the Premises from the current owner of the Premises, and; subject to approval by HUD, has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Landlord of the obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Landlord is a party or by which Landlord is bound.

b. There are no agreements or contracts affecting the Premises or any use of the Premises that would not be terminable at will by Tenant without penalty from and after the execution of the Lease, other than those for which Landlord will be seeking approval from HUD in connection with its demolition disposition application.

Tenant represents, covenants and warrants to Landlord that Tenant has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Tenant of its obligations hereunder: (i) have been duly authorized by all requisite action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of organization of Tenant or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Tenant is a party or by which it is bound.

Landlord represents, covenants and warrants to Tenant that Landlord is the holder of a valid option to purchase the Premises, which option to purchase remains in full force and effect and that Landlord has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Landlord of its obligations hereunder: (i) have been duly authorized by all requisite action; and (ii) will not conflict with, or result in a breach of, any of the terms,

covenants and provisions of the by-laws or articles of organization of Landlord or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Landlord is a party or by which it is bound.

4. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. All notices shall be effective upon hand delivery or mailing, whichever first occurs.

5. Further Assurances. The parties agree that up to and after the date of closing, they shall do such things and execute, acknowledge and deliver any and all additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

6. Tenant's Access. Tenant and others whom Tenant may designate shall have the right, at all reasonable times, at Tenant's sole cost and expense, risk and hazard, to enter upon the Premises to examine and/or show the same and make, or cause to be made, engineering studies with respect thereto, including, without limitation, surveying, conducting test borings in order to determine sub-soil conditions, and in general conducting all other tests, analysis and studies of the Premises which Tenant deems prudent in connection with Tenant's intended development or use of the Premises. Tenant shall restore the Premises following any testing as reasonably as possible to its pre-existing condition, unless otherwise agreed by Landlord.

7. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be canceled, modified or amended only by a written instrument executed by both the Landlord and Tenant. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it. Time is of the essence with respect to all dates set forth in this Agreement.

8. Risk of Loss. The risk of loss shall remain on Landlord at all times until closing.

9. Assignment. Tenant may assign this Agreement to any party affiliated with Tenant or in which Tenant or an affiliate of Tenant has an interest.

[Remainder of page left intentionally blank. Signature and acknowledgement pages and Exhibit A follow.]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

LANDLORD:

PORTLAND HOUSING DEVELOPMENT CORPORATION

By: _____
Mark B. Adelson
Its President

TENANT:

58 BOYD STREET, LP

By: Portland Housing Development Corporation, its General Partner

By: _____
Mark B. Adelson
Its President

STATE OF MAINE

COUNTY OF CUMBERLAND, SS. October 11, 2016

Personally appeared the above-named, Mark B. Adelson, President of Portland Housing Development Corporation, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said Portland Housing Development Corporation.

Before me,

Notary Public/~~Attorney at Law~~

JERE SIROIS
Notary Public, Maine
My Commission Expires July 25, 2021

Printed Name

8. State and/or Federal Permits

- **No State or Federal stormwater permits are anticipated as part of this project due to the City's delegated review authority over the stormwater component. See attached exhibit #17 Stormwater Narrative and Plans.**

- **No State or Federal traffic movement permits are anticipated as part of this project due to the low number of trips being generated by the development. The City has delegated review authority over the traffic component. See attached exhibit #15 Traffic Forecast, Parking Assessment and TDM Plan.**

9. Zoning Requirements:

R-7 COMPACT URBAN RESIDENTIAL OVERLAY ZONE

Sec. 14-142. Permitted Uses.

Permitted uses in the R-7 Compact Urban Residential Overlay Zone, shall be the uses permitted in the R-6 Zone, except that: ***Multi-family dwellings (permitted use)***
Institutional: Place of assembly – neighborhood center (conditional use)

(a) Residential uses shall comply with the following dimensional requirements:

1. Minimum Lot Size: None
20,934 sf (0.48 ac)

2. Minimum Frontage: None
+295 feet

3. Minimum Yard Dimensions:

a. Front yard: None
3 inches

b. Rear and side yard: Five (5) feet.
5 feet

c. Side yard on side street: None
N/A

4. Maximum Lot Coverage: 100%
+/- 83%

5. Maximum Residential Density: Four hundred thirty five (435) square feet of land area per dwelling unit is required. **The 20,934 square feet of the site allows for 48 units. Division 30 density bonus provides for 2.5X the base density allowed or 2.5 X 48 units or up to 120 units. The project is proposing 55 units.**

6. Maximum Building Height: Fifty (50) Feet
Division 30 height bonus provides for an additional 25 feet. The project is proposing to be between 72-75 feet tall.

(b) Off-street parking is required as provided in division 20 (off-street parking) of this article;
See Division 20 Off Street Parking Section following.

(c) Residential development in the R-7 Zone shall be reviewed by the Planning Board for compliance with Article IV, Subdivisions, and Article V, Site Plan;
Applicable.

(d) Any new dwelling unit constructed in the R-7 Zone shall contain a minimum of 400 square feet of habitable floor area;
Applicable. The project is in compliance.

(e) All other uses in the R-7 Zone shall observe the requirements of the R-6 Zone.
Applicable.

DIVISION 30. AFFORDABLE HOUSING

Sec.14-484. Purpose.

It is in the public interest to promote an adequate supply of affordable housing for the city's residents. The purpose of this division therefore is to offer incentives to developers to include units of affordable housing within development projects, thereby mitigating the impact of market rate housing construction on the limited supply of available land for suitable housing, and helping to meet the housing needs of all economic groups within the city. The city believes that this division will assist in meeting the city's comprehensive goals for affordable housing, in the prevention of overcrowding and deterioration of the limited supply of affordable housing, and by doing so promote the health, safety and welfare of its citizens.

Applicable.

Sec. 14-485. Definitions.

Affordable means that the percentage of income a household is charged in rent and other housing expenses, or must pay in monthly mortgage payments (including insurance and taxes), does not exceed 30% of a household's income, or other amount established in city regulations that does not vary significantly from this amount.

Low-income housing unit for rent means a dwelling unit for which:

(a) The rent is affordable to a household earning 80% or less of Area Median Income (AMI) as defined by the United States Department of Housing and Urban Development (HUD); and
Applicable. 44 of the 55 units are considered affordable.

(b) Annual rent increases for that unit are limited in perpetuity by deed restriction or other legally binding agreement to the percentage increase in the U.S. Department of Housing and Urban Development moderate-income figure for metropolitan Cumberland county Maine for a household of that size.

Development fees means:

(a) The following fees, as described in this chapter: site plan review and inspection fees; subdivision review and inspection fees; and administrative fees; and
Applicable.

(b) Construction and permit fees as described in chapter 6. "Development fees" does not include any fees charged for reviews conducted by a party other than the city.

Dwelling unit has the same meaning as that term is defined in section 14-47.
55 apartments are proposed.

Eligible project means a development project:

(a) That is permissible under the provisions of this chapter in the zone in which it is proposed;
Applicable.

(b) That will be a multi-family dwelling, as defined in section 14-47, and will not be located in an R-1 or R-2 zone;
Applicable.

(b) *That creates new dwelling units, among which is at least one low-income housing unit for rent or workforce housing for sale, through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a non-residential use to residential use, or any combination of these elements. Affordable housing units for sale or rent may not differ in exterior design from other units within an eligible project; and*
Applicable.

(d) Projects shall not be considered "eligible projects" solely because they are subject to Section 14-487 ("Ensuring Workforce Housing").

Workforce housing unit for rent means a dwelling unit which:
(a) Is affordable to a household earning less than 100% of HUD AMI; and
(b) Annual rent increases for that unit are limited by deed restriction or other legally binding agreement to the percentage increase in the HUD Greater Portland Metropolitan Statistical Area median income figures for a household of that size.
Applicable.

- **65% of the units will be for households making at or below 50% of the Area Median Income (about $41,500 for a family of 4).**
- **Of the 65%, half of the units (28) will have Project Based Rental Assistance.**
- **15% of the units would be for households earning up to 60% AMI.**
- **20% of the units would be market rate.**
- **10% of the units will have a set-aside for homeless households**
- **Another 10% of the units will have a preference for homeless or disabled households**

Sec. 14-486. Reduction of fees.
Notwithstanding any other provision of this chapter or chapter 6 to the contrary, development fees shall be reduced by the city for an eligible project in the manner described in the allowing table:

Percentage of new units that are low-income or workforce units	Percentage discount of development fees	Cost of Work (Building Permit) Fees in lieu of Section 617 (a) 1 & 3
5% up to but not including 10%	5% reduction	$10.50 per $1,000
10% up to but not including 15%	10% reduction	$9.90 per $1,000
15% up to but not including 20%	15% reduction	$9.35 per $1,000
20% up to but not including 25%	20% reduction	$8.80 per $1,000
25% or more	25% reduction	$8.25 per $1,000

The planning and urban development department shall perform its review of an eligible project in as expedited a manner as is practical, without impairing the scope or thoroughness of the review. The

planning and urban development department may adopt administrative procedures to prioritize review of eligible projects and facilitate this expedited review. The planning board shall make its best efforts to give priority in scheduling workshops and public hearings related to any plans or applications required for an eligible project that are within the planning board's jurisdiction, without impairing the scope or thoroughness of its review. At the conclusion of these public meetings, the planning board shall promptly issue a decision on all such plans and applications before it for consideration.
(Ord. No. 98-06/07, 12-4-06; Ord. 82-15/16, 10-19-2015; Ord. No. 165-15/16, 3-7-2016; Ord. No. 196-15/16, 3-21-2016)
Applicable.

Sec. 14-487. Ensuring Workforce Housing.
(a) Purpose. Based on the city's Comprehensive Plan and the housing study completed in 2015, it is in the public interest to promote an adequate supply of housing that is affordable to a range of households at different income levels. The purpose of this section is to ensure that housing developments over a certain size provide a portion of workforce housing units and, by doing so, promote the health, safety, and welfare of Portland citizens.
Applicable.

(b) Applicability/Conditional Use Requirement/Sunset. This division shall apply to development projects that create ten or more new dwelling units for rent or for sale through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a non-residential use to residential use, or any combination of these elements. This division shall not apply to projects that have submitted complete Master Development Plan, Level III Site Plan, or comparable applications to move forward prior to its effective date.
Applicable.

(c) All Developments of Ten Units or More Conditional Uses. Notwithstanding any language to the contrary in Chapter 14, all developments of ten units or more are conditional uses subject to Planning Board review on the condition that they comply with the requirements of this section, 14-487.
This section 14-487 shall be in effect for six years following its passage, at which time the overall effectiveness of this section shall be assessed by city planning staff or their agent and either this expiration date shall be deleted or the entire section shall be removed from the Code of Ordinances.
N/A

(d) Workforce Housing Minimum. At least ten percent (10%) of the units in the project shall meet the definition of workforce housing unit for sale or for rent. The number of units required is rounded down to a whole number if providing units as per (e)2. below, or shall include a fractional value in cases where a project prefers to pay a fee-in-lieu as per (e)3. below.
Applicable. 80% of the units are affordable (44 out of 55).

(e) Standards.
1. Projects shall not be segmented or phased to avoid compliance with these provisions. In cases where projects are completed in phases, affordable units shall be provided in proportion to the development of market rate units unless otherwise permitted through regulations.
N/A

2. Workforce units are encouraged to be integrated with the rest of the development, should use a common entrance and should provide no indications from common areas that these units are workforce housing units.
Applicable.

3. Workforce units need not be the same size as other units in the development but the number of bedrooms in such units, either on- or off-site, shall be 10 percent of the total number of bedrooms in the development. For the purposes of this section, for every 400 square feet in a market rate unit will count as a bedroom if the actual number of bedrooms in the unit is lower.
Applicable.

4. As an alternative to providing workforce housing units, projects may pay a fee in lieu of some or all of the units. In-lieu fees shall be paid into the Housing Trust Fund as defined in Sec. 14-489. The fee for affordable units not provided shall be $100,000 per unit, adjusted annually in the same way as the fee under Division 29 for Housing Replacement.
N/A

5. Workforce housing units for sale, if converted to workforce housing units for rent, shall become subject to the income limits and other requirements of such units.
N/A

6. If at least 33 percent of the units in a development are workforce units, the development is eligible for subsidy through an Affordable Housing TIF, subject to City Council approval.
N/A

7. The term of affordability for the required 10 percent workforce units provided shall be defined as follows:

Percentage of Workforce Units Provided	Minimum Term of Affordability for Required Workforce Units
10%	Longest term permitted under federal, state and local laws and ordinances
25%	30 years
50%	20 years
100%	10 years

(f) Implementing Regulations. Regulations to further specify the details of this section shall be developed, including, but not limited to:

1. *Specific methodology for income verification;*
2. *Situations where less than permanent affordability might be considered; and*
3. *Guidelines for meeting the requirement that offsite units be "in the same neighborhood".*

(g) Reporting to City Council. In conjunction with the annual report on the Housing Trust, city planning staff shall annually report on developments subject to this section, the number of units produced, the

amount of fee-in-lieu collected, and the overall effectiveness of this section in achieving its stated purpose.

Sec. 14-488. Density, parking and dimensional bonuses and reductions.
Notwithstanding any other provision of this chapter to the contrary:

(a) Density bonuses. The maximum number of units that would otherwise be allowed under this chapter shall be increased for an eligible project in the manner described in the following table:

Percentage of new units that are low-income or workforce units	Percentage increase in maximum number of units allowed
5% up to but not including 10%	5% increase
10% up to but not including 15%	10% increase
15% up to but not including 20%	15% increase
20% up to but not including 25%	20% increase
25% or more	25% increase
Projects Under Section 14-487	25% increase

Applicable. The new density bonus provides for 2.5 times the base density allowed or 2.5 X 48 units or up to 120 units (the current proposal calls for 55 units).

(b) Off-street parking. Off-street parking is required as provided in Division 20 (off-street parking) of this article.
Applicable. 23 parking spaces are provided on-site. The project is proposing to have two (1) Uhaul Care Share cars which would account for 8 parking spaces. See traffic and parking Exhibit #15.

(c) Building height bonus. The maximum structure height for an eligible project building:

1. That is located in a B-2 or B-2b community business zone;
2. That contains five (5) or more dwelling units; and
3. Of which 20% or more of new dwelling units created are affordable units for rent or sale, is an additional ten feet above the maximum structure height that would otherwise apply to the building pursuant to this chapter.
Applicable. These zoning incentives provide a height bonus in the R-7 of 25 feet. The project is proposed to be 72-75 feet in height.

The total height of the eligible project, including any bonus received pursuant to this subsection, may not exceed the maximum height recommended for the location of the project pursuant to a height study that has been adopted as part of the city's comprehensive plan.
(Ord. No. 98-06/07, 12-4-06; Ord No. 240-09/10, 6-21-10; Ord. 82-15/16, 10-19-2015)
Applicable.

R-6 RESIDENTIAL ZONE

Sec. 14-137. Conditional uses.

The following uses shall be permitted only upon the issuance of a conditional use permit, subject to the provisions of section 14-474 (conditional uses) of this article and any special provisions, standards or requirements specified below:

(a) Residential: **Not applicable**

1. Reserved.

2. Sheltered care group homes, as defined in section 14-47 of this article, for up to twelve (12) individuals, plus staff, and serving a primary population which is not handicapped persons, parolees, persons involved in correctional prerelease programs, or current illegal drug users, provided that:

a. A sheltered care group home shall not be located within five hundred (500) feet of another, as measured along street lines to the respective property lines.

b. There shall be no open outside stairways or fire escapes above the ground floor.

c. The facility shall make provision for City of Portland Land Use Code of Ordinances Chapter 14 Sec. 14-137 Rev. 1-18-2012 14-154 adequate on-site staffing and supervision of residents in accordance with applicable state licensing requirements. If a facility is not licensed by the state, there shall be a minimum of one (1) staff person for every ten (10) residents or fraction thereof.

The board of appeals may impose conditions upon a conditional use permit concerning the creation or operation of a sheltered care group home including but not limited to the following: site and building maintenance; lighting, fencing, and other appropriate security measures; screening and buffering of parking areas; compatibility of any additions or alterations with the existing residential structure; compatibility of new structures with the architectural character of the surrounding area; and limitation on the duration of the sheltered care group home permit.

3. Conversion of a structure existing on March 3, 1997, into a bed and breakfast with five (5) to nine (9) guest rooms.

(b) Institutional: **Applicable**

Any of the following conditional uses provided that, notwithstanding section 14-474(a) (conditional uses) of this article or any other provision of this Code, the Planning Board shall be substituted for the board of appeals as the reviewing authority:

1. Elementary, middle, and secondary school except as otherwise provided in section 14-276.10;

2. a. Long-term and extended care facilities;

b. Intermediate care facility for thirteen (13) or more persons;

3. Intermediate care facility;

4. Places of assembly; **Applicable, proposed neighborhood center.**

5. Hospital;

6. College, university, trade school.

Such uses shall be subject to the following conditions and standards in addition to the provisions of section 14-474:

a. *In the case of expansion onto land of existing such uses other than the lot on which the principal use is located, it shall be demonstrated that the proposed use cannot reasonably be accommodated on the existing site through more efficient utilization of land or buildings, and will not cause significant physical encroachment into established residential areas; and*
   The subject property is land locked on three sides by City Streets (Boyd, Lancaster, and Franklin) and on the fourth side by City of Portland Land (Franklin Reserve and the Boyd Street Community Gardens).

b. *The proposed use will not cause significant displacement or conversion of residential uses existing as of June 1, 1983, or thereafter; and*
   The proposed will be integrated into a new 55 unit affordable housing apartment building which will replace the former Portland Housing Authority Offices (now vacant).

c. *In the case of a use or use expansion which constitutes a combination of the above-listed uses with capacity for concurrent operations, the applicable minimum lot sizes shall be cumulative; and*
   Required Min Lot Size: Places of assembly: Large, 15,000 sf; Medium, 10,000 sf; Small, 5,000 sf.
   Proposed lot size is 20,934 sf

d. *Article V (site plan) sections 14-522 and 14-523 notwithstanding, in the case of places of assembly the proposed use shall be subject to the requirements of article V (site plan) of this chapter; and*

   Definitions
   Neighborhood Center: A building or portion of a building used for recreational, artistic, social, educational, health, culture, or similar activities and services, usually owned and operated by a public or nonprofit group or agency. A neighborhood center is 10,000 square feet or less.
   The proposed conditional use qualifies as a neighborhood center due to the recreational, social, educational, health, and cultural activities and services provided. The proposed conditional use is less than 10,000 sf.

   The first floor of the building will have three primary spaces that are considered the neighborhood center:

   1) **Cultivating Community offices and associated program space that qualifies as a Community Service Facility as the project is located in a HUD designated Qualified Census Tract. Services will include the following for 58 Boyd Street Apartment residents:**

   - **Garden, cooking and nutrition education on an on-going basis**
   - **Advanced standing and consideration for fee reductions in accessing community garden plots at the Boyd Street Urban farm**

- **Low/no-cost veggie bags/CSA shares delivered weekly during the growing season, funding dependent**
- **Ability to use (and double) WIC and SNAP benefits to purchase local, seasonal vegetables**
- **Special consideration for teens applying to Youth Growers, Culinary Crew, or any of Cultivating Community's other stipended (and highly competitive) youth empowerment programs**

Cultivating Community already has a strong presence in the neighborhood and manages the Community Gardens in East Bayside. Cultivating Community primarily provides educational workshops on farming and nutrition, food distribution and leadership development programs for youths, which will enhance the quality of life for the target population.

Since 2001, Cultivating Community has worked to put the means of food production in the hands of community members and to ensure diverse points of access to healthy food for people regardless of income. The goals of Cultivating Community are to increase healthy food access, food security and food independence in Maine. Cultivating Community meets the food needs of low-income individuals by deploying retail, wholesale, and food distribution initiatives that provide healthy food, educate consumers and build people's confidence that they and their families can eat well and healthfully. Annually, Cultivating Communities engages approximately 2,500 current and potential customers in purchasing/receiving food from food access initiatives (i.e. low to no-cost farm share program, urban farm stands, farmers market and mobile food market).

No fees will be charged for the users of the Cultivating Community services. Cultivating Community primarily serves lower income families and individuals.

2) **Shared Community Meeting Space of approximately 1,000 square feet in the northeast corner of the first floor facing the gardens. This space will be available to building residents as well as neighborhood groups to use for community meetings or functions and for Cultivating Community programs and services.**

3) **Telemedicine Room with private bath and equipment to allow health care exams and consultations for building residents and neighbors. This room is a MaineHousing requirement and qualifies as a Community Service Facility as the project is located in a HUD designated Qualified Census Tract.**

Place of assembly: A building or portion of a building used as a community hall, neighborhood center, private and fraternal organization or place of religious assembly. This definition shall not include buildings or portions of buildings used as a community hall, neighborhood center, private and fraternal organization or place of religious assembly where fifteen (15) or fewer people, not including the permanent residents of a single family dwelling, assemble.
The proposed conditional use qualifies as a place of assembly under neighborhood center. The proposed conditional use qualifies also since the building which

contains the use will house more than 15 people. To the best of our knowledge the proposed conditional use and overall permitted use project complies with the standards set forth in Article V Site Plan.

e. In the case of community halls:

i. The structure was in existence as of January 4, 2010.

ii. The structure was built for institutional or other non-residential uses;

iii. The structure is operated by, or operated subject to the control of, a not for-profit entity in accordance with its not- for-profit purposes; and

iv. A parking management plan is submitted for review and approval by the planning board; and

Not applicable

f. In the case of private club or fraternal organizations: any such establishment serving alcoholic beverages or in possession of a license for serving alcoholic beverages shall be located on a large lot, as specified in the minimum lot size provisions of this section.

Not applicable

14-474 C. CONDITIONAL USE STANDARDS AND CONDITIONS

1. *Authorized uses. A conditional use permit may be issued for any use denominated as a conditional use in the regulations applicable to the zone in which it is proposed to be located.*
   Proposed conditional use is Place of Assembly – Neighborhood Center

2. *Standards. The Board shall, after review of required materials, authorize issuance of a conditional use permit, upon a showing that the proposed use, at the size and intensity contemplated at the proposed location, will not have substantially greater negative impacts than would normally occur from surrounding uses or other allowable uses in the same zoning district. The Board shall find that this standard is satisfied if it finds that:*

   a. *The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone; and*
      The proposed conditional use will not generate significant additional traffic above and beyond that of a typical 55 unit building and the adjacent high density Portland Housing residential campus. The proposed conditional use will be integrated into the proposed building and should be a seamless and essential part of the neighborhood.

   b. *The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter; and*
      The proposed conditional use is a benign use from the view point of creating an unsanitary or harmful environmental condition. The neighborhood center will not generate much sewerage, noise, or solid waste. It will be integrated into the proposed building so will not generate additional stand-along noise, glare, dust or the like beyond the normal expected from a 55 unit residential building. All solid waste will be stored internally in a trash/recycling room. The proposed conditional use will not be a detriment to the neighborhood or zoning district but rather a benefit to the community as a neighborhood hub of services.

   c. *The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.*
      The proposed conditional use's design and operations will not have greater effects or significant impacts on the surrounding properties / uses more so than the approved residential use. Since the conditional use is integrated into the building and community to such a high degree the proposed use will be a significant benefit for the building's residences and the adjacent neighborhoods.

DIVISION 20 OFF STREET PARKING

Section 14-332 Uses requiring off-street parking.

In all zones where off street parking is required the following minimum off-street parking requirements shall be provided. Except as provided in Section 14-332.1, 14-332.2 (exceptions) and 14-345 (fee in-lieu of parking) of this division, for the uses listed below the following minimum off-street parking requirements shall be provided and maintained in the case of new construction, alterations which increase the number of units, and changes of use:

Section 14-332.1 Zone specific off-street parking exceptions and modifications.
The off street parking requirements established for uses are hereby modified for the following zones according to the revisions as described below.

(k) Residential development on the peninsula and in the R- 6 and R-6A Zones, including new construction, alterations that increase the number of units, and changes of use:

1. Except as provided below, there shall be one (1) space per unit
Proposed 55 units = required 55 parking spaces

2. The required parking for multi-unit residential buildings may be partially met through provision of shared-use vehicles, which are vehicles owned and maintained by the owner/manager of the building and available for use on a fee basis to the residents of the building. One shared use vehicle shall be deemed to satisfy eight (8) required car spaces, but in no case shall more than 50% of the parking requirement be satisfied by shared vehicle use.
Applicable. The project is proposing to have one (1) Uhaul Care Share cars which would account for 8 parking spaces.

3. The planning board may establish a parking requirement that is less than the normally required number of spaces upon a finding of unique conditions that result in a lesser parking demand, such as housing for persons who cannot drive, housing that participates in a travel demand management program, availability of transit, or housing which includes permanent restrictions on automobile usage, and which is permanently restricted from utilizing resident on-street parking stickers.
Applicable. 58 Boyd Street, LP, and the affiliated Portland Housing Authority, are committed to providing adequate transportation options for the residents at 58 Boyd Street. We have prepared a Transportation Demand Management Plan (see Gorrill Palmer Engineering report in Exhibit #15) and are striving to have MaineHousing approve a line-item in our operating budget that would support the TDM implementation and find alternatives to personal automobile use for all transportation needs.

Actual parking demand in affordable housing and mixed-income housing on the peninsula is less than the City's requirement. Demand for affordable units is so high that the Applicant accepts that some potential residents will reject the apartment because we do not have a parking space for them. We understand this, and take this risk because there are many households who want to live car-free on the peninsula. Our data from Bayside Anchor, also a mixed-income affordable project on the peninsula is that only 20 of the current 45 resident have requested a sticker for a parking space in the East Bayside PHA campus. This is a 0.44:1 parking ratio that is in line with the proposed off-street parking at 58 Boyd Street.

A combination of the following transportation options gives 58 Boyd residents enough choices and creates a more vibrant, connected, human scale neighborhood:

- **Off-street parking;**
- **One shared car through UHaul car share (pending relocation from another UHaul car-share location;**
- **METRO bus stop locations nearby (#8 Peninsula Loop stop is 0.20 mile away at Franklin Towers) and potential discounted passes from the Applicant for residents without a car;**
- **Lyft personal ride; (~ $3.80 from 58 Boyd to Hannaford)**
- **Taxi;**
- **Eighteen or more secure indoor storage spaces for bicycles;**
- **North Boyd Street Trail to the Bayside Trail starts outside the front door of 58 Boyd Street.**

See parking report by Gorrill-Palmer in Exhibit #15.

4. No parking shall be required for the first three units in the R-6 Residential Zone or the IS-FBC Zone.
Not applicable.

5. For alterations of buildings containing three or more dwelling units in the R-6 zone no parking shall be required for the creation of one additional dwelling unit above existing conditions as of June 3, 2015. This exemption may be utilized one time.
Not applicable.

Sec. 14-332.2. Categorical exceptions and modifications to off-street parking requirements.
Regardless of which zone a project of use is located, the following exceptions to the off-street parking requirements listed above in section 14-332 are additionally hereby established.

(b) Incentives for affordable housing- parking reductions: For each low-income or workforce housing unit for rent or sale within an eligible project under the Affordable Housing Ordinance established in Division 30 of this article, no more than one (1) parking space shall be required. The planning board may establish a parking requirement for affordable housing units for rent or sale within an eligible project that is less than one (1) parking space per affordable housing unit, regardless of the size of the structure.
44 affordable units = 44 parking spaces.

Section 14-332.3 Uses requiring off-street bicycle parking.
In all zones where of-street motor vehicle parking is required, minimum off-street bicycle parking shall be provided and maintained.....as specified in Section 14 - 526(a) (2) (Site Plan Standards).
Bicycle parking for <u>eighteen (18)</u> bikes will be provided on-site in a bike storage room as part of this project.

10. Existing & Proposed Easements

A.) Existing easements, encumbrances, and other burdens:

- **Maintenance + Grading Easement to City of Portland (for Franklin Street Arterial)**
- **HUD Declaration of Trust**

B.) Proposed easements, encumbrances, and other burdens:

- **Temporary Construction License: Over a portion of City land between the subject property and east to an existing chainlink fence at the Boyd Street Community Gardens, and south to the Franklin Street right-of-way to allow for the construction of the proposed building, adjacent walkways, parking lot, retaining wall, stormwater drainage and landscape plantings to occur. The area will be used for staging, laydown, storage/stockpiling of materials, and earthwork. All disturbed areas will be loamed/seeded and returned to preconstruction conditions. See C-3.0 Subdivision Plan for area.**
- **General Footing License: Will be needed for the footings (for building foundation, seatwalls and stairs), handrail extensions, and the sewer backwater valves that occur within the City's right-of-Way. These occur along both Boyd and Lancaster Streets. See C-3.0 Subdivision Plan for areas.**
- **Public Access Easement: Will be needed over portions of the public sidewalk that occur on the subject property. The easements will be required along both Boyd and Lancaster Streets as the public sidewalk straddles the property line. See C-3.0 Subdivision Plan for areas.**

11. Requests for Waivers

Waiver Request 1:

Technical Manual Standard, Section 1.14: Parking Lot and Parking Space Design

1.14 Vehicular access shall be provided by one or more aisles. Minimum widths of aisles are illustrated in Figures I-28 thru I-31. (Aisle width is shown in figure I-27 as 24' for 90° parking).

The aisle width in the parking lot is proposed at 22 feet wide with a combination of both standard and compact (width) parking spaces; however all stall are the standard depth of 18 feet. The width of the two-way aisle is proposed to be narrowed down to allow for standard parking spaces to fit within the property.

Due to the required building program, pedestrian circulation routes to building access points, and the skewed angle of Franklin Street sideline to the property, the lot is narrow at the east side, thus pinching the parking lot layout. To get full depth parking stalls, landscape buffer space that is worthwhile, not orienting the parking lot parallel with Franklin (causing a sharp driveway angle at Lancaster), steep side slopes of Franklin Street requires a retaining wall along the where the lot is most constrained; the aisle width is being proposed to be reduced. This request is typical of the constrained urban sites on the Portland Peninsula. Due to the low speed and low volume of anticipated traffic along with resident familiarity of the parking area; we feel that the reduced parking lot aisle width is a valid request.

Waiver Request 2:

Technical Manual Standard, Section 4.6: Street Trees

4.6.1. Residential Development: Multi-family residential: Multi-family residential developments shall provide a minimum of one tree per unit, planted in the City right of way unless otherwise approved and spaced thirty (30) to forty five (45) on center.

There are 55 proposed apartment units in the building which would require 55 street trees. There is not enough road frontage or other landscape zones large enough to plant the required number of trees. The project proposes to plant 12 trees (all visible from the adjacent public streets).
The applicant requests a partial waiver to only be required to plant the proposed 12 trees on site and not pay into the City's tree fund as it is a Division 30 affordable housing development project. The applicant would be open to working with the City to plant trees in the Franklin Reserve.

Waiver Request 3:

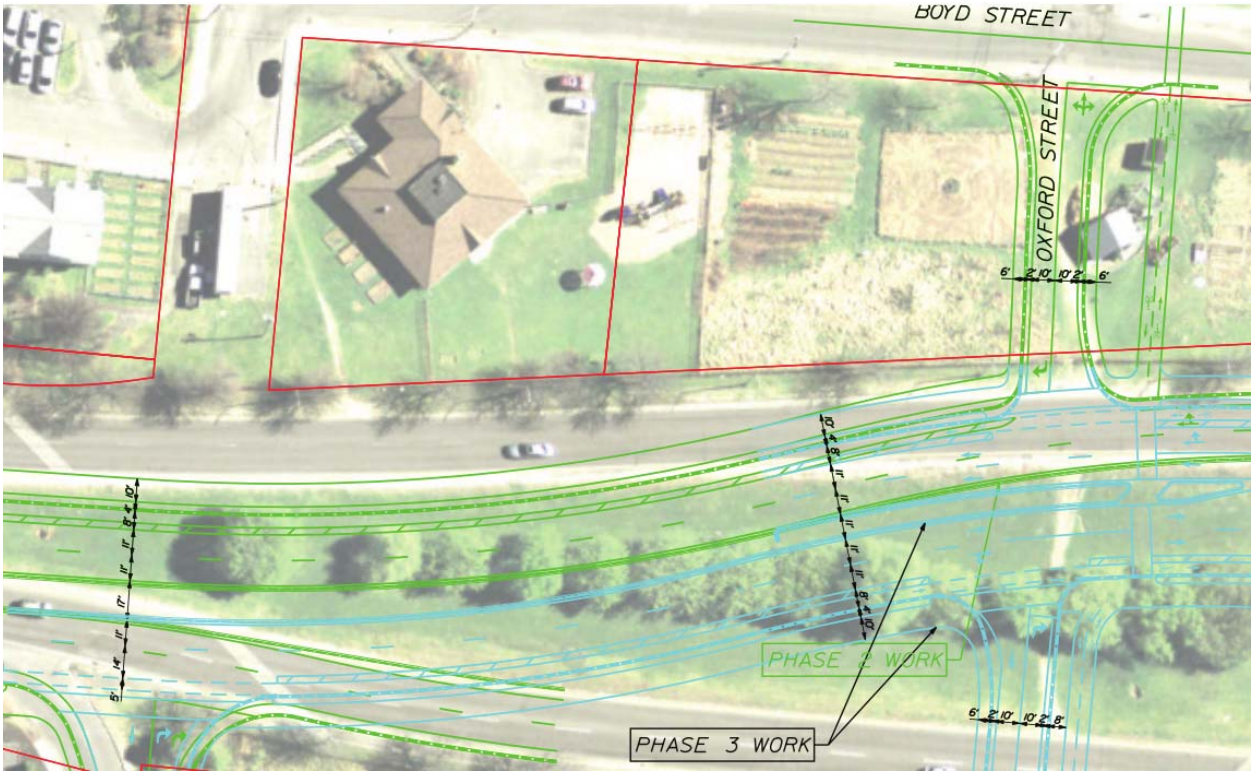
Land Use Code, Chapter 14-506: Sidewalks

Article V, Section 14-526 - Site Plan Standards requires that:
"All proposed developments shall provide sidewalks along all frontages in accordance with sections 14-498 and 14-499 of the City Code. An applicant may request a waiver from curb and sidewalk installation requirements if they meet applicable waiver criteria listed in Section 14-506 (b) of the City Code."

Section 14-506 - Modifications provides a list of 6 conditions relating to sidewalks. Applicants are required to meet at least 2 of these requirements in order for a waiver request to be considered by the planning authority. The applicant asserts that two of the conditions are met as follows:

The project is not proposing to develop sidewalks along Franklin Street or along Lancaster Street (south of the proposed driveway) for a number of reasons, see below:

Franklin Street:
It is our understanding that the City Council Approved Master Plan for Franklin Street shows the curbing on the east side of Franklin Street shifted approximately 30' to 40' to the west. The image below is from a draft of the report, but it is our understanding that the proposed realignment has not changed. It does not make any sense to install brick sidewalk (at a cost of over $100 per square yard) along a curb line that may be relocated in the near future.



Lancaster Street

While there is a demand for pedestrian travel across Franklin Street along the Lancaster Street alignment (as evidenced by the wear path in the image above) there is currently no crosswalk across Franklin on the Lancaster Street alignment. It is our understanding that MDOT has been resistant to a crosswalk in this location and that it may be years before an appropriate pedestrian crossing is allowed. Extending a sidewalk along Lancaster from our site to Franklin Street now might give pedestrians the impression that crossing Franklin is sanctioned at this location and that cars should yield. This impression could conflict with drivers' impressions (due to Franklin's highway context) that they have the right of way and that pedestrians should yield. Conflicting perspectives on who has the right of way might increase the chances of conflicts between vehicles and pedestrians.

While we fully support improved pedestrian connectivity along Lancaster Street, for these reasons we do not believe that extending a sidewalk along Lancaster to Franklin would be prudent at this time.

Waiver Request 4:

Land Use Code, Chapter 14-536 (b) (3): Flooding Standard

The applicant is requesting a waiver from the City's Flooding Standard; please refer to the stormwater narrative for the justification to this request.

Urban Ventures

To: Mary Davis, City of Portland
From: Anne Boynton, Urban Ventures, Inc.
Re: 58 Boyd Street
Date: 10/24/17

Executive Summary

58 Boyd Street is a project of the Portland Housing Development Corporation (PHDC), the development affiliate of the Portland Housing Authority. 58 Boyd Street will construct 55 units of mixed income rental housing as part of the East Bayside redevelopment, just across the street from its Bayside Anchor development and service hub. Units will range in size from efficiency units (25) to three bedrooms (9). Rents will range from market rate (11 units will be unrestricted) to no more than 50% AMI with 28 units subsidized with Project Based Vouchers.

Sources and Uses

Permanent Sources include:

Maine Housing	$550,000
AHP Loan (Bangor Savings)	$2,932,139
City of Portland HOME	$200,000
Sponsor Loan	$119,936
AHP Subsidy	$750,000
Net LIHTCs	$6,756,824
Total Sources:	$11,308,899

PHDC is well positioned to secure all remaining sources needed to complete this project. In the 2017 LIHTC competition, this project missed funding by only 1 point, and has been able to adjust the project to score higher in the 2018 QAP, taking advantage of additional points for family scale units and planning board approvals. The Bangor Savings/AHP loan and subsidy are already committed, as is a construction loan of $6,850,000 from Bangor Savings.

For analysis of "Uses," see Development Budget.

Development Budget

Construction Costs:

Construction costs are being repriced right now in preparation for submission of materials to Maine Housing for the LIHTC application. Current costs are based on a "Conceptual Estimate" by Wright-Ryan Construction created in 2016. It reflects an inflation cost adjuster through an anticipated start of construction in October 2017. So there will be upward pressure on these costs to factor in inflation till a construction start date in 2018. However, the developer has identified cost savings in the design and is working closely with the contractor on containing the total construction cost. The development team anticipates the new construction costs, available in early November, will be very close to the existing

estimate. Costs of demolition for the existing structure are specifically excluded and will be funded through a CDBG allocation committed in 2015, prior to PHDC taking title to the site.

Soft Costs:

Soft costs are modest at 22% of total development costs and generally in line with or slightly under industry norms. Developer fee is a very modest 7.43% of development costs (excluding reserves and developer fee).

Contingency:

Construction Contingency is too narrowly budgeted at 5% considering the very preliminary stage of design. A 5% hard cost contingency should be sufficient once plans are finalized and the job is bid, but given the early stage of the development and the updated construction costs, a 5% contingency is insufficient. Soft cost contingency is also too low at less than 2% of total soft costs. However, these concerns are mitigated by the financial strength of the developer and sponsor. PHDC has the financial resources to address unexpected set backs and cost over runs in the development of this project.

Acquisition:

This property is currently owned by the Portland Housing Authority, the parent company of the developer. The existing improvements will be demolished prior to transfer of ownership of the site. No acquisition price will be associated with the transfer.

Operating Budget & 20 Year Cashflow Projection

Project Income:

This project will serve a wide range of income levels, with 28 Project Based Vouchers for households with incomes not to exceed 50% AMI, 50% AMI units without project based vouchers (8 units), 60% AMI units (8 units), and market rate units (11 units).

The rents for the market rate units are set just under Fair Market Rents, discounted by $19-$21 per unit per month. Given the high demand for units in Portland overall, these are not likely to pose a significant problem to rent, even with the potential marketing disadvantage of a predominately affordable property.

50% and 60% AMI units are set at the maximum allowable rent for LIHTC units. Units with Project Based Vouchers will supplement the tenant's contribution to rent up to the FMR rate. However, due to Maine Housing's preferences regarding how this is reflected in the pro forma, the additional income above the allowable 50% AMI tax credit rent is reflected in the income line labeled "PBV/HAP Differential." This significant income line ($147,288 in year 1) will trend with Fair Market Rent.

Other income includes 1) laundry for $5,500 ($8.33/unit/month, not unreasonable given the amount of family housing) and 2) $12,000 in rent from Cultivating Community, which will move their office space to this location adjacent to one of their primary community gardens.

A 50% 30 year TIF is requested, and reflected in Income of $57,125 in the first full year of operations.

Operating Expense

Operating expenses appear high at $9,085/unit in part because this includes the full property tax liability as an expense. A property with a PILOT which provided the comparable property tax relief to the requested TIF would show per unit operating expenses of $8,046. This is still high. Factoring out tenant services and computer network, not expenses typically included in operating budgets, brings the per unit operating expense per year to $7,682, still on the high side of normal. Both maintenance ($2,341/unit) and replacement reserve ($450) are budgeted on the high end of normal, especially for new construction. However, considering the likelihood of pretty heavy resident demands on the property (25 of 55 units are 2 or 3 bedrooms, there will be plenty of children in the property) budgeting high for maintenance and replacement reserves is appropriate.

20 Year Cashflow & Debt Service Coverage Ratio (DSCR)

Year 1 debt service coverage is 1.28, rising to 1.30 before declining to 1.26 in year 20, with industry standard income and expense inflators (2% & 3%) and a 5% vacancy. Given the nature of the Portland housing market, with very limited supply of affordable units relative to demand, a 5% vacancy, while consistent with industry standards for underwriting, is conservative relative to likely operating experience. Since these units are very likely to outperform a 5% vacancy projection, these debt service coverage ratios are likely to be conservative. A more likely scenario reflects the affordable units operating at 3% (or lower) vacancy. Running an average of 3% vacancy results in a dscr of 1.33 in year 1, peaking at 1.35, and a year 20 dscr of 1.33.

Even with a 5% average vacancy, the HOME loan can be fully repaid to City of Portland from 25% of cashflow in year 12, while the developer fee loan would be fully retired in year 7 with payment of 25% of cashflow. A lower actual vacancy rate repays the developer fee and HOME loans slightly sooner.

Developer Financials

Portland Housing Authority has submitted audits for FY2013, 2014, 2015 and 2016. Their fiscal year ends 6/30. Their audit as of 6/30/16 showed strong and improving financial health, with current assets over $16 million and current liabilities of $1.5 million, resulting in a current ratio of 11. The Quick Ratio (cash and cash equivilents divided by current liabilities) is a remarkably healthy 4.6. In 2016, they increased their Net Position by $526,458, as growth in revenues exceeded growth in expenses. In 2016, tenant services expense grew by 36% -- a rate of growth unlikely to be sustainable, and their operations were helped by a drop in utility expenditures which may be dependent upon weather. However, overall, this organization has very strong financial health. This developer has the financial capacity to intervene in a development facing unexpected set backs and or cost over-runs to keep the development process moving forward. Their financial strength as an organization mitigates the risk of the thin hard and soft cost contingency.

Recommendations

I recommend a loan in the amount of no more than $200,000, 30 years, zero percent interest, with repayment annually of 25% of cashflow, and a 50%, 30 year TIF, with the following conditions prior to loan closing:

1. Satisfactory review of a final development budget and operating pro forma which is consistent with the commitments of all source, including a cashflow waterfall acceptable to the City;
2. Final rent schedules to be compared to maximum allowable rents and applicable utility allowance charts to determine final maximum rent rates, and satisfactory review of a letter of intent from Cultivating Community (or other prospective tenant) to lease ground floor space at price as proposed in the final operating budget;
3. All standard construction loan conditions, including satisfactory review of final contract with GC consistent with budgeted estimates, and total contractor overhead, profit and general conditions of not to exceed 14% of net construction costs.

Development Budget with Permanent Sources

Date	10/20/2017
Project Name	58 Boyd Street
Project Address	58 Boyd Street
Developer/Sponsor	Portland Housind Development Corp.
Total Units	55
Total Square Feet	48,488

		Total	Per Unit	Per Sq Ft
Sources of Funds				
Permanent Financing - 1st Lien		$550,000	$10,000	$11
City of Portland HOME loan		$200,000	$3,636	$4
AHP Loan		$2,932,139	$53,312	$60
FHLB Subsidy		$750,000	$13,636	$15
LIHTC Syndication		$6,756,824	$122,851	$139
Sponsor (Developer Fee) Loan		$119,936	$2,181	$2
Total Sources of Funds		**$11,308,899**	**$205,616**	**$233**
Uses of Funds				
Hard Costs				
Site Improvements		$748,000	$13,600	$15
Rehabilitation			$0	$0
New Construction		$6,817,499	$123,955	$141
Contractor's Profit, Overhead, & Gen. Requirements	9.8%	$741,218	$13,477	$15
Hazardous Materials abatement (if contracted separately)			$0	$0
Demolition Cost (if contracted separately)			$0	$0
Bond Premium		$44,963	$818	$1
Other			$0	$0
Hard Cost Contingency (% of hard costs)	5.0%	$417,584	$7,592	$9
Total Hard Costs		**$8,769,264**	**$159,441**	**$181**
Soft Costs				
Building Permit & Fees		$175,730	$3,195	$4
Survey & Engineering		$66,900	$1,216	$1
Design & Permitting (% of const exp)	6.9%	$510,000	$9,273	$11
Borrower Legal (all closings, excluding syndication legal)		$68,000	$1,236	$1
Title & Recording		$15,000	$273	$0
Accounting		$8,000	$145	$0
Construction Period Taxes		$8,000	$145	$0
Construction Period Insurance		$25,000	$455	$1
Other: FF&E, Security			$0	$0
Other			$0	$0
Total Soft Costs		**$876,630**	**$15,939**	**$18**
Financing Costs				
Construction Loan Origination Fees		$7,500	$136	$0
Construction Period Interest		$115,500	$2,100	$2
Lender Inspection Fees +Letter of Credit + const legal		$33,200	$604	$1
Letter of Credit Fee			$0	$0
Permanent Loan Fee		$14,500	$264	$0

Construction Lender Legal			$0	$0
Other		$0	$0	$0
Total Financing Costs		**$170,700**	**$3,104**	**$4**

Miscellaneous				
Market Survey		$5,200	$95	$0
Appraisal		$6,000	$109	$0
Environmental Study		$13,500	$245	$0
LIHTC Fees -- prepaid monitoring		$63,000	$1,145	$1
Other: Commissioning		$57,080	$1,038	$1
Relocation Costs		$54,000	$982	$1
Other -- FF&E		$0	$0	$0
Soft Cost Contingency (% of soft costs excl Dev Fee)	1.60%	$34,000	$618	$1
Total Miscellaneous:		**$232,780**	**$4,232**	**$8**

Acquisition			
Acquisition: Buildings	$0	$0	$0
Acquisition: Land	$0	$0	$0
Acquisition: Legal	$0	$0	$0
Other	$0	$0	$0
Total Acquisition	**$0**	**$0**	**$0**

Reserves and Developer Fee			
Operating Deficit Escrow	$305,530	$5,555	$6
Prefunded Replacement Reserve	$76,037	$1,382	$2
Taxes & Insurance Escrow	$77,958	$1,417	$2
Developer Overhead	$420,000	$7,636	$9
Developer Profit	$330,000	$6,000	$7
Rent Up Reserve & Marketing	$50,000	$909	$1
Other	$0	$0	$0
Total Reserves and Developer Fee	**$1,259,525**	**$22,900**	**$26**

Total Uses of Funds	**$11,308,899**	**$205,616**	**$237**

Developer Fee Analysis: Total Fees: $750,000
Percent of TDC: 7.43% (excluding reserves & developer fee)

Soft Cost Analysis (TDC less acq & const): $2,539,635
% of TDC: 22%

Phased Sources and Uses

Predevelopment Uses	
Earnest money deposit	
Appraisal	
Environmental	
Building condition assessment	
Legal	
Architect	
Other professional fees	
Other	
Total:	**$ -**

Predevelopment Sources	Status	Rate	Term	Amount
Predevelopment loan:	Applied			$ -
Grant:	Applied			$ -
Developer/sponsor equity	Applied			$ -
Resident deposits				$ -
				$ -
				$ -
				$ -
				$ -
Total:				**$ -**

Acquisition/Construction Uses	
Predevelopment expenses included above	$ -
Acquisition of real estate	
Construction Contract	
Construction contingency	
Soft costs (not included in predevelopment period)	
Soft cost contingency	
Other:	
Total:	**$ -**

Acquisition/ Construction Sources*	Status	Rate	Term	Amount
1st mortgage:				$ -
2nd mortgage:				$ -
3rd mortgage:				$ -
Grant:				$ -
Developer/sponsor equity				$ -
Resident downpayments				$ -
Other				$ -
Total:				**$ -**

Permanent Financing	
Acquisition/construction & predev expenses above	$ -
Lease up reserve	
Capitalized operating reserve	
Capitalized replacement reserve	
Other	
Total:	**$ -**

Permanent Financing*	Status	Rate	Term	Amount
1st mortgage:				$ -
2nd mortgage:				$ -
3rd mortgage:				$ -
Grant:				$ -
Developer/sponsor equity				$ -
Resident downpayments				$ -
Other				$ -
Total:				**$ -**

* All sources should be listed at the cumulative value in each phase.

Project Operating Pro Forma

Date	October 20, 2017
Project Name	58 Boyd St
Project Address	58 Boyd St
Developer/Sponsor	Portland Housing Development Corporation

Rental Income

Unit Type	Number of Units	Per Unit Sq Ft	Total Sq Ft	Restriction on % Median Inc.	Per Unit Monthly Gross Rent	Utility Deductions	Rent Subsidy	Per Unit Monthly Net Rent	Per Unit Net Rent Per Sq Ft	Total Monthly Net Income	Total Annual Net Rent
0 BR	4	pbv	0	50%	$718	$0		$718		$2,872	$34,464
0 BR	8		0	50%	$718	$0		$718		$5,744	$68,928
0 BR	5		0	60%	$862			$862		$4,310	$51,720
0 BR	8		0	market	$941			$941		$7,528	$90,336
1 BR	3	pbv	0	50%	$770			$770		$2,310	$27,720
1 BR	1		0	60%	$924			$924		$924	$11,088
1 BR	1		0	market	$1,033			$1,033		$1,033	$12,396
2 BR	12	pbv	0	50%	$923			$923		$11,076	$132,912
2 BR	2		0	60%	$1,108			$1,108		$2,216	$26,592
2 BR	2		0	market	$1,368			$1,368		$2,736	$32,832
3 BR	9	pbv	0	50%	$1,067			$1,067		$9,603	$115,236
Other			0	60%				$0		$0	$0
Total:	**55**		**0**							**$50,352**	**$604,224**

Operating Expenses

Rent Increase Rate	2.0%
Expenses Increase Rate	3.0%

Note: Year 1 is the first full year of stabilized operations

		Year 1	Year 1/Unit	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Income												
Sch. Gross Income - Residential		$604,224	$10,986	$616,308	$628,635	$641,207	$654,031	$667,112	$680,454	$694,063	$707,945	$722,104
Vacancy Loss	5.0%	($30,211)	($549)	($30,815)	($31,432)	($32,060)	($32,702)	($33,356)	($34,023)	($34,703)	($35,397)	($36,105)
Other income (laundry & commer		$17,500	$318	$17,850	$18,207	$18,571	$18,943	$19,321	$19,708	$20,102	$20,504	$20,914
PBV/HAP differential		$147,288	$2,678	$150,234	$153,238	$156,303	$159,429	$162,618	$165,870	$169,188	$172,571	$176,023
TIF		$57,125	$1,039	$58,268	$59,433	$60,622	$61,834	$63,071	$64,332	$65,619	$66,931	$68,270
Effective Gross Income		**$795,926**	**$14,471**	**$811,844**	**$828,081**	**$844,643**	**$861,536**	**$878,766**	**$896,342**	**$914,269**	**$932,554**	**$951,205**
Administrative												
Management Fee		$42,833	$779	$44,118	$45,442	$46,805	$48,209	$49,655	$51,145	$52,679	$54,260	$55,887
Management Charges		$42,833	$779	$44,118	$45,442	$46,805	$48,209	$49,655	$51,145	$52,679	$54,260	$55,887
Marketing Expense		$500	$9	$515	$530	$546	$563	$580	$597	$615	$633	$652
Legal		$2,000	$36	$2,060	$2,122	$2,185	$2,251	$2,319	$2,388	$2,460	$2,534	$2,610
Audit & Accounting		$6,000	$109	$6,180	$6,365	$6,556	$6,753	$6,956	$7,164	$7,379	$7,601	$7,829
Admin Other			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Administrative		$94,166	$1,712	$96,991	$99,901	$102,898	$105,985	$109,164	$112,439	$115,812	$119,287	$122,865
Tenant Services & Computer		$20,000	$364	$20,600	$21,218	$21,855	$22,510	$23,185	$23,881	$24,597	$25,335	$26,095
Utilities												
Fuel Oil		$25,000	$455	$25,750	$26,523	$27,318	$28,138	$28,982	$29,851	$30,747	$31,669	$32,619
Natural Gas			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Electric		$39,000	$709	$40,170	$41,375	$42,616	$43,895	$45,212	$46,568	$47,965	$49,404	$50,886
Water / Sewer		$33,500	$609	$34,505	$35,540	$36,606	$37,705	$38,836	$40,001	$41,201	$42,437	$43,710
Other			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Utilities		$97,500	$1,773	$100,425	$103,438	$106,541	$109,737	$113,029	$116,420	$119,913	$123,510	$127,215

Maintenance	Year 1	Year 1/Unit	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Grounds	$8,250	$150	$8,498	$8,752	$9,015	$9,285	$9,564	$9,851	$10,146	$10,451	$10,764
Janitor Contract	$20,000	$364	$20,600	$21,218	$21,855	$22,510	$23,185	$23,881	$24,597	$25,335	$26,095
Trash Removal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Security		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Trash Removal	$15,500	$282	$15,965	$16,444	$16,937	$17,445	$17,969	$18,508	$19,063	$19,635	$20,224
Maintenance	$37,000	$673	$38,110	$39,253	$40,431	$41,644	$42,893	$44,180	$45,505	$46,870	$48,277
Elevator, HVAC, systems mainte	$48,000	$873	$49,440	$50,923	$52,451	$54,024	$55,645	$57,315	$59,034	$60,805	$62,629
Other	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Maintenance	$128,750	$2,341	$132,613	$136,591	$140,689	$144,909	$149,257	$153,734	$158,346	$163,097	$167,990
Taxes & Insurance											
Real Estate Taxes or PILOT	$114,250	$2,077	$117,678	$121,208	$124,844	$128,589	$132,447	$136,420	$140,513	$144,728	$149,070
Payroll Taxes / Fidelity Bond / Workers Comp / Health Ins.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance (property, liability)	$20,250	$368	$20,858	$21,483	$22,128	$22,792	$23,475	$24,180	$24,905	$25,652	$26,422
Other		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Taxes & Insurance	$134,500	$2,445	$138,535	$142,691	$146,972	$151,381	$155,922	$160,600	$165,418	$170,381	$175,492
Replacement Reserves	$24,750	$450	$25,493	$26,257	$27,045	$27,856	$28,692	$29,553	$30,439	$31,353	$32,293
Operating Reserves		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Expenses	**$499,666**	**$9,085**	**$514,656**	**$530,096**	**$545,999**	**$562,378**	**$579,250**	**$596,627**	**$614,526**	**$632,962**	**$651,951**
Net Operating Income	**$296,260**	**$5,387**	**$297,188**	**$297,986**	**$298,644**	**$299,157**	**$299,517**	**$299,714**	**$299,742**	**$299,592**	**$299,254**
Debt Service											
Maine Housing -- First Lien	$39,570	$719	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570
AHP Loan -- Second Lien	$188,884	$3,434	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884
Sponsor Loan	$3,690	$67	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690
Total Debt Service (Must Pay)	$232,144	$4,221	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144
Cash Flow (after Must Pay Debt)	$64,116	$1,166	$65,044	$65,842	$66,500	$67,013	$67,373	$67,570	$67,598	$67,448	$67,110
Debt Service Coverage Ratio	**1.28**		**1.28**	**1.28**	**1.29**	**1.29**	**1.29**	**1.29**	**1.29**	**1.29**	**1.29**
Cash Flow Debt Payments	remaining :	$103,107	$86,846	$70,386	$53,761	$37,007	$20,164	$3,271	($13,628)	($30,490)	
Sponsor Loan 25.0%	$16,029	$291	$16,261	$16,460	$16,625	$16,753	$16,843	$16,893	$16,900	$16,862	$16,778
HOME Loan Repayment 25.0%	$16,029	$291	$16,261	$16,460	$16,625	$16,753	$16,843	$16,893	$16,900	$16,862	$16,778
Cash Flow Retained by Project	**$32,058**	**$583**	**$32,522**	**$32,921**	**$33,250**	**$33,507**	**$33,686**	**$33,785**	**$33,799**	**$33,724**	**$33,555**
Retained Cash Flow % 6%	remaining :	$183,971	$167,710	$151,250	$134,625	$117,871	$101,028	$84,135	$67,236	$50,374	$33,596

Operating Expenses

Rent Increase Rate	2.0%
Expenses Increase Rate	3.0%

		Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Income											
Sch. Gross Income - Residential		$736,546	$751,277	$766,302	$781,628	$797,261	$813,206	$829,470	$846,059	$862,981	$880,240
Vacancy Loss	5.0%	($36,827)	($37,564)	($38,315)	($39,081)	($39,863)	($40,660)	($41,474)	($42,303)	($43,149)	($44,012)
Other income (laundry & commercial space		$21,332	$21,759	$22,194	$22,638	$23,091	$23,553	$24,024	$24,504	$24,994	$25,494
PBV/HAP differential		$179,543	$183,134	$186,797	$190,533	$194,343	$198,230	$202,195	$206,239	$210,364	$214,571
TIF		$69,635	$71,724	$73,876	$76,092	$78,375	$80,726	$83,148	$85,642	$88,212	$90,858
Effective Gross Income		**$970,229**	**$990,330**	**$1,010,854**	**$1,031,810**	**$1,053,207**	**$1,075,055**	**$1,097,363**	**$1,120,142**	**$1,143,401**	**$1,167,151**
Administrative											
Advertising		$57,564	$59,291	$61,070	$62,902	$64,789	$66,732	$68,734	$70,796	$72,920	$75,108
Office Payroll & Benefits		$57,564	$59,291	$61,070	$62,902	$64,789	$66,732	$68,734	$70,796	$72,920	$75,108
Office Supplies, Phone, Misc.		$672	$692	$713	$734	$756	$779	$802	$826	$851	$877
Mngr or Super Rent Free Unit		$2,688	$2,768	$2,852	$2,937	$3,025	$3,116	$3,209	$3,306	$3,405	$3,507
Audit & Accounting		$8,063	$8,305	$8,555	$8,811	$9,076	$9,348	$9,628	$9,917	$10,215	$10,521
Admin Other		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Administrative		$126,551	$130,348	$134,258	$138,286	$142,435	$146,708	$151,109	$155,642	$160,311	$165,121
Supportive Services		$26,878	$27,685	$28,515	$29,371	$30,252	$31,159	$32,094	$33,057	$34,049	$35,070
Utilities											
Fuel Oil		$33,598	$34,606	$35,644	$36,713	$37,815	$38,949	$40,118	$41,321	$42,561	$43,838
Electric		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gas		$52,413	$53,985	$55,605	$57,273	$58,991	$60,761	$62,584	$64,461	$66,395	$68,387
Water / Sewer		$45,021	$46,372	$47,763	$49,196	$50,672	$52,192	$53,758	$55,370	$57,032	$58,742
Other		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Utilities		$131,032	$134,963	$139,012	$143,182	$147,477	$151,902	$156,459	$161,153	$165,987	$170,967

Maintenance		Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Janitorial		$11,087	$11,420	$11,763	$12,115	$12,479	$12,853	$13,239	$13,636	$14,045	$14,466
Exterminating		$26,878	$27,685	$28,515	$29,371	$30,252	$31,159	$32,094	$33,057	$34,049	$35,070
Trash Removal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Security		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Grounds		$20,831	$21,456	$22,099	$22,762	$23,445	$24,148	$24,873	$25,619	$26,388	$27,179
Maintenance		$49,725	$51,217	$52,753	$54,336	$55,966	$57,645	$59,374	$61,155	$62,990	$64,880
Elevator, HVAC, pool contracts		$64,508	$66,443	$68,437	$70,490	$72,604	$74,782	$77,026	$79,337	$81,717	$84,168
Other		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Maintenance		$173,029	$178,220	$183,567	$189,074	$194,746	$200,588	$206,606	$212,804	$219,188	$225,764
Taxes & Insurance											
Real Estate Taxes or PILOT		$153,542	$158,149	$162,893	$167,780	$172,813	$177,998	$183,338	$188,838	$194,503	$200,338
Payroll Taxes / Fidelity Bond / Workers Comp / Health Ins.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance (property, liability)		$27,214	$28,031	$28,872	$29,738	$30,630	$31,549	$32,495	$33,470	$34,474	$35,508
Other		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Taxes & Insurance		$180,757	$186,179	$191,765	$197,518	$203,443	$209,547	$215,833	$222,308	$228,977	$235,847
Replacement Reserves		$33,262	$34,260	$35,288	$36,346	$37,437	$38,560	$39,716	$40,908	$42,135	$43,399
Operating Reserves		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Expenses		**$671,509**	**$691,655**	**$712,404**	**$733,776**	**$755,790**	**$778,463**	**$801,817**	**$825,872**	**$850,648**	**$876,167**
Net Operating Income		**$298,720**	**$298,675**	**$298,450**	**$298,033**	**$297,417**	**$296,591**	**$295,546**	**$294,270**	**$292,753**	**$290,984**
Debt Service											
First Lien		$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570	$39,570
Second Lien		$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884	$188,884
Other		$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690	$3,690
Total Debt Service (Must Pay)		$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144	$232,144
Cash Flow (after Must Pay Debt)		$66,576	$66,531	$66,306	$65,889	$65,273	$64,447	$63,402	$62,126	$60,609	$58,840
Debt Service Coverage Ratio		**1.29**	**1.29**	**1.29**	**1.28**	**1.28**	**1.28**	**1.27**	**1.27**	**1.26**	**1.25**
Cash Flow Debt Payments											
Sponsor Loan	25.0%	$16,644	$16,633	$16,576	$16,472	$16,318	$16,112	$15,850	$15,532	$15,152	$14,710
	25.0%	$16,644	$16,633	$16,576	$16,472	$16,318	$16,112	$15,850	$15,532	$15,152	$14,710
Cash Flow Retained by Project		**$33,288**	**$33,266**	**$33,153**	**$32,945**	**$32,637**	**$32,224**	**$31,701**	**$31,063**	**$30,305**	**$29,420**
Retained Cash Flow %	6%	$16,952	$320								

PORTLAND HOUSING DEVELOPMENT CORPORATION

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14 Baxter Boulevard
Portland, ME 04101

Office: 207-773-4753
Fax: 207-761-5886

September 8, 2017

Mary Davis
City of Portland - Housing and Community Development Division
389 Congress Street
Portland, Maine 04101

Subject: **58 Boyd Street Apartments**
Financial Capacity to Develop Affordable Housing

Dear Mary,

The purpose of this letter is to self-certify that Portland Housing Development Corporation (PHDC), an affiliate of the Portland Housing Authority, has the financial capacity to develop the 58 Boyd Street Apartments affordable housing development.

Pre-Development:
Portland Housing self-finances pre-development expenses with unrestricted funds, and is then reimbursed at the construction loan closing.

Construction Financing:
Portland Housing Authority has secured $30,000 of CDBG funds from the City of Portland that is outside of the 58 Boyd Street transaction but is critical to the success of the project. The existing small office building occupants at 58 Boyd Street move to the new Bayside Anchor building, PHA will use the CDBG funds to demolish the building and have the site cleared for the new project.

Portland Housing Development Corporation has a Term Sheet for construction financing in the amount of $6,850,000 from Bangor Savings Bank, with whom we have a banking relationship. Bangor Savings acted as our sponsor bank for the successful Federal Home Loan Bank of Boston AHP application.

Permanent Financing
PHDC is proud to state that 58 Boyd Street Apartments has secured $750,000 of direct subsidy from the Federal Home Loan Bank of Boston's AHP program with additional subsidy buying down the rate for a permanent loan from in the amount of $2,932,139 from Bangor Savings Bank.

Regarding our capacity to win Low Income Housing Tax Credits, Portland Housing Development Corporation scored the second highest score of all LIHTC applications to MaineHousing in the 2014 application round for our Bayside Anchor project. We missed the credits in 2016 for 58 Boyd Street by 1 point. We understand the competitive nature of the LIHTC funding rounds and have maximized our points under the latest Qualified Allocation Plan (QAP). The QAP is awarding more points for family projects this year, giving us a critical boost of two points. We also expect planning board approval in December 2017, giving us another 4 points.

As the Director of Development, I have been developing affordable housing for over 15 years and was the Director of Development at Avesta Housing when that agency developed Logan Place, Fore River Apartments and the first phase of Pearl Place, among other Portland area projects. I have successfully secured funding from various financing sources for affordable housing including Low Income Housing Tax Credits, Federal HOME funds, Federal Home Loan Bank Affordable Housing Program grants and subsidized advances, HUD 202 grants, RD 515 funds and local and national foundation grants.

Beyond the importance of filling a gap in our sources of funding, the award of HOME funds would be a critical piece of our overall funding as it allows the project to achieve extra points in MaineHousing's Qualified Allocation Plan for leveraged funds. The LIHTC application is due at MaineHousing on January 18, 2018 and they should notify the project of an award of tax credits within 60 days of that application date. Please refer to the project schedule included in this application for the timeline for other financing commitments.

Respectfully Submitted,

Jay Waterman
Director of Development

TERM SHEET
THIS IS NOT A COMMITMENT TO LEND
November 2, 2016
(Effective through February 1, 2017)

Jay Waterman
Development Director
Portland Housing Development Corporation
14 Baxter Blvd.
Portland, ME 04101

Re: 58 Boyd Street Apartments Low Income Housing Tax Credit project

Dear Jay,

We are pleased at the prospect of presenting this proposal for financing for the proposed 58 Boyd Street Apartments ("Project"), a low income housing tax credit family housing project that 58 Boyd Street Apartments, LP ("Borrower") and Portland Housing Development Corporation ("Developer") wish to develop in Portland, Maine. The proposed terms and conditions are provided for discussion purposes only and do not constitute an offer, agreement, or commitment to lend. The actual terms and conditions upon which the Bank may extend credit to the borrower are subject to the satisfactory completion of due diligence, formal credit approval, satisfactory review of loan documentation, and such other terms and conditions as determined by the Bank.

This term sheet is issued to accompany the Borrower's application for MaineHousing funding and low income housing tax credit allocation for the Project described below and will give a general idea of the terms upon which Bangor Savings Bank ("Bank") would extend this loan, with the understanding that this letter does not constitute a commitment to extend financing.

Borrower: 58 Boyd Street Apartments, LP

General Partner: 58 Boyd Street Development Company, LLC

Project Developer: Portland Housing Development Corporation

Project Sponsors: Portland Housing Development Corporation
Portland Housing Authority

Project: 58 Boyd Street Apartments, a 55 unit multi-family rental housing project to be constructed under the Low Income Housing Tax Credit program and other sources including MaineHousing funding to be located at 58 Boyd Street, Portland, Maine

Loan Amount: Up to $6,850,000 (including carve out for City of Portland performance guarantee letter of credit)

Type: Construction Line of Credit

Purpose: To provide construction financing for improvements for a 55 unit multi-family (with 44 LIHTC subsidized affordable housing units and 11 market rate units) rental housing project to be built at 58 Boyd Street in Portland, Maine.

Maturity: Fourteen (14) months

Repayment: Monthly payments of interest with principal due upon construction completion of project.

Rate: A variable rate at 1-Month LIBOR plus 2.00%.

Loan Fee: $7500 payable at construction loan closing

Inspection Fees: $600.00 per month while construction is in process. This is based on one funding remittance per month

Collateral: 1. First mortgage on real estate and improvements at 58 Boyd Street, Portland, Maine.

2. First security interest and collateral assignment and pledge of all contracts, plans, permits, leases, rents, business assets and accounts related to the project and rights related thereto.

3. Collateral assignment and pledge of permanent sources of funding and equity contributions sufficient to fully fund completion of the project and pay Bank construction loan in full.

Guarantees: Unlimited corporate guarantee for completion and repayment by:

- General Partner, 58 Boyd Street Development Company, LLC
- Project Developer, Portland Housing Development Corporation

Guarantee: Limited non-recourse guarantee for completion by Project Sponsor, Portland Housing Authority, with recourse limited to certain unrestricted non-federal funds of Portland Housing Authority.

Conditions:

1. Subject to approval and confirmation acceptable to the Bank of the proposed equity sources, grants, MaineHousing awards, or other equivalent funding sources sufficient for 100% completion of the project and repayment in full of the Bank's construction loan at construction completion.

2. Subject to an award and allocation of Low Income Housing Tax Credits by the Maine State Housing Authority and such other subsidy or MaineHousing loan program awards sufficient to provide 100% of the permanent funding for the project.

3. Subject to an "As Is", "Investment Value", "Upon Completion-Subsidized", and "Upon Completion Stabilized" Fair Market Value appraisal of the proposed affordable housing LIHTC Project in Portland, Maine indicating a maximum LTV of 85%.

4. Subject to Bank receipt and satisfactory review of a Phase I Environmental Risk Assessment and such other follow-up analysis that may be determined to be necessary by the Bank in its sole discretion.

5. Subject to Bank receipt and satisfactory review of the Market Feasibility Study, final development and construction budget, project pro-forma financial statements, project plans, drawings, and specifications, and a fixed price or guaranteed maximum price construction contract from a bonded general contractor.

6. Subject to satisfactory review of project plans, specifications, and construction contract by a construction engineer acceptable to the Bank.

7. Subject to conformity with any construction procedures, requirements, and inspections required under agreements with governmental authorities, the Maine State Housing Authority, the LIHTC equity investors , City of Portland, and all permanent funding providers.

8. Subject to terms and conditions of a construction loan agreement including establishment and maintenance of borrower's construction deposit, construction escrow, and reserve deposit accounts with the Bank, control and disbursement of all funds necessary for construction completion according to standard Bank policy and procedures, and inspection by a construction engineer selected by the Bank.

Permanent Loan: Project Sponsor has received a Notice of Award under the FHLB Boston Affordable Housing Program A20151-047 for 2015, a direct subsidy of $500,000 and a subsidized permanent loan of $2,267,565. In 2016 the sponsor has applied for a direct subsidy of $750,000 and a subsidized permanent loan of $2,932,139. Subject to the Bank acting as construction lender, the Bank would also provide permanent loan funding as follows:

Amount: $2,932,139

Term: 15-year term, 30-year amortization

Rate: A fixed rate equal to the FHLB 15/30 Amortizing subsidized advance rate as determined under provisions of the FHLB Affordable Housing Program plus 2.00%.
(Projected AHP subsidized advance rate, 2.00% + 2.00% = 4.00%)

Commitment Fee: $2,500 due at construction loan closing

Collateral:

1. First mortgage security interest on real estate and improvements to be constructed at 58 Boyd Street, Portland, ME.

2. First Security in leases, rents, accounts, and all business assets related to the Project.

3. Mortgage security interest and recapture agreement as required under terms of the Federal Home Loan Bank of Boston Affordable Housing Program.

Conditions:

Subject to an "As Is", "Investment Value", "Upon Completion-Subsidized", and "Upon Completion Stabilized" Fair Market Value Appraisal of the proposed affordable housing Project in Portland, Maine indicating a maximum LTV of 85%

Subject to the establishment and maintenance of Project Operating Escrow and Reserve Deposit Accounts, to the extent permitted under MaineHousing program, during the term of the loan

Other General Conditions:

1. Bank has sponsored a Federal Home Loan Bank of Boston Affordable Housing Program application for a direct subsidy award and a subsidized advance provided Bank provides both the construction and permanent financing proposed for the project.

2. Borrower and Guarantor will indemnify Bank for any prepayment or other fees imposed by the FHLBB in connection with approved AHP grant and subsidized advance.

3. Subject to conditions of approval of the FHLBB AHP direct subsidy grant and subsidized advance or other equivalent funding sources acceptable to the Bank.

4. Subject to receipt and review of the Borrower's and Guarantors financial statements and all other information required by the Bank for underwriting and credit review. The Bank will thereafter require annual financial statements of the Borrower and Guarantor within 120 days of fiscal year end with copies of audited statements by the date required by HUD & MSHA.

Any commitment that Bangor Savings Bank issues, will be subject to the terms of its usual loan documentation, as approved by counsel for the Bank in connection with this particular

transaction, and may include terms and conditions that are different from, or that are in addition to, the terms and conditions stated in this letter. The Borrower is responsible for all out-of-pocket costs and expenses incurred by the Bank in connection with the proposed loan including appraisal, legal fees, filing fees, environmental due diligence as required, etc. As mentioned above, this letter is intended only to give you a general idea of the Bank's current thinking regarding a structure for this transaction that may be appropriate.

We look forward to hearing from you, and appreciate the opportunity to present this term sheet to you. We appreciate the important commitment to affordable housing and the community development effort involved in this project and we hope to proceed further with our discussions and the underwriting process.

Sincerely,

Laura Huddy
Vice President
Commercial Lending Group

FHLBBoston

EDWARD A. HJERPE III
President and Chief Executive Officer

ed.hjerpe@fhlbboston.com

December 19, 2016

Mr. Robert Montgomery-Rice
President and Chief Executive Officer
Bangor Savings Bank
P.O. Box 930
Bangor, ME 04402-0930

RE: Notice of Award for **A20161-069 (58 Boyd Street Apartments 2016)**

Dear Mr. Montgomery-Rice:

It is with pleasure that I write to notify you that we have approved your application for funding in the 2016 Affordable Housing Program (AHP) round. Congratulations on submitting a successful application. We have approved your initiative for the following funding, subject to the terms below:

Amount of Direct Subsidy: $750,000
Amount of Advance: $2,932,139 Term: 15 years Amortization Period: 30 years

Acknowledgement of this approval must be received by **February 02, 2017**. Please sign below and return this letter to:

Federal Home Loan Bank of Boston
Housing and Community Investment Department
800 Boylston Street, 9th Floor
Boston, MA 02199

Please be sure to keep a copy for your records. Signing this letter in no way obligates your institution to accept the AHP funds. Extensions may be requested for the project and will be approved at the sole discretion of the Bank. If at any time it is determined that the project does not require the AHP funds, or cannot use the funds in a timely manner, please notify the Bank immediately.

If you have any questions, please contact our Housing and Community Investment staff at 888-424-3863. Again, congratulations on your successful AHP application.

Sincerely,

Enclosures

Award Notification Acknowledged By:

Signature

Robert Montgomery-Rice, CEO
Typed name and title

January 3, 2017
Date

cc: John A. Moore, Senior Vice President and CRA Officer
Jay Waterman, Portland Housing Authority, Development Director
Jay Waterman, Portland Housing Development Corporation,

Qualifying Characteristics
Federal Home Loan Bank of Boston -- Round One of the 2016 AHP

APPLICANT: Bangor Savings Bank
PROJECT: 58 Boyd Street Apartments 2016
SPONSOR: Portland Housing Authority
CO-SPONSOR: Portland Housing Development Corporation
PROJECT OWNER: 58 Boyd Street, LP

A20161-069
Rank: 23
Score: 75.1854

Direct Subsidy: $750,000
Total Subsidy: $975,173
Subsidized Advance: $2,932,139 Term/Amort: 180/360 months

Total Number of Units: 55
Total AHP Assisted Units: 44
Very Low-Income Units: 36

THRESHOLD TESTS

Owner or Rental Housing	X	Ineligible Use of AHP Funds?	X	Refinancing	X
Project Feasibility	X	AHP Funds for Counseling Costs	X	Retention	X
Use within 12 months	X	Subsidy within Bank Limits	X	Sponsor Qualifications	X
Member Creditworthiness	X	Fair Housing	X		

	SCORING	*PRIORITIES*	*Earned Points*	*Max. Points*
I	Donated Properties	N/A	0.0000	5.0000
II	Nonprofit Sponsorship	Portland Housing Authority has ownership interest or integral involvement in the project.	5.0000	5.0000
III	Targeting	11 units reserved for households earning more than 80% AMI 0 units reserved for households earning between 61 to 80% AMI 8 units reserved for households earning between 51 to 60% AMI 36 units reserved for households earning less than 50% AMI	20.0000	20.0000
IV	Homeless Housing	11 of 55 total units reserved for the homeless; 55 of 55 total units are new construction or vacant.	1.0000	5.0000
V	Empowerment	Provides preparation of an individual for employment Provides self sufficiency	10.0000	10.0000
VI	FIRST DISTRICT PRIORITY			
VI A	First-time Home Buyers	N/A	0.0000	5.0000
VI B	Member Financial Participation	AHP Direct Subsidy and Member Financial Involvement of $9,782,139	15.0000	15.0000
VI C	Economic Diversity	Located in a census tract where the median income is no more than 80 percent of the MSA median income and in which at least 20 percent of the units are market-rate units.	5.0000	5.0000
VI D	Rural	N/A	0.0000	5.0000
VII	Second District Priority	N/A	0.0000	5.0000
VIII	Community Stability	Points were awarded for Smart Growth Features.	5.0000	5.0000
		Points were awarded for Sustainable Development Building Practices.	3.0000	3.0000
		Points were awarded for Efficient Building Operations.	7.0000	7.0000
IX	Effectiveness	$975,173 for 44 AHP-assisted DU's; $22,163 Amount per unit subsidy	4.1854	5.0000

The Federal Home Loan Bank of Boston (Bank) must be notified of any changes to the Qualifying Characteristics. Changes may result in a change in the project's score. A reduction in score may disqualify this project from funding in this round and result in cancellation of the AHP commitment prior to the funding or a recapture by the Bank of AHP subsidy funds already disbursed.

13. Technical Capacity

The applicant has assembled a highly qualified team of professionals for the preparation of this project. All members of this team have significant experience with this type of project and many have worked together on other similar projects. The project is being designed by a multi-disciplinary team of design professionals. All members of the design team have proven experience working on projects located in the City of Portland.

Portland Housing Authority — **Owner**
14 Baxter Blvd.
Portland, ME 04101
207-773-4753
Contact: Jay Waterman

58 Boyd Street, LP — **Applicant/Developer**
14 Baxter Blvd.
Portland, ME 04101
207-773-4753
Contact: Jay Waterman

CWS Architects — **Architect**
264 US Route One, Suite 100 2A
Scarborough, ME 04074
207-774-4441
Contact: Ben Walter

Carroll Associates — **Landscape Architect**
217 Commercial Street, Suite 200
Portland, ME 04101
207-772-1552
Contact: Pat Carroll / Matthew Phillips

Ransom Consulting Engineers — **Consulting Engineer (Civil)**
400 Commercial Street, Suite 404
Portland, ME 04101
207-772-2891
Contact: John Mahoney

Gorrill-Palmer Consulting Engineers — **Consulting Engineer (Traffic)**
15 Shaker Road
Gray Road, ME 04039
207-657-6910
Contact: Randy Dunton

Owen Haskell, Inc. — **Surveyor**
390 US Route One, Unit 10
Falmouth, ME 04105
207-774-0424
Contact: Randy Loubier

Drummond Woodsum — **Attorney**
84 Marginal Way, Suite 600
Portland, ME 04101-2480
207-772-1941
Contact: Gary Vogel

Construction Management Plan
58 Boyd Street, LP
58 Boyd Street Apartments
November 10, 2017

A construction management site plan has been prepared and is attached to this document.

The Construction Management narrative and plan depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The goal for the plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

A. Construction Management Principles

The following narrative provides an overview of the construction management principles that 58 Boyd Street, LP and its contractor has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

B. Development Review of Construction Management Plan

58 Boyd Street, LP and its contractor shall submit a construction management plan that provides a comprehensive logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. The plan minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process. The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Prior to scheduling a preconstruction meeting and the issuance of any city required permits, 58 Boyd Street, LP and its contractor shall meet all of the requirements contained in Section 14-530. Development review fees and post approval requirements and 14-532. General requirements and enforcement of Portland's Land Use Code.

Other permits, as applicable, include:

1. **Street Opening Permits:** A street opening permit will be required for all subsurface utility connections within Boyd + Lancaster Streets (including water, sewer, gas,

electric/communications, storm drainage, and curb extensions). Schedule and duration of work are unknown at this time.

2. **Blasting:** No blasting is anticipated for this project.

D. Construction Administration and Communication

58 Boyd Street, LP and its contractor will work diligently to implement a communication strategy as outlined below. The communication strategy is intended to ensure that all construction operations are performed in accordance with all agreements, ordinances and special permits applicable to this project. The Construction Manager will work closely with adjacent abutters, businesses and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust.

1. Contact Person and contact information for the 58 Boyd Street, LP and its contractor and who is available 24 hours.
   Contractor and contact person: TBD
   Developer/owner contact person: 58 Boyd Street, LP - Jay Waterman 207-773-4753
2. Contractor will have a project sign with the contact information.
3. Phone numbers will on sign and available for issues at all times of day during the construction period
4. All construction site signage is temporary and shall be removed at project completion.

E. Construction Schedule

1. The contractor shall submit a schedule or time line for the construction project, including any Phasing.
   Construction schedule TBD pending available funding.
2. Hours of Construction: **7:00 AM – 7:00 PM Monday – Friday. Construction activities shall start no earlier than 8:00 AM on Saturdays, Sundays or Holidays.** Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit and Section 25-129. Noise, dust and debris.
3. There is no anticipation of night work on this project.
4. All deliveries for materials will comply with the noise requirements listed above or will be restricted to the hours allowed for construction.
5. Material Deliveries: Schedule and designated location for delivery of materials and boxed goods.
   Deliveries may only occur during normal hours of construction and must be taken on-site. No deliveries are allowed to occur from Boyd or Lancaster Streets.

F. Security & Public Safety

1. The site construction fence will be placed either on the property line, at back of curb, on adjacent land (where licensed) as depicted on the plan to allow for construction equipment to access the exterior walls of the building and for adjacent site work.

2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16.
3. Demolition of the existing building and other associated site items will occur. A demolition fire safety program is needed and will be prepared and supplied when a contractor is selected.
4. 58 Boyd Street, LP and its contractor shall develop a fire safety and emergency protocol plan and contact the nearest Fire Station to advise them of the ongoing construction project.
5. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
6. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Will only occur when making connection to utilities within the adjacent street and when new curbing is set and curb extension constructed. All required permits will be obtained at the responsibility of the general contractor. Traffic and bicycle flow will be maintained and controlled as necessary for this work to occur.

2. Sewer and Stormwater: All sewer and stormwater water system connections will be per the City's requirements/standards and are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

   Other utilities: All other utilities (gas, water, underground electric/communications) will be per the utility provider requirements/standards. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works.

3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and or collector streets are required to submit a satisfactory 'maintenance of traffic" (MOT) plan prior to any site plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

   Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely

necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- Flaggers will be used during utility connection within the adjacent streets.
- No police detail or lighted intersections are anticipated for this project.

All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Boyd + Lancaster Streets: Both bicycles and pedestrians will be alerted that the sidewalks along the project frontage will be closed for close to the duration of the construction.
- When the sidewalks along the project frontage are demolished, then there will be no sidewalks on our side of Boyd or Lancaster Streets. Therefore no additional signage is proposed. It is proposed that at least one lane of traffic will be kept open at all times during work hours and two lanes will be kept open during non-work hours/overnight. When traffic is reduced to one lane, flaggers will be onsite to direct traffic.
- Typical construction fencing will be used to secure the site. Alternate sidewalks are available on the other side of the adjacent streets.
- ADA compliance shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works. 58 Boyd Street, LP and its contractor shall apply for the necessary permits.

H. Site Management and Controls

The final Construction Management Plan will address maintaining the site in a safe condition and will include the following:

1. Regular trash and debris removal
2. Street cleaning and damage controls

3. Dust controls: The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).
4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.
    1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice
    2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or site lines with the piles of snow.
    3) Clear all walks & ramps with the work zone
    4) Sand or Salt as needed
    5) Clear all basin or drainage to help snow melt
    6) This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. 58 Boyd Street, LP's selected contractor shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.
2. 58 Boyd Street, LP's selected contractor shall maintain all tree and landscaping preservation measures as depicted on the landscaping plan within the area of construction.
3. The storage of materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Construction Management Plan depicts locations of the material staging areas, the location on onsite temporary construction job trailers, the location on onsite truck delivery/holding areas, the location onsite parking, the general location of the construction security fence, temporary toilets, and the general location of temporary construction dumpsters.
2. Delivery Truck Holding Areas: The delivery holding area is shown on the plan and shall not be blocked during construction. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of the trucks until they can be unloaded. Once at the site all vehicles well be brought within the fence line and will make every attempt to avoid queuing on public streets.

3. Delivery Truck Holding Areas Off-Site: In the event that adequate on-site area for holding of trucks is not available, an off-site marshaling area will be utilized for trucking. The designated off-site location will be identified in the construction management plan (end of Lancaster Street).

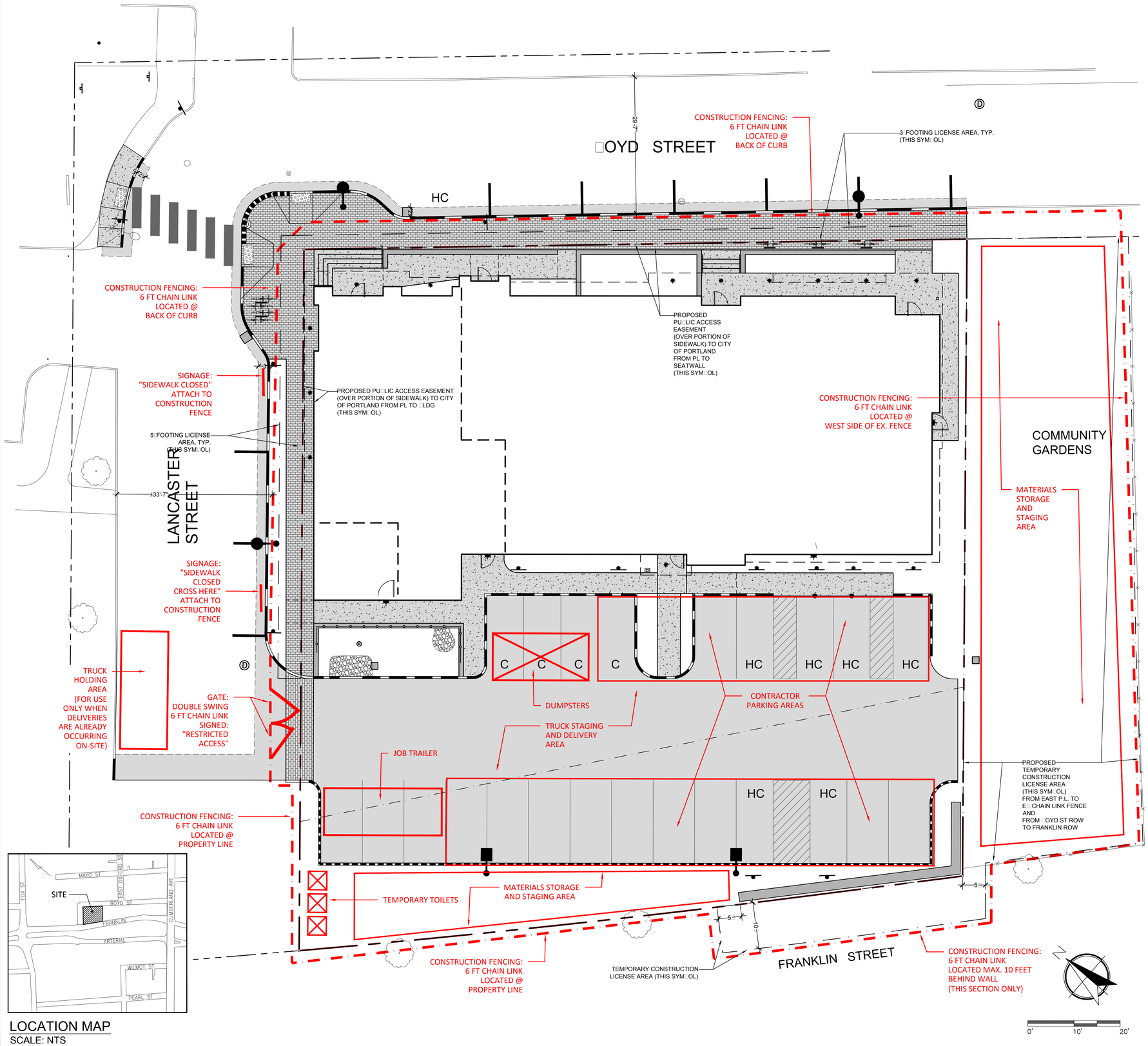
K. Parking During Construction

1. Construction Parking: Parking for construction workers is provided on site. If it is found that more parking is required separate arrangements for off-street parking at an off-site location shall be provided (at one of the many nearby garages or public parking lots.
2. Parking: The existing paved parking area is being demolished and falls within the proposed new building footprint.
3. Truck Routes and Volumes: The Construction Management Plan shall address the designated truck routes and expected truck volumes. All deliveries to the site shall be via Franklin Street, to Cumberland Avenue, and to Boyd/Lancaster Street. All deliveries will be made on site within the secure construction fence. Delivery volumes will vary depending on construction sequencing but will only occur during allowable hours of operation.

L. Special Measures as Necessary

For construction work that will take place over a long period (e.g. 12 months or more), involve major demolition/deep excavation/ piling and/or special construction techniques, or are located near sensitive uses e.g. medical care facilities, schools), the Construction Management Plan should provide details and demonstrate that all appropriate special measures have been taken to avoid, minimize, or possibly compensate for potential impacts. This may include taking baseline measurements before construction, such as arranging to photograph the foundations of nearby properties upon consent of the owners, in order to assess any future impacts of vibration, noise, etc.

No special measures of construction are anticipated for this project.



LOCATION MAP
SCALE: NTS

GENERAL NOTES:

1. TOTAL SITE AREA: ±0.48 ACRES (±20,934 SF)

2. □ONING DISTRICT: RESIDENTIAL □ONE (R-7)

3. OWNER: PORTLAND HOUSING AUTHORITY
14 □A□TER □LVD.
PORTLAND, ME 04101
(207) 773.4753

APPLICANT: 58 □OYD STREET, LP
14 □A□TER □LVD.
PORTLAND, ME 04101
(207) 773.4753

4. TA□ MAP: TA□ MAP 22, □LOCK F, LOT 1

5. □OOK AND PAGE: CCRD □OOK 3129, PAGE 374

6. PRO□ECT ADDRESS: 58 □OYD STREET / 54 LANCASTER STREET

7. □OUNDARY, TOPOGRAPHY, AND E□ISTING CONDITIONS INFORMATION TAKEN FROM A PLAN TITLED: "□OUNDARY □ TOPOGRAPHIC SURVEY" AT 58 □OYD STREET, PORTLAND, MAINE. MADE FOR PORTLAND HOUSING AUTHORITY, 14 □A□TER □LVD., PORTLAND, MAINE 04101. DATED AUGUST 29, 2017. PREPARED □Y OWEN HASKELL, INC. 390 US ROUTE ONE, FALMOUTH, ME 04105, TELEPHONE 207.774.0424

8. □EARINGS ARE □ASED ON MAINE STATE PLAN COORDINATE SYSTEM, MAINE WEST NAD 83 PER CITY POINTS:

T102-78-101	L751-8-3007
N: 302993.85	N: 302902.11
E: 2929365.05	E: 2929788.62

9. □ENCH MARK: MONUMENT T102-77-1 AT NORTHWEST CORNER OF ANDERSON STREET AND EAST LANCASTER STREET, ELEVATION 19.57 CITY DATUM.

10. SPACE AND □ULK (W/ DIVISION 30 AFFORDA□LE HOUSING □ONUSES APPLIED):

	R-7	PROPOSED
TOTAL DWELLING UNITS		55 DU
% AFFORDA□LE		80% (44 DU)
MIN. LOT SI□E	NONE	0.48 AC
MIN. STREET FRONTAGE	NONE	□285 FT.
MIN. FRONT YARD	NONE	2 INCHES
MIN. REAR / SIDE YARD	5 FT.	5 FEET □ 1 INCH
MA□. LOT COVERAGE	100%	83%
MA□. □LDG HT. (25 □ONUS)	50 FT.	72-75 FT.
OFF-STREET PARKING	1 PS / D.U.	23 PS
□IKE PARKING	22 PS	25 PS (18 PS IN □LDG □ 7 PS ON-SITE)

11. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

12. ALL DIMENSIONS SHOWN ARE TO FACE OF ALL WALLS, □UILDINGS, CUR□S, AND OTHER SITE ELEMENTS UNLESS OTHERWISE NOTED.

13. E□ISTING UNDERGROUND UTILITIES SHOWN ARE APPRO□IMATE ONLY. CALL DIG-SAFE PRIOR TO □EGINNING WORK (1-800-225-4977).

14. ALL E□ISTING VEGETATION TO □E PRESERVED AS SHOWN ON PLANS. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS E□ISTING. AREAS NOT RE□UIRING GRADING SHALL □E LEFT UNDISTUR□ED.

15. STORAGE OR PARKING WILL NOT □E ALLOWED OVER THE ROOTS OF VEGETATION WHICH ARE TO □E PRESERVED. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS RE□UIRED FOR THE WORK ON THESE PLANS.

16. ALL WORK SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

17. ALL AREAS DISTUR□ED OR WORK RE□UIRED WITHIN TEMPORARY CONSTRUCTION AREAS ON PROPERTY SHALL □E REPAIRED □Y RE-PAVING OR LOAM/SEEDING AS RE□UIRED TO RETURN THE SITE TO PRE-CONSTRUCTION CONDITIONS.

18. ALL WORK WITHIN THE RIGHT-OF-WAY MUST □E COORDINATED WITH THE DEPARTMENT OF PU□LIC SERVICES.

19. REFER TO UTILITIES PLAN FOR STATUS OF ALL E□ISTING UTILITY SERVICES SERVING E□ISTING RESIDENCE AND REMOVAL / A□ANDONMENT.

20. THIS LOGISTICS PLAN IS INTENDED TO ILLUSTRATE SECURITY, ACCESS, PARKING, PEDESTRIAN CIRCULATION, AND ON-SITE USE OF THE SITE. PLEASE REFER TO THE CONSTRUCTION MANAGEMENT PLAN FOR ADDITIONAL DETAILS.

21. ALL DELIVERIES ARE TO □E MADE ON-SITE, NOT IN □OYD OR LANCASTER STREETS.

E□ISTING

- PROPERTY LINE
- EASEMENT LINE
- ROW LINE
- DECIDUOUS TREE (□re□erved)
- DECIDUOUS TREE (to □e removed)
- CUR□
- EDGE OF PAVING
- □UILDING OUTLINE
- POLE LIGHT
- FIRE HYDRANT
- MANHOLE
- EM/GM ELEC / GAS METER
- UTILITY POLE
- STREET LIGHT
- SIGN
- CATCH □ASIN
- DRAIN MANHOLE
- WATER VALVE /SHUTOFF
- CHAIN LINK FENCE

PROPOSED

- EASEMENT / LICENSE LINE
- SET□ACK LINE
- LIMIT OF WORK LINE
- DECIDUOUS TREE
- SHRU□S
- PERENNIALS / GROUND COVER
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- □RICK PAVEMENT
- EDGE OF PAVING
- CUR□
- CROSSWALK STRIPING
- LIGHT
- TRAFFIC SIGNAGE
- CATCH □ASIN
- SEWER MANHOLE
- TRANSFORMER
- □OLLARD
- 14 CONTOUR LINE
- 14.50 / 13.69 SPOT ELEVATION
- CAPPED IRON ROD SET
- CATCH □ASIN / FIELD INLET
- SEWER MANHOLE
- DRAIN MANHOLE

APPLICANT:
58 □OYD STREET, LP
14 □A□TER □LVD
PORTLAND, MAINE 04101

OWNER:
PORTLAND HOUSING AUTHORITY
14 □A□TER □LVD
PORTLAND, MAINE 04101

Pro□ect: 58 □OYD STREET APARTMENTS

Revi□ion	Date	De□cri□tion
1	9.15.2017	CITY OF PORTLAND, LEVEL II SITE PLAN SUBM.
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawn □□ MP | A□□roved □□ PC | Scale: AS SHOWN

CONSTRUCTION MANAGEMENT PLAN

P□a□e: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V, F. 207.772.0712

Date: SEPT 15, 2017

S□eet No: CMP-1.0

Relationships.
Responsiveness.
Results.

Traffic Forecast, Parking Assessment and TDM Plan
58 Boyd Street
Portland, Maine

PREPARED FOR:
Portland Housing
Corporation
14 Baxter Boulevard
Portland, ME 04101

September 2017

SUBMITTED BY:
Gorrill Palmer
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Traffic Forecast, Parking Study, and Transportation Demand Management Plan
58 Boyd Street
Portland, Maine

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Appendix

Trip Generation Calculations
MaineDOT Crash Data
Parking Figure

Executive Summary

The following Executive Summary is prepared for the reader's convenience, but is not intended to be a substitute for reading the full report.

Gorrill Palmer was retained by Portland Housing Development Corporation (PHA) to prepare this traffic forecast, parking study, and Transportation Demand Management Plan for their proposed 58 Boyd Street project. The project consists of 55 affordable residential units, the 924 sf Cultivating Community office space, and a telemedicine room to be located at the end of Boyd Street, where the former PHA offices and a Headstart pre-school were located. The existing building is currently vacant. Based on this study, our office has determined the following:

1. The proposed development is forecast to generate 17 and 25 trip ends in the weekday AM and PM peak hours respectively. A trip end is either a trip in or out of the site, thus a round trip would equal two trip ends. At this level of trip generation, this project does not require a Maine Department of Transportation (MaineDOT) Traffic Movement Permit.

2. Based on the crash history provided by MaineDOT, there is one high crash location in the immediate vicinity of the site on Anderson Street between Cumberland Avenue and Oxford Street. The traffic from 58 Boyd Street is not anticipated to impact this high crash location.

3. Based on the parking inventory of the East Bayside Portland Housing Authority Properties that was completed for the Bayside Anchor project, there is sufficient parking within this area to accommodate the additional residential units.

4. PHA is updating their Transportation Demand Management (TDM) Plan that was completed as part of the Bayside Anchor project that will support the City's transportation and environmental sustainability goals by encouraging and promoting bicycling, walking, and use of transit. Additionally, PHA is pursuing the use a UhaulCarShare vehicle on site.

Based on these findings, it is the opinion of Gorrill Palmer that the proposed project can be accommodated by the City's transportation system.

I. Existing and Proposed Site

The proposed site is located at 58 Boyd Street in Portland, Maine. The site currently consists of one building that is approximately 720 sf that formerly housed PHA management offices and 1,080 sf of a Headstart pre-school program with four parking spaces. These two uses have since moved to the new Bayside Anchor project across the street.

Proposed for the site are 55 residential units, 44 of which are affordable housing, 924 sf Cultivating Community office space, and a telemedicine room. Parking for the project will be accommodated by 23 on-site parking spaces with the remainder accommodated by a potential UHaulCarShare and on-street parking spaces.

II. Background Conditions

Gorrill Palmer (GP) has based this study on the following information

- Trip Generation methodology used in the Bayside Anchor study completed by our office in May 2014
- Crash data for 2014-2016 provided by MaineDOT
- A parking inventory performed for the Bayside Anchor study at the existing East Bayside PHA properties, the adjacent streets, and at similar projects in Portland
- An updated parking inventory performed on September 10, 2017 for existing PHA properties

III. Trip Generation

The trip generation for the proposed site has been based on 55 housing units, 44 of which are affordable units, and a 924 sf office space. Although there is a telemedicine room proposed in the building, it is primarily to serve PHA residents and is not anticipated to generate significant traffic. The following summarizes the trip generation for the site:

Residential Units Trip Generation

GP used the Institute of Transportation Engineers' (ITE) publication *Trip Generation*, 9th Edition to estimate the potential trip generation for the proposed 55 housing units, 44 of those being affordable. Based on Land Use Code (LUC) 220 – Apartment, the proposed housing is forecast to generate the following trip ends:

- Weekday: 457 trip ends
- AM Peak Hour: 31 trip ends
- PM Peak Hour: 48 trip ends

A trip end is a trip into or out of the site, thus a round trip is equal to two trip ends. ITE trip rates are based on surveys of predominantly suburban locations rather than urban. In addition, these surveys do not take into account whether the units are affordable units, which typically have fewer cars. Therefore, GP reviewed a trip generation count for Pearl Place which was taken on Tuesday, October 5, 2010 from 3:30 PM to 5:30 PM. Based on the counts, the actual trip generation for Pearl Place was lower than the ITE forecast trip generation. Twenty peak hour trips were recorded at the site driveway for the 60 units in place when the count was completed, and no on-street parking associated with the facility was observed during the count. It should be noted that significant pedestrian trips to and from the site were observed, which is also anticipated for the 58 Boyd Street project. This results in a PM peak hour trip generation rate of 0.33 trip ends per unit for the existing facility. Applying this rate to the proposed 55 units yields 18 trip ends during the PM peak hour.

Given these results and the fact that the project is in an urban area and the area is very bikeable and walkable, our office has reduced the rates derived from ITE LUC 220 for apartments by 50% resulting in the following forecast for the 55 affordable housing units:

- Weekday: 229 trip ends
- AM Peak Hour: 16 trip ends
- PM Peak Hour: 24 trip ends

It should be noted that this is the same trip generation methodology used in the Bayside Anchor study completed by GP in May 2014 and approved by the City.

Cultivating Community Office Trip Generation

The trip generation for the proposed 924 sf Cultivating Community office space has been based on ITE 9th Edition LUC 710 – General Office.

- Weekday: 10 trip ends
- AM Peak Hour: 1 trip end
- PM Peak Hour: 1 trip end

Proposed Site ITE Trip Generation

GP combined the trip generation for the proposed residential units and the proposed Cultivating Community office space to yield the proposed site ITE trip generation, summarized in the following table:

ITE Trip Generation Summary

	Weekday	AM Peak Hour Adj. St	PM Peak Hour Adj. St
Residential Units	229	16	24
Office Space	10	1	1
Site ITE Trip Generation	239	17	25

As shown in the table, the site is forecast to generate 17 trip ends during the AM peak hour and 25 trip ends during the PM peak hour.

Trip Generation Credit

Typically credit is given for any on-site use within the last ten years, so trips generated by the existing office and pre-school can be subtracted from the forecasted future trip generation when determining the need for a MaineDOT Traffic Movement Permit. GP used ITE LUC 520 – Elementary School and LUC 715 – Single Tenant Office Building to calculate the credit that can be applied to the site trip generation (attached). The existing building is approximately 1,800 sf. The office is approximately 720 sf and the pre-school is approximately 1,080 sf. The following table summarizes the trip generation credit:

Trip Generation Credit Summary

	Weekday	AM Peak Hour Adj. St	PM Peak Hour Adj. St
Office Trip Generation	8	1	1
Pre-School Trip Generation	17	6*	1
Total Credit	25	7	2

* LUC 520 does not have a trip generation rate for the AM peak hour of the adjacent street. However for schools the AM peak hour of the generator typically occurs during the AM peak hour of the adjacent street.

Total Site Trip Generation

The trip generation credit is subtracted from the forecast trip generation for the residential units to yield the net trip generation. The following table summarizes the trip generation for the site:

Net Trip Generation Summary

	Weekday	AM Peak Hour	PM Peak Hour
ITE Trip Generation	239	17	25
Trip Generation Credit	-25	-7	-2
Net Trip Generation	**214**	**10**	**23**

As shown in the table the net trip generation for the site is forecast to be 10 trip ends during the AM peak hour and 23 trip ends during the PM peak hour. This level of trip generation does not require a MaineDOT Traffic Movement Permit since it is less than the 99 trip end threshold.

IV. Crash Data

GP obtained the crash data from MaineDOT for the period of 2014-2016, the most recent period available at the time this study was prepared (attached). In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to classify as an HCL.

1. A critical rate factor of 1.00 or more for a three year period. A Critical Rate Factor (CRF) compares the actual accident rate to the rate for similar intersections in the State. A CRF of less than 1.00 indicates a rate of less than average; and

2. A minimum of eight crashes over the same three-year period.

Based on a review of the crash report from MaineDOT, there is one HCL in the immediate vicinity of the site on Anderson Street from Oxford Street to Cumberland Avenue, which had a CRF of 6.01 and experienced 8 collisions during the most recent three year period. Based on a review of the police reports for the collisions, all but one involved a vehicle parked on street. Of the seven collisions involving vehicles parked on-street, two of the collisions were hit-and-run, one involved a vehicle backing out of a driveway into a parked vehicle, two involved vehicles attempting to parallel park, and one was caused by a driver operating under the influence. The eighth collision was due to icy roadway conditions. The traffic from the 58 Boyd Street project is not anticipated to impact this HCL due to the low trip generation and the distance of the HCL to the site. Residents of 58 Boyd Street would not be expected to park on Anderson Street.

It should be noted that there are also two HCLs on Washington Avenue and one HCL on Franklin Street; however, due to the low trip generation of the site and its distance from the HCLs, the traffic from the site is not anticipated to impact these HCLs.

V. Parking Evaluation

While PHA wants to provide adequate parking, parking results in a loss of open space, increases stormwater impacts, and uses valuable urban land. At the same time, providing too little parking may have adverse effects on residents and the surrounding neighborhood. The applicant's goal through the parking demand analysis process is to find the appropriate ratio of parking spaces. Our office has data suggesting actual parking demand will be well below one space per unit. To estimate the parking demand for the

proposed project, GP consulted two sources; a parking use inventory of the existing East Bayside PHA properties, and other relevant parking studies GP has completed. These are summarized below:

Parking Study of Existing East Bayside PHA Properties and On Street Parking

GP completed an inventory of occupied and available parking spaces for the East Bayside PHA properties as well as the adjacent neighborhood streets on Sunday evening, September 10th 2017 every 45 minutes from approximately 9 PM to midnight. This represents a time period when most residents would be parked in the neighborhood. The peak period, when the highest number of vehicles were parked throughout the neighborhood, occurred at midnight. A summary of the results for the peak period is presented below:

Parking Survey Results within East Bayside PHA Properties

- Highest Demand observed in PHA Parking Lots: 96 spaces
- Total Parking Lot Spaces: 162 Spaces
- Total Available Spaces in Parking Lots: 66 spaces

According to occupancy information furnished by PHA, 197 units of the 201 total units were occupied as of September 19, 2017. Therefore, the overall parking ratio within the PHA off street lots was 0.49 (96/197) spaces per unit. It should be noted that 144 units have parking stickers to allow them to park in PHA lots, but the peak demand in the lots was 96 vehicles, which is less than the number of stickered vehicles. The peak demand is approximately 0.67 (96/144) spaces used per sticker.

On Street Parking for Area Bounded by Anderson, Cumberland, Greenleaf, Oxford, Madison, and Boyd Streets

- Highest On Street Demand Observed: 212 spaces
- Total On Street Spaces: 348 spaces
- Total Available Spaces On Street: 136 spaces

This data shows there is substantial available parking within the neighborhood today. While 66 spaces are available within the PHA parking lots, some residents may be parking on the street. Therefore, to estimate a conservative total parking demand associated with the existing PHA properties, GP included the number of vehicles directly adjacent to PHA properties, which were estimated to be 80 vehicles. Adding these additional spaces to the 96 spaces occupied in the existing PHA lots results in an overall existing parking ratio of 0.89 spaces per occupied unit for the PHA housing properties. This is likely a high rate

since the inventory was conservative when attributing the on street parking to the PHA properties.

GP also determined the number of unoccupied on and off street parking spaces within 300 and 500 feet of the proposed building. The data summarized below is for midnight, which was the peak period observed:

Unoccupied parking within 300 feet of the project:

- Parking lots: 8 spaces
- On Street spaces: 17 spaces
- Total: 25 spaces

Unoccupied parking within 500 feet of the project:

- Parking lots: 38 spaces
- On Street spaces: 41 spaces
- Total: 79 spaces

Based on the existing parking demand around the proposed site, there appears to be excess parking availability.

Other Relevant Parking Studies

In addition to the East Bayside parking evaluation, GP reviewed data from other projects that were on file to compare parking ratios for this project. That additional review is summarized below:

Island View Apartments in Portland, Maine

This inventory was performed on July 12, 2004 from 6:00 PM to 9:00 PM. Island View Apartments is a 70-unit apartment building on the corner of North Road and Walnut Road in Portland. It contains a total of 84 parking spaces, 29 of which are designated visitor parking only, and two of which are handicap. In the peak half hour period, a maximum of 49 parking spaces were occupied. This gives a demand of 0.70 parking spaces per dwelling unit.

Previous Parking Occupancy Study

As part of studies for similar projects in the past, GP examined the parking occupancy of apartment buildings in downtown Portland with dedicated parking lots, either behind or within the building as part of another application. GP completed parking occupancy counts from 10-11 PM (within the peak period, based on ITE and Urban Land Institute

{ULI} data) at 53 Danforth Street, 645 Congress Street, and Walker Terrace (at the corner of Congress Street and Walker Street) on Tuesday, October 26, 2010.

In addition, GP referenced the parking supply for Franklin Towers and Oak Street Lofts. Franklin Towers has 200 units and, based on aerial data, a parking supply of 58 spaces. Oak Street Lofts has 37 units and 16 parking spaces, although it should be noted that half of the spaces (eight) are for motorcycles. For the purposes of this assessment it is assumed that the peak demand at both of these facilities is at 100% occupancy. The following table summarizes the calculated parking demand for each facility based on the occupancy counts:

Parking Demand Studies Summary

Facility	Number of Units	Peak Demand (occupied spaces)	Demand Rate (spaces per unit)
53 Danforth	43	29	0.67
645 Congress	56	28	0.50
Walker Terrace	40	20	0.50
Oak Street Lofts	37	16*	0.43
Franklin Towers	200	58**	0.29
Average Parking Demand (spaces per unit)			**0.48**

*Assumes 100% occupancy at Oak Street Lofts

**Assumes 58 spaces based on aerial imagery and 100% occupancy at Franklin Towers

As shown in the table, the parking occupancy counts for various facilities in Portland indicate an average need for 0.48 parking spaces per apartment unit within the Portland Peninsula.

Recommended Parking Ratio

Based on the level of demand at the above referenced studies, and the implementation of the updated Transportation Demand Management Plan (provided herein), it is the opinion of GP that an appropriate parking demand rate for the proposed 58 Boyd Street project as well as the existing PHA "Bayside Campus" properties is 0.75 spaces per unit. This is consistent with the parking rate used for the recent Bayside Anchor project.

Parking Supply vs. Parking Demand

The proposed project will result in the loss of the existing 4 space parking lot associated with the existing building on site, but is proposed to have a 23 space parking lot, for a net increase of 19 spaces. Additionally, the project is anticipated to eliminate approximately one on street parking space on Boyd Street. The following compares the parking supply with forecasted parking demand.

Parking Supply

The available off and on street parking supplies within 300 and 500 feet upon completion of the 58 Boyd Street project are as follows:

- Within 300 feet of the project: 54 spaces on-street, 64 in PHA lots
- Within 500 feet of the project: 112 spaces on-street, 130 in PHA lots
- Combined Totals:
    - Within 300 feet: 118 spaces
    - Within 500 feet: 242 spaces

Parking Demand

The total parking demand, including the existing demand and the demand from 58 Boyd Street (based on a conservative ratio of 0.75 spaces per unit), is summarized below:

- Within 300 feet of the project: 117 spaces
- Within 500 feet of the project: 187 spaces

Parking Demand vs. Parking Supply

A comparison of the parking demand vs supply, including 58 Boyd Street, shows there is forecast to be one unoccupied space within 300 feet of the project and 55 unoccupied spaces within 500 feet of the project. This is during the peak parking demand time and all other time periods are forecast to have even greater available parking supply. Based on this review, there is forecast to be adequate parking in the vicinity of the project to accommodate the proposed residential units.

City Ordinance Requirements

The City of Portland has requirements for off-street parking in Chapter 14 of their Ordinance. There are requirements for general uses requiring off-street parking, but there are also zone specific exceptions and modifications to the standard requirements. The project is located in the R-7 Overlay Zone, which has the following requirements:

- A parking ratio of one space per unit
- One shared use vehicle (such as a UhaulCarShare vehicle) shall satisfy eight required spaces, but not more than 50% of the parking requirement
- Planning Board may establish a requirement less than the required parking due to unique conditions the result in a lower parking demand (e.g. affordable housing)

The Ordinance also provides an affordable housing incentive parking requirement, which allows for a requirement of no more than one space per affordable housing unit. Additionally, the planning board can determine a parking rate of less than one space per affordable housing unit.

Based on 44 affordable housing units and 11 market rate units, the Ordinance requires 58 Boyd Street to provide 55 off-street parking spaces. Additionally, PHA is pursuing the use of a UhaulCarShare vehicle for 58 Boyd Street, which would allow for a reduction of 8 spaces, yielding a parking requirement of 47 spaces. Using a rate of 47 parking spaces per 55 units gives a parking ratio of 0.85 spaces per unit.

Parking Conclusion – During most of the day, the proposed on-site parking will accommodate the anticipated parking demand. During peak parking demand times, some vehicles will need to park on-street. Based on this evaluation, there is sufficient parking availability within the immediate area of the site to accommodate this additional demand. With the use of incentives (described in more detail in the next section), and a potential UHaulCarShare program similar to the one currently used at 409 Cumberland, the overall parking demand is expected to further decrease.

VI. Revised Transportation Demand Management Plan

PHA Housing has requested an update of their existing Transportation Demand Management (TDM) Plan for their campus which will support the City's transportation and environmental sustainability goals by encouraging and promoting bicycling, walking, and use of transit. Avesta will be managing the project for PHA and is very familiar with the importance of a TDM Plan. The Portland Housing Authority has updated their Parking Policy. The following identifies key elements of the TDM and updated policy:

TDM Coordinator

PHA Housing has a Property Manager who will coordinate the TDM Plan. The TDM Coordinator will be responsible for posting changes and updates to the METRO schedule and UHaulCarShare information in the lobby as well as other information relevant to promoting and encouraging the greater use of bicycling, walking, and bus-based transit. Portland Housing is also striving to have a Transportation Demand Management line item approved for the operating budget for 58 Boyd Street to help further subsidize METRO passes and potentially the UHaulCarShare system and Lyft personal ride share service.

PHA Goals for Parking

In addition to adopting the philosophy of the City in trying to reduce the need for parking spaces and encourage other modes of travel, PHA has also identified internal goals as follows:

- Provide limited, safe, well managed parking for PHA / PHDC residents
- Reduce agency costs of maintaining parking areas
- Reduce vehicle congestion
- Increase tenants use of public transportation
- Utilize PHA land more efficiently, making it available for other purposes
- Reduce the costs of new housing development by building / providing less parking
- Reduce the cost of housing to tenants
- Reduce fuel usage and carbon emissions, consistency with PHA Green Policy
- Increase resident wellness

Parking Requirements in Lease

The following are key updated requirements:

- One parking space per household provided (if available at site)
- Tenants must register vehicle with PHA
- Vehicle must be kept operable, inspected and registered with State of Maine
- Eligible registered vehicles receive a PHA sticker to be displayed
- Tenants will be charged an annual $60.00 Parking Reservation Fee to help off-set costs of maintaining parking areas and administering parking rules. Monthly $5 charge on one vehicle allowed to be parked on site.

Automobile Parking Reduction Strategies

The Applicant proposes to take the following measures to reduce the demand for vehicles:

Bicycle Parking

PHA Housing is proposing to provide a total of 18 parking spaces for bicycles within an internal bicycle storage room. The bicycle room will provide increased bicycle security and protection from the weather.

Encourage Use of Local Transit

PHA's TDM Coordinator will provide route maps, schedules, and ticket information in packets along with their lease agreement. PHA will provide discounted monthly Metro bus passes to 58 Boyd Street households, with a preference to families with no vehicle. Details as follows:

- $45 monthly passes will be reduced to $25
- Up to 100 passes available in FY 2017
- Maximum of 2 passes per household
- Work with Metro on development and implementation of bus pass program

UHaulCarShare

In Portland, the UHaulCarShare service currently provides a total of seven vehicles, one of which is utilized by Avesta Housing at their 409 Cumberland development. This service is a shared car program that allows people to rent the vehicle for various trips. Based on a review of June 2015 to May 2016 data, the vehicle used by residents of 409 Cumberland Avenue was used for an average of 30 trips per month with an average distance of 39 miles per trip. PHA is pursuing the use of a UHaulCarShare vehicle at the 58 Boyd Street location and would anticipate similar results to those at the 409 Cumberland location. PHA will make residents aware of and encourage use of this service, which will allow for use of a car for certain trips, which can reduce the need for an owned car. Information will be provided to each incoming resident with their lease agreement.

Sidewalks and Trails

Sidewalks surround the proposed project encouraging walking to and from the site. In addition the PHA campus provides a connection to the Portland Trail system. The North Boyd Street Trail to the Bayside Trail starts outside the front door of 58 Boyd Street.

Tenant Packets

Upon signing a lease, each tenant will be provided with an extensive packet which will include information on transportation incentives and resources. Tenant packets will, at a minimum, include:

- Information on METRO free ride tickets to be provided by PHA
- The Greater Portland Transit Guide and other bus transit trip planning resources
- Registration and program information for UHaulCarShare
- Bicycle commuting information and other resources gathered from the Bicycle Coalition of Maine and Bicycle Meet Up commuter program
- Portland Trails map

Education

The TDM Coordinator will work with Portland Metro and Greater Portland Council of Governments to educate and market the use of public transit in the Portland area to PHA and 58 Boyd Street residents. It is our understanding the following apply.

- Metro plans to increase the number of bus shelters along the routes
- Metro is expanding service to Yarmouth and Brunswick
- Metro will be launching "real time bus arrival information" via website, text message and mobile applications.
- Educate potential users on the average annual costs associated with owning a car (approximately $5,822/year) and the savings if they were to use the bus.

Monitoring

As part of the TDM Plan monitoring program, Portland Housing will assess the utilization of its on- and off-site parking on an ongoing basis and will monitor the operation of the parking areas. Demand for handicapped parking will be monitored on a monthly basis. PHA Housing will track tenant requests for additional on-site bicycle and scooter/motorcycle parking.

One year after initial occupancy and annually thereafter, PHA Housing will revisit the TDM Plan, taking into account the following:

- Tenant vehicle ownership (bicycle, scooter/motorcycle, automobile)
- Tenant parking utilization of on and off street parking, including nearby parking garages and on-street parking spaces
- The means of travel by tenants (bus, walk, bicycle, automobile, scooter / motorcycle, car share, carpool, or other)

PHA Housing will update the TDM Plan and submit a draft plan to the City's TDM Manager for review and comments. Should the vehicle ownership of the tenants exceed 0.75 spaces per unit or 42 spaces, additional TDM measures and/or parking measures will be considered.

Timetable for Action Items

This project will be managed by Portland Housing Development Corporation and a professional property management company. The applicant will work with the City in establishing expected timelines for each of the action items.

JN: 3212
Project Description: Boyd St Affordable Housing
Project Location: Portland, Maine
Date: 10/6/2016

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Apartment
Land Use Code (LUC) 220

Dwelling Units: 55

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.65 (X)	88	366		50%	50%	183	183	N/A
AM Peak Hour of Adj. Street Traffic	T = 0.51 (X)	78	28		20%	80%	6	22	N/A
PM Peak Hour of Adj. Street Traffic	T = 0.62 (X)	90	34		65%	35%	22	12	N/A
AM Peak Hour of Generator	T = 0.55 (X)	83	30		30%	70%	9	21	N/A
PM Peak Hour of Generator	T = 0.67 (X)	85	37		60%	40%	22	15	N/A
Saturday	T = 6.39 (X)	15	351		50%	50%	176	175	N/A
Saturday Peak Hour of Gen.	T = 0.52 (X)	14	29	**	50%	50%	15	14	N/A

* Percentages rounded to nearest 5%
** Not Available (Assumption)

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.06 (X) + 123.56	88	457		50%	50%	228	229	0.87
AM Peak Hour of Adj. Street Traffic	T = 0.49 (X) + 3.73	78	31		20%	80%	6	25	0.83
PM Peak Hour of Adj. Street Traffic	T = 0.55 (X) + 17.65	90	48		65%	35%	31	17	0.77
AM Peak Hour of Generator	T = 0.54 (X) + 2.45	83	32		30%	70%	10	22	0.82
PM Peak Hour of Generator	T = 0.60 (X) + 14.91	85	48		60%	40%	29	19	0.80
Saturday	T = 7.85 (X) - 256.19	15	176		50%	50%	88	88	0.85
Saturday Peak Hour of Gen.	T = 0.41 (X) + 19.23	14	42	**	50%	50%	21	21	0.56

* Percentages rounded to nearest 5%
** Not Available (Assumption)

JN: 3212
Project Description: 58 Boyd Street
Project Location: Portland, Maine
Date: September 19, 2017

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 924

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln (T) = 0.76 Ln (X) + 3.68	37	79	50%	50%	19	18	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.57**	**5**	**218**	**90%**	**10%**	**5**	**0**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.45**	**79**	**236**	**15%**	**85%**	**12**	**67**	**0.82**
Saturday	T = 2.03 (X) + 31.75	34	18	50%	50%	17	17	0.66
Peak Hour of Generator			11	55%	45%	#VALUE!	#VALUE!	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 11.03 (X)	10	79	50%	50%	5	5	---
AM Peak Hour	T = 1.56 (X)	1	218	90%	10%	1	0	---
PM Peak Hour	T = 1.49 (X)	1	236	15%	85%	0	1	---
Saturday	T = 2.46 (X)	2	18	50%	50%	1	1	---
Saturday Peak Hour of Gen.	**T = 0.43 (X)**	**0**	**11**	**50%**	**50%**	**0**	**0**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.56 (AM Peak)	5		15%	85%	1	4	0.82

JN: 3212
Project Description: 58 Boyd Street
Project Location: Portland, Maine
Date: October 7, 2016

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Single Tenant Office Building
Land Use Code (LUC) 715

Square Feet 720

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.60 Ln (X) + 4.30	61	15	50%	50%	31	30	0.53
AM Peak Hour	T = 1.67 (X) + 21.93	23	43	90%	10%	21	2	0.77
PM Peak Hour	T = 1.52 (X) + 34.60	36	43	15%	85%	5	31	0.78
Saturday	---	---	---	---	---	---	---	---
Peak Hour of Generator	---	---	---	---	---	---	---	---

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.65 (X)	8	15	50%	50%	4	4	---
AM Peak Hour	T = 1.80 (X)	1	43	90%	10%	1	0	---
PM Peak Hour	T = 1.74 (X)	1	43	15%	85%	0	1	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---

* Percentages rounded to nearest 5%

JN: 3212
Project Description: 58 Boyd Street
Project Location: Portland, Maine
Date: 10/7/2016

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Elementary School
Land Use Code (LUC) 520

Square Feet 1,080

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Sample Size	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 15.43 (X)	17	34	50%	50%	9	8	---
AM Peak Hour of Adj. Street Traffic	---	---	---	---	---	---	---	---
PM Peak Hour of Adj. Street Traffic	T = 1.21 (X)	1	10	45%	55%	0	1	---
AM Peak Hour of Generator	T = 5.20 (X)	6	35	55%	45%	3	3	---
PM Peak Hour of Generator	T = 3.11 (X)	3	35	45%	55%	1	2	---

Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Generator	---	---	---	---	---	---	---	---

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Sample Size	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	---	---	---	---	---	---	---	---
AM Peak Hour of Adj. Street Traffic	---	---	---	---	---	---	---	---
PM Peak Hour of Adj. Street Traffic	---	---	---	---	---	---	---	---
AM Peak Hour of Generator	---	---	48	55%	45%	---	---	---
PM Peak Hour of Generator	Ln (T) = 0.89 Ln (X) + 1.50	5	37	45%	55%	2	3	0.55
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Generator	---	---	---	---	---	---	---	---

* Percentages rounded to nearest 5%

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Washington\Cumberland\Fox

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: 0026X	Start Node: 19042	Start Offset: 0	☐ Exclude First Node
	End Node: 18879	End Offset: 0	☐ Exclude Last Node
Route: 0561238	Start Node: 18986	Start Offset: 0	☐ Exclude First Node
	End Node: 19042	End Offset: 0	☑ Exclude Last Node
Route: 0560293	Start Node: 18521	Start Offset: 0	☑ Exclude First Node
	End Node: 18960	End Offset: 0	☑ Exclude Last Node
Route: 0560667	Start Node: 18961	Start Offset: 0	☐ Exclude First Node
	End Node: 18521	End Offset: 0	☑ Exclude Last Node
Route: 0001A	Start Node: 63224	Start Offset: 0	☑ Exclude First Node
	End Node: 18521	End Offset: 0	☐ Exclude Last Node
Route: 001AS	Start Node: 18521	Start Offset: 0	☑ Exclude First Node
	End Node: 18520	End Offset: 0	☑ Exclude Last Node
Route: 0560804	Start Node: 18942	Start Offset: 0	☑ Exclude First Node
	End Node: 18946	End Offset: 0	☑ Exclude Last Node
Route: 0560540	Start Node: 18943	Start Offset: 0	☑ Exclude First Node
	End Node: 18945	End Offset: 0	☑ Exclude Last Node
Route: 0560847	Start Node: 18929	Start Offset: 0	☑ Exclude First Node
	End Node: 19463	End Offset: 0	☑ Exclude Last Node
Route: 0560257	Start Node: 18930	Start Offset: 0	☑ Exclude First Node
	End Node: 18944	End Offset: 0	☑ Exclude Last Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Washington\Cumberland\Fox

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: 0560470	Start Node: 18931	Start Offset: 0	☑ Exclude First Node
	End Node: 18941	End Offset: 0	☑ Exclude Last Node
Route: 0560333	Start Node: 18933	Start Offset: 0	☑ Exclude First Node
	End Node: 18938	End Offset: 0	☑ Exclude Last Node
Route: 0560509	Start Node: 18939	Start Offset: 0	☑ Exclude First Node
	End Node: 18940	End Offset: 0	☑ Exclude Last Node
Route: 0560235	Start Node: 18933	Start Offset: 0	☑ Exclude First Node
	End Node: 19464	End Offset: 0	☑ Exclude Last Node
Route: 0560561	Start Node: 18933	Start Offset: 0	☑ Exclude First Node
	End Node: 18936	End Offset: 0	☑ Exclude Last Node
Route: 0560139	Start Node: 18934	Start Offset: 0	☑ Exclude First Node
	End Node: 18937	End Offset: 0	☑ Exclude Last Node
Route: 0560235	Start Node: 19464	Start Offset: 0	☑ Exclude First Node
	End Node: 18920	End Offset: 0	☑ Exclude Last Node
Route: 0560069	Start Node: 18919	Start Offset: 0	☑ Exclude First Node
	End Node: 18921	End Offset: 0	☐ Exclude Last Node
Route: 0560493	Start Node: 18922	Start Offset: 0	☑ Exclude First Node
	End Node: 18923	End Offset: 0	☑ Exclude Last Node
Route: 0560493	Start Node: 18923	Start Offset: 0	☑ Exclude First Node
	End Node: 18924	End Offset: 0	☑ Exclude Last Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Washington\Cumberland\Fox

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: 0560834	Start Node: 18918	Start Offset: 0	☐ Exclude First Node
	End Node: 18924	End Offset: 0	☐ Exclude Last Node
Route: 0560666	Start Node: 18916	Start Offset: 0	☑ Exclude First Node
	End Node: 18918	End Offset: 0	☑ Exclude Last Node
Route: 0560234	Start Node: 18917	Start Offset: 0	☑ Exclude First Node
	End Node: 18932	End Offset: 0	☑ Exclude Last Node
Route: 0560666	Start Node: 18915	Start Offset: 0	☑ Exclude First Node
	End Node: 18916	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
19042	0026X - 0	Int of CUMBERLAND AV WASHINGTON AV	9	11	0	0	1	1	9	18.2	4.399	0.83	1.27	0.00
											Statewide Crash Rate:	0.71		
18936	0026X - 0.10	Int of E OXFORD ST EXT, WASHINGTON AV	2	1	0	0	0	0	1	0.0	3.367	0.10	0.41	0.00
											Statewide Crash Rate:	0.15		
18940	0026X - 0.15	Int of MONROE ST WASHINGTON AV	2	1	0	0	0	0	1	0.0	3.757	0.09	0.40	0.00
											Statewide Crash Rate:	0.15		
18875	0026X - 0.17	Int of MARION ST, WASHINGTON AV	2	0	0	0	0	0	0	0.0	4.126	0.00	0.39	0.00
											Statewide Crash Rate:	0.15		
18941	0026X - 0.19	Int of MADISON ST WASHINGTON AV	2	3	0	0	0	0	3	0.0	4.054	0.25	0.39	0.00
											Statewide Crash Rate:	0.15		
A18960	0026X - 0.27	Int of FOX ST WASHINGTON AV	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
											Statewide Crash Rate:	0.15		
P18879	0026X - 0.28	Int of WALNUT ST, WASHINGTON AV	2	10	0	0	1	2	7	30.0	4.899	0.68	0.38	1.81
											Statewide Crash Rate:	0.15		
18986	0561238 - 0.73	Int of CUMBERLAND AV WILMOT ST	2	3	0	0	0	2	1	66.7	2.832	0.35	0.41	0.00
											Statewide Crash Rate:	0.14		
18520	0561238 - 0.77	Int of CUMBERLAND AV FRANKLIN ST	9	18	0	0	0	3	15	16.7	6.525	0.92	1.18	0.00
											Statewide Crash Rate:	0.71		
63224	0561238 - 0.80	Int of CUMBERLAND AV FRANKLIN ST	9	15	0	0	1	4	10	33.3	6.411	0.78	1.18	0.00
											Statewide Crash Rate:	0.71		
18919	0561238 - 0.84	Int of BOYD ST CUMBERLAND AV	2	2	0	0	0	1	1	50.0	2.683	0.25	0.44	0.00
											Statewide Crash Rate:	0.15		
18910	0561238 - 0.87	Int of CUMBERLAND AV, LOCUST ST	2	2	0	0	0	0	2	0.0	2.618	0.25	0.44	0.00
											Statewide Crash Rate:	0.15		
18922	0561238 - 0.89	Int of CUMBERLAND AV MAYO ST	2	2	0	0	0	0	2	0.0	2.467	0.27	0.45	0.00
											Statewide Crash Rate:	0.15		
18915	0561238 - 0.94	Int of CUMBERLAND AV, SMITH ST	2	2	0	0	0	0	2	0.0	2.523	0.26	0.45	0.00
											Statewide Crash Rate:	0.15		
19463	0561238 - 0.98	Int of ANDERSON ST CUMBERLAND AV	2	2	0	0	0	0	2	0.0	2.374	0.28	0.45	0.00
											Statewide Crash Rate:	0.15		
18912	0561238 - 0.99	Int of CUMBERLAND AV, MONTGOMERY ST	2	0	0	0	0	0	0	0.0	2.010	0.00	0.47	0.00
											Statewide Crash Rate:	0.15		
18937	0561238 - 1.01	Int of CLEEVE ST CUMBERLAND AV	2	0	0	0	0	0	0	0.0	2.041	0.00	0.47	0.00
											Statewide Crash Rate:	0.15		
18953	0560293 - 0.06	0509373 POR,N.BOYD,FOX ST.	2	1	0	0	0	1	0	100.0	2.251	0.15	0.44	0.00
											Statewide Crash Rate:	0.14		
18952	0560293 - 0.16	0509372 POR,FOX,DIAMOND ST.	2	1	0	0	0	0	1	0.0	2.344	0.14	0.43	0.00
											Statewide Crash Rate:	0.14		
18929	0560293 - 0.21	0509349 POR,ANDERSON,FOX ST.	2	3	0	0	0	0	3	0.0	2.840	0.35	0.41	0.00
											Statewide Crash Rate:	0.14		
19466	0560293 - 0.25	0509888 POR,FOX STREET,COVE STREET	2	0	0	0	0	0	0	0.0	2.202	0.00	0.44	0.00
											Statewide Crash Rate:	0.14		
18945	0560293 - 0.26	0509365 POR,FOX,N.GREENLEAF ST.	2	0	0	0	0	0	0	0.0	1.987	0.00	0.45	0.00
											Statewide Crash Rate:	0.14		

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
A18948	0560293 - 0.30	0509368 POR,FOX,HAMMOND ST.	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
P18946	0560293 - 0.31	0509366 POR,FOX,WINTHROP ST.	2	0	0	0	0	0	0	0.0	1.700	0.00	0.47	0.00
												Statewide Crash Rate:	0.14	
18961	0560667 - 0.26	Int of FOX ST SOMERSET ST	2	0	0	0	0	0	0	0.0	2.957	0.00	0.41	0.00
												Statewide Crash Rate:	0.14	
18521	0001A - 12.45	Int of FOX ST FRANKLIN ST	9	36	0	1	3	6	26	27.8	11.080	1.08	1.07	1.01
												Statewide Crash Rate:	0.71	
18944	0560804 - 0.04	0509364 POR,WINTHROP,EVERETT ST.	2	0	0	0	0	0	0	0.0	0.081	0.00	0.04	0.00
												Statewide Crash Rate:	0.14	
18930	0560847 - 0.53	0509350 POR,ANDERSON,EVERETT ST.	2	0	0	0	0	0	0	0.0	0.698	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
18931	0560847 - 0.56	0509351 POR,ANDERSON,MADISON ST.	2	0	0	0	0	0	0	0.0	0.706	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
18932	0560847 - 0.59	0509352 POR,E.LANCASTER,ANDERSON ST.	2	0	0	0	0	0	0	0.0	0.653	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
19464	0560847 - 0.65	0509886 POR,ANDERSON ST,E.OXFORD STR.	2	3	0	0	0	1	1	50.0	0.725	1.38	0.56	2.45
												Statewide Crash Rate:	0.14	
18943	0560257 - 0.05	0509363 POR,EVERETT,N.GREENLEAF ST.	2	0	0	0	0	0	0	0.0	0.092	0.00	0.16	0.00
												Statewide Crash Rate:	0.14	
18938	0560470 - 0.06	0509358 POR,GREENLEAF,MADISON ST.	2	0	0	0	0	0	0	0.0	0.239	0.00	0.58	0.00
												Statewide Crash Rate:	0.14	
18942	0560470 - 0.11	0509362 POR,WINTHROP,MADISON ST.	2	0	0	0	0	0	0	0.0	0.202	0.00	0.55	0.00
												Statewide Crash Rate:	0.14	
18939	0560333 - 0.05	0509359 POR,MONROE,GREENLEAF ST.	2	0	0	0	0	0	0	0.0	0.229	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
18934	0560235 - 0.01	0509354 POR,CLEEVE,E.OXFORD ST.	2	0	0	0	0	0	0	0.0	0.322	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
18916	0560235 - 0.09	0509336 POR,SMITH,E.OXFORD ST.	2	1	0	0	0	1	0	100.0	0.343	0.97	0.60	1.61
												Statewide Crash Rate:	0.14	
18923	0560235 - 0.14	Int of E OXFORD ST MAYO ST	2	0	0	0	0	0	0	0.0	0.143	0.00	0.45	0.00
												Statewide Crash Rate:	0.14	
18920	0560069 - 0.08	0509340 POR,BOYD,E,OXFORD ST.	2	3	0	0	0	0	3	0.0	0.187	5.36	0.54	10.01
												Statewide Crash Rate:	0.14	
18921	0560069 - 0.15	0509341 POR,LANCASTER 1,BOYD ST.	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.06	0.00
												Statewide Crash Rate:	0.14	
18918	0560834 - 0	Int of KENNEDY PARK SMITH ST	2	0	0	0	0	0	0	0.0	0.072	0.00	-0.10	0.00
												Statewide Crash Rate:	0.14	
18924	0560834 - 0.04	Non Int KENNEDY PARK	2	0	0	0	0	0	0	0.0	0.055	0.00	-0.51	0.00
												Statewide Crash Rate:	0.14	
18917	0560666 - 0.21	0509337 POR,SMITH,E.LANCASTER ST	2	0	0	0	0	0	0	0.0	0.210	0.00	0.56	0.00
												Statewide Crash Rate:	0.14	
Study Years: 3.00		NODE TOTALS:		120	0	1	6	22	90	24.2	89.479	0.45	0.41	1.08

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18936	19042	3117968	0 - 0.10	0026X - 0	0.10	2	12	0	0	1	0	9	10.0	0.00320	1249.73	535.31	2.33
Int of E OXFORD ST EXT, WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18936	18940	3120759	0 - 0.05	0026X - 0.10	0.05	2	7	0	1	1	0	5	28.6	0.00165	1412.75	635.17	2.22
Int of E OXFORD ST EXT, WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18875	18940	3106823	0 - 0.02	0026X - 0.15	0.02	2	0	0	0	0	0	0	0.0	0.00082	0.00	753.98	0.00
Int of MARION ST, WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18875	18941	3131701	0 - 0.02	0026X - 0.17	0.02	2	0	0	0	0	0	0	0.0	0.00081	0.00	755.37	0.00
Int of MARION ST, WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18941	18960	3124003	0 - 0.08	0026X - 0.19	0.08	2	6	0	0	0	1	5	16.7	0.00307	651.88	541.17	1.20
Int of MADISON ST WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18879	18960	3123723	0 - 0.01	0026X - 0.27	0.01	2	0	0	0	0	0	0	0.0	0.00043	0.00	854.66	0.00
Int of WALNUT ST, WASHINGTON AV				ST RTE 26											Statewide Crash Rate: 208.13		
18520	18986	3131686	0 - 0.04	0561238 - 0.73	0.04	2	1	0	0	0	0	1	0.0	0.00095	349.10	627.06	0.00
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 171.43		
18520	63224	3118814	0 - 0.03	0561238 - 0.77	0.03	2	1	0	0	0	0	1	0.0	0.00099	336.33	721.51	0.00
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
63224	18919	3115972	0 - 0.04	0561238 - 0.80	0.04	2	2	0	0	0	0	2	0.0	0.00106	628.95	709.93	0.00
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18910	18919	3129300	0 - 0.03	0561238 - 0.84	0.03	2	7	0	0	0	2	4	33.3	0.00076	3057.68	766.44	3.99
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18910	18922	3118713	0 - 0.02	0561238 - 0.87	0.02	2	0	0	0	0	0	0	0.0	0.00049	0.00	837.34	0.00
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18915	18922	3117967	0 - 0.05	0561238 - 0.89	0.05	2	6	0	0	0	0	6	0.0	0.00119	1679.01	689.89	2.43
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18915	19463	3131702	0 - 0.04	0561238 - 0.94	0.04	2	0	0	0	0	0	0	0.0	0.00095	0.00	728.37	0.00
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18912	19463	194577	0 - 0.01	0561238 - 0.98	0.01	2	0	0	0	0	0	0	0.0	0.00021	0.00	893.88	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18912	18937	3130202	0 - 0.02	0561238 - 0.99	0.02	2	1	0	0	0	0	1	0.0	0.00039	848.42	866.40	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 208.13		
18937	19042	3131703	0 - 0.03	0561238 - 1.01	0.03	2	2	0	0	0	0	2	0.0	0.00058	1142.27	810.70	1.41
Int of CLEEVE ST CUMBERLAND AV				RD INV 05 61238											Statewide Crash Rate: 208.13		
18521	18953	194034	0 - 0.06	0560293 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00133	0.00	1093.66	0.00
Int of FOX ST FRANKLIN ST				RD INV 05 60293											Statewide Crash Rate: 401.89		
18952	18953	194637	0 - 0.10	0560293 - 0.06	0.10	2	0	0	0	0	0	0	0.0	0.00218	0.00	964.48	0.00
0509372 POR,FOX,DIAMOND ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18929	18952	194603	0 - 0.05	0560293 - 0.16	0.05	2	1	0	0	0	0	1	0.0	0.00105	317.65	1163.46	0.00
0509349 POR,ANDERSON,FOX ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18929	19466	194604	0 - 0.04	0560293 - 0.21	0.04	2	0	0	0	0	0	0	0.0	0.00087	0.00	1222.15	0.00
0509349 POR,ANDERSON,FOX ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18945	19466	194628	0 - 0.01	0560293 - 0.25	0.01	2	0	0	0	0	0	0	0.0	0.00021	0.00	1660.59	0.00
0509365 POR,FOX,N.GREENLEAF ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18945	18948	194627	0 - 0.04	0560293 - 0.26	0.04	2	3	0	0	0	0	2	0.0	0.00070	1420.72	1288.91	1.10
0509365 POR,FOX,N.GREENLEAF ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18946	18948	194629	0 - 0.01	0560293 - 0.30	0.01	2	0	0	0	0	0	0	0.0	0.00017	0.00	1705.52	0.00
0509366 POR,FOX,WINTHROP ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18946	18960	194630	0 - 0.05	0560293 - 0.31	0.05	2	3	0	0	0	0	2	0.0	0.00070	1421.76	1289.15	1.10
0509366 POR,FOX,WINTHROP ST.				RD INV 05 60293											Statewide Crash Rate: 401.89		
18521	18961	4210760	0 - 0.04	0560667 - 0.26	0.04	2	2	0	0	0	0	2	0.0	0.00056	1196.91	1365.99	0.00
Int of FOX ST FRANKLIN ST				RD INV 05 60667											Statewide Crash Rate: 401.89		
63224	18521	3115975	0 - 0.25	0001A - 12.20	0.25	2	3	0	0	0	0	3	0.0	0.00994	100.63	406.60	0.00
Int of CUMBERLAND AV FRANKLIN ST				US 1A											Statewide Crash Rate: 208.13		
18520	18521	3106672	0 - 0.24	001AS - 1.58	0.24	2	4	0	0	2	0	2	50.0	0.00883	150.98	417.58	0.00
Int of CUMBERLAND AV FRANKLIN ST				US 1AS											Statewide Crash Rate: 208.13		
18942	18944	194623	0 - 0.04	0560804 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00003	0.00	389.03	0.00
0509362 POR,WINTHROP,MADISON ST.				RD INV 05 60804											Statewide Crash Rate: 401.89		
18944	18946	194626	0 - 0.03	0560804 - 0.04	0.03	2	0	0	0	0	0	0	0.0	0.00001	0.00	-3403.92	0.00
0509364 POR,WINTHROP,EVERETT ST.				RD INV 05 60804											Statewide Crash Rate: 401.89		
18943	18945	194625	0 - 0.03	0560540 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1174.72	0.00
0509363 POR,EVERETT,N.GREENLEAF ST.				RD INV 05 60540											Statewide Crash Rate: 401.89		
18929	18930	194602	0 - 0.04	0560847 - 0.49	0.04	2	1	0	0	0	1	0	100.0	0.00028	1201.63	1591.21	0.00
0509349 POR,ANDERSON,FOX ST.				RD INV 05 60847											Statewide Crash Rate: 401.89		
18930	18931	194605	0 - 0.03	0560847 - 0.53	0.03	2	2	0	0	0	1	1	50.0	0.00019	3558.32	1690.56	2.10
0509350 POR,ANDERSON,EVERETT ST.				RD INV 05 60847											Statewide Crash Rate: 401.89		
18931	18932	194607	0 - 0.03	0560847 - 0.56	0.03	2	1	0	0	0	0	1	0.0	0.00019	1800.20	1692.88	1.06
0509351 POR,ANDERSON,MADISON ST.				RD INV 05 60847											Statewide Crash Rate: 401.89		
18932	19464	194609	0 - 0.06	0560847 - 0.59	0.06	2	1	0	0	0	0	1	0.0	0.00033	1014.71	1539.55	0.00
0509352 POR,E.LANCASTER,ANDERSON ST.				RD INV 05 60847											Statewide Crash Rate: 401.89		
19463	19464	195146	0 - 0.09	0560847 - 0.65	0.09	2	8	0	0	0	0	6	0.0	0.00028	9550.24	1589.27	6.01
Int of ANDERSON ST CUMBERLAND AV				RD INV 05 60847											Statewide Crash Rate: 401.89		
18930	18943	194606	0 - 0.05	0560257 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00004	0.00	914.05	0.00
0509350 POR,ANDERSON,EVERETT ST.				RD INV 05 60257											Statewide Crash Rate: 401.89		
18943	18944	194624	0 - 0.05	0560257 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1695.52	0.00
0509363 POR,EVERETT,N.GREENLEAF ST.				RD INV 05 60257											Statewide Crash Rate: 401.89		
18931	18938	194608	0 - 0.06	0560470 - 0	0.06	2	1	0	0	0	0	0	0.0	0.00010	3259.25	1720.47	1.89
0509351 POR,ANDERSON,MADISON ST.				RD INV 05 60470											Statewide Crash Rate: 401.89		
18938	18942	194619	0 - 0.05	0560470 - 0.06	0.05	2	0	0	0	0	0	0	0.0	0.00006	0.00	1505.53	0.00
0509358 POR,GREENLEAF,MADISON ST.				RD INV 05 60470											Statewide Crash Rate: 401.89		
18941	18942	194621	0 - 0.02	0560470 - 0.11	0.02	2	2	0	0	0	0	2	0.0	0.00004	16604.40	956.18	17.37
Int of MADISON ST WASHINGTON AV				RD INV 05 60470											Statewide Crash Rate: 401.89		

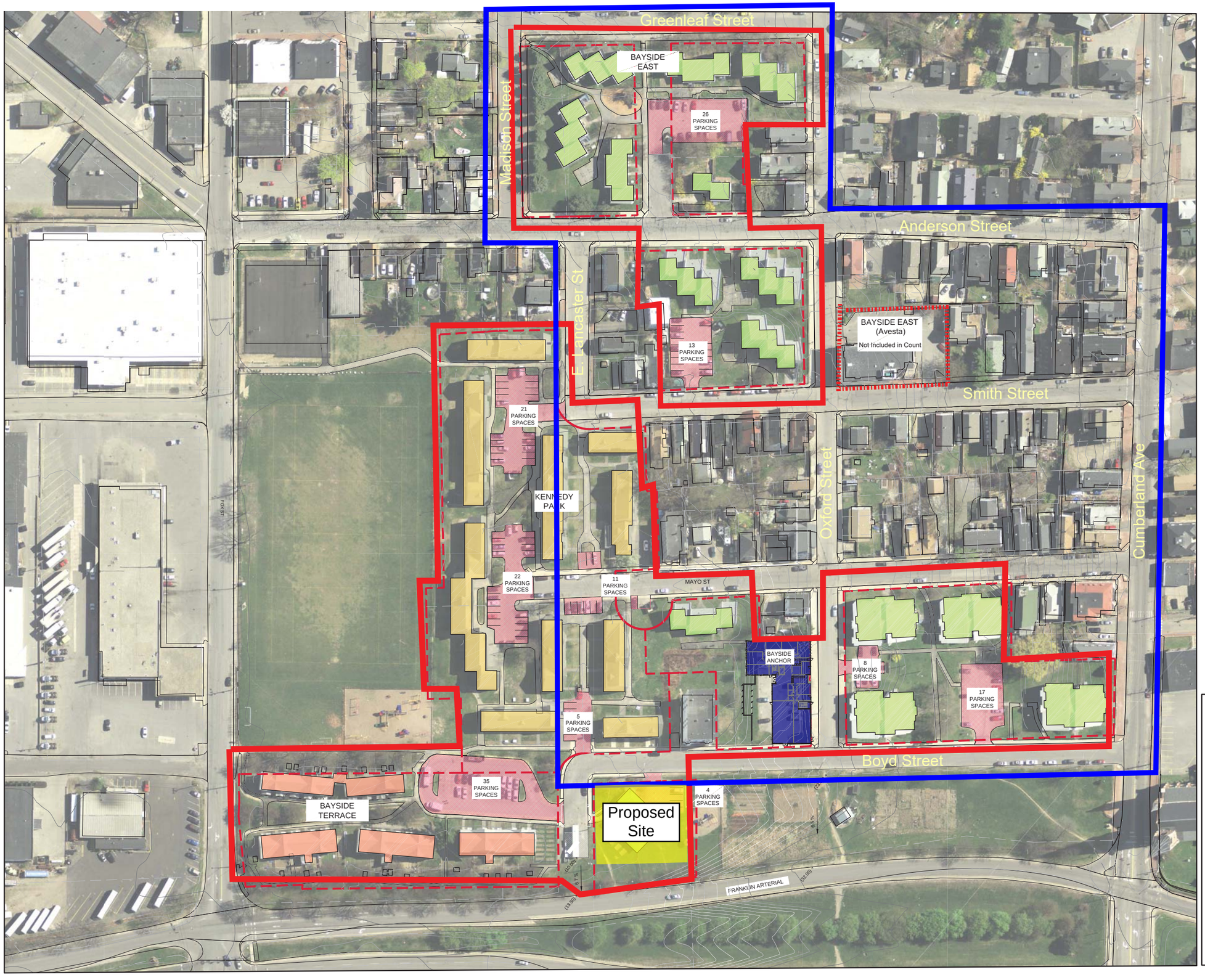
Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18933	18939	194612	0 - 0.05	0560333 - 0	0.05	2	3	0	0	1	0	2	33.3	0.00008	11911.85	1670.66	7.13
0509353 POR,E.OXFORD,GREENLEAF ST.				RD INV 05 60333											Statewide Crash Rate: 401.89		
18938	18939	194618	0 - 0.03	0560333 - 0.05	0.03	2	0	0	0	0	0	0	0.0	0.00006	0.00	1393.33	0.00
0509358 POR,GREENLEAF,MADISON ST.				RD INV 05 60333											Statewide Crash Rate: 401.89		
18939	18940	194620	0 - 0.06	0560509 - 0	0.06	2	1	0	0	0	0	1	0.0	0.00006	5248.52	1518.89	3.46
0509359 POR,MONROE,GREENLEAF ST.				RD INV 05 60509											Statewide Crash Rate: 401.89		
18933	18934	194610	0 - 0.01	0560235 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1319.49	0.00
0509353 POR,E.OXFORD,GREENLEAF ST.				RD INV 05 60235											Statewide Crash Rate: 401.89		
18934	19464	194614	0 - 0.06	0560235 - 0.01	0.06	2	3	0	0	0	0	2	0.0	0.00016	6088.28	1713.59	3.55
0509354 POR,CLEEVE,E.OXFORD ST.				RD INV 05 60235											Statewide Crash Rate: 401.89		
18933	18936	194611	0 - 0.04	0560561 - 0	0.04	2	2	0	0	0	0	2	0.0	0.00009	7247.95	1698.70	4.27
0509353 POR,E.OXFORD,GREENLEAF ST.				RD INV 05 60561											Statewide Crash Rate: 401.89		
18934	18937	194613	0 - 0.08	0560139 - 0	0.08	2	2	0	0	0	0	2	0.0	0.00014	4816.68	1732.02	2.78
0509354 POR,CLEEVE,E.OXFORD ST.				RD INV 05 60139											Statewide Crash Rate: 401.89		
18916	19464	194585	0 - 0.02	0560235 - 0.07	0.02	2	1	0	0	0	0	1	0.0	0.00006	5248.52	1518.89	3.46
0509336 POR,SMITH,E.OXFORD ST.				RD INV 05 60235											Statewide Crash Rate: 401.89		
18916	18923	194584	0 - 0.05	0560235 - 0.09	0.05	2	0	0	0	0	0	0	0.0	0.00003	0.00	413.96	0.00
0509336 POR,SMITH,E.OXFORD ST.				RD INV 05 60235											Statewide Crash Rate: 401.89		
18920	18923	194591	0 - 0.05	0560235 - 0.14	0.05	2	1	0	0	0	0	1	0.0	0.00003	13046.31	-222.74	0.00
0509340 POR,BOYD,E,OXFORD ST.				RD INV 05 60235											Statewide Crash Rate: 401.89		
18919	18920	194589	0 - 0.08	0560069 - 0	0.08	2	6	0	0	1	0	4	20.0	0.00014	14450.03	1732.02	8.34
Int of BOYD ST CUMBERLAND AV				RD INV 05 60069											Statewide Crash Rate: 401.89		
18920	18921	194590	0 - 0.07	0560069 - 0.08	0.07	2	5	0	0	0	0	5	0.0	0.00010	15949.04	1723.62	9.25
0509340 POR,BOYD,E,OXFORD ST.				RD INV 05 60069											Statewide Crash Rate: 401.89		
18922	18923	194592	0 - 0.08	0560493 - 0	0.08	2	2	0	0	0	0	2	0.0	0.00008	8153.95	1660.78	4.91
Int of CUMBERLAND AV MAYO ST				RD INV 05 60493											Statewide Crash Rate: 401.89		
18923	18924	194593	0 - 0.08	0560493 - 0.08	0.08	2	1	0	0	1	0	0	100.0	0.00006	5884.29	1421.12	4.14
Int of E OXFORD ST MAYO ST				RD INV 05 60493											Statewide Crash Rate: 401.89		
18918	18924	194588	0 - 0.04	0560834 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2659.59	0.00
Int of KENNEDY PARK SMITH ST				RD INV 05 60834											Statewide Crash Rate: 401.89		
18916	18917	194583	0 - 0.07	0560666 - 0.14	0.07	2	2	0	0	0	0	2	0.0	0.00012	5493.19	1735.02	3.17
0509336 POR,SMITH,E.OXFORD ST.				RD INV 05 60666											Statewide Crash Rate: 401.89		
18917	18918	194586	0 - 0.01	0560666 - 0.21	0.01	2	0	0	0	0	0	0	0.0	0.00001	0.00	-6335.84	0.00
0509337 POR,SMITH,E.LANCASTER ST				RD INV 05 60666											Statewide Crash Rate: 401.89		
18917	18932	194587	0 - 0.04	0560234 - 0	0.04	2	3	0	0	0	1	2	33.3	0.00006	17698.49	1418.64	12.48
0509337 POR,SMITH,E.LANCASTER ST				RD INV 05 60234											Statewide Crash Rate: 401.89		
18915	18916	194580	0 - 0.08	0560666 - 0.06	0.08	2	0	0	0	0	0	0	0.0	0.00011	0.00	1724.41	0.00
Int of CUMBERLAND AV, SMITH ST				RD INV 05 60666											Statewide Crash Rate: 401.89		
Study Years: 3.00				Section Totals:	3.06		109	0	1	7	6	85	12.8	0.04713	770.92	356.91	2.16

Crash Summary I

Sections																
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
				Grand Totals:	3.06		229	0	2	13	28	175	18.8	0.04713	1619.63	479.57	3.38



LEGEND

- EXISTING PARKING
- KENNEDY PARK
- BAYSIDE TERRACE
- BAYSIDE EAST
- BAYSIDE ANCHOR
- PHA LAND HOLDINGS

On-Street Parking Inventory Area

PHA Properties

58 Boyd Street

Existing Parking Supply:

PHA Lots: 162 spaces
On-Street: 348

58 BOYD STREET

-

PARKING COUNT

PORTLAND MAINE

-

BASE MAP BY: CARROLL ASSOCIATES
MODIFICATIONS BY: GORRILL PALMER

0' 60' 120'

16. Significant Natural Features

The project site is a previously developed urban site. There are no significant plant species, communities, or specimens within the site.

There are no significant natural features on the site.

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Boyd Street Stormwater Management Narrative

Date:	September 24, 2017
To:	City of Portland
From:	John Mahoney, P.E.
Peer Review:	Maureen P. McGlone, P.E.
Location:	58 Boyd Street, Portland, Maine

Existing Conditions:

The site is a 20,939 SF (0.481acre) lot on the south corner of Boyd Street and Lancaster Street. The site is currently occupied by a 3,000 square-foot single story building along with associated parking and walkways, while much of the site is lawn area.

The site drains from southeast to northwest. The eastern portion drains to a catch basin in the parking lot, which connects to the City's drainage system, while the western portion (including the Franklin Street embankment) drains overland to Lancaster Street. While separated stormdrains exist in this area, they recombine to a 44" combined sewer running along the Lancaster Street alignment. The entire site drains to this combined sewer.

Based on the Cumberland County USDA soil survey GIS data, the existing soils on this site are mostly hydrological group C (poorly drained), with a small area in the eastern (uphill) corner being group B (moderately well drained).

Proposed Development:

The applicant, 58 Boyd Street LP, proposes to construct a 6 story apartment building with 55 residential units. The site will have a parking lot with 23 parking stalls, walkways and landscaped areas. The proposed development will increase the site's impervious area from 6,655 square feet to 17,388 square feet.

Stormwater Management – Basic Standards:

Erosion and sedimentation control measures are described on Sheet C5.0. Good housekeeping practices shall be in accordance with Maine DEP Best Management Practices. A post construction stormwater management plan and a stormwater BMP inspection and maintenance log are included with this submission.

Stormwater Management - Quality:

Stormwater treatment will be provided by a rain garden located at entrance to the proposed parking lot. The entire parking lot, as well as the building roof area, will drain into the rain garden. Stormwater treatment will be accomplished as stormwater infiltrates through the FocalPoint high flow biofiltration media. The FocalPoint will be 120 square feet and be underdrained by a 28' by 9' R-Tank system, which will provide a storage volume of 373 cubic feet. The ponding volume above the FocalPoint (rain garden) surface will be 126 cubic feet; the ponding depth is 0.7 feet. As shown on the attached spread sheet, this system is designed to treat 1.6" of runoff over from 20,000 square feet of impervious area. Considering that the total impervious area is 17,388 square feet; the system is conservative and somewhat overdesigned.

The R-Tanks will contain a maintenance row (see attached cut sheet). The maintenance plate row is proposed as an "approved equal" for the Maine DEP's "Isolator Row" requirement for Focal point.

The rain garden at the uphill end of the parking lot (along adjacent City land) shall be considered "ornamental" for the purpose of site plan permitting.

Stormwater Management - Quantity:

While a significant amount of stormwater storage is proposed (529 cubic feet total or approximately 1/2" of rain over the site's *new* impervious area) the applicant is requesting a waiver from the flooding standard for the following reasons.

- Because of the proposed lot coverage and existing topography, it will not be feasible to provide stormwater storage/detention on the surface. Therefore, meeting the flooding standard would require installing a substantial volume of underground storage, which would result in a financial hardship to providing the affordable housing that is proposed.

- Based on initial environmental investigations, onsite soils would be considered *special waste* per Maine DEP Solid Waste Management Rules. Tipping fees for offsite disposal of *special waste* would substantially increase the cost of providing underground stormwater storage.

- The top elevation of the R-Tanks is proposed at elevation 7.75, bottom elevation 6.31, which is within the range of tidal influence during certain tides. Considering that severe weather events often include storm surges and increased tides, the capacity of stormwater storage installed at these elevations would likely be reduced during flooding events.

Hydraulic Analysis:

Stormwater runoff calculations for quantity were made using the HydroCAD 10.0 computer program, which is based on the Soil Conservation Service's TR-20 methodology. Runoff hydrographs are generated based on a standard Type III 24 hour storm.

Runoff Curve numbers were determined based on land coverage and hydro-geological group. A minimum time of concentration (Tc) of 6 minutes was set in the HydroCAD model.

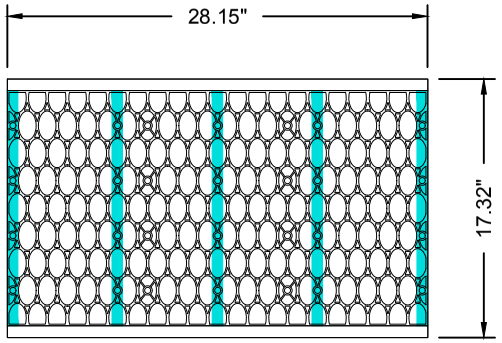
Peak runoff flow rates and runoff volumes are provided at Analysis Point A (SSMH-4765 4733); which is the structure where local sewers and local separated stormdrains junction and discharge into a 44" sewer main that runs along Lancaster Street. The peak flows listed below consider *only* the runoff from the area contained within the site's property boundary.

Considering the elevations proposed for this storage and the history of flooding in this area, the proposed storage may not be available during certain flooding events. This is particularly true for the largest storms and for the underground portion of the storage. For these reasons, the following hydraulic analysis is conservative in that it does not factor in any of the onsite storage we are proposing. Five storm events were modeled as follows (rainfall data extracted by the Maine DEP from the Northeast Regional Climate Center Extreme Precipitation Tables).

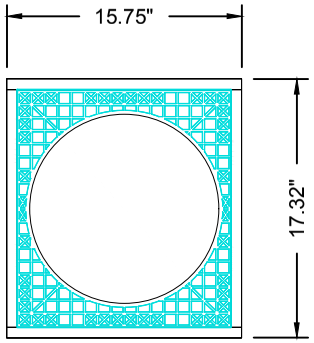
1. 2-year frequency flood event: 3.1" rainfall
2. 10-year frequency flood event: 4.6" rainfall
3. 25-year frequency flood event: 5.8" rainfall

Storm Event	PRE-Development Peak Runoff RATES cubic feet per second (CFS)
	Analysis Point A Upland
2 Year Frequency Storm	0.82
10 Year Frequency Storm	1.53
25 Year Frequency Storm	2.13

Storm Event	POST-Development Peak Runoff RATES cubic feet per second (CFS)
	Analysis Point A Upland
2 Year Frequency Storm	1.32
10 Year Frequency Storm	2.06
25 Year Frequency Storm	2.65



SIDE



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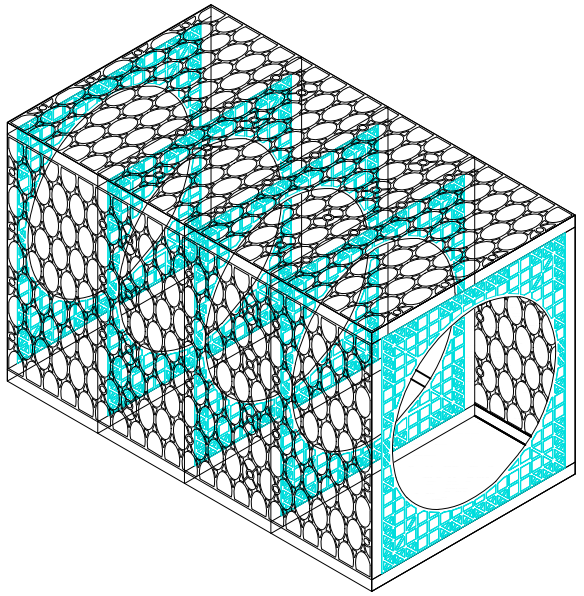

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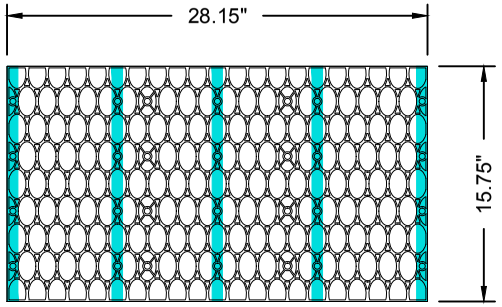


TOP

MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20, (WITH ACF COVER SYSTEM)
MATERIAL:
100% RECYCLED
POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL:
5/5

09/25/2017

R-TANK^{HD} - SINGLE MAINTENANCE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

58 Boyd Street: Stormwater BMP Inspection Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	**58 Boyd Street Apartments**	**Inspection Date:**	
Parcel Map, Block and Lot:	**MAP 69SE, BLK 002, LOT F001**	**Current Weather:**	
BMP Owner:	**Portland Housing Authority**	**Date / Amount Last Precip:**	
Owner Mailing Address:	**14 Baxter Boulevard Portland, Maine**	**3PI Company:**	
		3PI Mailing Address:	
Owner Phone #:	**207-773-4753**		
Owner Email:	**jwaterman@porthouse.org**	**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Vegetated Areas	-
Parking Lot	1
Stormdrain Field Inlets: Harco Drain with Stormsack	2
FocalPoint High Flow Biofiltration Unit	1
R-Tank Subsurface Detention-Infiltration System	1

Other (describe	

C. Inspection Results

FAIL** ☐

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS ☐

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Owner: Portland Housing Authority	**Operator:**
Location & Parcel Id: MAP 69SE, BLK 002, LOT F001	**Inspector:**
	Date:

General Information	**Observations**
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	☐ Yes ☐ No ☐ NA
Nearby natural resources	☐ Yes ☐ No ☐ NA
Copy of ESC plan	☐ Yes ☐ No ☐ NA
MEDEP Permit # (*if applicable*)	
General info notes	

Vegetated Areas	**Observations**
Condition of slopes and embankment is good	☐ Yes ☐ No ☐ NA
No bare areas (< 90% covered) with sparse growth	☐ Yes ☐ No ☐ NA
Armored areas have no rill erosion or the flow diverted to onsite areas can withstand concentrated flows	☐ Yes ☐ No ☐ NA
Vegetated area notes	

Parking Lot	**Observations**
Accumulated winter sand has been cleared	☐ Yes ☐ No ☐ NA
Pavement swept to help remove sediment	☐ Yes ☐ No ☐ NA
No stormwater is impeded by accumulations of material	☐ Yes ☐ No ☐ NA
Parking lot notes:	

Stormdrain Structures (Require inspection TWICE per year)	**Observations**
Accumulated sediments from inflow channels, pipes and sumps between basins have been removed and legally disposed of.	☐ Yes ☐ No ☐ NA
Floating debris and floating oils have been removed.	☐ Yes ☐ No ☐ NA
Debris and Sediment Removed From Harco Stormsack	☐ Yes ☐ No ☐ NA
Stormdrain Structure system notes The Harco Stormsack in the overflow drain shall be inspected every three months for the first year and twice annually after that. It is CRITICAL THAT THE STORMSACK BE MAINTAINED IN ORDER TO PREVENT DEBRIS AND SEDIMENT FROM ENTERING THE R-TANKs.	

FocalPoint High Flow Biofiltration and R-Tank System	**Observations**
Bark Mulch Layer Removed Replaced Annually	☐ Yes ☐ No ☐ NA
Accumulated sediments and debris (trash) within the surrounding ponding (rain garden) area have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Water level observed in inspection all 3 inspection port to ensure that the infiltration area is draining adequately and excessive sediment has not built up.	☐ Yes ☐ No ☐ NA
Eroded areas have been repaired.	☐ Yes ☐ No ☐ NA

FocalPoint/R-Tank notes

If sediment accumulates beyond an acceptable level in the R-Tank storage system, it will be necessary to flush the underdrain. This can be done by pumping water into the Observation/Maintenance Port or adjacent overflow structure, allowing the turbulent flows through the underdrain to re- suspend the fine sediments. The proposed R-Tanks include a maintenance plate row to facilitate this process. Measures shall be taken to capture sediment before discharge to the City's combined sewer.

Other Comments	**Observations**
Corrective action needed	☐ Yes ☐ No ☐ NA

If corrective action in needed, please explain detail

Verbal notification provided to responsible party	☐ Yes ☐ No
Verbal notification contact	
Follow up required	☐ Yes ☐ No

Final comment notes

Photos (*use additional pages as needed*)

Review Notes

Date Reviewed:
Reviewed by:
Date entered:
Date edited:
Edited by:

58 Boyd Street: Post-Construction Stormwater Compliance Requirements

The Applicant shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with the plan as follows:

(a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, rain gardens, pervious pavers, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post- construction stormwater management plan.

(b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services (“DPS”) in the annual report.

(c) *Annual report.* The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.

(d) *Filing fee.* Any persons required to file and annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

23 Ocean Avenue, Portland, Maine

STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT AND RELEASE FROM LIABILITY

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to a plan entitled **58 Boyd Street: C-5.0 Stormwater & Erosion Control Plan** prepared for **58 Boyd Street, LP,** by **Ransom Consulting, Inc**. dated **_____, 2017** recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____ (the "Plan") and pursuant to a condition thereof, **58 Boyd Street, LP** (owner) having a mailing address of **14 Baxter Boulevard, Portland, ME 04101**, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the **rain garden, FocalPoint system, R-Tanks and catch basins** in strict compliance with the Maintenance of Facilities as described in **58 Boyd Street Stormwater Management Narrative and the 58 Boyd Street Stormwater Inspection and Maintenance Log** (Stormwater Management Plan) dated **_____, 2017** and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the **rain garden, FocalPoint system, R-Tanks and catch basins** thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this_____day of _____, 20__.

_____
By:_____
Its: _____

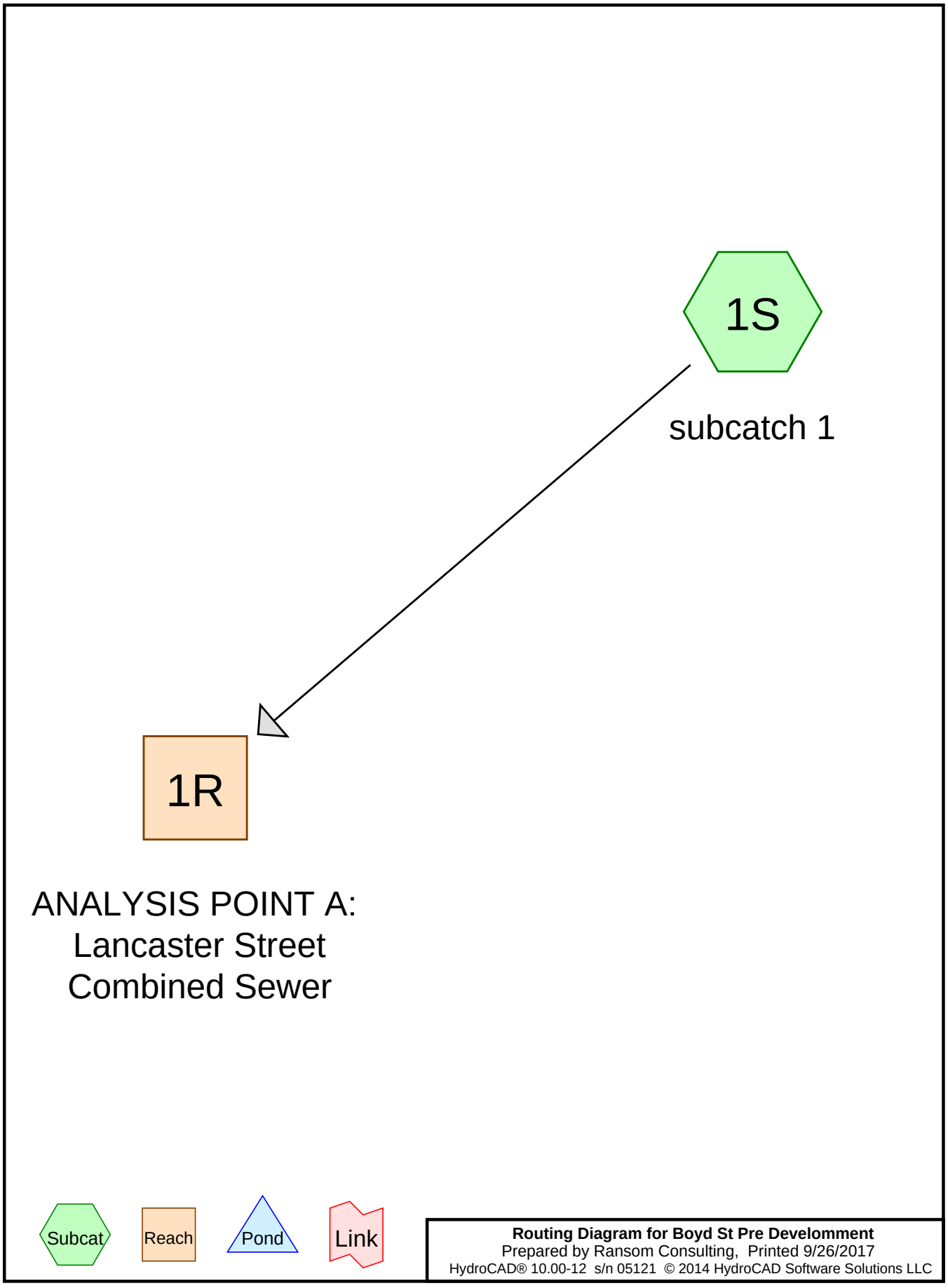
STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named_____, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said_____.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____



Routing Diagram for Boyd St Pre Develomment
Prepared by Ransom Consulting, Printed 9/26/2017
HydroCAD® 10.00-12 s/n 05121 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.328	74	>75% Grass cover, Good, HSG C (1S)
0.153	98	Paved parking, HSG C (1S)
0.481	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.481	HSG C	1S
0.000	HSG D	
0.000	Other	
0.481		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.328	0.000	0.000	0.328	>75% Grass cover, Good	1S
0.000	0.000	0.153	0.000	0.000	0.153	Paved parking	1S
0.000	**0.000**	**0.481**	**0.000**	**0.000**	**0.481**	**TOTAL AREA**	

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 31.78% Impervious Runoff Depth>1.35"
Tc=6.0 min CN=82 Runoff=0.82 cfs 0.054 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=0.82 cfs 0.054 af
Outflow=0.82 cfs 0.054 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.054 af Average Runoff Depth = 1.35"
68.22% Pervious = 0.328 ac 31.78% Impervious = 0.153 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
6,655	98	Paved parking, HSG C
14,284	74	>75% Grass cover, Good, HSG C
20,939	82	Weighted Average
14,284		68.22% Pervious Area
6,655		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 31.78% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 0.054 af
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 31.78% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=82 Runoff=1.53 cfs 0.102 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=1.53 cfs 0.102 af
Outflow=1.53 cfs 0.102 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.102 af Average Runoff Depth = 2.55"
68.22% Pervious = 0.328 ac 31.78% Impervious = 0.153 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.102 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
6,655	98	Paved parking, HSG C
14,284	74	>75% Grass cover, Good, HSG C
20,939	82	Weighted Average
14,284		68.22% Pervious Area
6,655		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 31.78% Impervious, Inflow Depth > 2.55" for 10-Year event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 31.78% Impervious Runoff Depth>3.57"
Tc=6.0 min CN=82 Runoff=2.13 cfs 0.143 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=2.13 cfs 0.143 af
Outflow=2.13 cfs 0.143 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.143 af Average Runoff Depth = 3.57"
68.22% Pervious = 0.328 ac 31.78% Impervious = 0.153 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 2.13 cfs @ 12.09 hrs, Volume= 0.143 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

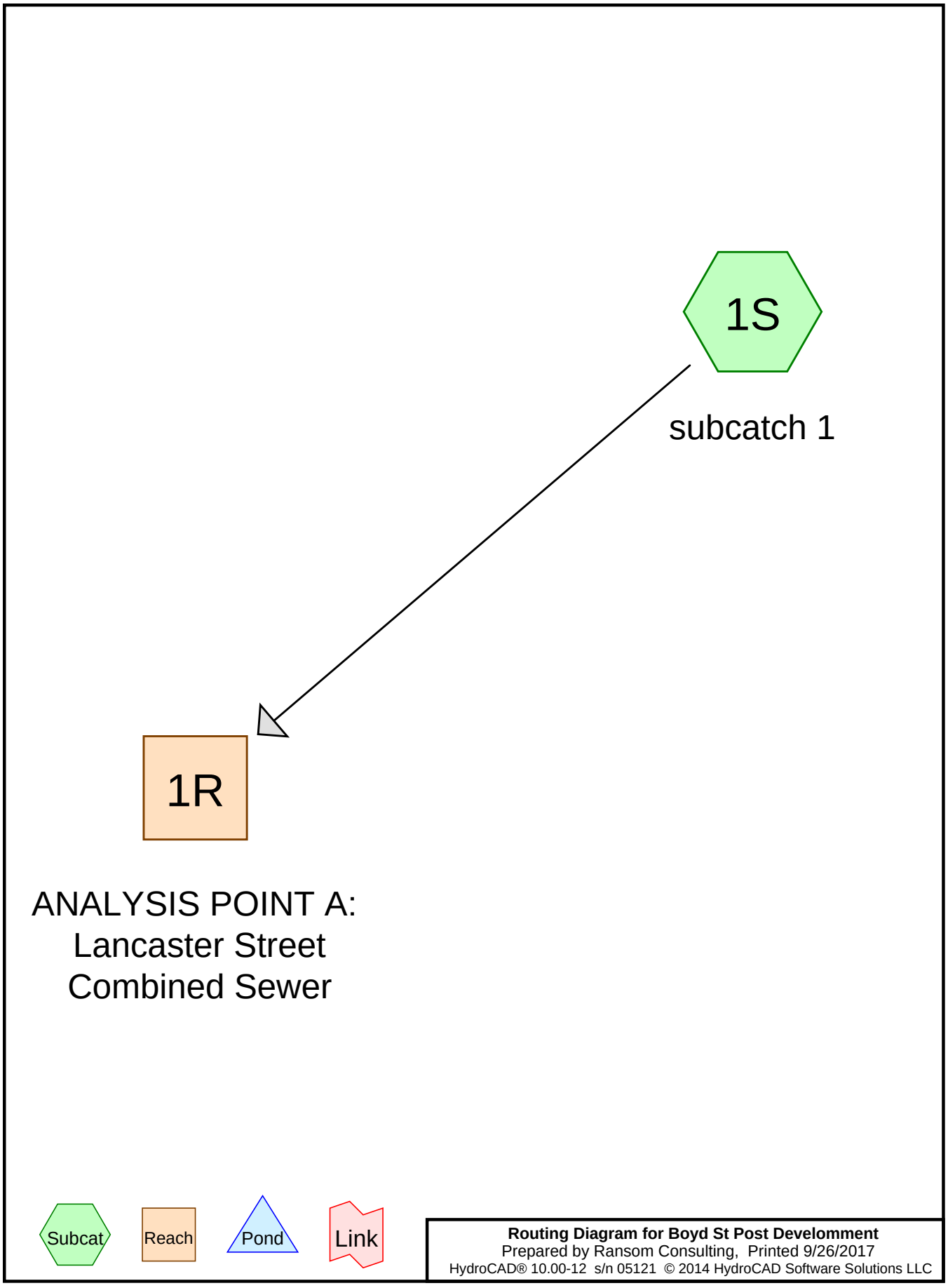
Area (sf)	CN	Description
6,655	98	Paved parking, HSG C
14,284	74	>75% Grass cover, Good, HSG C
20,939	82	Weighted Average
14,284		68.22% Pervious Area
6,655		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 31.78% Impervious, Inflow Depth > 3.57" for 25-Year event
Inflow = 2.13 cfs @ 12.09 hrs, Volume= 0.143 af
Outflow = 2.13 cfs @ 12.09 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3



Routing Diagram for Boyd St Post Develomment
Prepared by Ransom Consulting, Printed 9/26/2017
HydroCAD® 10.00-12 s/n 05121 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.082	74	>75% Grass cover, Good, HSG C (1S)
0.399	98	Paved parking, HSG C (1S)
0.481	**94**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.481	HSG C	1S
0.000	HSG D	
0.000	Other	
0.481		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.082	0.000	0.000	0.082	>75% Grass cover, Good	1S
0.000	0.000	0.399	0.000	0.000	0.399	Paved parking	1S
0.000	**0.000**	**0.481**	**0.000**	**0.000**	**0.481**	**TOTAL AREA**	

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 83.04% Impervious Runoff Depth>2.31"
Tc=6.0 min CN=94 Runoff=1.32 cfs 0.093 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=1.32 cfs 0.093 af
Outflow=1.32 cfs 0.093 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.093 af Average Runoff Depth = 2.31"
16.96% Pervious = 0.082 ac 83.04% Impervious = 0.399 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.093 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
17,388	98	Paved parking, HSG C
3,551	74	>75% Grass cover, Good, HSG C
20,939	94	Weighted Average
3,551		16.96% Pervious Area
17,388		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 83.04% Impervious, Inflow Depth > 2.31" for 2-Year event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 0.093 af
Outflow = 1.32 cfs @ 12.08 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 83.04% Impervious Runoff Depth>3.71"
Tc=6.0 min CN=94 Runoff=2.06 cfs 0.149 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=2.06 cfs 0.149 af
Outflow=2.06 cfs 0.149 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.149 af Average Runoff Depth = 3.71"
16.96% Pervious = 0.082 ac 83.04% Impervious = 0.399 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 2.06 cfs @ 12.08 hrs, Volume= 0.149 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
17,388	98	Paved parking, HSG C
3,551	74	>75% Grass cover, Good, HSG C
20,939	94	Weighted Average
3,551		16.96% Pervious Area
17,388		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 83.04% Impervious, Inflow Depth > 3.71" for 10-Year event
Inflow = 2.06 cfs @ 12.08 hrs, Volume= 0.149 af
Outflow = 2.06 cfs @ 12.08 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: subcatch 1 Runoff Area=20,939 sf 83.04% Impervious Runoff Depth>4.85"
Tc=6.0 min CN=94 Runoff=2.65 cfs 0.194 af

Reach 1R: ANALYSISPOINT A: Lancaster Street Combined Sewer Inflow=2.65 cfs 0.194 af
Outflow=2.65 cfs 0.194 af

Total Runoff Area = 0.481 ac Runoff Volume = 0.194 af Average Runoff Depth = 4.85"
16.96% Pervious = 0.082 ac 83.04% Impervious = 0.399 ac

Summary for Subcatchment 1S: subcatch 1

Runoff = 2.65 cfs @ 12.08 hrs, Volume= 0.194 af, Depth> 4.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
17,388	98	Paved parking, HSG C
3,551	74	>75% Grass cover, Good, HSG C
20,939	94	Weighted Average
3,551		16.96% Pervious Area
17,388		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Lancaster Street Combined Sewer

Inflow Area = 0.481 ac, 83.04% Impervious, Inflow Depth > 4.85" for 25-Year event
Inflow = 2.65 cfs @ 12.08 hrs, Volume= 0.194 af
Outflow = 2.65 cfs @ 12.08 hrs, Volume= 0.194 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

FOCALPOINT

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM

58 BOYD STREET APARTMENTS

MAINE – CHAPTER 500 DESIGN WORKSHEET/CHECKLIST

1. FocalPoint Bed Area (min 174 square feet per acre of impervious area (e.g. 0.2 acres = 35 sf))

- Tributary Impervious area = 0.46 ac. (A)
- Tributary Pervious area = 0.00 ac. (B)
- Min FocalPoint bed area req'd = (((A) x 1.0) + ((B) x 0.4)) * 174 = 80 sf.
- FocalPoint Bed Area provided * = 120 sf.
- Dimensions of Proposed FocalPoint = 5 ft x 24 ft

* see criteria 2. to determine if minimum size is appropriate.

2. A 0.95 inch Type III 24hr rainfall event shall be modelled to demonstrate the entire storm volume is treated prior to activation of the overflow (typically set at 6-12" above the mulch) note – to provide the 1.6" treatment – the 0.95" event was multiplied by 1.6 = 1.52 inch storm to treat the larger volume.

- Temporary storage depth provided = 8 inches inches (typ 6" to 12")
- Temporary storage volume provided at above depth = 161 cubic feet.
- Peak ponding depth from 1.52" 24hr storm event = 8 inches

3. Ratio of the surface area of the filter media (sf) to the temporary ponding volume (cf) shall be no less that 1:5

- Ratio of FocalPoint Bed Area : Temporary Storage Vol = 1 : 1.34

4. Subsurface Chamber Treatment Row must be sized to treat the peak flow from a 1 yr-24hr storm event.

- 1yr 24hr Peak Flowrate = 1.16 cfs
- Chamber model selected
  - Cultec 330 XLHD (1 chamber per 0.227 cfs) ☐
  - Cultec 150XLHD (1 chamber per 0.185 cfs) ☒

- Number of Chambers required = 7

5. Controlled release of the Channel Protection over 24-48 hrs

- Controlled release of the channel protection volume is being achieved by:
  - Expanded subsurface storage basin with OCS ☐
  - Surface detention basin with OCS ☐

6. The Design shall be reviewed by the manufacturer's representative prior to submission and installation will be overseen by the manufacturer's representative.

- The Design has been reviewed by ACF Environmental ☐
- Engineer will coordinate installation inspection with ACF ☐

Contact ACF Environmental at 1800 448 3636 with any questions
or contact Rob Woodman – Senior Stormwater Engineer at rwoodman@acfenv.com

18. City Master Plans

All portions of the proposed site plan have, to the best of our knowledge, been designed to be consistent / compliant with the following City related Master Plans:

- **Comprehensive Plan 2017**
- **Bayside Transportation Master Plan**
- **Reclaiming Franklin Street**

19. Utility Capacity to Serve Letters

We have requested letters from the appropriate utility companies expressing their ability to serve the project, and will submit these to the City once received.

The following utilities will service the project:

Utility	Provider	Location
Water Service *	Portland Water District	Boyd Street
Sanitary Sewer *	City of Portland	Boyd Street
Stormdrain	City of Portland	Boyd Street
Power *	Central Maine Power	Boyd Street
Tele/Comms	Verizon	Boyd / Lancaster Street
Cable	Time Warner Cable	Boyd / Lancaster Street
Gas *	Unitil	Boyd / Lancaster Street

* Letters of capacity to serve have been requested from these utility companies.

RANSOM
Consulting, Inc.

Consulting
Engineers
and Scientists

September 26, 2017

Project 161.06034

MEANS Division, Portland Water District
225 Douglass Street
PO Box 3553
Portland, Maine 04104-3553

RE: Request for Capacity to Serve Determination.
Proposed 55 Unit Apartment Development
58 Boyd Street, Portland

To whom it may concern:

This letter is requesting a determination of whether the Portland Water District has the capacity to serve a proposed development located at 58 Boyd Street in Portland. The development will be a 6 story tower with office space on the first floor. Please see attached *Peak Flow Based on Fixture Count Spreadsheet*.

Enclosed, to assist in your review, is utility plan. We propose to construct a new 4" ductile iron domestic service and a 6" ductile iron fire service. Each service will have its own valve for independent operation. Please let us know whether this proposed configuration is acceptable in terms of capacity and operation, and provide us with any specific service connection requirements. This development will have a sprinkler system for fire protection.

Please let me know if you have any questions or would like additional information: (207) 772-2891.

Sincerely,

John Mahoney

John Mahoney, P.E.
Project Engineer

Enclosure: Peak Flow Based on Fixture Count Spreadsheet & Utility Plan for 58 Boyd Street

400 commercial street, suite 404, portland, maine 04101, tel (207) 772-2891, fax (207) 772-3248
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
12 Kent Way, Suite 100, Byfield, Massachusetts 01922, Tel (978) 465-1822
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160

www.ransomenv.com

Peak Flow Based on Fixture Count

Customer	58 Boyd Street, LP
Street Address	58 Boyd Street
City	Portland

Fixture	**Fixture Value 60 psi**		**No. of Fixtures**		**Fixture Value**
Bathtub	8	x	27	=	216
Bedpan Washers	10	x		=	0
Bidet	2	x		=	0
Dental Unit	2	x		=	0
Drinking Fountain - Public	2	x		=	0
Kitchen Sink	2.2	x	57	=	125.4
Lavatory	1.5	x	60	=	90
Showerhead (Shower Only)	2.5	x	28	=	70
Service Sink	4	x		=	0
Toilet -Flush Valve	35	x		=	0
-Tank Type	4	x	59	=	236
Urinal -Pedestal Flush Valve	35	x		=	0
-Wall Flush Valve	16	x		=	0
Wash Sink (Each Set of Faucets)	4	x		=	0
Dishwasher	2	x		=	0
Washing Machine	6	x	5	=	30
Hose (50 ft. Wash Down) -1/2 in.	5	x		=	0
-5/8 in.	9	x		=	0
-3/4 in.	12	x	3	=	36

Combined Fixture Value Total 803.4

Customer Peak Demand From Fig. 4-2 or 4-3	
Pressure Factor From Table 4-1	

No. of Irrigation Sections (Areas of 100 sq. ft.)	
Irrigation Factor (1.16-Spray Systems, 0.40-Rotary Systems)	

Hose Bibs for Irrigation:

Size	Fixture Value	No. of Fixtures
1/2"		
5/8"		
3/4"		

Total Fixed Demand (Peak Flow) **0** **gpm**

20. Solid Waste

All residential and office waste will be stored in appropriate trash/recycling containers internally in a trash room located on the south side of the building. These containers will be serviced by an independent solid waste contractor, on a regular basis. It will be the job of the building maintenance to move the trash/recycling receptacles out for the independent contractor.

All waste generated from the site preparation, general site work, and building construction will be collected and sorted/separated on-site in containers and disposed of properly, off-site, by the general contractor.

21. Code Summary

Enclosed are a summary / analysis of the following building and fire codes:

1. NFPA 1 - 2006
2. IBC - 2015 + NFPA 101 - 2009

58 Boyd Street Apartments					**CWS Architects**
Portland, ME					**12-Sep-17**
Principal Codes, Standards and Review Authorities Applicable to Project:					
Program (Owner):	**A.**	Portland Housing Authority			Phone: 207-773-4753
		14 Baxter Boulevard			
		Portland, ME 04101			
Land Use:	A.	Portland Zoning Ordinance	Marge Schuckel		Phone: 874-8719
		Portland Planning Department			
IBC Building Code Review:	A.	ICC: International Building Code, 2015 edition			
		City of Portland Code Enforcement Office			Phone: 874-8703
	B.	Portland Fire Department			Phone: 874-8400
					Fax: 874-8410
NFPA Fire Code Review:	A.	NFPA including 101 Life Safety Code, 2009 edition, NFPA 1			
		State Fire Marshall's Office			Phone: 624-8744
					Fax: 624-8767
	B.	Portland Fire Department			Phone: 874-8400
					Fax: 874-8410
Accessibility:	A.	ICC: International Building Code, 2015 edition (Per City of Portland)			Phone: 874-8703
		Portland Code Enforcement Officer			Fax: 874-8716
	B.	ANSI 117.1 – 2009 per IBC 2015			
	C.	Maine Human Rights Act, ANSI A117.1 – 2009			Phone: 624-8744
		State Fire Marshalls Office			Fax: 624-8767
Mechanical:	A.	ICC: International Energy Conservation Code, 2015 edition			Phone: 874-8703
		Portland Code Enforcement Officer			Fax: 874-8716
		ASHRAE 90.1 2007 / IECC 2015			
		Per MUBEC			
Plumbing:	A.	Maine State Plumbing Code			Phone: 874-8703
		Portland Code Enforcement Officer			
Electrical:	A.	National Electrical Code, 2011 Edition (Pending 2014 Adoption)			Phone: 874-8694
		City Requirement			Fax: 874-8716
		National Electrical Code, 2011 Edition (Pending 2014 Adoption)			
		State Requirement			
Public Works – Traffic:	A.	Site Plan Review			Phone: 874-8891
		Traffic Engineer			
Public Works – Engineering:	A.	Technical and Design Standards Guidelines, City of Portland			Phone: 874-8846
					Fax: 874-8852

Code Analysis

		IBC 2015		NFPA 101 - 2009	
Category	**Reference**	**Code Requirements**	**Reference**	**Code Requirements**	Proposed
Use Group	310.4	R-2 Apartments	6.1.8.1.5	Residential - New Apartment Building, Re: 30.1.1.2	55 apartments
		B Business (Separated)	6.1.11	Business Occupancy < 300	1 Hour Separated Occupancy
		A-2 Assembly (Accessory per 508.2)	6.1.2	Assembly Use (Space) < 50	Mixed Occupancy
Building Construction	Table 601				
	Ground Level	Type 2A - Non-Combustible Protected		Type II (111)	Protected Steel Frame & Concrete Deck
	Upper Five Levels	Type 3B - Combustible Unprotected		Type III (000)	New Protected Fire-Retardant-Treated Exterior Wood Frame structure
Height & Area Limitations					
Max allowable height	Tables 504.3/504.4	1+5 Stories (Section 510) / 75' above 3-hour second floor deck			7807 SF 6th
					8260 SF 5th
					8260 SF 4th
Max allowable area	Table 506.2	48,000 SF			8260 SF 3rd
Frontage Increase		50% frontage = 25% increase (+12000)			8260 SF 2nd
					7771 SF 1st
		60,000 Total			48,618 SF total
IBC Stories					6
IBC Stories above grade plane	Story Above Grade Plane is defined by IBC as any story having its finished floor entirely above the grade plane or in which the finished surface of the floor next above is more than 6' above grade plane or more than 12' above the finished ground level at any point.				6
	1002 - Level of Exit Discharge is defined by IBC as the story at the point at which an exit terminates and exit discharge begins.				First floor discharge
NFPA Stories	Story is defined by NFPA as the portion of a building located *between* the upper surface of a floor and the upper surface of the floor or roof next above.				6
NFPA Stories in Height	Stories in Height is defined by NFPA the story count starting with the level of exit discharge and ending with the highest occupiable story containing the occupancy considered.				6
	Opccupiable Story is defined by NFPA as a story occupied by people on a regular basis.				Sixth Floor
	Level of exit discharge is defined by NFPA as the story that is either (1) the lowest story from which not less than 50 percent of the required number of exits and not less than 50 percent of the required egress capacity from such a story discharge directly to the outside at the finished ground level; or (2) where no story meets the conditions of item (1), the story that is provided with one or more exits that discharge directly to the outside to the finished ground level via the smallest elevation change.*				First floor discharge
Fire Ratings	508.3/509.4	Separated uses: Office Space (Business) See IBC Code Calculations	6.1.14.1.3	Storage Occupancy Aand Business; Permitted as incidental use to the Apartment Occupancy	1 Hour Separation
			6.1.14.1.3	Small assembly use of less than 50 per room permitted non-separated from Residential Occupancy	
	Table 601	Fire Resistance Rating Requirements for Building Elements: See IBC Code Calculations	8.2.1.2	Fire Resistance Ratings for Type 2 (111) and Type 3 (111) Construction (hours)	
	Table 1020.1	Exit access corridors - 1/2 hour (with sprinkler system)	30.3.6.1.2	Exit access corridors - 1/2 hour	1/2 hour (1 hour protected wood frame provided)
	.		30.3.6.2	Exit access corridor doors - 20-minute self-closing & latching	20 minute doors, spring hinges
			30.2.2.1.2	Exit Enclosures: 1 Hour (Sprinklered)	1 hour
	1023.2	Fire Enclosure of 6 story Vertical Exit Enclosures - 2 hour			2 hour
	713.4	6 story Shafts & Elevator Hoistways - 2 hr	30.3.1.1.4	6 Story Shafts: 1 Hour (Sprinklered)	2 hour
	708.3	Dwelling Unit Separation Walls - 1 hour	30.3.7.2	Dwelling Unit Separation Walls - 1/2 hour	1 hour
	711.2.4.3	Dwelling Unit Separation Floor/Ceiling - 1 hour	30.3.7.2	Dwelling Unit Separation Floors - 1/2 hour	1 hour
	Table 509	Boiler Rooms over 10 HP - 1 hour **or** automatic fire extinguishing	T 30.3.2.1.1	Boiler Rooms - 1 Hour **and** sprinkler	1 Hour and Sprinklered
	Table 509	Laundry Rooms over 100 s.f. - 1 hour **or** automatic fire extinguishing	T 30.3.2.1.1	Laundries over 100 s.f. - 1 hour **and** sprinklers with smoke partitions	1 Hour and Sprinklered
			T 30.3.2.1.1	Storage rooms outside of dwelling units - 1 hour **or** sprinklers with smoke partitions	Sprinklered
	Table 509	Waste Collection Rooms over 100 s.f. - 1 hour **or** automatic fire extinguishing	T 30.3.2.1.1	Trash collection rooms - 1 hour **and** sprinklers	1 Hour and Sprinklered
Opening Protectives	Table 716.5	1 hour rated Exit access corridors - 20 min.			20 min.

	Table 716.5	1/2 hour rated Exit access corridors - 20 min.	30.3.6.2	Exit access corridor doors - 20-minute self-closing & latching	20 min.
	Table 716.5	1 Hour Barriers - 45 min.			45 min.
	Table 716.5	1 Hour Shafts & Exits - 60 min.			60 min.
	Table 716.5	2 Hour Shafts & Exits - 120 min.			120 min.
Fire Rated Vision Panels	Table 716.5	20 min. opening = Max Tested			As required
	Table 716.5	3/4 hour opening = Max Tested			As required
	Table 716.5	1 hour opening = 100 sq in			
	Table 716.5	1-1/2 hour opening = 100 sq in			As required
Interior Flame Spread Index	Table 803.11	Required vertical exits and passageways - C	30.3.3.2	In exits - Class A	As required
	Table 803.11	Corridors providing exit access - C	30.3.3.2	Lobbies and corridors - Class A or B	As required
	Table 803.11	Rooms or enclosed spaces - C	30.3.3.2	Other Spaces - Class A, B or C	As required
			30.3.3.3	Exit enclosures and corridor floors - Class I or II	As required
Occupant Load	T 1004.1.2	Residential Occupancy = 1/200 GSF	T7.3.1.2	Residential Apartment occupant load = 1/200 SF	
	T 1004.1.2	Accessory storage areas, mechanical equipment room = 1/300 GSF	T7.3.1.2	Storage areas, mechanical equipment rooms = 1/500 GSF	
	T 1004.1.2	Assembly, unconcentrated = 1/15 NSF	T7.3.1.2	Assembly, Less Concentrated = 1/15 NSF	
	T 1004.1.2	Business areas = 1/100 GSF			
Means of Egress	1006	Refer to IBC Code Calculations		Refer to NFPA Code Calculations	
	1009	2 Accessible Means of Egress Required			(1) Stair (1) Elevator
Emergency Lighting	1013.1 (exc. #2)	Exit Signs are required except at approved main exterior exit doors	7.10.1.2	Exit Signs are required except at obvious main exterior exit doors	Provided
	1008	Emergency lighting is required except in dwelling units	30.2.9	Emergency lighting is required	Provided
Fire Suppression Systems	903.2.8	Sprinkler Required: 13,13R or 13D	30.3.5.1	NFPA 13 or 13R Sprinklers Required	NFPA 13 Provided
Standpipes	905.3.1	(2) Class 1 Standpipes Required			(2) Class 1 Standpipes Provided
Fire Alarm Systems	907.2.9	Full Fire Alarm System is Required	30.3.4.1.1	Full Fire Alarm System Required	Provided
Smoke Detetectors	907.2.11.2	Smoke Detectors Required in units	30.3.4.5	Required in **and** outside every sleeping area	Provided
Extinguishment requirements	906	Portable fire extinguishers shall be installed as per NFPA 10	30.3.5.12	Not Required	Provided
Elevators	**Section**	**Summary Discription**			
Construction	713	Constructed per 703.2.1: 2 Hour if 4 stories or more			
Lobby	3006 (Formerly 708.14)	Elevator Lobby separation from corridor not required per 3006.2			
	Table 716.5	2 Hour Shaft Openings: 1 1/2 Hour			
Means of Egress	1003.7	Elevators may be used as a Means of Egress in accordance with 1009.4			
Accessibility	1007.1	Accessible means of egress required from all accessible spaces.			
	1009.2.1	Four or more stories above a level of exit discharge, at least one accessible means of egress shall be an elevator per 1007.4			
	1009.3	One stair is used as an Accessible Means of Egress (Stair B)			
Car Size	3002.4	Ambulance Stretcher sizing required.			
Standby Power	1009.4	Standby Power is Required because Elevator is used as one Accessible Means of Egress.			
Fire Service	403.6.1	Not Required			
Emergency Operations	3003.2	Phase I Recall and Phase II in-car operation required			

58 Boyd Street Apartments				**CWS Architects**
Portland, ME				**12-Sep-17**
Code Analysis				
		NFPA 1 - 2006		
Category	**Reference**	**Code Requirements**		Proposed
Use Group	6.1.8.1.5	Apartment Building		55 apartments
	6.1.11.1	B Business (Separated)		1 Hour Separated Occupancy
	6.1.2.2	A-2 Assembly (Accessory <50)		Mixed Occupancy
Fire Protection Markings	10.12.1	Premises Shall be marked		
	10.12.2	Shaftway entrances shall be marked		
	10.12.3	Stairway landings shall be marked		
	14.6.4	Stairway landings shall be marked		
Building Construction				
	12.2.1	Type II (111)		Protected Steel Frame & Concrete Deck
	12.2.1	Type III (000)		New Protected Fire-Retardant-Treated Exterior Wood Frame structure
Fire Ratings	12.7.1	Per NFPA 101		
Opening Protectives	Table 12.7.4.2	1 hour rated Exit access corridors - 20 min.		20 min.
		1/2 hour rated Exit access corridors - 20 min.		20 min.
		1 Hour Barriers - 45 min.		45 min.
		1 Hour Shafts & Exits - 60 min.		60 min.
		2 Hour Shafts & Exits - 90 min.		120 min. per IBC
Occupant Load	T 114.8.1.2	Residential Occupancy = 1/200 GSF		
	T 114.8.1.2	Accessory storage areas, mechanical equipment room = 1/500 GSF		
	T 114.8.1.2	Assembly, unconcentrated = 1/15 NSF		
	T 114.8.1.2	Business areas = 1/100 GSF		
Means of Egress	1006	Refer to Code Calculations	.3" at stair / 36"	
	14.9	2 Accessible Means of Egress Required	.2" at level components / 36"	
Emergency Lighting	14.14	Exit Signs are required except at approved main exterior exit doors		Provided
	14.12/14.13	Emergency lighting is required except in dwelling units		Provided
Fire Suppression Systems	13.3.2.15.1	Sprinkler Required: 13,13R or 13D		NFPA 13 Provided
Standpipes	13.2.2.2	Class 1 Standpipes Required		(2) Class 1 Standpipes Provided per IBC
Fire Alarm Systems	13.7.2.11	Full Fire Alarm System is Required		Provided
Smoke Detetectors	13.7.2.11	Smoke Detectors Required in units		Provided
Extinguishment requirements	13.6	Portable fire extinguishers shall be installed as per NFPA 10		Provided
Elevators	**Section**	**Summary Discription**		
Lobby	14.9.1.6	Elevator Lobby shall have access to at least one exit.		
Accessibility	14.10.4.1	Two Accessible means of egress required from all accessible spaces. (Remoteness not required per 14.10.4.2.2)		
	14.10.4.7	At least one accessible means of egress shall be an elevator designed per 14.10.4.5		
		One stair is used as an Accessible Means of Egress (Stair B)		
Standby Power	101: 7.5.4.5	Standby Power is Required because Elevator is used as one Accessible Means of Egress.		
Fire Service	101:9.4.3.2	Conform to ASME A17.1		
Emergency Operations	101:9.4.3.2	Conform to ASME A17.1		

22. City Design Manual Standards

Design Standards contained within Site Plan Standards (Section 14-526) of the Land Use Ordinance and standards outlined in the City of Portland Design Manual apply to this project.

- **SECTION 14-143: R-7 DESIGN STANDARDS**

  RESPONSE: To the best of our knowledge the proposed site plan adheres to the standards outlined in Section 14-143.

- **SECTION 14-526: SITE PLAN STANDARDS**

  RESPONSE: To the best of our knowledge the proposed site plan adheres to the standards outlined in Section 14-526.

- **CITY OF PORTLAND DESIGN MANUAL: TWO-FAMILY, SPECIAL NEEDS INDEPENDENT LIVING UNITS, MULTIPLE-FAMILY, LODGING HOUSES, BED AND BREAKFASTS, AND EMERGENCY SHELTERS**

  RESPONSE: To the best of our knowledge the proposed site plan adheres to the standards outlined in Design Manual.

GREENHECK
Building Value in Air.

P.O. Box 410
Schofield, WI 54476

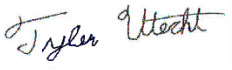
Phone: 715.359.6171
www.greenheck.com

September 15, 2017

Subject: Greenheck Indirect Gas Furnaces

Greenheck's indirect gas fired furnaces are ETL listed. In order to be listed by ETL the furnaces must meet ANSI Z83.8 requirements for performance and emissions.

Sincerely,



Tyler Utecht
Energy Recovery/DOAS Product Manager
Tempered Air Products
Greenheck Fan Corporation
Off 715-355-2201

2012
WISCONSIN
MANUFACTURER
OF THE YEAR

Certificate US95/0189

The management system of

Kohler Power Systems, a Business Unit of Kohler Co.

N7650 Lakeshore Drive (known as Mosel Plant)
Sheboygan, WI, 53083, United States

has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

Design, manufacture, and distributor support for electrical generators, alternators, automatic transfer switches, and switchgear.

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organization

This certificate is valid from 6 November 2015 until 15 September 2018 and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 12 : 14 October 2015. Certified since November 2003

This is a multi-site certification.
Additional site details are listed on subsequent pages.

Authorized by

John Woodman
Senior Vice President SSC, North America
SGS Systems & Services Certification, a Division of SGS North America, Inc.
201 Route 17 North, Rutherford, NJ 07070, USA
t (201) 508-3000 f (201) 935-4555 www.us.sgs.com

This certificate remains the property of SGS and shall be returned upon request

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Kohler Power Systems, a Business Unit of Kohler Co.

ISO 9001:2008

Issue 12 : 14 October 2015

Additional facilities

.300 N. Dekora Woods Blvd., Saukville, WI 53080 (Known as Sauk)
Scope: Manufacturer of fuel tanks, skids, fabricated components, enclosures, and assembly of enclosures and generators.

4327 County EE, Sheboygan, WI 53081 (Known as KWIP Warehouse)
Scope: Receiving and storage of generator components & receiving and shipping of generator sets.

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Kohler Standby/Prime Generator Set Test Program

Testing is an integral part of quality assurance. In keeping with our uncompromising commitment to quality, safety, and reliability, every Kohler Standby/Prime power generator set undergoes an extensive series of prototype and production testing.

Prototype Testing

Prototype testing includes the potentially destructive tests necessary to verify design, proper function of protective devices and safety features, and reliability expectations. Kohler's prototype testing includes the following:

- Alternator temperature rise test per NEMA MG1-32.6. Standby and prime ratings of the alternator are established during this test.
- Maximum power test to assure that the prime mover and alternator have sufficient capacity to operate within specifications.
- Alternator overload test per NEMA MG1-32.8.
- Steady-state load test to ensure voltage regulation meets or exceeds ANSI C84.1, NEMA MG1-32.17 requirements and to verify compliance with steady-state speed control specifications.
- Transient test to verify speed controls meets or exceeds specifications.
- Transient load tests per NEMA MG1-32.18, and ISO 8528 to verify specifications of transient voltage regulation, voltage dip, voltage overshoot, recovery voltage, and recovery time.
- Motor starting tests per NEMA MG1-32.18.5 to evaluate capabilities of generator, exciter, and regulator system.
- Three-phase symmetrical short-circuit test per NEMA MG1-32.13 to demonstrate short circuit performance, mechanical integrity, ability to sustain short-circuit current.
- Harmonic analysis, voltage waveform deviation per NEMA MG1-32.10 to confirm that the generator set is producing clean voltage within acceptable limits.
- Generator set cooling and air flow tests to verify maximum operating ambient temperature.
- Reliability tests to demonstrate product durability, followed by root cause analysis of discovered failures and defects. Corrective action is taken to improve the design, workmanship, or components.
- Acoustical noise intensity and sound attenuation effects tests.

Production Testing

In production, Kohler Standby/Prime generator sets are built to the stringent standards established by the prototype program. Every Kohler Generator set is fully tested prior to leaving the factory. Production testing includes the following:

- Stator and exciter winding high-potential test on all generators. Surge transient tests on stators for generators 180 kW or larger. Continuity and balance tests on all rotors.
- One-step, full-load pickup tests to verify that the performance of each generator set, regulator, and governor meets published specifications.
- Regulation and stability of voltage and frequency are tested and verified at no load, 1/4 load, 1/2 load, 3/4 load, and full-rated load.
- Voltage, amperage, frequency and power output ratings verified by full-load test.
- The proper operation of controller logic circuitry, prealarm warnings, and shutdown functions is tested and verified.
- Any defect or variation from specification discovered during testing is corrected and retested prior to approval for shipment to the customer.

Torsional analysis data, to verify torsional effects are not detrimental and that the generator set will provide dependable service as specified, is available upon request.

Kohler offers other testing at the customer's request at an additional charge. These optional tests include power factor testing, customized load testing for specific application, witness testing, and a broad range of MIL-STD-705c testing. A certified test report is also available at an additional charge.

KOHLER®
POWER SYSTEMS

KOHLER CO. Kohler, Wisconsin 53044
Phone 920-565-3381, Fax 920-459-1646
For the nearest sales/service outlet in the US and Canada, phone 1-800-544-2444
KohlerPowerSystemscom

G18-56 12/05a

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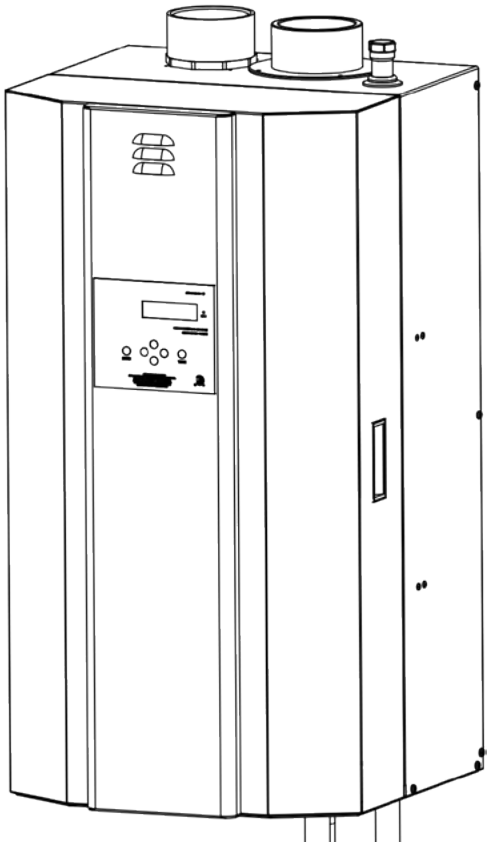
EFT-155 / EFT-199 / EFT-285 EFT-399
Models*

*** "LP" Denotes Propane Gas Operation**

"PU" Denotes Included Pump



Heat Exchanger Bears the ASME "H" Stamp

DANGER

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

WARNING

Improper installation, adjustment, alteration, service, or maintenance could void product warranty and cause property damage, severe personal injury, or death.

California Proposition 65 Warning: This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

NOTICE

HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.

272 Duchaine Blvd. New Bedford, MA 02745 www.htproducts.com
LP-387 Rev. 4.10.17

REPORT

December 5, 2016
16-0606.1 S

Geotechnical Engineering Services

Proposed Apartment Building
58 Boyd Street
Portland, Maine

PREPARED FOR:
Portland Housing Authority
Attn: Jay Waterman
Development Director
14 Baxter Blvd.
Portland, ME 04101

PREPARED BY:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray ME 04039
T: (207) 657-2866

S.W.COLE ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing and Special Inspections*
- *GeoEnvironmental Services*
- *Test Boring Explorations*

www.swcole.com

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Attachment A	Limitations
Sheet 1	Exploration Location Plan
Sheets 2 - 11	Exploration Logs
Sheet 12	Key to the Notes and Symbols
Sheets 13 & 14	Laboratory Consolidation Test Results

DRAFT

16-0606.1 S

December 5, 2016

Portland Housing Authority
Attn: Jay Waterman
Development Director
14 Baxter Blvd.
Portland, ME 04101

Subject: Explorations and Geotechnical Engineering Services
Proposed Apartment Building
58 Boyd Street
Portland, Maine

Dear Jay:

In accordance with our Proposal, dated June 9, 2016, we have performed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information in order to develop geotechnical recommendations relative to foundations, earthwork and pavement associated with the proposed construction. Our scope of services included four test boring explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The project site is located at 58 Boyd Street in Portland, Maine and is currently occupied by a single-story, on-grade community building with associated paved and landscape areas. We understand proposed re-development plans call for razing the existing building in favor of a new six-story apartment building. Proposed finish floor

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elevation will step up to the southeast, varying from 12.25 to 15.16 feet (project datum), generally requiring a tapered fill less than 2.5 feet thick. Based on information provided by CWS Architects (project architect) and Becker Structural Engineers (project structural engineer), we understand the first story will be steel framed with the overlying stories wood-framed. Proposed column loading varies from about 40 to 270 kips. Paved parking is proposed to the southwest of the building which will require a retaining wall adjacent to the Franklin Street embankment. Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Four test borings (B-101 through B-104) were made at the site on July 7 and 8, 2016 by Great Works Test Boring working under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The exploration locations were selected and established in the field by S.W.COLE based on measurements from existing site features and limitations from site utilities.

The approximate exploration locations are shown on the "Exploration Location Plan" attached as Sheet 1. Logs of these borings are attached as Sheets 2 through 11. A key to the notes and symbols used on the logs is attached as Sheet 12.

2.2 Testing

The test borings were drilled using hollow-stem auger and cased, wash-boring techniques. The soils were sampled at 2 to 10 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) techniques. Pocket Penetrometer Testing (PPT) was performed where stiffer cohesive soils were encountered. Vane Shear Testing (VST), Shelby Tube sampling, and rod probing were performed where softer cohesive soils were encountered. SPT blow counts, as well as VST and PPT results, are shown on the logs.

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Moisture Content, Atterberg Limits and Unconfined Compressive Strength test results are noted on the logs. Consolidation test results are attached as Sheets 13 and 14.

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3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Surficial

The approximately rectangular-shaped site is located at 58 Boyd Street in Portland, Maine and is currently occupied by a single-story community building with associated paved and landscape areas. The site is generally bound by Boyd Street to the north and west, community gardens to the east/northeast and the Franklin Street roadway embankment to the south/southwest. Existing grade varies from approximately 11 to 21 feet across the site with most of the relief raising up the Franklin Street embankment.

3.2 Soil and Bedrock

Underlying a surficial layer of topsoil and organics, the test borings encountered a soil profile generally consisting of uncontrolled fill overlying native harbor bottom deposits overlying glaciomarine clay, overlying outwash sands, overlying glacial till and bedrock with depth. The principal strata encountered are summarized below. Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

Uncontrolled Fill: The borings encountered uncontrolled fill consisting of very loose to medium dense sand with varying portions of silt, gravel, and miscellaneous debris such as ash, brick and rubble. The uncontrolled fill varied in thickness from about 10 to 13 feet at the boring locations.

Harbor Bottom Deposits: Underlying the fill, the borings encountered up to about 3 feet of a loose to medium sand with varying portions of silt and relic organics transitioning to soft to medium gray clay with sand seams and shells (bay mud). The bay mud extended to depths varying from about 15 to 20 feet.

Glaciomarine Deposit: Underlying the harbor bottom deposits, the borings encountered a deep deposit of soft to medium gray silty clay (glaciomarine clay). The glaciomarine clay had varying frequency of sand seams and layers, generally becoming more frequent with depth. The glaciomarine clay was penetrated at depths varying from about 52 to 75 feet at the boring locations.

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VST performed in the glaciomarine clay indicates undrained shear strengths of about 500 psf; the sand seams in the glaciomarine clay precluded VST at some attempts. One-dimensional consolidation testing performed on Shelby Tube samples of the glaciomarine clay indicate the deposit is normally consolidated just below the bay mud becoming slightly overconsolidated with depth.

Outwash Sands: Underlying the glaciomarine clays, the borings encountered a deposit of outwash sands. The outwash sands were about 10 feet thick where penetrated.

Glacial Till: Underlying the glaciomarine and outwash soils, the borings encountered glacial till consisting of loose to very dense gray silty sand with varying portions of gravel, cobbles and boulders.

Refusal Surfaces: Refusal surfaces (probable bedrock) were encountered at borings B-103 and B-104 at depths of 113 and 110 feet, respectively. A layer of probable weathered bedrock was penetrated up to 3 feet prior to encountering refusal at these borings.

3.3 Groundwater

The uncontrolled fills were generally damp to moist below approximately 2 feet. Wet to saturated soils were generally encountered at depths varying from approximately 5 to 10 feet. Groundwater likely becomes perched within the uncontrolled fills and on the relatively impervious native clays encountered at the test borings. Groundwater levels are known to be tidally influenced in this area of Portland. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate seasonally, particularly in response to during periods of snowmelt and precipitation, as well as changes in site use and tides.

3.4 Frost and Seismic

The 100-year Air Freezing Index for the Portland, Maine area is about 1,407-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet. Based on the subsurface findings, we interpret the site soils to correspond to Seismic Soil Site Class E according to 2009 IBC.

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4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction will require either ground improvement for spread footings or pile supported foundations. The principle geotechnical considerations are:

- The proposed building is underlain by uncontrolled fill and compressible clays that are prone to adverse settlement under new building and fill loads. In order to mitigate post-construction settlement, we recommend supporting the building foundations on displacement piles, such as closed-ended pipe pile, driven to bearing in the Outwash Sand and Glacial Till deposits. Alternatively, we recommend Controlled Modulus Columns (CMCs) or Geo-Concrete Columns (GCCs) to improve ground conditions for shallow foundation support. For either foundation option, the floor slab may be soil supported after densification of the existing fill soils.

- We recommend existing site improvements, including foundations, slabs, pavements and underground utilities be completely removed beneath proposed building and paved areas and backfilled with compacted Granular Borrow. We recommend the floor slab and paved areas be excavated to a depth at least 2 feet below finished grade and densified with at least 3 passes of a 10-ton vibratory smooth drum roller. Areas that become soft or unstable after proof-rolling must be removed and replaced with compacted Granular Borrow prior to installing slab and pavement gravel.

- The site soils are sensitive to moisture, frost and strength loss. Earthwork and foundation activities should occur during drier, non-freezing weather of Spring, Summer and Fall. We recommend excavation be completed with a smooth-edged bucket to reduce disturbance and strength loss of the native soils.

- The site soils are unsuitable for reuse below building areas, but may be reused beneath paved areas, provided they are at a compactable moisture content and deleterious materials, such as ash and organics, are removed.

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4.2 Site and Subgrade Preparation

We recommend site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, topsoil, foundations, pavement and utilities should be completely removed from areas of proposed building and paved areas. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion.

Building Pad and Foundations: As discussed, uncontrolled fills and weak, compressible glaciomarine clays were encountered beneath the proposed building. We recommend removal of all existing foundations, slabs, pavement and buried utilities beneath the proposed building footprint and backfilling with compacted Granular Borrow. Additionally, we recommend excavating the building to at least 2 feet below finished floor elevation and densifying the uncontrolled fills with at least 2 passes of a 10-ton vibratory roller compactor. Areas that become soft or unstable after densification, must be removed and replaced with compacted Granular Borrow

If the building foundations are supported by driven displacement piles, we recommend pile caps and grade beams be underlain with at least 3 inches of crushed stone to serve as a casting bed. If the building is supported by spread footings on improved ground, we recommend a footing pad of at least 9 inches of compacted Structural Fill overlying 3 inches of compacted Crushed Stone. We recommend floor slabs be underlain by at least 12 inches of compacted Structural Fill.

Paved Areas: Pavement subgrade are anticipated to consist of uncontrolled fill. Pavement subgrades should be overexcavated by at least 2 feet, proof-rolled and densified with several passes of a 10-ton vibratory roller compactor, and backfilled with Granular Borrow. Areas subgrade that become soft or continue to yield after proof-rolling should be removed and replaced with compacted Granular Borrow.

Utility Trenches: Underground utilities are not anticipated to penetrate the uncontrolled fill layer. We recommend adding 1 foot of compacted crushed stone below customary bedding for gravity utilities and associated manholes and vault structures.

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4.3 Excavation, Blasting and Dewatering

Excavation work will generally encounter uncontrolled fill. Care must be exercised during construction to limit soil disturbance. Earthwork and grading activities should ideally occur during drier, non-freezing weather of Spring, Summer and Fall. Final cuts to subgrade should be performed with a smooth-edged bucket to reduce soil disturbance.

Bedrock was not encountered within the planned excavation depths; thus bedrock removal by blasting or hoe-ramming is not anticipated.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Groundwater may be impacted and require special handling or treatment before discharge off-site. Working around tides will help to reduce dewatering efforts and associates costs for treatment and disposal. We recommend dewatering into temporary tanks to allow characterization and treatment of water before discharging off-site.

Excavations must be properly shored or sloped in accordance with OSHA regulations to prevent sloughing and caving of the sidewalls during construction. The design and planning of excavations, excavation support and dewatering is the responsibility of the contractor.

4.4 Foundations

Based on the subsurface findings, we interpret the site soils to correspond to Seismic Soil Site Class E according to IBC 2009/ASCE 7. We recommend foundations exposed to freezing be founded at least 4.5 feet below exterior grades for frost protection.

As discussed, we recommend the building foundations be supported on driven displacement piles, such as closed-ended steel pipe piles. Alternatively, we recommend Controlled Modulus Columns (CMCs) or Geo-Concrete Columns (GCCs) to improve ground conditions for shallow foundation support.

4.4.1 Driven Piles

Driven displacement piles would need to extend through existing fills, bay mud and glaciomarine clays to transfer loads into the underlying outwash sands and glacial till. For the subsurface conditions encountered and the estimated structural loads, we recommend

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consideration of concrete filled closed-end steel pipe pile or pre-cast, pre-stressed concrete pile driven to allowable axial capacities of 40 to 60 tons.

If driven displacement piles are selected, we recommend the contract documents require an engineered submittal with drivability analysis, axial pile capacity, load testing procedures and set or "stop-driving" criteria. The engineered submittal must include splicing, QC and load testing procedures. We recommend dynamic load testing on at least two piles using a Pile Driving Analyzer (PDA) prior to installing production piles. The engineered submittal must be prepared and sealed by a Professional Engineer licensed in the State of Maine and endorsed by the Pile Installer. S.W.COLE should be engaged to review the engineered pile submittal.

4.4.2 Ground Improvement

Controlled Modulus Columns (CMCs) or Geo-Concrete Columns (GCCs) would need to extend through existing fills, bay mud and glaciomarine clays to transfer loads to underlying outwash sand and glacial till. For spread footings bearing on properly improved and prepared ground, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Foundation Walls	
Design Frost Depth	4.5 feet
Net Allowable Soil Bearing Pressure (Improved Ground)	3.0 ksf
Base Friction Factor	0.35
Total Unit Weight of Backfill (compacted Structural Fill)	130 pcf
Internal Friction Angle of Backfill (compacted Structural Fill)	30°
At-Rest Lateral Earth Pressure Coefficient	0.5
Total Post-Construction Settlement (Improved Ground)	1 inch or less
Differential Post-Construction Settlement (Improved Ground)	½ inch or less

If CMCs or GCCs are selected, we recommend the contract documents require an engineered submittal to improve ground conditions to meet or exceed the geotechnical parameters for bearing capacity and settlement as recommended herein. The engineered submittal must include QC and modulus testing procedures. We recommend at least one load test be completed prior to installing production CMCs or GCCs. The engineered submittal must be prepared and sealed by a Professional Engineer licensed in the State of Maine and endorsed by the CMC or GCC Installer. S.W.COLE should be engaged to review the engineered ground improvement submittal.

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4.5 Foundation Drainage

We recommend a foundation underdrain pipe be installed around perimeter foundations. We recommend a 4-inch diameter slotted HDPE pipe enveloped in at least 12 inches of Underdrain Sand. The underdrain pipe must be connected to a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive surface water drainage.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) overlying properly prepared subgrades as outlined herein. We recommend on-grade floor slabs be underlain by at least 18-inches of compacted Structural Fill. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

We recommend a sub-slab vapor retarder particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs. This thickness of Structural Fill should

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extend the full width of the entrance slab and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope.

4.8 Backfill and Compaction

The site soils are unsuitable for reuse in building areas, but may be suitable as Common Borrow for compacted fill in paved and landscape areas provided they are at a compactable moisture content and deleterious materials, such as ash and organics, are removed. We recommend the following fill and backfill materials:

Common Borrow: Fill to raise grades in paved and landscape areas should be non-organic, mineral soils meeting the requirements of 2014 MaineDOT 703.18 Common Borrow.

Granular Borrow: Fill to raise grades in building areas and backfill of excavations from removal of existing foundations and utilities should be sand or silty sand meeting the requirements for 2014 MaineDOT 703.19 Granular Borrow.

Structural Fill: Backfill to repair soft areas, backfill for foundations, slab base material and material below exterior entrances and sidewalks should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
#40	0 to 30
#200	0 to 5

Crushed Stone: Crushed Stone used beneath foundations should meet the requirements of 2014 MaineDOT Standard Specification 703.13 Crushed Stone 3/4-inch.

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Underdrain Sand: Sand used around foundation underdrains should meet the requirements of 2014 MaineDOT Standard Specification 703.20 Underdrain Backfill Materials, Type B.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.9 Paved Areas

We anticipate paved areas will be subjected primarily to passenger and light delivery truck traffic. Considering the site soils and proposed usage, we offer the following pavement section for consideration. Materials are based on Maine Department of Transportation Standard Specifications.

Asphalt Pavement Section	
Material	**Thickness (inches)**
9.5 mm Hot Mix Asphalt (50 Gyration Design)	1 ¼
19.0 mm Hot Mix Asphalt (50 Gyration Design)	2 ¼
MaineDOT 703.06 Type A, Crushed Aggregate Base	3
MaineDOT 703.06 Type D, Crushed Aggregate Subbase	15
Woven Geotextile Subgrade Fabric (HP370)	Clayey Subgrades

Pavement subgrades should be densified with 3 to 5 passes of a vibratory roller. The base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

It should be understood that frost penetration can be on the order of 4.5 feet in the project area. In the absence of full depth excavation of frost susceptible soils and subsequent replacement with non-frost susceptible compacted fill, frost penetration into

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the subgrade will occur and some heaving and distress of pavement must be anticipated.

We recommend storm drains beneath paved areas be installed as MaineDOT Type C Underdrains to provide positive drainage relief of the pavement gravels.

4.10 Weather Considerations

Earthwork and foundation construction should be completed during drier, non-freezing weather of Spring, Summer and Fall. The site soils may require drying before construction activities may occur and the contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather.

If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.11 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents to determine that our foundation, earthwork and pavement recommendations have been properly interpreted and implemented.

A special inspections and testing program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to provide geotechnical observations during earthwork, preparation of foundation bearing surfaces and pavement subgrades, installation of ground improvements and piles, as well as provide and testing and special inspection services for soils, concrete, asphalt, structural steel and spray-applied fireproofing construction materials.

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5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.

Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

TJB/EMW:ajh

DRAFT

Attachment A
Limitations

This report has been prepared for the exclusive use of Portland Housing Authority for specific application to the Proposed Apartment Building at 58 Boyd Street in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

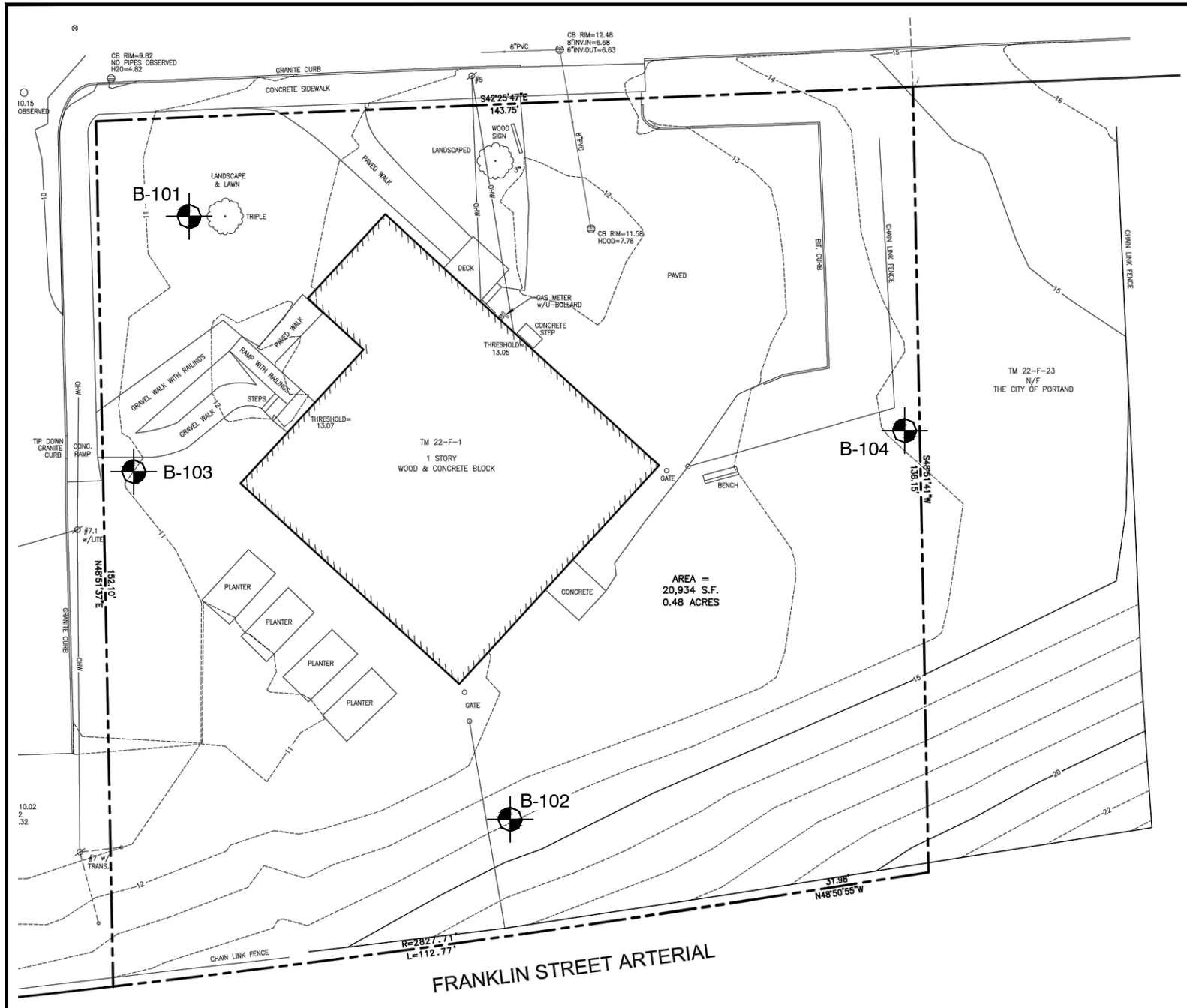
The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

DRAFT



LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=10' SCALE PLAN OF THE SITE ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY," PREPARED BY OWEN HASKELL, INC., DATED DECEMBER 10, 2014.
2. THE BORINGS WERE LOCATED IN THE FIELD BY MEASUREMENTS FROM EXISTING SITE FEATURES.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 20 40 Feet

S.W.COLE ENGINEERING, INC.

PORTLAND HOUSING DEVELOPMENT CORPORATION

EXPLORATION LOCATION PLAN

PROPOSED APARTMENT BUILDING
58 BOYD STREET
PORTLAND, MAINE

Job No.:	16-0606.1	Scale:	1" = 20'
Date :	07/19/2016	Sheet:	1

R:\2016\16-0606.1\CAD\Drawings\16-0606.1 ELP.dwg, 7/19/2016 8:50:38 AM, 1:1, CEM, S. W. Cole Engineering, Inc.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-101**
SHEET: 1 OF 2
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/7/2016
DATE FINISH: 7/7/2016
ELEVATION: 11' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2' +/-
SOILS SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									1.5'	VEGETATION / BROWN SILTY SAND, TRACE ORGANICS (TOPSOIL / FILL)
	1D	24"	16"	2.0'	2	5	5	4	2.2'	BROWN SILTY SAND WITH BLACK ASH (FILL) ~ LOOSE ~
										BROWN SILT AND SAND (FILL)
	2D	24"	18"	4.0'	4	4	7	9	3.5'	~ MEDIUM DENSE ~
									5.0'	BROWN SILTY SAND (FILL) ~ MEDIUM DENSE ~
	3D	24"	15"	7.0'	3	2	2	3		ORANGE-BROWN TO BROWN GRAVELLY SAND, SOME SILT (FILL)
	4D	24"	14"	9.0'	2	2	5	4		~ LOOSE ~
									10.0'	
	5D	24"	14"	12.0'	3	5	8	7		GRAY SILTY SAND WITH SHELLS ~ MEDIUM DENSE ~
									13'	
	6D	24"	22"	17.0'	WOH - 24"					GRAY SILTY CLAY WITH SAND SEAMS AND LAYERS ~ MEDIUM ~
										ADVANCE BY ROD PROBE BELOW 17.0'
										HYDRAULIC PUSH ROD PROBE 17.0' - 79.5'
										INCREASED FREQUENCY OF SAND SEAMS AND LAYERS BELOW 32'
										PROBABLE ALTERNATING LAYERS AND SEAMS OF GRAY SILTY CLAY AND SILTY SAND

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-101**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-101**
SHEET: 2 OF 2
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/7/2016
DATE FINISH: 7/7/2016
ELEVATION: 11' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2' +/-
SOILS SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										PROBABLE ALTERNATING LAYERS AND SEAMS OF GRAY SILTY CLAY AND SILTY SAND HYDRAULIC PUSH ROD PROBE 17.0' - 79.5'
									75'	INCREASED RESISTANCE @ 75' - PROBABLE GRANULAR SOILS HYDRAULIC PUSH ROD PROBE TO 79.5'
									81.5'	DRIVE ROD PROBE WITH 140 LB. HAMMER BELOW 79.5' 79.5' - 80.5' : 48 BLOWS 80.5' - 81.5' : 39 BLOWS
										BOTTOM OF EXPLORATION @ 81.5'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
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[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
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BORING NO.: **B-101**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-102**
SHEET: 1 OF 2
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/8/2016
DATE FINISH: 7/8/2016
ELEVATION: 14' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2' +/-
SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									1.0'	VEGETATION / DARK BROWN SILTY SAND WITH ORGANICS (TOPSOIL/FILL)
	1D	24"	18"	2.0'	4	9	7	7		BROWN SILTY SAND, SOME GRAVEL, WITH BRICK AND ASH (FILL)
	2D	24"	6"	4.0'	4	14	9	10		~ MEDIUM DENSE ~
									5.0'	
	3D	24"	15"	7.0'	2	3	3	4	7.0'	BROWN GRAVELLY SILTY SAND (FILL) ~ LOOSE ~
	4D	24"	16"	9.0'	5	8	17	18		BROWN GRAVELLY SAND, SOME SILT, WITH BRICK AND ASH (FILL) ~ MEDIUM DENSE ~
									10.0'	< COBBLES / RUBBLE @ 9.5' >
	5D	24"	14"	12.0'	2	2	3	4		BROWN SAND AND GRAVEL, SOME SILT (FILL) ~ LOOSE ~
									13.0'	
	6D	24"	20"	14.0'	6	4	3	2	13.5'	GRAY SAND, TRACE SILT, WITH SHELLS ~ LOOSE ~
	7D	24"	6"	17.0'	WOH - 24"					GRAY SILTY CLAY WITH SHELLS AND BLACK ORGANIC FIBERS ~ MEDIUM ~ ADVANCE BY ROD PROBE BELOW 17.0' PUSH ROD PROBE BY WEIGHT OF MAN 17.0' - 35.0' HYDRAULIC PUSH ROD PROBE 35' - 57'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-102**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-102**
SHEET: 2 OF 2
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/8/2016
DATE FINISH: 7/8/2016
ELEVATION: 14' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2' +/-
SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										PROBABLE GRAY SILTY CLAY
										HYDRAULIC PUSH ROD PROBE 35' - 57'
										INCREASED RESISTANCE @ 50' - PROBABLE SAND SEAMS
										DRIVE ROD PROBE WITH 140 LB. HAMMER BELOW 57'
									57'	PROBABLE GRANULAR SOILS
										57' - 58' : 17 BLOWS
										58' - 59' : 14 BLOWS
										59' - 60' : 15 BLOWS
										60' - 61' : 16 BLOWS
										61' - 62' : 15 BLOWS
										62' - 63' : 17 BLOWS
										63' - 64' : 17 BLOWS
										64' - 65' : 19 BLOWS
										65' - 68' : HYDRAULIC PUSH
									68.5'	68' - 68.5' : 50 BLOWS - PROBABLE DENSE GLACIAL TILL
										BOTTOM OF EXPLORATION @ 68.5'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
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[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-102**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-103**
SHEET: 1 OF 3
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/7/2016
DATE FINISH: 7/7/2016
ELEVATION: 11' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD.	
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-, WET BELOW 5' +/-, SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									1.0'	VEGETATION / BROWN SILTY SAND WITH ORGANICS (TOPSOIL / FILL)
	1D	24"	16"	2.0'	2	4	3	4	2.0'	BROWN SILTY SAND WITH BLACK ASH (FILL) ~ LOOSE ~
	2D	24"	16"	4.0'	5	6	3	3	5.0'	BROWN WITH ORANGE STAINING SILTY SAND, SOME GRAVEL (FILL) ~ LOOSE ~
	3D	24"	14"	7.0'	4	2	2	2		BROWN GRAVELLY SAND, TRACE SILT (FILL)
	4D	24"	6"	9.0'	1	1	1	1		~ VERY LOOSE ~
	5D	24"	14"	12.0'	4	12	12	12	11.5'	~ MEDIUM DENSE ~
									13.0'	GRAY SANDY SILT ~ MEDIUM DENSE ~
	1C	24"	18"	17.0'	PISTON SAMPLER					GRAY SILTY CLAY WITH FREQUENT SAND SEAMS AND LAYERS
	1V			17.8'	3 5/8" X 7" VANE					$w = 42.1\%$, $W_L = 38$, $W_P = 19$
	1V'			17.6'	3 5/8" X 7" VANE					$S_V = 0.51 / 0.08$ KSF ~ MEDIUM ~
										$S_V = 0.48 / 0.06$ KSF ~ SOFT ~
	2C	24"	20"	27.0'	PISTON SAMPLER					SILTY FINE SAND AT SAMPLE 2C, w = 21.3%
	2V				3 5/8" X 7" VANE					NO VANE PENETRATION @ 2V - PROBABLE SAND SEAM/LAYER
										INCREASED FREQUENCY OF SAND SEAMS AND LAYERS BELOW 34'
	3C	24"	22"	37.0'	PISTON SAMPLER					$w = 37.8\%$, $W_L = 30$, $W_P = 17$ $q_U = 0.96$ KSF
	3V				3 5/8" X 7" VANE					NO VANE PENETRATION @ 3V - PROBABLE SAND SEAM/LAYER

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS: CONTINUED…

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-103**
SHEET: 2 OF 3
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/7/2016
DATE FINISH: 7/7/2016
ELEVATION: 11' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD.	
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-, WET BELOW 5' +/-,
SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	6D	24"	22"	42.0'	WOH - 24"					GRAY WITH BLACK STREAKING SILTY CLAY
									43'	WITH FREQUENT SAND SEAMS
	7D	24"	12"	52.0'	WOR - 24"					ALTERNATING SEAMS AND LAYERS OF GRAY SILTY AND SILTY FINE SAND ~ MEDIUM / LOOSE ~ ADVANCE BY ROLLER CONE PROBE BELOW 52' INCREASED FREQUENCY OF SAND LAYERS BELOW 60' +/-
									70'	PROBABLE GRANULAR SOILS WITH COBBLES ADVANCE BY ROLLER CONE PROBE

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS: CONTINUED…

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-103**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-103**
SHEET: 3 OF 3
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/7/2016
DATE FINISH: 7/7/2016
ELEVATION: 11' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD.	
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-, WET BELOW 5' +/-,
SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										PROBABLE GRANULAR SOILS WITH COBBLES ADVANCE BY ROLLER CONE PROBE
									111.0'	
									113.0'	PROBABLE BEDROCK - ADVANCE BY ROLLER CONE
										REFUSAL @ 113.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
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BORING NO.: **B-103**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104**
SHEET: 1 OF 3
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
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DATE START: 7/8/2016
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SWC REP.: E. WALKER

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CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-,
SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.2'	WOOD CHIPS / VEGETATION
	1D	24"	14"	2.0'	1	2	1	2		BROWN AND BLACK SILTY SAND WITH ASH (FILL)
	2D	24"	16"	4.0'	3	3	4	4		~ LOOSE ~
									5.0'	
	3D	24"	18"	7.0'	3	2	7	17		GRAY AND BROWN SILTY SAND WITH ASH AND BRICK AND RUBBLE (FILL)
										~ LOOSE TO MEDIUM DENSE ~
	4D	24"	10"	9.0'	16	24	12	10		INCREASED BLOW COUNTS @ SAMPLE 4D DUE TO RUBBLE
									10.5'	
	5D	24"	20"	12.0'	4	5	3	2	11.5'	GRAY SILTY SAND WITH SHELLS AND ORGANIC FIBERS ~ LOOSE ~
	6D	24"	22"	17.0'	WOR - 24"					GRAY SILTY CLAY WITH FREQUENT SAND SEAMS AND PARTINGS
										~ MEDIUM TO SOFT ~
	7D	24"	24"	27.0'	WOH - 24"					
	8D	24"	20"	37.0'	WOR	WOH - 18"				BLACK STREAKING IN SAMPLE 8D

SAMPLES:
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C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

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[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS: CONTINUED…

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104**
SHEET: 2 OF 3
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SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-,
SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	9D	24"	20"	47.0'	WOR	WOM	1	1		GRAY WITH BLACK STREAKING SILTY CLAY WITH FREQUENT SAND SEAMS AND LAYERS ~ MEDIUM TO SOFT ~
									52'	
										GRAY CLAYEY SILTY SAND, SOME GRAVEL (GLACIAL TILL)
									56'	~ LOOSE ~
	10D	24"	18"	57.0'	2	2	11	12		~ MEDIUM DENSE ~ GRAY SILTY SAND, TRACE TO SOME GRAVEL, WITH OCCASIONAL COBBLES (GLACIAL TILL)
	11D	24"	18"	67.0'	10	16	30	44		~ DENSE TO VERY DENSE ~
	12D	24"	18"	77.0'	16	24	44	41		

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
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[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS: CONTINUED…

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-104**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104**
SHEET: 3 OF 3
PROJECT NO.: 16-0606.1

PROJECT: PROPOSED APARTMENT BUILDING
CLIENT : PORTLAND HOUSING AUTHORITY
LOCATION: 58 BOYD STREET, PORTLAND, MAINE
DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: JEFF LEE

DATE START: 7/8/2016
DATE FINISH: 7/8/2016
ELEVATION: 14' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD	
SAMPLER:	D	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 2' +/-,
SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										BOULDER 81' - 82'
										GRAY SILTY SAND, TRACE TO SOME GRAVEL, WITH OCCASIONAL COBBLES (GLACIAL TILL)
										~ DENSE ~
										BOULDER 103' - 104'
									107'	
									110'	PROBABLE BEDROCK - ADVANCE BY ROLLER CONE
										REFUSAL @ 110.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-104**

KEY TO NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

S.W.COLE ENGINEERING, INC.

Consolidation Test

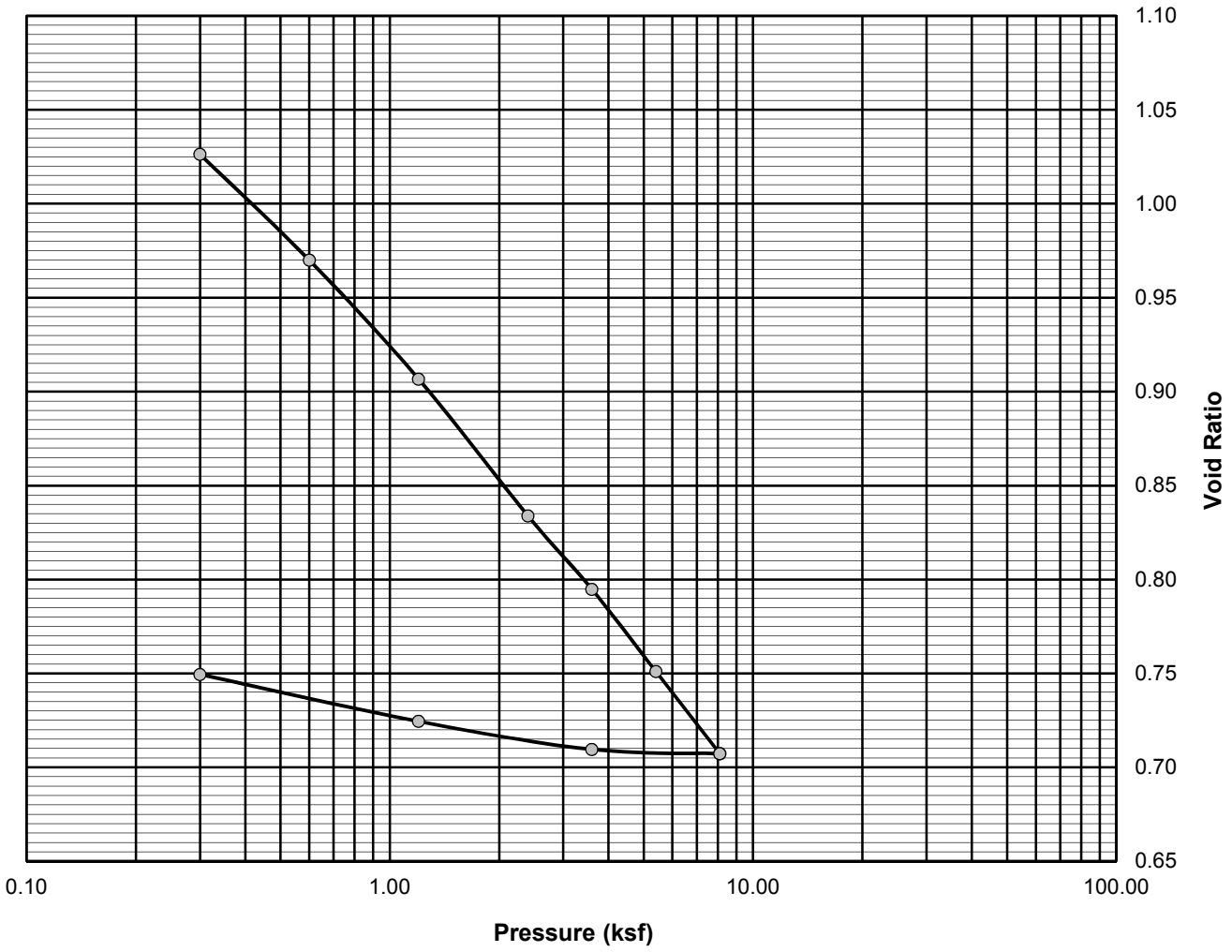
ASTM D-4767

Project Name: 58 Boyd Street Apartments
Client: Portland Housing Development Corporation

Project Number: 16-0606.1
Lab ID: 19667B
Date: 6/15/2016

Boring: B-103
Sample: 1C
Depth: 15-17'

P_C =	1.2	ksf
C_C =	0.24	
C_R =	0.04	
w =	42.1%	
W_L =	38	
W_P =	19	



Reviewed By

S.W.COLE ENGINEERING, INC.

Consolidation Test

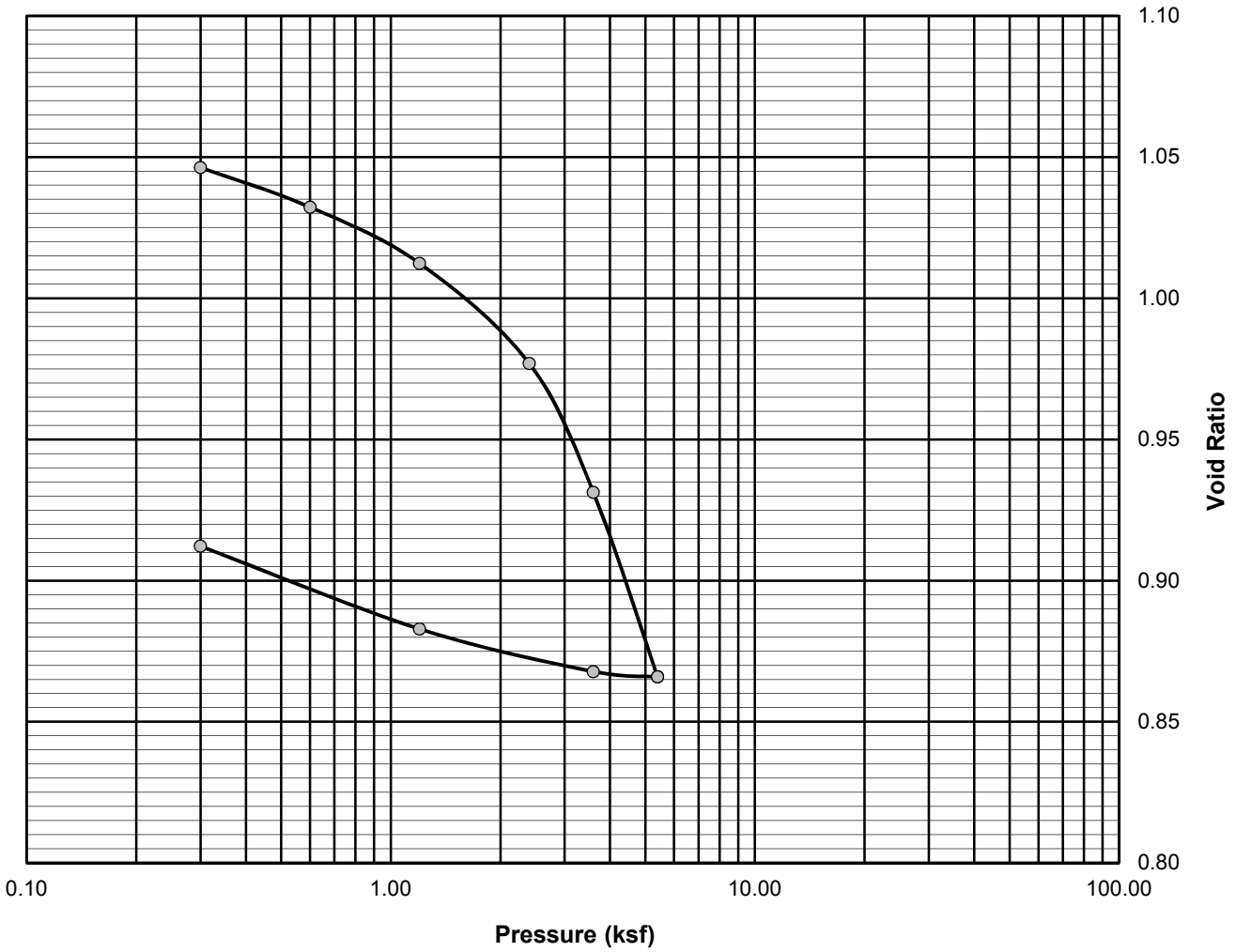
ASTM D-4767

Project Name: 58 Boyd Street Apartments
Client: Portland Housing Development Corporation

Project Number: 16-0606.1
Lab ID: 19669B
Date: 7/15/2016

Boring: B-103
Sample: 3C
Depth: 35-37'

P_C =	2.8
C_C =	0.37
C_R =	0.06
w =	38%
W_L =	38
W_P =	19



Reviewed By

CREDERE ASSOCIATES, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

January 18, 2016

Mr. Jay Waterman
Portland Housing Authority
14 Baxter Boulevard
Portland, Maine 04101
Via email: jwaterman@porthouse.org

RE: **Soil Management Plan**
Portland Housing Authority
58 Boyd Street, Portland, Maine 04103

Dear Mr. Waterman:

The following document describes methods and procedures to be used during redevelopment activities at the 58 Boyd Street property in Portland, Maine (Site). The activities and practices described below are necessary to manage potential risk to human and environmental receptors associated with contaminated soil. Included in this Soil Management Plan (SMP) are:

- A description of soil conditions and associated regulatory applicability
- A listing of proper health and safety work practices and protective equipment for use during Site work activities
- A description of onsite soil management procedures including soil handling, stockpiling, and dust control for use during Site work activities
- A description of the onsite soil reuse procedures including the soil engineered barrier system
- A summary of the methods to be used for the proper transport and disposal of excess soil that may be generated during redevelopment
- A basic summary of procedures for managing groundwater if encountered during construction activities

1. INTRODUCTION AND APPLICABILITY

The 0.4789-acre Site is located at 58 Boyd Street, and is identified by the City of Portland as Map 22, Block F, Lot 1 and the northwestern portion of Map 22, Block F, Lot 23. The Site is currently developed with Portland Housing Authority's administrative offices and a small asphalt parking lot. The Site is planned to be redeveloped with a residential multi-unit building with an anticipated subsurface foundation that would require removal or onsite relocation of soil during construction. **Figure 1** shows the location of the Site in Portland, and **Figure 2** shows pertinent Site features.

The Site is located within an area of Portland that has been residential and commercial since at least 1851. The Great Fire of 1866 destroyed over 1,000 buildings in the City of Portland and extended to the corner of Franklin and Oxford Streets, only one block south of the Site. It is commonly known that ash and debris resulting from the fire was used to fill in the southern wetland of Back Cove, creating the modern East Bayside neighborhood where the Site is located.

Credere prepared a Phase I Environmental Site Assessment (ESA) and subsequently a Phase I ESA Update for the Site on behalf of Portland Housing Authority dated November 19, 2015 and October 19, 2016, respectively. Based on review of historical sources, environmental databases, interviews, User provided information, Site reconnaissance, and judgment by the Environmental Professional; the following recognized environmental conditions (RECs) and other environmental finding were identified:

- REC #1 –Soil impacts at the Site due to history of the Site vicinity

A geotechnical investigation was completed at the Site in July 2016. Soils were observed to contain ash, brick, and rubble from below topsoil to depths of 2 to 10.5 feet below ground surface (bgs); however, no analytical samples were collected.

In January 2017, Credere completed a limited Phase II Environmental Site Assessment (ESA) at the Site, which included the collection of soil samples from the observed urban fill layer at four soil boring locations (CA-SB-1 through CA-SB-4 on **Figure 2**). Laboratory analytical results identified concentrations of several polycyclic aromatic hydrocarbons (PAHs) and metals (lead and arsenic) in exceedance Maine DEP Remedial Action Guidelines (RAGs) for the residential use scenario; however, concentrations were below the construction worker RAGs. Elevated concentrations of PAHs and metals are typical for soils impacted by the Great Portland Fire and urban fill, indicating these impacts are likely ubiquitous in the area and across the Site.

Based on the above Site history and the previous environmental investigations, Credere has identified the following environmental concerns to be addressed by this SMP:

- Urban fill is present at the Site that will require proper management and handling as special waste during redevelopment
- Residual contamination/urban fill left onsite will require engineering and institutional control to prevent exposure to future Site occupants

2. GENERAL HEALTH AND SAFETY PLAN DURING SOIL EXCAVATION AND HANDLING

The following serves as guidelines for health and safety procedures to be employed during general construction activities at the Site involving exposure to impacted soil. It is the responsibility of each individual contractor to develop and implement their own health and safety plan specific to the work to be performed.

Based on previous environmental investigations, the contaminants of concern (COCs) are associated with urban fill at the Site and include several PAHs, particularly benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene, lead and arsenic. Concentrations exceed the residential RAGs; however, are below the construction worker exposure scenario RAGs. Therefore, if soil is not managed according to this SMP, potential receptors will include residents after construction. Based on these receptors, the expected exposure pathways to COCs will include:

- Active ingestion by children or via uptake in vegetable gardens;
- Dermal absorption through direct contact with impacted soil; and,
- Incidental uptake of impacted soil in the form of dust.

Documented concentrations do not indicate a health risk for construction and utility workers; however, the utilization of basic personal protective equipment (PPE) will minimize the potential for human exposure while conducting redevelopment activities at the Site.

Personal Protective Equipment

Based on the hazard evaluation, Level D PPE has been initially designated for all personnel who will be directly handling or otherwise may be exposed to impacted soil at the Site. The contractor's Health and Safety Officer may upgrade PPE to Level C or higher if additional hazards are identified during Site work.

Specific Level D PPE to be used at the Site includes the following:

- Steel toe work boots with latex over boots as required
- Safety glasses with side shields
- Work gloves
- Nitrile inner gloves
- Hard hat
- Coveralls (optional)

Work Zone Monitoring

Considering the urban nature of the project, the property boundaries should be monitored for ambient dust levels to ensure fugitive dust is not migrating from the Site onto adjoining or nearby properties. As a general rule of thumb, visible ambient dust should be controlled using wet suppressant methods and any stockpiles should be covered during down time. Access should be limited to applicable personnel during periods when impacted soil is exposed at the surface.

General Operating Procedures

In addition to the above basic health and safety guidelines, the following procedures should be followed during activities conducted at the Site which create the potential for exposure to impacted soil:

- Work involving excavation or management of impacted soil conducted at the Site shall be directed by a Qualified Environmental Professional (QEP).
- The Site shall be surveyed and cleared by DigSafe.
- All equipment used during excavation activities shall be properly cleaned and decontaminated prior to leaving the Site.
- Any indication of conditions more hazardous than those anticipated, or the observation of circumstances that would render the above basic health and safety procedures inappropriate, shall result in the evacuation of the work area and a reassessment of health and safety procedures by a QEP.

3. SOIL MANAGEMENT

The following section provides procedures for the excavation, re-use, storage, and disposal of excess soil generated during redevelopment activities at the Site.

Soil Stockpiling and Storage

Soil removal may be required in conjunction with installation of a subsurface foundation for the future residential multi-unit Site building. Additionally, removal of soil may be necessary for other construction, or utility work at the Site. Impacted soil excavated from the Site may be temporarily stored or removed following waste disposal characterization and acceptance at an appropriately licensed receiving facility. Soil excavated from the Site should be placed atop 20-mil polyethylene sheeting to prevent contamination of surrounding cover materials, and securely covered by 10-mil or 20-mil polyethylene sheeting. Berms shall be constructed around the edges of the stockpiles, the base shall be sloped to create leachate collection points, and storm water runoff will be diverted away from any soil stockpile or storage area when feasible.

Soil may be more conveniently live loaded into trucks for offsite disposal at an appropriately licensed facility or temporarily stored within secure, water resistant, DOT-approved bulk containers. Stockpiled or containerized soil will be stored within a secure area of the Site and properly labeled to minimize potential contact. In addition, soil stockpiled or otherwise stored at the Site will be inspected daily for tears, holes, or other failures in the polyethylene sheeting or storage container.

Dust Control

Dust control requirements will be a contractual responsibility of the contractor for the Site and will be documented by the Owner's QEP during redevelopment activities. Dust control measures shall be employed by the contractor during excavation and grading, and to control dust around stockpiles, haul roads, and any other exposed soils.

- At a minimum, wet suppression shall be used to provide temporary control of dust. Wet suppression will be applied on a routine basis and/or as directed by the Owner's QEP to adequately control dust. Depending upon weather conditions and work activity, several wet suppression applications per day, and/or the use of granular calcium chloride or similar commercially manufactured dust control agents, may be necessary to adequately control dust.
- Water runoff generated by dust control will be retained and disposed in accordance with the requirements of the appropriate regulatory agencies.
- Vehicles leaving the Site shall have no mud or dirt on the vehicle body or wheels. Any foreign matter on the vehicle body or wheels will be physically removed prior to vehicles entering a public roadway or adjoining mill driveways. Vehicles will not be permitted to leave the Site with exterior mud or dirt that has the potential to be deposited on public roadways.

Onsite Reuse of Soil

Given the design plans and size of the Site, onsite relocation is not anticipated to be possible for this Site. After adequate soil removal, all areas of the Site should be covered according to the below specifications:

- All features and subsurface infrastructure will be installed and the grading of impacted materials shall be completed consistent with the design requirements for the Site.
- Any excess or future identified impacted soil that cannot be re-used at the Site will be removed in accordance with this section of this SMP.
- The engineered barrier system will cover the entire Site and will consists of the following in each of the areas:
    - Landscaped Areas: A permeable geotextile fabric or similar material, such as snow fence will be placed as a marker layer directly over the impacted soil to indicate the distinction between the clean fill cover and the underlying impacted soil to remain at the Site. A minimum of 12 inches of clean fill will be placed as cover material over the marker layer. The source of fill will be documented to be a local native source or will be documented to be clean through analytical testing. The covered areas will be loamed, seeded, mulched, or otherwise permanently stabilized to prevent erosion and damage to the soil cover. If the marker layer must be compromised to facilitate landscape installation, a replacement marker layer shall be installed prior to the placement of any new non-impacted material.
    - Building Foundation and Concrete Areas: Areas planned for impermeable construction (e.g., concrete walkways and the Site building foundation) will be installed directly over the impacted soil. A separate marker layer will not be necessary below impermeable surfaces since these materials will serve as the marker layer. The geotextile marker layer will extend from landscaped areas to the exterior limit of these impermeable areas.

- Each covered area will be graded so that the stormwater runoff is directed to an appropriate area.
- Additional sub-base materials may be necessary beyond the minimum cover requirements discussed herein to maintain the structural integrity of the proposed site features.

An engineered barrier system schematic is included as **Figure 3**.

Offsite Soil Disposal/Recycling

Excess impacted soil that cannot be reused will be transported and disposed offsite in accordance with applicable federal and state regulations.

Waste Characterization Sampling

Waste characterization sampling will be required in order to meet facility acceptance requirements. As such, the QEP will collect representative samples from the special waste soil for analysis by an independent, Maine-certified laboratory. At a minimum, and in accordance with disposal facility requirements, laboratory criteria will include, but may not be limited to, the following analyses:

- Total petroleum hydrocarbons (TPH)
- Volatile organic compounds (VOC)
- Semi-volatile organic compounds (SVOC)
- Polychlorinated biphenyls (PCB)
- RCRA 8 Metals
- Pesticides
- Herbicides
- pH
- Ignitibility, conductivity, and reactivity (sulfide and cyanide)
- Additional toxicity characteristics leaching procedure (TCLP) analysis, where necessary

Following receipt of the results of the above analyses, an appropriate disposal or recycling method will be selected and a waste profile will be prepared and submitted to the facility for acceptance prior to shipping.

Soil Transport and Recycling/Disposal

Following facility acceptance, impacted soil will be removed from the Site for proper recycling or disposal. The loading of impacted soil will be conducted in accordance with the requirements of this SMP. Impacted soil loading and transport activities will be overseen by the owner's QEP. Equipment used for the transport of impacted soil will be properly licensed in accordance with applicable state and federal regulations. Haul truck cargo areas shall be securely and completely covered during material transport on public roadways.

Each shipment of impacted soil will be accompanied by appropriate transport documentation, such as a hazardous waste manifest or bill of lading. An official record of each shipment of impacted soil from the Site, including tonnage, will be presented to the owner's QEP following delivery to the receiving facility. A record of the total tonnage removed from the Site for offsite disposal shall be kept.

Backfill Materials

Backfill materials shall be sourced from a local native source or documented clean through analytical testing.

4. GROUNDWATER MANAGEMENT

Groundwater is not anticipated to be encountered within the depth of the foundation excavation. However, as groundwater at the Site has not been assessed, the use of groundwater at the Site as a potable water source or otherwise (e.g., hand washing, etc.) should be prohibited and all potable water should be provided to the Site via a public water source. If groundwater is encountered and requires management during construction, this SMP will require revision to include a Groundwater Management Plan (GMP).

5. PROJECT CONTACTS

Depending on the complexity of the issue, the following people will be able to answer questions or refer inquiries to the correct person.

58 Boyd Street Site – Contact Information Site Soil Management Plan		
Organization	**Person**	**Phone Number**
Property Owner Portland Housing Authority	Jay Waterman	(207) 221-8009
Environmental Professional Credere Associates, LLC	Allison Drouin	(207) 828-1272 x15

At the completion of construction, this SMP should be updated to an Environmental Management Plan (EMP) to outline the engineered barrier design details, ongoing maintenance requirements, and procedures for emergency repairs or utility work. If there are any questions, please contact the undersigned.

Sincerely,
Credere Associates, LLC

Allison Drouin, PG, CG
Geologist

Rip Patten, PE, LSP, LEED-AP
Vice President

Attachments: Figure 1 – Site Location Plan
Figure 2 – Detailed Site Plan
Figure 3 - Engineered Barrier System Schematic

DRAWN BY: **MAK**	DATE: **10/29/2015**
CHECKED BY: **ASD**	PROJECT: **15001318**

Credere Associates, LLC
776 MAIN STREET
WESTBROOK, MAINE
Tel. 207.828.1272
Fax 207.887.1051
WWW.CREDERELLC.COM

FIGURE 1
SITE LOCATION PLAN

58 BOYD STREET
PORTLAND, MAINE 04101

1,000 0 2,000 Feet

1 INCH = 2,000 FEET

NOTES
1. EXISTING CONDITION FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM MAINE GIS 2014 PARCEL DATA, 2012 ORTHO IMAGES, CITY OF PORTLAND'S GIS DIVISION, AND THE FIELD WORK PERFORMED ON DECEMBER 28, 2016.

DRAWN BY: **MAK**	DATE: **1/3/2017**
CHECKED BY: **ASD**	PROJECT: **15001318**

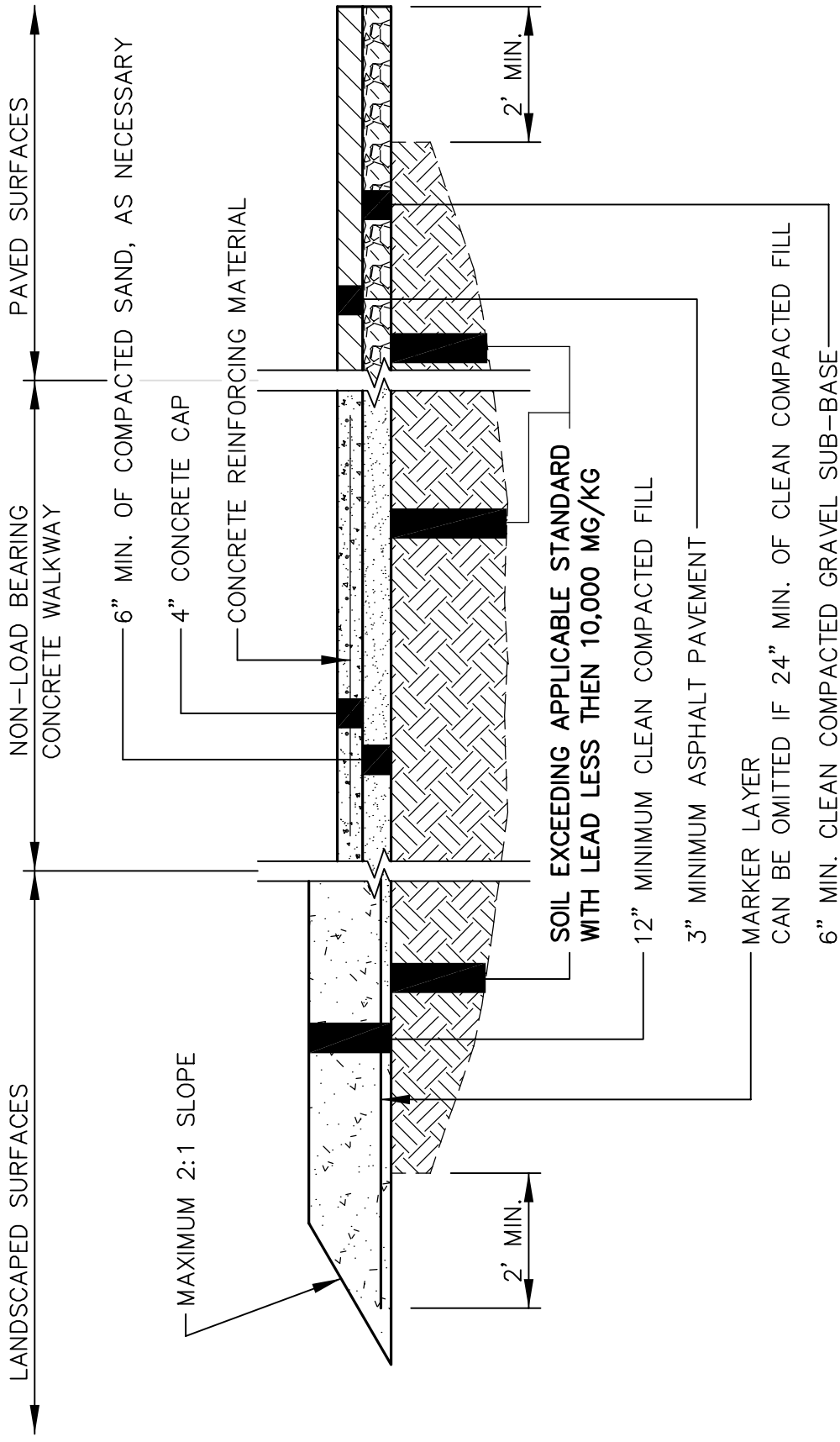
Credere Associates, LLC
776 MAIN STREET
WESTBROOK, MAINE
Tel. 207.828.1272
Fax 207.887.1051
WWW.CREDERELLC.COM

FIGURE 2
DETAILED SITE PLAN

58 BOYD STREET
PORTLAND, MAINE 04101

- SOIL BORING LOCATION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

T:\Data\ME\Town\Portland\15001318 - 58 Boyd St\Figure 2_PHASE11.mxd



NOTE

THE QUANTITIES IDENTIFIED ARE MINIMUM REQUIREMENTS FOR ADDRESSING THE IDENTIFIED CONTAMINATED SOILS. ADDITIONAL SUB-BASE MATERIALS MAY BE REQUIRED IN AREAS PROPOSED FOR ASPHALT PAVING AND/OR CONCRETE SIDEWALKS AS NECESSARY AND IF APPLICABLE, TO MAINTAIN STRUCTURAL INTEGRITY OF THESE MATERIALS.

DRAWN BY: MAK	DATE: 01/16/2016
CHECKED BY:ASD	PROJECT: 15001318

CREDERE ASSOCIATES, LLC
776 MAIN STREET
WESTBROOK, MAINE 04092
TEL: 207.828.1272
FAX: 207.887.1051
WWW.CREDERELLC.COM

ENGINEERED BARRIER SYSTEM SCHEMATIC

PORTLAND HOUSING AUTHORITY
58 BOYD STREET
PORTLAND, MAINE

SKETCH NO:
FIGURE 3

SCALE:
N.T.S.

26. Site Lighting

Street Lighting

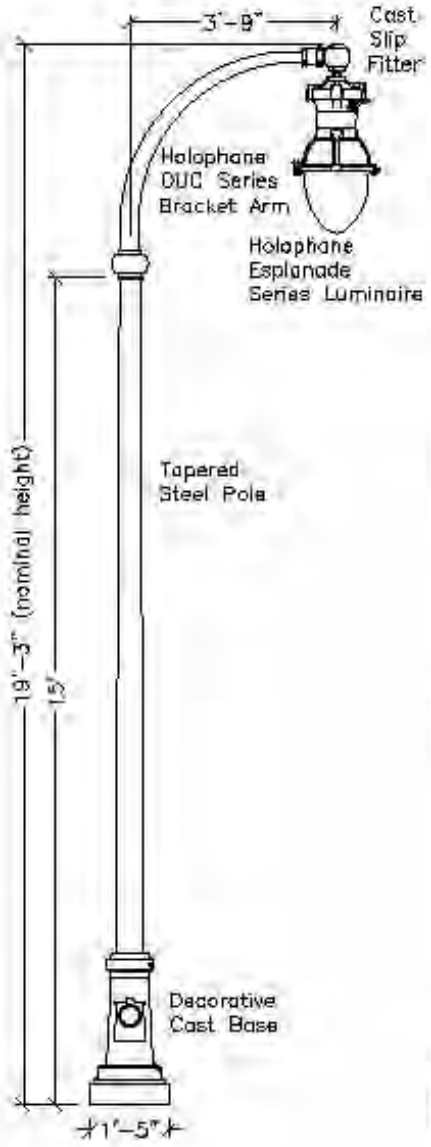
In conformance with Section 10 of the Technical Manual, the Bayside District Medium Scale Light is required on Boyd Street and Boyd Street Extension / Lancaster. The three (3) light fixtures and poles shall be to City Standards.

Site Lighting

The parking lot will be illuminated with LED pole lights. The fixtures will be Viper S Series by Beacon Lighting. See attached cut sheet of the lights and enclosed Photometric Plan.

Building Lighting

The building and entrances will be illuminated by either LED recessed down lights built into the canopies or LED wall mounted fixtures. The canopy down lights will be ID+ by Focal Point and the wall mount lights will be LNC Series by Hubble Lighting. See attached cut sheet of the lights and enclosed Photometric Plan.



LUMINAIRE

Holophane Lighting model ESU175MH12A4-RR
Cast Aluminum housing with stainless steel hardware. Dropped refractor shall be thermal resistent borosilicate glass. Internal reflector and prismatic diffuser shall provide an IES Type III distribution pattern according to the manufacturer's photometric test # 47384.
Luminaire shall include an integral ballast with modular wiring connectors and multi-voltage taps (factory wired for 120VAC). Provide an internal receptacle type photocell control.

LAMP

Holophane Lighting model S-M175/U 64471
Vertical mounted, 175 watt mogul base clear metal halide lamp.

BRACKET ARM

Holophane Lighting model OUC 2" by 8"
6063-T6 aluminum crossarm with a post-top fitting for a 3-tenon.

SLIP FITTER

Holophane Lighting model BHLF200-SCA/AS (Boston Harbor Series)
2-3/8" O.D. with swivel cast fitter.

LIGHTING POLE

Tapered steel pole shaft rated for a 90 mph wind load with a 1.3 gust factor.
Pole shall be pre-galvanized.
Provide four hot-dipped galvanized steel L-type anchor bolts.

DECORATIVE POLE BASE

Holophane model Cambridge Series clamshell cast aluminum base. Hardware shall be stainless steel.

APPLICATION

Street/sidewalk lighting for two-way streets with parking on one side, or one-way streets.
Suggested layout guidelines:
80-100 feet on center (one side only)
or
150-200 feet on center (staggered pattern both sides).

FINISHES

Luminaire, bracket arm, slip fitter and lighting
Residential Areas:
Tiger Drylac 49/72830 RAL 7016 SM GL Tribo
Mixed Use Commercial Areas
Tiger Drylac Old Navy Silver Y003J

City of Portland, Maine

Street & Sidewalk Lighting
BAYSIDE DISTRICT
Medium Scale Lighting Pole

07/08/09

DATE: AUGUST 2009	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION X	**FIGURE:** **X-2C**
REVISED:	**BAYSIDE DISTRICT MEDIUM SCALE LIGHT**		

VIPER S OPTICS STRIKE

SMALL VIPER LUMINAIRE

Cat.#	
Job	Type

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is ≥.90 at full load.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- Surge protection - 20kA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see www.beaconproducts.com/products/energeni).
- In addition, Viper can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance costs while optimizing light quality 24/7. For more details, see ordering information or visit: www.hubbelllighting.com/sitesync

Installation:

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 2604 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Certifications/Ratings:

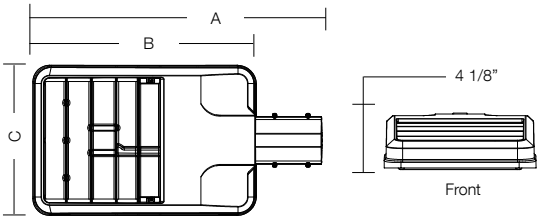
- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Certified to UL 1598, UL 8750 and CSA C22.2 No.250.0
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/vipersmall

Warranty:

Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

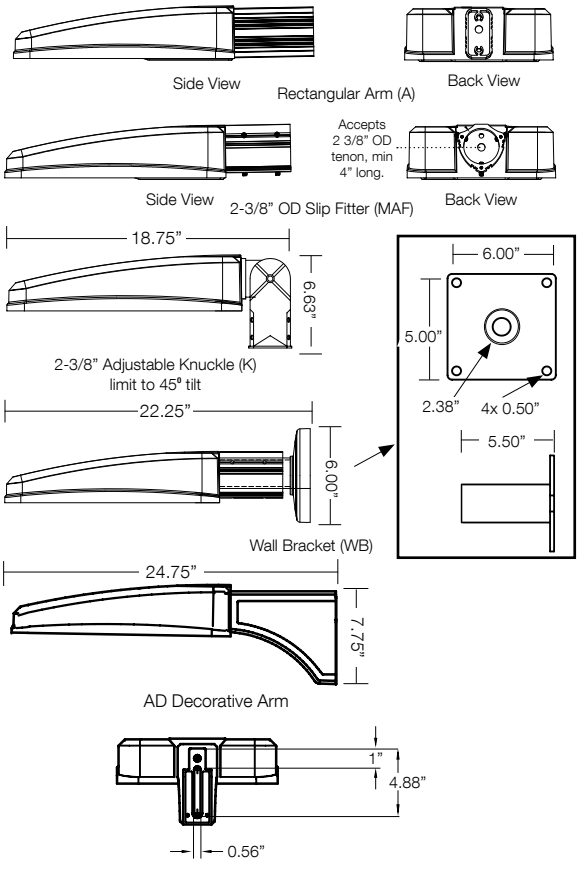
PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	Weight:	EPA
21.75" (552 mm)	16.75" (425 mm)	11.25" (286 mm)	15.0 lbs (6.8 kg)	.67 ft²

MOUNTING OPTIONS



CERTIFICATIONS/LISTINGS

C SA US

ida DARK SKY APPROVED 2016

*3000K and warmer CCTs only

DLC QPL LISTED

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HUBBELL Lighting

ORDERING INFORMATION

ORDERING EXAMPLE: VPS/24L-55/4K7/4W/UNV/A/DBT/7PR-TL/GENI-04/BC

VPS										

SERIES
VPS Viper

LED ENGINE
24L-55 55W, LED array
36L-65 65W, LED array
36L-80 80W, LED array
48L-110 110W, LED array
60L-136 136W, LED array

CCT/CRI[7]
3K7 3000K, 70 CRI
4K7 4000K, 70 CRI
5K7 5000K, 70 CRI

ROTATION
Leave blank for no rotation
L[5] Optic rotation left
R[5] Optic rotation right

VOLTAGE
UNV 120-277V
120 120V
208 208V
240 240V
277 277V
347 347V
480 480V

COLOR
DBT Dark Bronze Textured
BMT Black Matte Textured
PS Platinum Silver Smooth
WHT White Textured
CC Custom Color (RAL#)

OPTIONS
F Fusing
BSP Bird Spikes
BC Backlight control (limited to Type 4W only)

DISTRIBUTION
FR Type 1/Front Row
2 Type 2
3 Type 3
4 Type 4
4W Type 4 Wide
5QM Type 5QM
5R Type 5R (rectangular)
5W Type 5W (round wide)

MOUNTING
A Rectangular Arm (formerly RA) for square or round pole
MAF Mast Arm Fitter (formerly SF2) for 2-3/8" OD horizontal arm
K Knuckle (formerly PK2) limit to 45° tilt or 2-3/8" OD horizontal arm or vertical tenon
WB Wall Bracket
AD Universal Arm for square pole
AD3 Universal Arm for 2.4"-4.1" round pole
AD4 Universal Arm for 4.2" -5.3" round pole
AD5 Universal Arm for 5.5" -5.9" round pole
AD6 Universal Arm for 6.0"-6.5" round pole

HOUSE SIDE SHIELD ACCESSORIES
HSS/VP-S/90-FB/XXX 90° shield front or back
HSS/VP-S/90-LR/XXX 90° shield left or right
HSS/VP-S/270-FB/XXX 270° shield front or back
HSS/VP-S/270-LR/XXX 270° shield left or right
HSS/VP-S/360/XXX Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

MOUNTING ACCESSORIES
VPL-AD-RPA3 2.4"-4.1" Round Pole Adapter for AD arm
VPL-AD-RPA4 4.2"-5.3" Round Pole Adapter for AD arm
VPL-AD-RPA5 5.5"-5.9" Round Pole Adapter for AD arm
VPL-AD-RPA6 6.0"-6.5" Round Pole Adapter for AD arm

CONTROL OPTIONS
7PR 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
7PR-SC 7-Pin Receptacle w/Shorting Cap
7PR-TL 7-Pin Receptacle w/Twist Lock photo control
SCP/_F[1,2,6] Programmable Occupancy Sensor w/ daylight control (120-277 volts only)
WSP/_F[1,2] WASP Occupancy Sensor w/ daylight control (347 or 480 volts only)
GENI-XX[3] ENERGENI
SWP[1,4] SiteSync Pre-Commission
SWPM[1,2,4] SiteSync Pre-Comm w/ Sensor

PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.hubbell-automation.com/products/sitesync/ or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with Motion control (SWPM) require the mounting height of the fixture for selection of the lens.

Examples: VPS/24L-55/4K7/3/UNV/A/DBT/SWP/ SiteSync only
VPS/24L-55/4K7/3/UNV/A/DBT/SWPM-40F/ SiteSync with Motion Control

[1] Not available with other wireless control or sensor options
[2] Specify mounting height; 8=8' or less, 40=9' to 40'
[3] Specify routine setting code (example GENI-04). See ENERGENI brochure and instructions for setting table and options. Not available with sensor or SiteSync options.
[4] Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for further details. Order at least one SiteSync interface Accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node
[5] Only available with 1A, 2, 3, 4, 4W and 5R distributions
[6] Order at least one SCP-REMOTE per project location to program and control
[7] This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://cdn.beaconproducts.com/content/products/specs/specs_files/Viper_Small_LED_turtle_spec_sheet.pdf

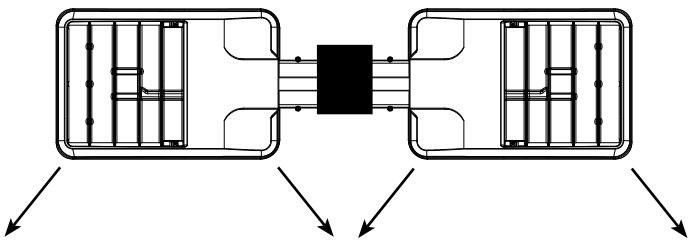
Accessories and Services (Ordered Separately)

Catalog Number	Description
SCP-REMOTE	Remote control for SCP/_F option. Order at least one per project to program and control.
SWUSB*	SiteSync loaded on USB flash drive (Windows based only)
SWTAB*	SiteSync Windows Tablet
SWBRG+	SiteSync Wireless Bridge Node

*When ordering with SiteSync, one of the interface options must be chosen and ordered separately. Each option contains the SiteSync License, GUI and Bridge Node.
+ If needed, an additional Bridge Node can be ordered.

SiteSync Lighting Control is available from our most popular brands in a broad range of award-winning product families.

LEFT ROTATED OPTIC **RIGHT ROTATED OPTIC**



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PERFORMANCE DATA

# LED'S	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5406	100	1	0	2	6041	112	1	0	2	5406	100	1	0	2
			5QM	6022	112	2	0	1	6145	114	2	0	1	5499	102	2	0	1
			5R	6063	112	3	0	3	6187	115	3	0	3	5536	103	3	0	3
			5W	5908	109	3	0	1	6028	112	3	0	1	5908	102	3	0	1
36	560 mA	65W	FR	7864	121	1	0	1	8041	124	1	0	1	7189	111	1	0	1
			2	7586	117	1	0	2	7757	119	1	0	2	6934	107	1	0	2
			3	7441	114	1	0	2	7609	117	1	0	2	6802	105	1	0	2
			4	7317	110	1	0	2	7482	112	1	0	2	6688	100	1	0	2
			4W	7325	113	1	0	2	7490	115	1	0	2	6696	103	1	0	2
			5QM	7450	115	3	0	1	7618	117	3	0	1	6810	105	3	0	1
			5R	7501	115	3	0	3	7670	118	3	0	3	6857	105	3	0	3
			5W	7309	112	3	0	2	7473	115	3	0	2	6681	103	3	0	1
36	700 mA	80W	FR	9535	118	1	0	1	9730	120	1	0	1	8706	107	1	0	1
			2	9197	114	1	0	2	9385	116	1	0	2	8398	104	1	0	2
			3	9022	111	1	0	2	9206	114	1	0	2	8238	102	1	0	2
			4	8871	110	1	0	2	9052	112	1	0	2	8100	100	1	0	2
			4W	8881	110	1	0	3	9062	112	1	0	3	8109	100	1	0	2
			5QM	9033	112	3	0	1	9217	114	3	0	1	8248	102	3	0	1
			5R	9095	112	3	0	3	9280	115	3	0	3	8304	103	3	0	3
			5W	8861	109	3	0	2	9043	112	3	0	2	8092	100	3	0	2
48	700 mA	110W	FR	12713	118	1	0	1	12973	120	2	0	1	11608	107	1	0	1
			2	12263	114	2	0	2	12513	116	2	0	2	11197	104	2	0	2
			3	12029	111	2	0	2	12275	114	2	0	2	10984	102	1	0	2
			4	11828	110	1	0	3	12069	112	1	0	3	10800	100	1	0	2
			4W	11841	110	5	0	5	12083	112	2	0	3	11841	110	1	0	3
			5QM	12044	112	3	0	2	12290	114	3	0	2	10997	102	3	0	1
			5R	12126	112	3	0	3	12374	115	3	0	3	11072	103	3	0	3
			5W	11825	109	4	0	2	12057	112	4	0	2	10789	100	4	0	2
60	700 mA	136W	FR	15891	117	2	0	2	16216	120	2	0	2	14511	107	2	0	1
			2	15329	113	2	0	2	15642	116	2	0	2	13997	103	2	0	2
			3	15037	111	2	0	3	15344	113	2	0	3	13730	101	2	0	3
			4	14784	109	1	0	3	15086	111	1	0	3	13500	100	1	0	3
			4W	14802	109	2	0	3	15104	112	2	0	3	13515	100	2	0	3
			5QM	15055	111	3	0	2	15362	114	3	0	2	13747	102	3	0	2
			5R	15158	112	4	0	4	15469	114	4	0	4	13841	102	4	0	4
			5W	14781	109	4	0	2	15083	111	4	0	2	13495	100	4	0	2

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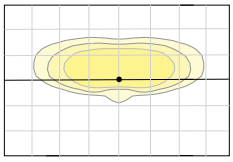
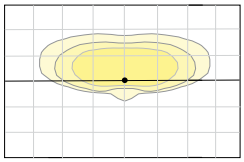
PHOTOMETRICS

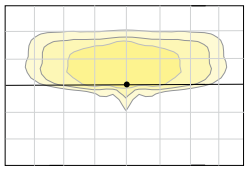
Type FR - Front Row/Auto Optic



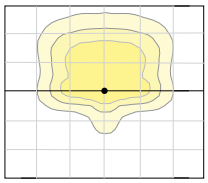
Type 2



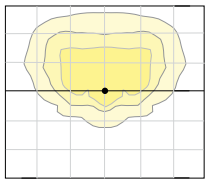
Type 3



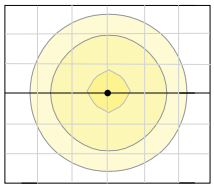
Type 4



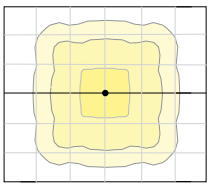
Type 4W



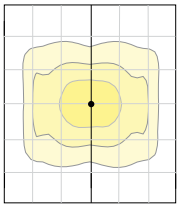
Type 5W



Type 5QM



Type 5R



[1]Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-use environment and application.

ELECTRICAL DATA

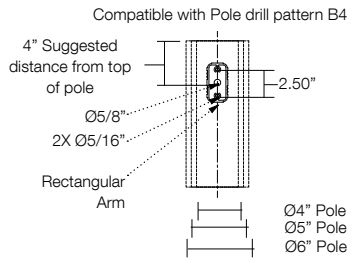
# OF LEDS	NUMBER OF DRIVERS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)
24	2	700 mA	120	55	0.5
			277		0.2
			347		0.2
			480		0.1
36	1	560 mA	120	65	0.65
			277		0.28
			347		0.22
			480		0.16
		700 mA	120	80	0.7
			277		0.3
			347		0.2
			480		0.2
48	1	700 mA	120	110	0.9
			277		0.4
			347		0.3
			480		0.2
60	1	700 mA	120	136	1.1
			277		0.5
			347		0.4
			480		0.3

PROJECTED LUMEN MAINTENANCE

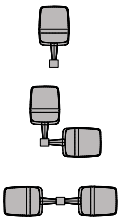
AMBIENT TEMP.	0	25,000	50,000	[1]TM-21-11 60,000	100,000	Calculated L70 (HOURS)
25°C / 77°C	1.00	0.97	0.95	0.95	0.92	>377,000

[1] Projected per IESNA TM-21-11
Data references the extrapolated performance projections for the base model in a 25°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

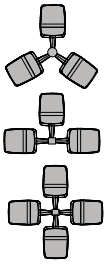
DRILL PATTERN



EPA



Config.	EPA
1	.67
2 @ 90°	1.06
2 @ 180°	1.34



Config.	EPA
3 @ 120°	1.68
3 @ 90°	1.73
4 @ 90°	2.12

TENON TOP POLE BRACKET ACCESSORIES (Order Separately)

(2 3/8" OD tenon)

Catalog Number	Description
SETA2-XX[1,2]	Square tenon adapter (4 at 90 degrees)
RETA2-XX[1,3]	Round tenon adapter (4 at 90 degrees)
TETA2-XX[1,2]	Hexagonal tenon adapter (3 at 120 degrees)

1 Replace XX with color choice, eg.: DB for Dark Bronze
2 Only for use with AD mounting option
3 Only for use with AD3 mounting option

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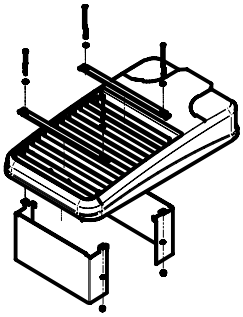
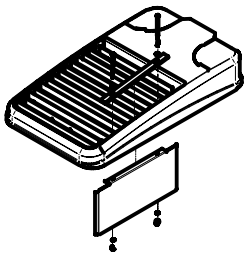
HUBBELL Lighting

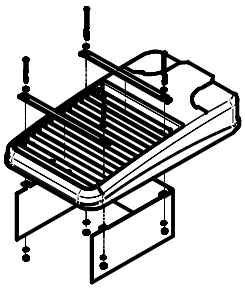
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES



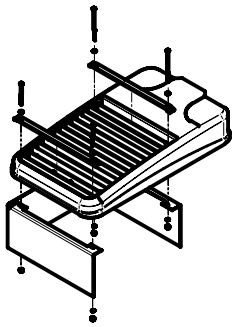
HSS/VP-S/90-FB/XXX
90° shield front or back
(2 shields shown)



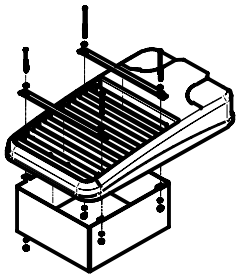
HSS/VP-S/90-LR/XXX
90° shield left or right
(1 shield shown in left orientation)



HSS/VP-S/270-FB/XXX
270° shield front or back
(1 shield shown in back orientation)

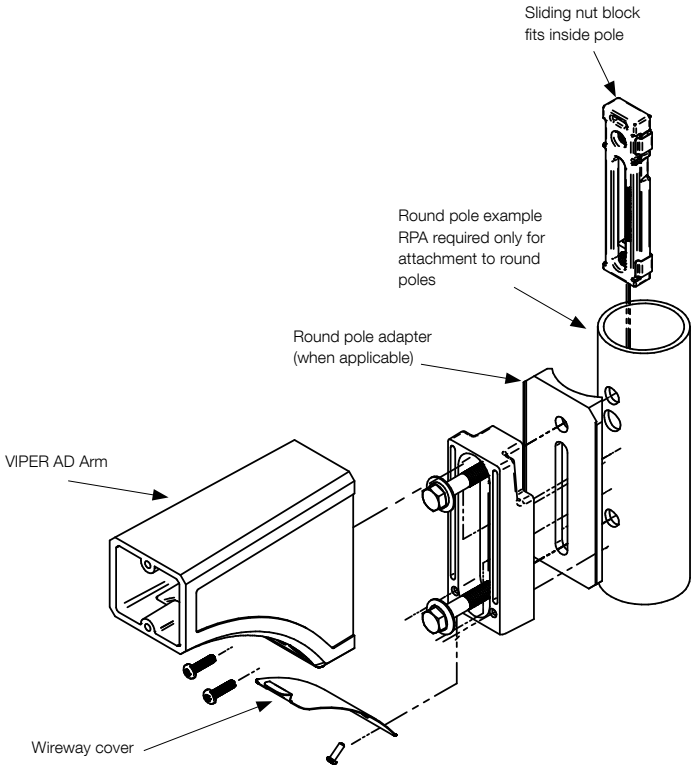


HSS/VP-S/270-LR/XXX
270° shield left or right
(1 shield shown in right orientation)



HSS/VP-S/360/XXX
Full shield (1 shield shown)

AD ARM MOUNTING INSTRUCTIONS



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ID+ 3.5" x 3.5"

LED DOWNLIGHT

FOCAL POINT®

clear diffuse

warm diffuse

black flange

titanium silver flange

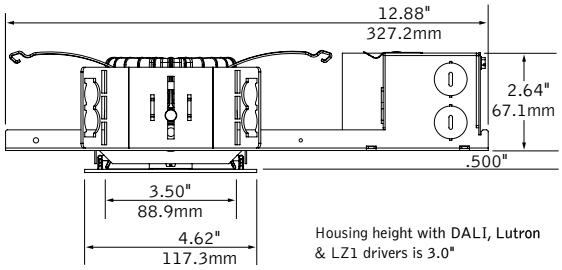
die-cast black

die-cast white

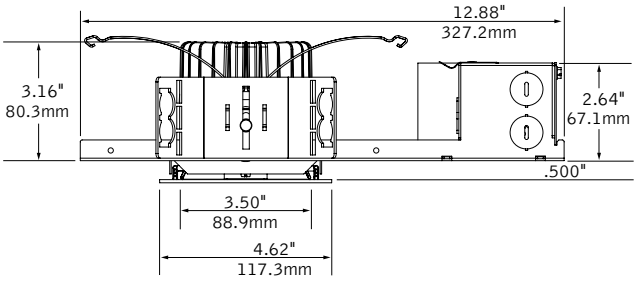
trimless companion

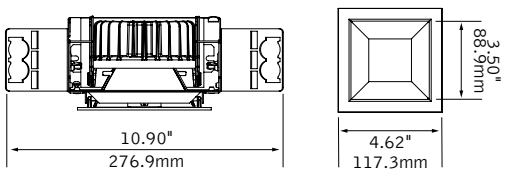
DIMENSIONAL DATA

60˚ cut-off reflector



50˚ cut-off reflector





FEATURES

Less than 2.64" low profile housing available.

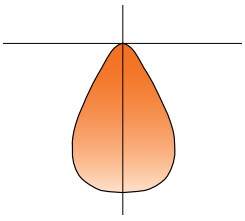
ChromaSure: Color consistency resulting in a 2-step MacAdam ellipse across the entire ID+ product line.

Field adjustability of ceiling thickness from 0.5" - 1.5".

50˚ cut-off and 60˚ cut-off reflector options available.

Selection of dimming drivers available.

PERFORMANCE



Short 60˚ Cut-off,
White Reflector, 4000K

Delivered Lumens: 1500lm

Total System Watts: 17W

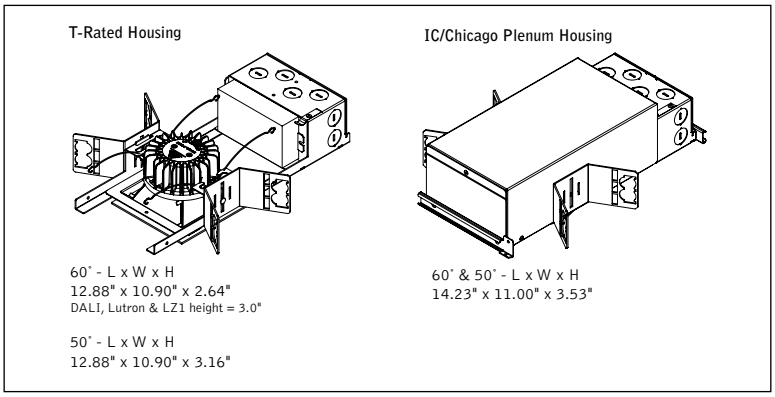
PRODUCT OVERVIEW

Lumen Output:	700-1500lm
Wattage:	8-17W
LPW:	85-92
SDCM:	2

Photometric performance is measured in accordance with IESNA LM-79.
Visit focalpointlights.com for complete photometric data. Visit energystar.gov for model specifics.

fixture: project:

HOUSING DETAILS



HOUSING SPECIFICATIONS

Construction

Thermally protected housing for new construction applications. Insulation to be kept 3" away from housing. Type IC inherently protected, suitable for direct contact with insulation. Restrictive airflow per ASTM-E283. Butterfly brackets allow mounting to ½ emt. Order bar hangers as an accessory. Die–cast aluminum heat sink designed for maximum thermal dissipation. Die-formed housing and integral junction box with (7) 1⁄2" pry outs. Accommodates ceiling thicknesses up to 0.5" standard, field adjustable up to 1.5" thickness. For thicker ceiling consult factory. Fixture will not exceed 5 lb.

Electrical

Choice of constant current dimming drivers. Power factor > .9 typical.

Emergency

Emergency Battery Pack: Bodine BSL17C–C2. Emergency output —7W for 90 minutes. Maximum mounting height: 20.7ft.

Labels

UL and cUL listed. Suitable for Dry, Damp or Wet Locations, indoor use only.

Lumen Maintenance

Reported:	L70 at >55,000 hours	Calculated:	L70 at 420,000 hours
	L90 at >55,000 hours		L90 at 109,000 hours

Derived from EPA TM-21 calculator. Based on typical conditions, consult factory for additional data.

Reliability

At Focal Point, our products are designed to stand the test of time. Each luminaire is engineered using superior components, manufactured with the utmost care and rigorously tested. Contact us for reliability data.

Warranty

LED System rated for operation in ambient environments up to 25°C. 5-year limited warranty.

TRIM & LED SPECIFICATIONS

LED System

Proprietary array incorporates premium LEDs on a robust platform. May be specified in 2700K, 3000K, 3500K or 4000K, CRI>80 or >90. Color accuracy within 2 SDCM. Aluminum heat sink provides appropriate thermal management.

Aesthetics

Die–formed aluminum reflector ensures glare free optics. Reflector attaches to die-cast, seamless flange and may be removed for field painting. Full die-cast painted reflectors also available. Torsion springs pull trim tight to the ceiling with no visible fasteners within the trim.

Optics

50-degree or 60-degree cut–off to light source and its image.

PERFORMANCE CHART—SHORT 60° CUT-OFF

Delivered Lumens	System Watts	LPW
700	8	88
900	10	90
1100	12	92
1300	15	85
1500	17	87

Based on Die-Cast Trimless, 3500K,80CRI, Wide Flood, White. See page 3 for lumen performance multipliers. Lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

Focal Point LLC reserves the right to change specifications for product improvement without notification.

HOUSING ORDERING

Housing Series — FLC33D
- ID+ 3.5" Square — FLC33D

Trim Type — SO
- Square Overlap — SO

Lumen Output
- 700 Lumen — 700L
- 900 Lumen — 900L
- 1100 Lumen — 1100L
- 1300 Lumen — 1300L
- 1500 Lumen — 1500L

Voltage
- 120V — 120
- 277V — 277

Control System & Dimming Level
- 0-10V - 0% Dimming — LZ1
- 0-10V - 1% Dimming — L11
- 0-10V - 10% Dimming — LD1
- Forward Phase — LFP
  (120V only. 900 & 1300 Lumens only.)
- Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming — LH1
  (700 &1500 lumens not available.)
- Lutron 5-Series EcoSystem (LDE5) - 5% Dimming — LU5
  (1300 Lumens only)
- Lutron Hi-Lume - Forward Phase - 1% Dimming — LTE
  (120V only. 1500 lumens not available.)
- DALI - 0% Dimming — DZ1
- DALI - 1% Dimming — D11

Housing Type
- IC Rated / Airtight — IC
  (Available options: L11 & LD1: 700, 900 & 1100 Lumens. LFP: 900 & 1300 Lumens.)
- Thermally Protected, Non-IC — T
  (Housing height = 3.0" for LZ1, L3D, LH1, LTE, LU5, D11 & DZ1)

Factory Options
- Bar Hangers — BH
- Chicago Plenum — CP
- Emergency Battery with Remote test switch — EMR
  (T-rated housing only. Not available with CP or AT. Above Ceiling Access.)

TRIM & LED MODULE

Aperture — LC33
- 3.5" Square Reflector — LC33

Trim Type
- Square Overlap — SO
- Square Die-Cast Overlap — SDO
  (Die-cast trim available in Black/Black or White/White finishes only)

Lumen Output
(Trim & housing output must match)
- 700 Lumen — 700L
- 900 Lumen — 900L
- 1100 Lumen — 1100L
- 1300 Lumen — 1300L
- 1500 Lumen — 1500L

Color Temperature
- 2700K, 80+ CRI — 27K
- 2700K, 90+ CRI — 927K
- 3000K, 80+ CRI — 30K
- 3000K, 90+ CRI — 930K
- 3500K, 80+ CRI — 35K
- 3500K, 90+ CRI — 935K
- 4000K, 80+ CRI — 40K
- 4000K, 90+ CRI — 940K

Optic
- Tall Cone with 50˚ cut-off — DNT
  (Not available with Die-Cast trims.)
- Short Cone with 60˚ cut-off — DNS

Distribution — WFL
- Wide Flood — WFL

Color
- Clear Diffuse — CD
- Warm Diffuse — WD
- Black — BK
- White — WH

Flange Finish
- Black Painted — BK
- White Painted — WH
- Titanium Silver — TS

QS 5 DAY* Options in orange qualify for the Quickship program. 5-day up to 100 pieces. Refer to Quickship Guide for complete details.

For more information visit focalpointlights.com/reference or consult factory.

LUMEN PERFORMANCE MULTIPLIER CHART - SQUARE DOWNLIGHT

Option	Description	Ordering Code	Multiplier
Trim Type	Square Trimless	ST	0.95
	Square Overlap	SO	0.90
	Square Die-Cast Trimless	SDT	1.01
	Square Die-Cast Overlap	SDO	0.97
Color Temperature	2700K, 80+ CRI	27K	0.93
	2700K, 90+ CRI	927K	0.75
	3000K, 80+ CRI	30K	1.00
	3000K, 90+ CRI	930K	0.81
	3500K, 80+ CRI	35K	1.00
	3500K, 90+ CRI	935K	0.87
	4000K, 80+ CRI	40K	1.00
	4000K, 90+ CRI	940K	0.87
Optic	Tall Cone with 50˚ cut-off	DNT	0.92
	Short Cone with 60˚ cut-off	DNS	1.00
Color	Clear Diffuse	CD	1.00
	Warm Diffuse	WD	0.85
	White Non-Die-Cast	WH	1.13
	White Die-Cast	WH	1.00
	Black	BK	0.56

ID+ 3.5" x 3.5"

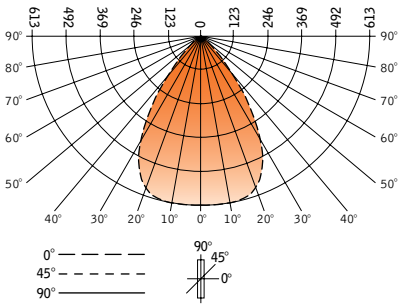
LED DOWNLIGHT

FLC33D-SO-900L-120-L11-T/LC33-SO-900L-27K-DNS-WFL-CD

Filename: FLC33DSO900LSO27KDNSWFLCD.IES

Lumens: 613lm
System Watts: 10W
LPW: 61

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	549	549	549	549	549	
5°	550	551	551	551	551	53
15°	539	543	546	543	540	152
25°	419	444	473	446	420	201
35°	165	203	275	205	168	134
45°	53	58	78	59	54	51
55°	19	21	21	22	20	19
65°	2	2	4	1	1	3
75°	2	1	1	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

LUMEN SUMMARY

	Zone	Lumens	% Fixture
	0-30°	406	66.2
	0-40°	539	88.0
	0-60°	609	99.4
	0-90°	613	100.0
Total Luminaire	0-180°	**613**	**100.0**

LUMINANCE DATA (CD/M²)

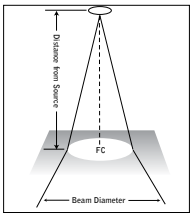
Vertical Angle	Horizontal 0°	45°	90°
45°	9396	13873	9678
55°	4248	4655	4328
65°	512	1105	364
75°	748	286	198
85°	392	262	195

CO-EFFICIENTS OF UTILIZATION

Floor		20												
Ceiling		80				70			50		30		10		00
Wall		70	50	30	10	70	50	10	50	10	50	10	50	10	00
RCR	0	119	119	119	119	116	116	116	111	111	106	106	102	102	100
	1	113	110	108	105	111	108	104	104	101	100	98	97	95	93
	2	107	102	98	94	105	100	93	97	91	94	89	91	87	86
	3	101	95	89	85	99	93	85	91	83	88	82	86	81	79
	4	96	88	82	78	94	87	77	85	76	83	75	81	75	73
	5	91	82	76	71	89	81	71	79	70	77	70	76	69	67
	6	86	76	70	66	84	76	65	74	65	73	65	71	64	63
	7	81	72	65	61	80	71	61	70	60	68	60	67	60	58
	8	77	67	61	56	76	66	56	65	56	64	56	63	56	54
	9	73	63	57	53	72	63	53	62	52	61	52	60	52	51
	10	70	59	53	49	69	59	49	58	49	57	49	57	49	47

Numbers indicate percentage values of reflectivity.

FOOTCANDLE VALUES



0° aiming angle - horizontal surface

Distance from source	Beam Diameter	Center Beam (FC)
4'	4.7'	34
6'	7.1'	15
8'	9.4'	9
10'	11.8'	5

Footcandle results based on AGI32; Reflectances=0/0/0; LLF=1

Go to www.focalpointlights.com for additional photometric data.

ID+ 3.5" x 3.5"

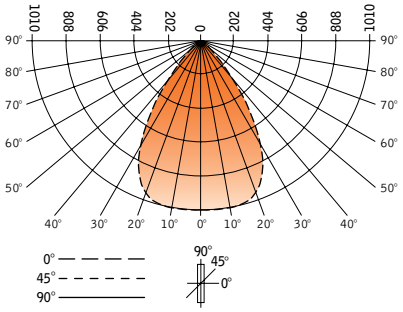
LED DOWNLIGHT

FLC33D-SO-1100L-120-L11-T/LC33-SO-1100L-35K-DNS-WFL-CD

Filename: FLC33DSO1100LSO35KDNSWFLCD.IES

Lumens: 1010lm
System Watts: 12W
LPW: 83

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	906	906	906	906	906	
5°	907	909	909	909	909	87
15°	888	894	900	895	891	251
25°	690	731	780	735	692	331
35°	272	335	453	338	276	220
45°	87	96	128	98	89	84
55°	32	35	35	36	32	31
65°	3	3	6	2	2	5
75°	3	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

LUMEN SUMMARY

	Zone	Lumens	% Fixture
	0-30°	668	66.2
	0-40°	889	88.0
	0-60°	1004	99.4
	0-90°	1010	100.0
Total Luminaire	0-180°	**1010**	**100.0**

LUMINANCE DATA (CD/M²)

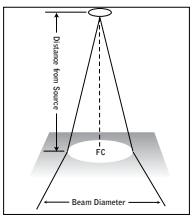
Vertical Angle	Horizontal 0°	45°	90°
45°	15489	22868	15953
55°	7003	7674	7134
65°	844	1821	600
75°	1233	471	326
85°	645	431	323

CO-EFFICIENTS OF UTILIZATION

Floor		20												
Ceiling		80				70			50		30		10		00
Wall		70	50	30	10	70	50	10	50	10	50	10	50	10	00
RCR	0	119	119	119	119	116	116	116	111	111	106	106	102	102	100
	1	113	110	108	105	111	108	104	104	101	100	98	97	95	93
	2	107	102	98	94	105	100	93	97	91	94	89	91	87	86
	3	101	95	89	85	99	93	85	91	83	88	82	86	81	79
	4	96	88	82	78	94	87	77	85	76	83	75	81	75	73
	5	91	82	76	71	89	81	71	79	70	77	70	76	69	67
	6	86	76	70	66	84	76	65	74	65	73	65	71	64	63
	7	81	72	65	61	80	71	61	70	60	68	60	67	60	58
	8	77	67	61	56	76	66	56	65	56	64	56	63	56	54
	9	73	63	57	53	72	63	53	62	52	61	52	60	52	51
	10	70	59	53	49	69	59	49	58	49	57	49	57	49	47

Numbers indicate percentage values of reflectivity.

FOOTCANDLE VALUES



0° aiming angle - horizontal surface

Distance from source	Beam Diameter	Center Beam (FC)
4'	4.7'	57
6'	7.1'	25
8'	9.4'	14
10'	11.8'	9

Footcandle results based on AGI32; Reflectances=0/0/0; LLF=1

Go to www.focalpointlights.com for additional photometric data.

ID+ 3.5" x 3.5"

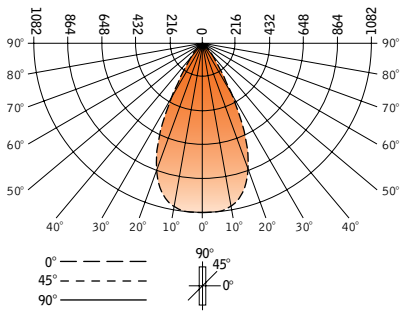
LED DOWNLIGHT

FLC33D-SO-1300L-120-L11-T/LC33-SO-1300L-35K-DNT-WFL-CD

Filename: FLC33DSO1300LSO35KDNTWFLCD.IES

Lumens: 1082lm
System Watts: 15W
LPW: 72

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	1377	1377	1377	1377	1377	
5°	1373	1377	1376	1374	1371	130
15°	1228	1259	1289	1263	1233	349
25°	708	815	921	809	700	362
35°	187	223	334	222	188	161
45°	67	73	76	76	71	58
55°	11	12	18	12	11	15
65°	4	4	4	4	4	4
75°	2	2	2	2	1	2
85°	1	1	1	2	1	1
90°	1	1	1	1	0	0

LUMEN SUMMARY

	Zone	Lumens	% Fixture
	0-30°	841	77.7
	0-40°	1002	92.6
	0-60°	1075	99.3
	0-90°	1082	100.0
Total Luminaire	0-180°	**1082**	**100.0**

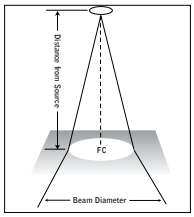
LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal 0°	45°	90°
45°	12034	13555	12690
55°	2486	4044	2505
65°	1232	1285	1205
75°	743	918	700
85°	1039	1168	1039

CO-EFFICIENTS OF UTILIZATION

Floor		20												
Ceiling		80				70			50		30		10		00
Wall		70	50	30	10	70	50	10	50	10	50	10	50	10	00
RCR	0	119	119	119	119	116	116	116	111	111	106	106	102	102	100
	1	114	111	109	106	111	109	105	105	101	101	98	98	96	94
	2	108	104	100	96	106	102	95	99	93	96	91	93	89	88
	3	103	97	92	88	101	96	88	93	86	91	85	88	84	82
	4	98	91	86	82	96	90	81	88	80	86	79	84	78	77
	5	94	86	80	76	92	85	75	83	75	81	74	80	74	72
	6	89	81	75	71	88	80	71	78	70	77	70	76	69	68
	7	85	76	70	66	84	75	66	74	66	73	65	72	65	64
	8	81	72	66	62	80	72	62	70	62	69	62	68	61	60
	9	78	68	63	59	76	68	59	67	59	66	58	65	58	57
	10	74	65	59	56	73	64	56	64	55	63	55	62	55	54

Numbers indicate percentage values of reflectivity.



FOOTCANDLE VALUES

0° aiming angle - horizontal surface

Distance from source	Beam Diameter	Center Beam (FC)
4'	3.8'	86
6'	5.7'	38
8'	7.5'	22
10'	9.4'	14

Footcandle results based on AGI32; Reflectances=0/0/0; LLF=1

Go to www.focalpointlights.com for additional photometric data.

ID+ 3.5" x 3.5"

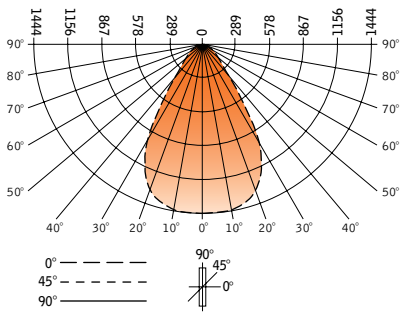
LED DOWNLIGHT

FLC33D-SDO-1500L-120-L11-T/LC33-SDO-1500L-40K-DNS-WFL-WH

Filename: FLC33DSO1500LSDO35KDNSWFLWH.IES

Lumens: 1444lm
System Watts: 17W
LPW: 84

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	1102	1102	1102	1102	1102	
5°	1098	1100	1100	1100	1101	79
15°	1059	1063	1067	1062	1058	171
25°	872	899	928	892	864	207
35°	407	489	616	487	408	133
45°	166	183	237	185	168	65
55°	94	101	102	102	95	39
65°	41	42	47	42	41	26
75°	22	22	22	22	22	10
85°	6	6	6	6	6	2
90°	0	0	0	0	0	0

LUMEN SUMMARY

	Zone	Lumens	% Fixture
	0-40°	1125	77.9
	0-60°	1369	94.8
	0-90°	1444	100.0
	90-180°	0	0.0
Total Luminaire	0-180°	**1444**	**100.0**

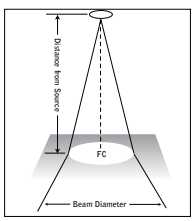
LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal 0°	45°	90°
45°	27620	39610	28030
55°	19370	21020	19620
65°	11370	13160	11430
75°	9809	9990	9918
85°	8245	8244	8338

CO-EFFICIENTS OF UTILIZATION

Floor		20												
Ceiling		80				70			50		30		10		00
Wall		70	50	30	10	70	50	10	50	10	50	10	50	10	00
RCR	0	1719	1719	1719	1719	1679	1679	1679	1605	1605	1537	1537	1474	1474	1444
	1	1620	1572	1529	1490	1583	1540	1466	1481	1420	1426	1378	1376	1338	1311
	2	1520	1436	1366	1307	1487	1410	1292	1362	1263	1318	1235	1277	1209	1183
	3	1426	1315	1230	1161	1395	1294	1152	1255	1133	1219	1114	1185	1097	1071
	4	1339	1210	1115	1043	1311	1193	1037	1160	1024	1129	1011	1101	999	974
	5	1258	1117	1018	945	1233	1102	941	1075	932	1050	923	1026	915	890
	6	1184	1035	934	862	1161	1023	859	999	853	978	847	957	841	817
	7	1116	962	862	792	1095	951	789	932	785	913	780	896	776	752
	8	1054	897	798	730	1035	888	729	871	725	855	722	840	718	696
	9	997	839	742	677	979	831	675	817	673	803	670	790	668	646
	10	945	787	692	630	929	780	629	767	627	755	625	744	623	602

Numbers indicate percentage values of reflectivity.



FOOTCANDLE VALUES

0° aiming angle - horizontal surface

Distance from source	Beam Diameter	Center Beam (FC)
4'	4.3'	69
6'	6.4'	31
8'	8.5'	17
10'	10.7'	11

Footcandle results based on AGI32; Reflectances=0/0/0; LLF=1

Go to www.focalpointlights.com for additional photometric data.

ID+ 3.5" x 3.5"

LED WALL WASH

FOCAL POINT®

clear diffuse

warm diffuse

titanium silver flange

black flange

white flange

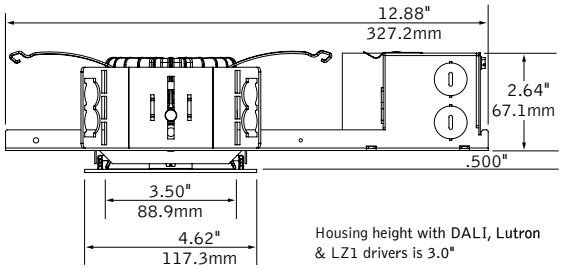
die-cast black

die-cast white

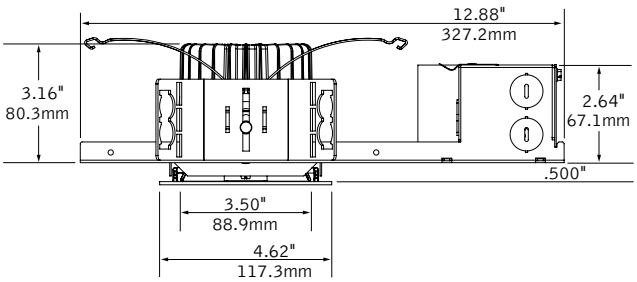
trimless companion

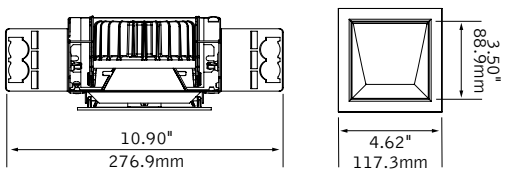
DIMENSIONAL DATA

60˚ cut-off reflector



50˚ cut-off reflector





FEATURES

Less than 2.64" low profile housing available.

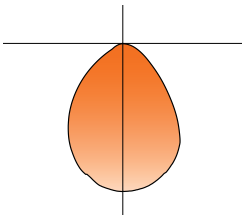
ChromaSure: Color consistency resulting in a 2-step MacAdam ellipse across the entire ID+ product line.

Field adjustability of ceiling thickness from 0.5" - 1.5".

50˚ cut-off and 60˚ cut-off reflector options available.

Selection of dimming drivers available.

PERFORMANCE



Short 60˚ Cut-off,
White Reflector, 3500K

Delivered Lumens: 1500lm

Total System Watts: 17W

PRODUCT OVERVIEW

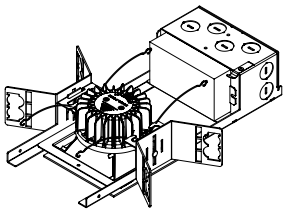
Lumen Output:	700-1500lm
Wattage:	8-17W
LPW:	85-92
SDCM:	2

Photometric performance is measured in accordance with IESNA LM-79.
Visit focalpointlights.com for complete photometric data. Visit energystar.gov for model specifics.

fixture: project:

HOUSING DETAILS

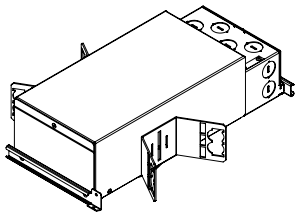
T-Rated Housing



60˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.16"

IC/Chicago Plenum Housing



60˚ & 50˚ - L x W x H
14.23" x 11.00" x 3.53"

HOUSING SPECIFICATIONS

Construction

Thermally protected housing for new construction applications. Insulation to be kept 3" away from housing. Type IC inherently protected, suitable for direct contact with insulation. Restrictive airflow per ASTM-E283. Butterfly brackets allow mounting to ½ emt. Order bar hangers as an accessory. Die–cast aluminum heat sink designed for maximum thermal dissipation. Die-formed housing and integral junction box with (7) ½" pry outs. Accommodates ceiling thicknesses up to 0.5" standard, field adjustable up to 1.5" thickness. For thicker ceiling consult factory. Fixture will not exceed 5 lb.

Electrical

Choice of constant current dimming drivers. Power factor > .9 typical.

Labels

UL and cUL listed. Suitable for Dry, Damp or Wet Locations, indoor use only.

Lumen Maintenance

Reported:	L70 at >55,000 hours	Calculated:	L70 at 420,000 hours
	L90 at >55,000 hours		L90 at 109,000 hours

Derived from EPA TM-21 calculator. Based on typical conditions, consult factory for additional data.

Reliability

At Focal Point, our products are designed to stand the test of time. Each luminaire is engineered using superior components, manufactured with the utmost care and rigorously tested. Contact us for reliability data.

Warranty

LED System rated for operation in ambient environments up to 25°C. 5-year limited warranty.

TRIM & LED SPECIFICATIONS

LED System

Proprietary array incorporates premium LEDs on a robust platform. May be specified in 2700K, 3000K, 3500K or 4000K, CRI>80 or >90. Color accuracy within 2 SDCM. Aluminum heat sink provides appropriate thermal management.

Aesthetics

Die–formed aluminum reflector ensures glare free optics. Reflector attaches to die-cast, seamless flange and may be removed for field painting. Full die-cast painted reflectors also available. Torsion springs pull trim tight to the ceiling with no visible fasteners within the trim.

Optics

50-degree or 60-degree cut–off to light source and its image. Wall wash features acrylic diffuser to provide smooth illumination down the wall.

PERFORMANCE CHART—SHORT 60° CUT-OFF

Delivered Lumens	System Watts	LPW
700	8	88
900	10	90
1100	12	92
1300	15	85
1500	17	87

Based on Die-Cast Trimless, 3500K,80CRI, Wide Flood, White. See page 3 for lumen performance multipliers. Lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

HOUSING ORDERING

		FLC33W
Housing Series		
ID+ 3.5" Square	FLC33W	
Trim Type		**SO**
Square Overlap	SO	
Lumen Output		
700 Lumen	700L	
900 Lumen	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
Voltage		
120V	120	
277V	277	
Control System & Dimming Level		
0-10V - 0% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Forward Phase (120V only. 900 & 1300 Lumens only.)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming (700 &1500 lumens not available.)	LH1	
Lutron 5-Series EcoSystem (LDE5) - 5% Dimming (1300 Lumens only)	LU5	
Lutron Hi-Lume - Forward Phase - 1% Dimming (120V only. 1500 lumens not available.)	LTE	
DALI - 0% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		
IC Rated / Airtight (Available options: L11 & LD1: 700, 900 & 1100 Lumens. LFP: 900 & 1300 Lumens.)	IC	
Thermally Protected, Non-IC (Housing height = 3.0" for LZ1, L3D, LH1, LTE, LU5, D11 & DZ1)	T	
Factory Options		
Bar Hangers	BH	
Chicago Plenum	CP	

TRIM & LED MODULE

		LC33
Aperture		
3.5" Square Reflector	LC33	
Trim Type		
Square Overlap	SO	
Square Die-Cast Overlap (Die-cast trim available in Black/Black or White/White finishes only)	SDO	
Lumen Output (Trim & housing output must match)		
700 Lumen	700L	
900 Lumen	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
Color Temperature		
2700K, 80+ CRI	27K	
2700K, 90+ CRI	927K	
3000K, 80+ CRI	30K	
3000K, 90+ CRI	930K	
3500K, 80+ CRI	35K	
3500K, 90+ CRI	935K	
4000K, 80+ CRI	40K	
4000K, 90+ CRI	940K	
Optic		
Tall Cone with 50˚ cut-off (Not available with Die-Cast trims.)	WWT	
Short Cone with 60˚ cut-off	WWS	
Color		
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Flange Finish		
Black Painted	BK	
White Painted	WH	
Titanium Silver	TS	

QS 5 DAY* Options in orange qualify for the Quickship program. 5-day up to 30 pieces. Refer to Quickship Guide for complete details.

LUMEN PERFORMANCE MULTIPLIER CHART - SQUARE WALL WASH

Option	Description	Ordering Code	Multiplier
Trim Type	Square Trimless	ST	0.84
	Square Overlap	SO	0.79
	Square Die-Cast Trimless	SDT	0.93
	Square Die-Cast Overlap	SDO	0.92
Color Temperature	2700K, 80+ CRI	27K	0.93
	2700K, 90+ CRI	927K	0.75
	3000K, 80+ CRI	30K	1.00
	3000K, 90+ CRI	930K	0.81
	3500K, 80+ CRI	35K	1.00
	3500K, 90+ CRI	935K	0.87
	4000K, 80+ CRI	40K	1.00
	4000K, 90+ CRI	940K	0.87
Optic	Tall Cone with 50˚ cut-off	WWT	0.92
	Short Cone with 60˚ cut-off	WWS	1.00
Color	Clear Diffuse	CD	1.00
	Warm Diffuse	WD	0.85
	White Non-Die-Cast	WH	1.13
	White Die-Cast	WH	1.00
	Black	BK	0.56

ID+ 3.5" x 3.5"

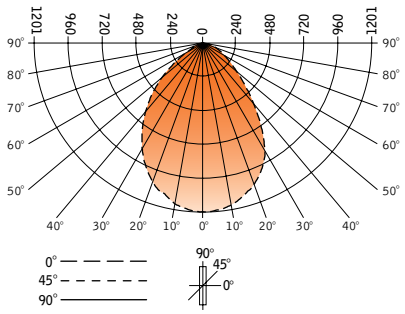
LED WALL WASH

FLC33W-SO-1300L-120-L11-T/LC33-SDO-1300L-35K-WWS-WH

Filename: FL33DSO1300LSDO35KWWSWFLWH.IES

Lumens: 1201lm
System Watts: 15W
LPW: 80

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	739	739	739	739	739	
5°	735	732	733	732	733	69
15°	693	684	684	680	680	193
25°	613	601	584	555	543	266
35°	452	454	442	351	313	258
45°	268	277	257	185	165	190
55°	152	155	134	111	99	119
65°	89	85	75	61	54	64
75°	47	41	34	27	24	32
85°	10	7	6	5	5	8
90°	0	1	1	1	1	0

LUMEN SUMMARY

	Zone	Lumens	% Fixture
	0-30°	528	44.0
	0-40°	786	65.5
	0-60°	1096	91.3
	0-90°	1201	100.0
Total Luminaire	0-180°	**1201**	**100.0**

LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal 0°	45°	90°
45°	44717	42897	27541
55°	31147	27564	20433
65°	24735	20837	14998
75°	21406	15454	11050
85°	12935	8719	6992

CO-EFFICIENTS OF UTILIZATION

Floor	20												
Ceiling	80				70			50		30		10	00
Wall													
RCR 0	119	119	119	119	116	116	116	111	111	106	106	102	102	100
1	111	107	104	101	109	105	99	101	96	97	93	94	91	89
2	103	97	91	87	101	95	86	91	84	88	82	85	80	78
3	96	87	81	75	94	86	75	83	73	80	72	78	71	69
4	89	79	72	66	87	78	66	76	65	74	64	72	64	62
5	83	72	65	59	81	71	59	69	58	67	58	66	57	55
6	78	66	59	53	76	65	53	64	53	62	52	61	52	50
7	73	61	53	48	71	60	48	59	48	58	47	56	47	45
8	68	56	49	44	67	56	44	55	44	53	43	52	43	41
9	64	52	45	40	63	52	40	51	40	50	40	49	40	38
10	61	49	42	37	59	48	37	47	37	47	37	46	37	35

Numbers indicate percentage values of reflectivity.

Go to www.focalpointlights.com for additional photometric data.

LNC SERIES

Cat.#

Job

Type

HUBBELL Outdoor Lighting

Approvals

SPECIFICATIONS

Intended Use:
The compact LED LNC is designed for entry/perimeter illumination for safety, security and identity. Typical mounting height is up to 12 feet with 40ft fixture spacing (without acrylic diffuser) and 30ft spacing with acrylic diffuser installed. Photocontrol option is available to provide dusk-to-dawn control for additional energy savings.

Construction:
Decorative die-cast aluminum housing and door. Rugged design protects internal components and provides excellent thermal management for long life – 60,000 hours minimum LED life at L96 rating per IESNA TM-21-11. Powder paint finishes provide lasting appearance in outdoor environments.

Optics/Electrical
LED:
Drivers are 120-277V, 50/60Hz Type II, III and Type IV lenses provide wide lateral spread.
0-10V dimming 120-277V only.

- LNC5L – 5 LEDs, Types II, III or IV available, see page 2 for electrical details
- LNC7L – 7 LEDs, Type II, III or IV available, see page 2 for electrical details
- LNC9L – 9 LEDs, Types II, III or IV available, see page 2 for electrical details
- 3000K - 80 CRI, 4000K - 70 CRI, and 5000K - 70 CRI, CCT nominal
- Minimum operating temperature is -40˚C/-40˚F
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion

Lenses:
Full cut-off distribution; Ambient diffuser included, use for applications near enterances or locations where reduced brightness is desired.

Installation:
Quick mount adapter provides quick installation, designed for recessed box 4" square junction box.

Listings:
Listed and labeled to UL 1598 for wet locations, 25˚ C ambient environments. DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at: http://www.designlights.org/

- IES Progress Award Winner - 2012

Warranty:
Five year limited warranty. For more information visit: http://www.hubbelloutdoor.com/resources/warranty/

CERTIFICATIONS/LISTINGS

*3000K and warmer CCTs only

PRODUCT IMAGE(S)

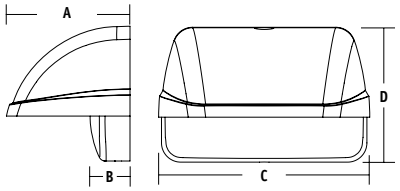
LNC-5L

LNC-7L

LNC-9L

With diffuser

DIMENSIONS



A	B	C	D
4.81" (122 mm)	1.55" (39 mm)	8.22" (209 mm)	5.25" (133 mm)

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
LNC-5LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-7LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-9LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2

ORDERING INFORMATION

ORDERING EXAMPLE: LNC-9LU-5K-3-1-PCU

LNC - [ ] [ ] - [ ] - [ ] - [ ] - [ ]

SERIES	NUMBER OF LEDS	VOLTAGE	CCT	IES DISTRIBUTION	FINISH	OPTIONS
LNC LNC zero uplight	**5L** 5 LEDs	**U** 120V-277V	**3K** 3000K nominal, 70 CRI	**2** Type II	**1** Bronze	**PCU** Universal Button Photocell
	7L 7 LEDs	**1** 120V	**4K** 4000K nominal, 70 CRI	**3** Type III	**2** Black	
	9L 9 LEDs	**2** 208V	**5K** 5000K nominal	**4** Type IV	**3** Gray	
		3 240V	**AM**[1] Amber (590 µm available for "Turtle Friendly"/ observatory applications, 350 mA (consult factory)		**4** White	
		4 277V			**5** Platinum	

1 Amber LEDs only available on 7LU and 9LU configurations, 350 mA only

Hubbell Outdoor Lighting • 701 Millennium Boulevard • Greenville, SC 29607 • Phone: 864-678-1000
Due to our continued efforts to improve our products, product specifications are subject to change without notice.
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AUGUST 30, 2017 4:46 PM

PORTLAND HOUSING AUTHORITY

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Christian MilNeil, Commissioner
Faith McLean, Commissioner
Thomas Valleau, Commissioner

Mark B. Adelson
Executive Director

14 Baxter Boulevard
Portland, Maine 04101
Office: 207-773-4753
Fax: 207-761-5886
www.porthouse.org

58 Boyd Street
Neighborhood Meeting Certification

I, Jay Waterman, Director of Development at the Portland Housing Authority, hereby certify that a neighborhood meeting was held on Monday, October 30, 2017 at 58 Boyd Street Community Room from 6:30pm to 8:00pm.

I also certify that on Thursday, October 19, 2017, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.
2. Residents on the "interested parties" list.
3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Respectfully Submitted,

Jay Waterman, Director of Development

11/9/17 (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

PORTLAND HOUSING AUTHORITY

Please Give Your Input for a Better Project!

Neighborhood Meeting
To discuss the development of
58 Boyd Street Apartments

We have submitted our Site Plan Application to the Planning Board. Please join us for a community discussion regarding the future development of these affordable mixed-income apartments in East Bayside. All East Bayside neighbors including PHA residents are encouraged to hear our plans and give input.

When: **Monday October 30th, 6:30-8:00pm**
What: Discuss the sale of Public Housing land and development of the 58 Boyd Street Apartments
Where: 58 Boyd Street community room (at corner of Boyd and Lancaster)

*Snacks provided
*Interpreters available

For more information or questions
Please call Jay Waterman
at 207.221.8009

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. PHA feels strongly that PHA renters should also be included so they are also sent this invitation. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board. Should you wish to offer additional comments, contact the Planning Division at 874-8721 or send written comments to City of Portland Planning Department, 389 Congress Street Portland ME 04101 or email bab@portlandmaine.gov

58 Boyd Street Neighborhood Meeting Sign-In October 30, 2017 6:30-8:00pm

	Name	Street Address	email
1	PATRICK CARROLL	217 Commercial	pcarroll@carrollassoc.com
2	BEN WALTER	53 CLIFTON ST	BWALTER@CWSARCH.COM
3	OREMUS BUTERA	5 Bayside Terrace	buteraclutenge@yahoo.com
4	Douglas Hawks	47 Smith #103	dhawksol@gmail.com
5	Ellen Bailey	17 Hammond St.	ebaileyGeastbayside.org
6	Nagham Alani	125 Lincoln St #8 Saco 09072	3eedmay73@gmail.com
7	Ricky Ho	Interpreter Portland	
8	Trevor Nugent	Portland Housing	tnugent@porthouse.org
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58 Boyd Street - Neighborhood Meeting
Monday, October 30, 2017 6:30pm -8:00pm
Meeting Minutes

The meeting was hosted by the Portland Housing Authority at 58 Boyd Street, in East Bayside, on the site of the proposed development. The meeting started at 6:40 pm and ended at approximately 7:45pm.

Jay Waterman, Development Director at PHA, presented the project, how it fits into the neighborhood and other East Bayside planning activities, the process at the planning board, the schedule, and next steps.

Pat Carroll, Landscape Architects, presented the site plan including parking, site work, infrastructure, streets and sidewalks.

Ben Walter, CWS Architects, presented the building design.

Comments from attendees (*responses or discussion in italics)***:**

There was discussion about Cultivating Community's use of the space and what they would offer to area residents and building occupants. *CC will have up to 10 employees in the building and offers programs for youth and adults in the summer in the gardens. There will be other programs offered in our community room.*

Will the telemedicine room be available for area residents outside of building occupants? *PHA is hoping to convince MaineHousing to allow area residents to use this room as well. There are some funding constraints on this, but we think we will overcome this technical issue.*

The connection to Franklin Street was discussed and whether the proposed removal of the fence is a potential danger to pedestrians. *The team thinks removing the dilapidated chain link fence is better for aesthetics and has no bearing on whether pedestrians are drawn to Franklin. The City needs to come up with a solution to Franklin Street because it is dangerous for pedestrians currently.*

Off-street parking was discussed and commenters are happy that there will be some off-street parking and the potential for a shared car on Boyd Street. There was concern about guest parking. Asking the City to allow resident-only parking in the neighborhood was discussed. There are a lot of commuters who park in the neighborhood and then walk to work Downtown or on Munjoy Hill. *PHA will advocate for resident only sticker. Guest parking will be on the street and our parking study indicated there are plenty of parking spaces on the street within 500 feet of the proposed project.*

Could there be exercise equipment in the shared community room? *PHA is looking into this possibility with our designers and seeing if it can fit in the budget.*

Could the neighborhood rent out the community room space? *58 Boyd Street, LP, the project owner, will let local community groups sign up to use the community shared space in the building for free. There might be a fee for certain activities such as birthday parties or events*

that need cleaning up after. PHA wants this space to be active and used most of the time. We do not like space sitting idle when there are so many needs in the community.

Concern about losing some open space in the neighborhood. *PHA acknowledges that there will be a loss of some green space since the current building has a smaller footprint than the proposed building. Hopefully there will be enhancements or redesign of the Boyd Street Urban Farm and this will appeal to people once the building is built.*

END OF MEETING MINUTES

Note: These meeting minutes are from PHA staff notes and reflect, to the best of PHA staff recollection, what was said by those in attendance. Unless these meeting minutes are disputed, they stand as a record of the meeting.

27. Neighborhood Meeting

A neighborhood meeting was required as part of the Division 30 amendments. This meeting was held at 47 Smith Street (at Oxford St.) – Bayside East Apartments Community Room on August 14th at 6:30-8:00 pm.

The following items are enclosed as part of the neighborhood meeting requirements:

1. Neighborhood meeting flyer / invite (it was posted at the subject property and mailed to the abutters list)
2. Neighborhood meeting sign-in sheet
3. Neighborhood meeting notes
4. Public process email with City
5. Photos

PORTLAND HOUSING AUTHORITY

Please join the Portland Housing Authority for a

Neighborhood Meeting
To discuss our plans for the development of 58 Boyd Street Apartments

Please join us for a community discussion regarding the future development of these affordable mixed-income apartments in East Bayside. All East Bayside neighbors including PHA residents are encouraged to hear our plans and give input.

When:	**Monday August 14th , 6:30-8:00pm**
What:	Discuss the sale of Public Housing land and development of the 58 Boyd Street Apartments
Where:	47 Smith Street (at Oxford St) -Bayside East Apts. community room

*Snacks provided
*Interpreters available

For more information or questions
Please call Jay Waterman
at 207.221.8009

(The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. [PHA feels strongly that PHA renters should also be included so they are also sent this invitation.] A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.)

58 Boyd Street Neighborhood Meeting Sign-In August 14, 2017 6:30-8:00pm

	Name	Street Address	email
1	Trevor Nugent	PHA	
2	Mark Noyes	13 Hammond St #2	mnoyes@eastbayside.org
3	Arricka Noe	23 Mayo St	ARRICKA@GMAIL.COM
4	Melissa Hoskins	52 Smith St	pedehoskins@gmail.com
5	Laura Mailander	4[illegible] Smith	lauramailander@gmail.com
6	EDIE WOODWORD	28 Hammond St	—
7	Cynthia Cochran	17 Hammond St	ccochran@eastbayside.org
8	Ellen Bailey	17 Hammond St	ebailey@eastbayside.org
9	Douglas Hawks	47 Smith St #103	dhawks01@gmail.com
10	Christian MilNeil	45 Smith St #2	c.neal.milneil@gmail.com
11	JESSICA MILNEIL	" " " "	jessicamilneil@gmail.com
12	Cranelall Dathaker		
13	[illegible]	47 Smith	—
14	Peggy Hinman	118 Dartmouth St	Peggy@theroottcellar.org
15			
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58 Boyd Street - Neighborhood Meeting
Monday, August 14, 2017
Meeting Minutes

The meeting was hosted by the Portland Housing Authority at 47 Smith Street, Bayside East Senior Housing Community Room. The meeting was held from 6:30-8:00pm.

Mark Adelson, Executuve Director, opened the meeting with introductions and gave some background on the Housing Authority and PHA's Strategic Vision Plan for renovation or re-development of its 1,000+ housing units in Portland

Jay Waterman, Development Director, presented the project, how it fits into the neighborhood and other East Bayside planning activities, the process at the planning board, the schedule, and next steps. Pat Carroll, Landscape Architect, presents the site plan. Ben Walter, Architect, presented the building design.

Comments from attendees (*responses or discussion in italics)***:**
High quality property management will be very important to any new development. This is a concern because PHA's management of certain properties is inadequate. For instance, there are problems at Franklin Towers. *Mark Adelson offered to meet with neighbors about Franklin Towers at another time.*

Will there be a way for the neighbors to give the developer/owner continuous feed-back on the development and management of the property? *The management company will be available to receive any comments or concerns.*

Not sure how useful the telemedicine room will be, there should be consideration of a better use of this space.

Make good use of the first-floor space for the benefit of the community.

Question: How's is mixed income residents working at Bayside Anchor? This should be studied. *As co-owners, Avesta and PHA want to know this too and will be reviewing the success of Bayside Anchor on an ongoing basis.*

(2 commenters) heard there are tenant problems are Bayside Anchor with tenants that are previously homeless. *Response, when this occurs management goes through a period of evictions and after a while the building settles into steady tenancy with the right occupants.*

How can we get more neighbors to show up at these meetings? *There was discussion about reaching out to those not typically at these types of meetings and asking the City to include renters in their mailing lists.*

The concept of the land swap was brought up. The community gardens should be moved to the interior of east bayside on PHA owned land, and PHA should be given the land where the community gardens are now to develop dense housing. It's complicated but best for the community overall.

A neighbor pointed out that the desire path that crosses Franklin Street near Lancaster will run right past the first floor of the new building, in front of apartment windows. Plan to avoid this if possible.

A neighbor pointed out that due to the slope of the land a retaining wall will be needed at one corner of the new site.

Question: how large will the new units be? *Ben Walter noted the estimated square footages for each unit type. Efficiencies about 400 sf; 1-bedroom about 575 sf; 2-bedroom about 815 sf; and 3-bedroom about 1,040 sf.*

I support affordable housing, but I don't want another Franklin Towers, be careful of too much density. It can become a management problem.

The drug problem has gotten worse in the neighborhood overtime.

Controversial idea, has anyone thought of using the telemedicine space as a supervised injection site of intravenous drug users? Staff would need to be on site. *Telemedicine Rooms are relatively new for MaineHousing affordable projects. We are still learning the restrictions on their use.*

The problem with housing the homeless is after they are housed they bring in their homeless friends and they cause the problems, not the residents.

47 Smith Street is a great example of the property that worked out problems early on and now works very well. It took a few years. *There was discussion of a "shake-out period" where some problem tenants are evicted. Services are needed more and more to help residents be successful.*

How can neighbors get involved with PHA's Strategic Vision Plan? *Response: PHA can hold more meetings on the plan and work with EBNO.*

More questions and comments re: management. Who will own and manage 58 Boyd Street when it's completed. *We have not confirmed who the management company will be.*

More comments re: inadequate management at Franklin Towers. Management is important because residents and neighbors have to feel safe.

The neighborhood should feel invested in this development. We hope you design something the neighborhood loves.

In general, the more housing that built the less social problem we'll have.

How can we support this development, would letters from EBNO and individual neighbors help? *Response: yes please*

Note: These meeting minutes are from PHA staff notes and reflect, to the best of PHA staff recollection, what was said by those in attendance. Unless these meeting minutes are disputed, they stand as a record of the meeting.

Subject: Re: 500 Ft. Address Labels - 58 Boyd Street
Date: Thursday, August 3, 2017 at 10:10:05 AM Eastern Daylight Time
From: Barbara Barhydt
To: Jay Waterman
CC: Jennifer Munson, Patrick Carroll, Ben Walter, Mark B. Adelson, Tuck O'Brien, Jeff Levine
Attachments: image001.png

Hi Jay:

Jen is working on the labels and will get them ready for you.

We don't have any additional rules for the signs beyond the description in the amendments right now. Here is what is going to the Council:

> (a) *Required Public Process.* The developer of the project must also commit to a good faith effort to communicate openly with affected properties as their process moves forward. At a minimum, no less than 30 days prior to application for site plan review, any project that wishes to take advantage of this section must (1) hold a public meeting noticed to all properties within 500 feet of their site and (2) post a sign on the property in question describing the proposed project; intent to submit an application to the city in 30 days (cite anticipated submission date), and contact information for the developer and the Planning Authority (Department of Planning and Urban Development website link). The Planning Board may adopt regulations regarding the content and processes for noticing as part of the Technical Manual.

Hope this helps.

Barbara

Barbara Barhydt
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101
(207) 874-8699
Fax: (207) 756-8256
bab@portlandmaine.gov

On Thu, Aug 3, 2017 at 8:52 AM, Jay Waterman <jwaterman@porthouse.org> wrote:

> Hi Jennifer,
>
> If the Division 30 changes pass at the council in September I will need to have had a public meeting for 58 Boyd Street 30 days prior to submitting my Site Plan application.

Can you send me address labels for those within 500 feet of 58 Boyd Street and other interested parties? You can send them as 8 ½ x 11 page with 30 labels to a page. Avery #5160

Barbara, are there any standards for the site sign per Section 14.488.4?

Thanks,

Jay

Jay Waterman, LEED AP BD+C/Homes

Development Director

Portland Housing Development Corporation

14 Baxter Blvd.

Portland, Maine 04101

Direct: 207.221.8009

Cell: 207.272.2562

Office: 207.773.4753 x8227

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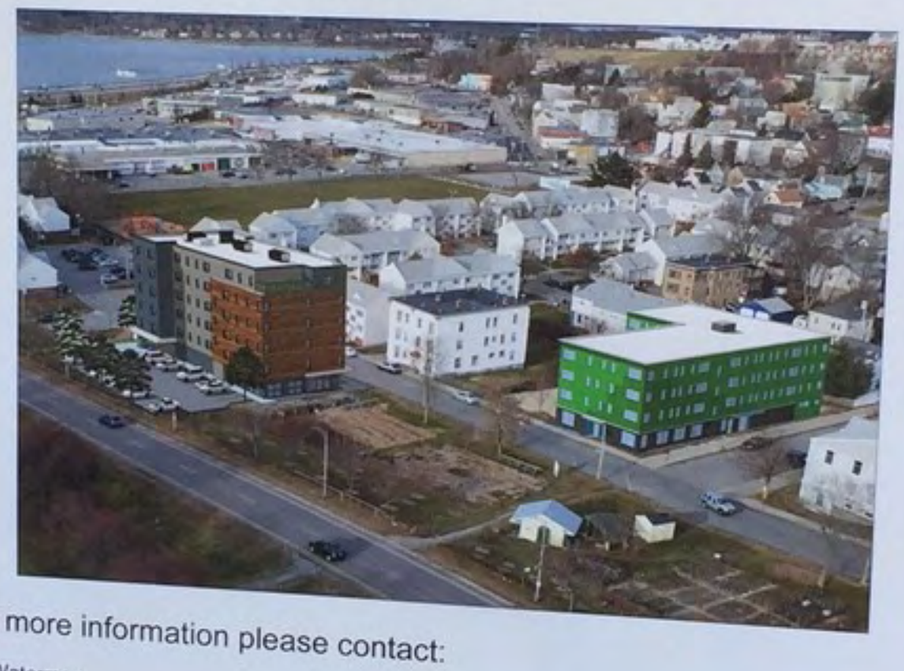
Notice: Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

PORTLAND HOUSING AUTHORITY

NOTICE OF INTENT TO FILE

Portland Housing Authority is intending to submit an Application for Level III Site Plan and Subdivision Review to the City of Portland on or about September 15, 2017.

The proposed project envisions replacement of the existing Boyd Street Community Center Building with 55 new rental apartments, along with community spaces and associated site improvements.



For more information please contact:

Jay Waterman
Portland Housing Authority
jwaterman@porthouse.org
207-221-8009

or

City of Portland Planning Authority
Department of Planning and Urban Development
http://www.portlandmaine.gov/314/Planning-Urban-Development
207-874-8719

NO PARKING THIS SIDE

PORTLAND HOUSING AUTHORITY

NOTICE OF INTENT TO FILE

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

58 Boyd Street
Context Images

PLANNING BOARD SUBMISSION

Below are photo edited images of the site with the building in context.

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

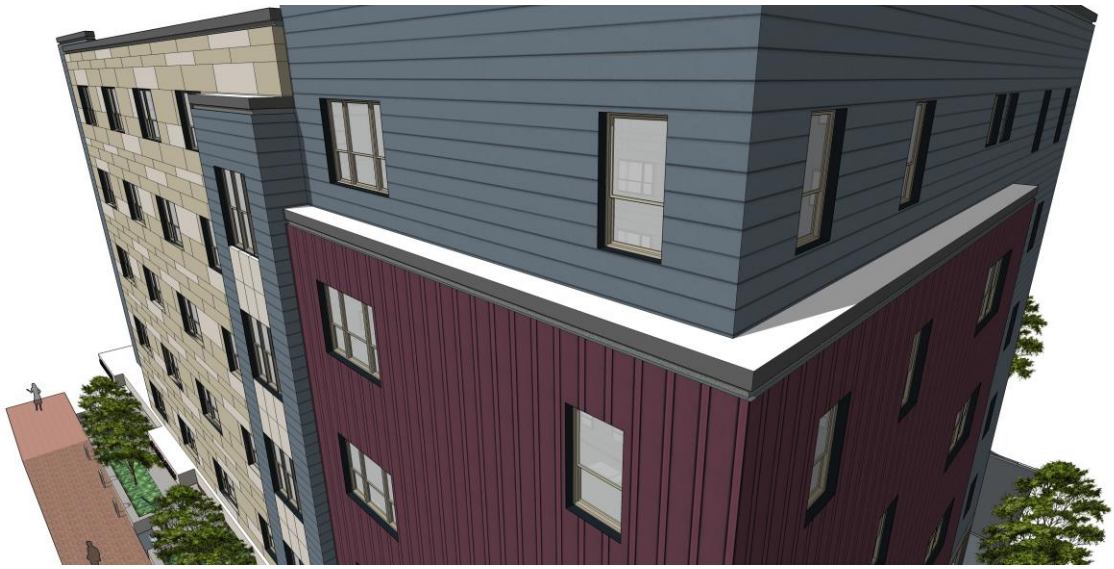
58 Boyd Street
Exterior Materials

PLANNING BOARD SUBMISSION

CWS has made adjustments to exterior details, forms, textures and materials based on planning staff and board comments. The updated scheme of exterior materials is changed to all Fiber Cement (no metal) siding above the storefront level. Windows are proposed to be framed of a durable fibrex or fiberglass materials. The materials are broken into three textures as follows:

1. Hardieplank Lap Siding – 12", 10.75" exposure (DARK GREY)
2. Hardiepanel Smooth Vertical Siding System – 246" vertical battens (DARK RED)
3. Hardie Reveal Panel System – cut horizontal, staggered bands of various heights (what we should use all of the sheet with very little waste) (DARK/LIGHT BEIGE)

On the first floor level, the design includes extending the fiber cement siding down to just above grade at the parking lot and garden sides of the building. On the Boyd and Lancaster Street sides of the building, the design provides primarily porcelain tile for durability and thermally broken aluminum storefront door and window systems.



Materials Close Up

North Corner

East Corner

West Corner

South Corner

MISCELLANEOUS VIEWS

Cultivating Community Entrance – Boyd and Lancaster

Apartment Entry

Meeting Entrance

Rear Entrance

FAÇADE MATERIALS AND TEXTURES

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

58 Boyd Street
Building Shadows

PLANNING BOARD SUBMISSION

The buildings mass is designed within the envelope permitted by the zoning ordinance for the site. Below is a series of images that illustrate the shadows of the building throughout the year and morning, noon and evening.

December 21st

9am

Noon

3pm

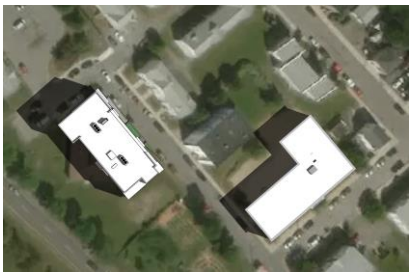
March 21st

9am

Noon

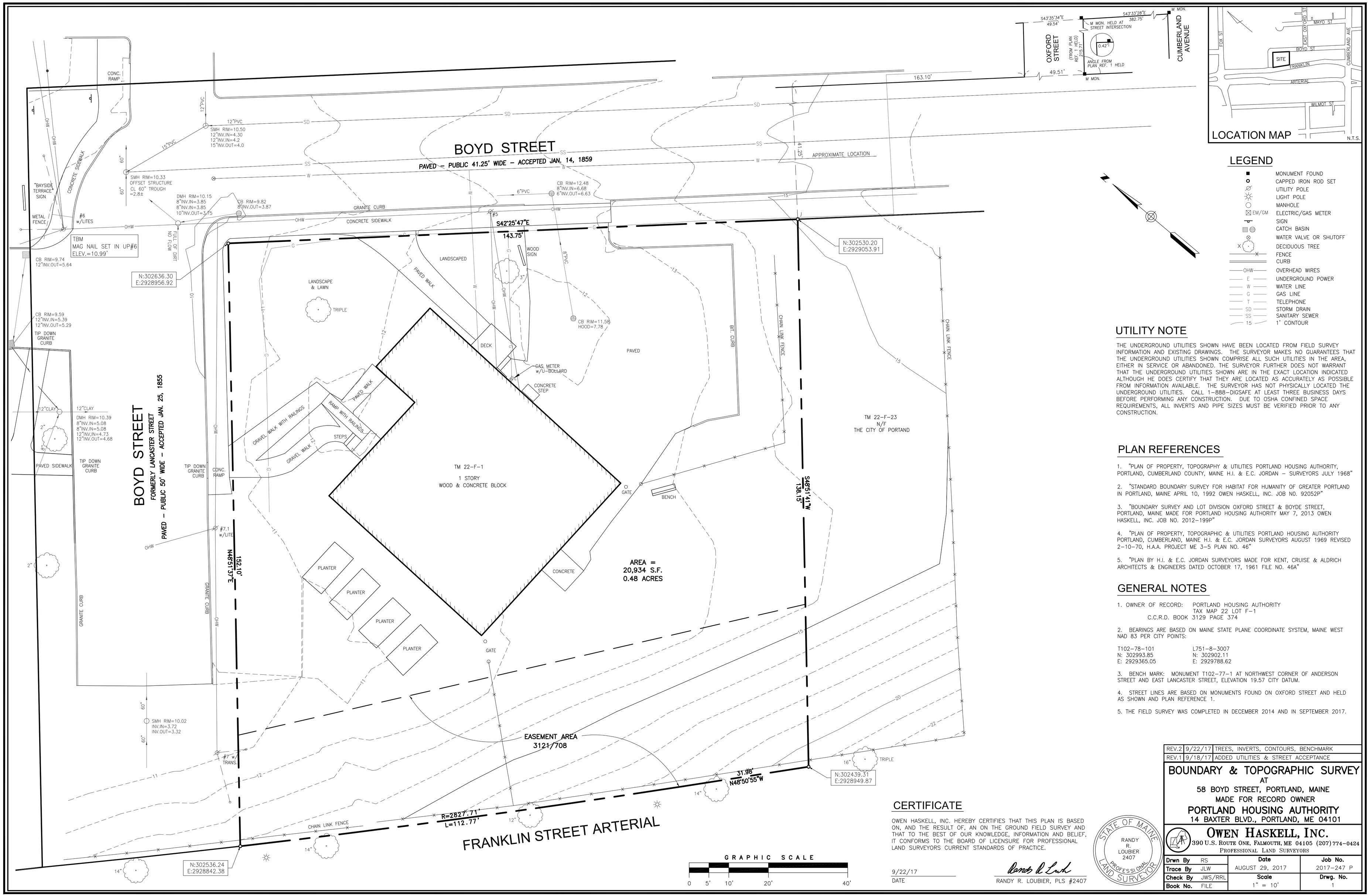
5pm

Jun 21st


9am

Noon

5pm



LEGEND

- MONUMENT FOUND
- CAPPED IRON ROD SET
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- EM/GM — ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- WATER VALVE OR SHUTOFF
- DECIDUOUS TREE
- FENCE
- CURB
- OHW — OVERHEAD WIRES
- E — UNDERGROUND POWER
- W — WATER LINE
- G — GAS LINE
- T — TELEPHONE
- SD — STORM DRAIN
- SS — SANITARY SEWER
- 15 — 1' CONTOUR

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

PLAN REFERENCES

1. "PLAN OF PROPERTY, TOPOGRAPHY & UTILITIES PORTLAND HOUSING AUTHORITY, PORTLAND, CUMBERLAND COUNTY, MAINE H.I. & E.C. JORDAN – SURVEYORS JULY 1968"

2. "STANDARD BOUNDARY SURVEY FOR HABITAT FOR HUMANITY OF GREATER PORTLAND IN PORTLAND, MAINE APRIL 10, 1992 OWEN HASKELL, INC. JOB NO. 92052P"

3. "BOUNDARY SURVEY AND LOT DIVISION OXFORD STREET & BOYDE STREET, PORTLAND, MAINE MADE FOR PORTLAND HOUSING AUTHORITY MAY 7, 2013 OWEN HASKELL, INC. JOB NO. 2012-199P"

4. "PLAN OF PROPERTY, TOPOGRAPHIC & UTILITIES PORTLAND HOUSING AUTHORITY PORTLAND, CUMBERLAND, MAINE H.I. & E.C. JORDAN SURVEYORS AUGUST 1969 REVISED 2-10-70, H.A.A. PROJECT ME 3-5 PLAN NO. 46"

5. "PLAN BY H.I. & E.C. JORDAN SURVEYORS MADE FOR KENT, CRUISE & ALDRICH ARCHITECTS & ENGINEERS DATED OCTOBER 17, 1961 FILE NO. 46A"

GENERAL NOTES

1. OWNER OF RECORD: PORTLAND HOUSING AUTHORITY
   TAX MAP 22 LOT F-1
   C.C.R.D. BOOK 3129 PAGE 374

2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM, MAINE WEST NAD 83 PER CITY POINTS:

T102-78-101	L751-B-3007
N: 302993.85	N: 302902.11
E: 2929365.05	E: 2929788.62

3. BENCH MARK: MONUMENT T102-77-1 AT NORTHWEST CORNER OF ANDERSON STREET AND EAST LANCASTER STREET, ELEVATION 19.57 CITY DATUM.

4. STREET LINES ARE BASED ON MONUMENTS FOUND ON OXFORD STREET AND HELD AS SHOWN AND PLAN REFERENCE 1.

5. THE FIELD SURVEY WAS COMPLETED IN DECEMBER 2014 AND IN SEPTEMBER 2017.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

9/22/17
DATE

RANDY R. LOUBIER, PLS #2407

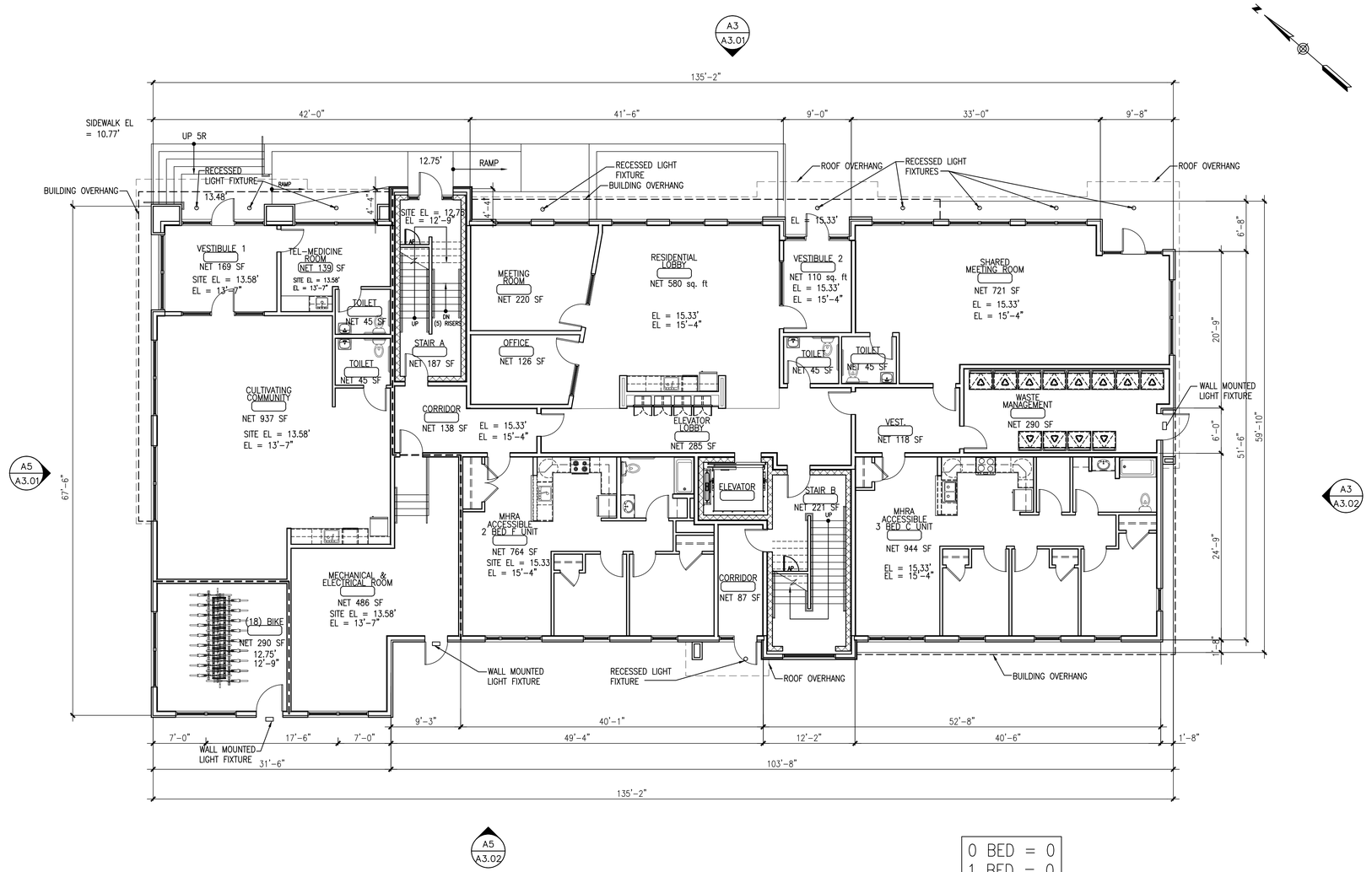
STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

REV.2	9/22/17	TREES, INVERTS, CONTOURS, BENCHMARK
REV.1	9/18/17	ADDED UTILITIES & STREET ACCEPTANCE

BOUNDARY & TOPOGRAPHIC SURVEY
AT
58 BOYD STREET, PORTLAND, MAINE
MADE FOR RECORD OWNER
PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD., PORTLAND, ME 04101

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	RS	Date	Job No.
Trace By	JLW	AUGUST 29, 2017	2017-247 P
Check By	JWS/RRL	Scale	Drwg. No.
Book No.	FILE	1" = 10'	1



0 BED	= 0
1 BED	= 0
2 BED	= 1
3 BED	= 1
TOTAL	= 2

FIRST FLOOR GROSS AREA = 7,771 SQ. FT.

A5 FIRST FLOOR PLAN
REFERENCED FROM: SCALE: 1/8" = 1'-0"

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ARCHITECTURE | INTERIOR DESIGN
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OFFICE: 207 774 4441 CWSARCH.COM

DESIGNER
CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
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PORTLAND, MAINE 04101
T: 207-774-4441
WWW.CWSARCH.COM

OWNER
PORTLAND HOUSING DEVELOPMENT CORP.
14 BAXTER BLVD
PORTLAND, MAINE 04101

PROJECT
58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

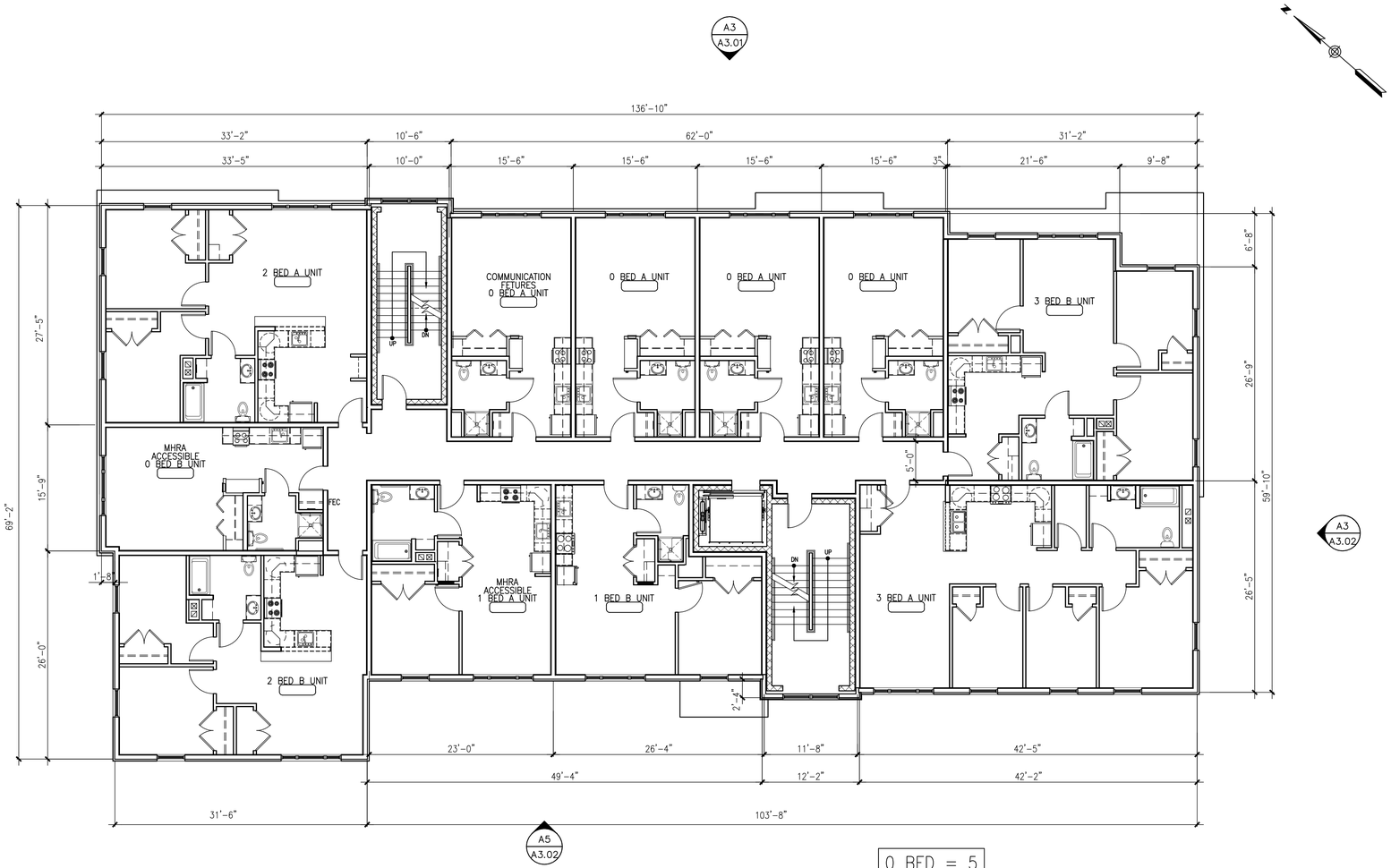
DRAWING
FIRST FLOOR PLAN
CWS PROJECT NUMBER: 15.021

REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER
A1.10

SCALE: AS NOTED
DATE: 9/13/2017



0 BED	= 5
1 BED	= 2
2 BED	= 2
3 BED	= 2
TOTAL	= 11

SECOND FLOOR GROSS AREA = 8,260 SQ. FT.

A5 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

W:\2015 Design Projects\15021 PHA 58 Boyd Street Elderly\1-Drawings\A1-2 Second floor plan

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OFFICE: 207 774 4441 CWSARCH.COM

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CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
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DRAWING

SECOND FLOOR PLAN

CWS PROJECT NUMBER: 15.021

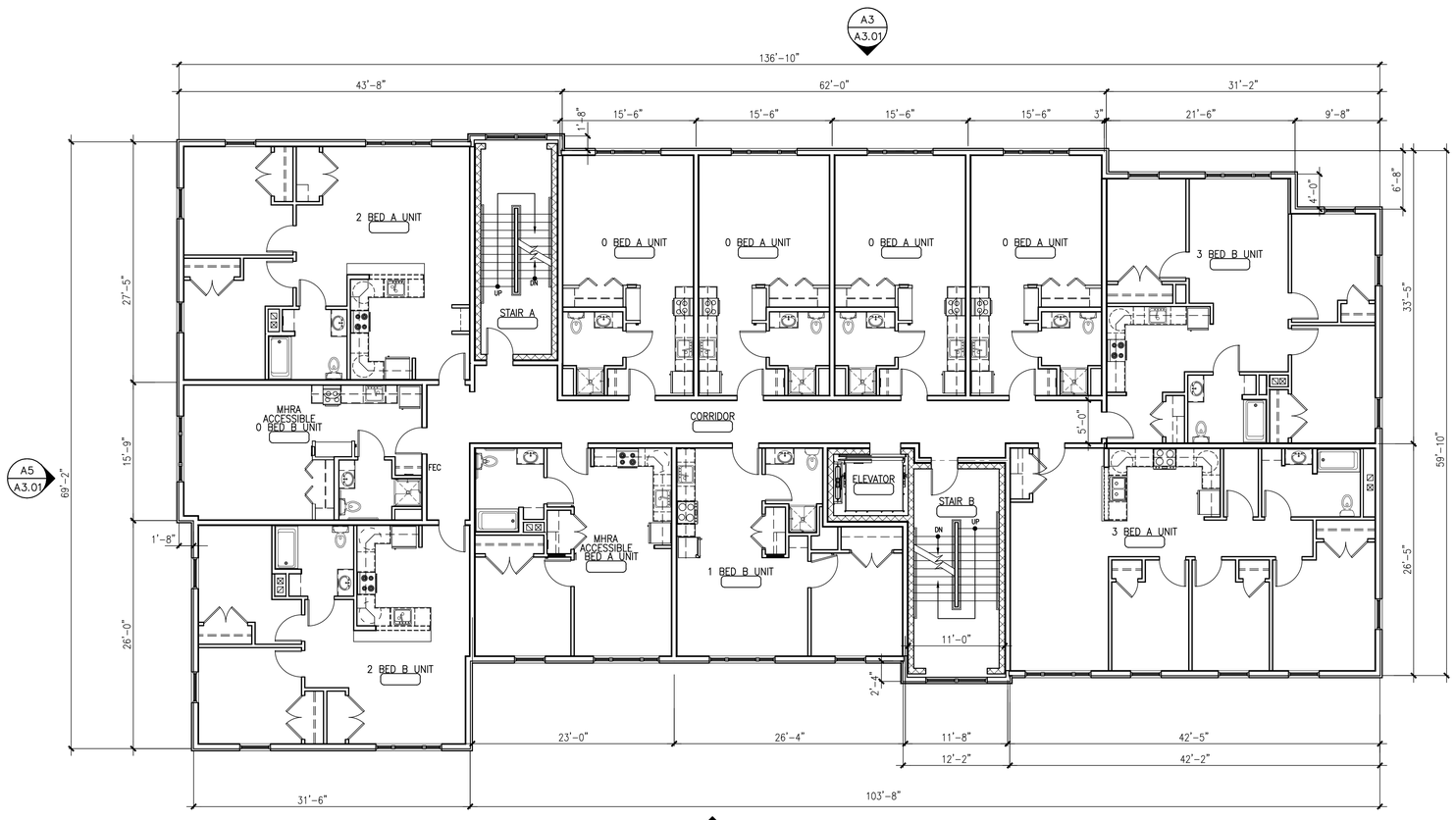
REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A1.20

SCALE: 1/8" = 1'-0"
DATE: 9/13/2017



THIRD FLOOR GROSS AREA = 8,260 SQ. FT.

0 BED	= 5
1 BED	= 2
2 BED	= 2
3 BED	= 2
TOTAL	= 11

A5 THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

W:\2015 Design Projects\15021 PHA 58 Boyd Street Elderly\1-Drawings\A1-3 Third floor plan

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ARCHITECTURE | INTERIOR DESIGN
434 CUMBERLAND AVENUE
PORTLAND, MAINE 04101
T. 207.774.4441
WWW.CWSARCH.COM

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PROJECT

58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

THIRD FLOOR PLAN

CWS PROJECT NUMBER: 15.021

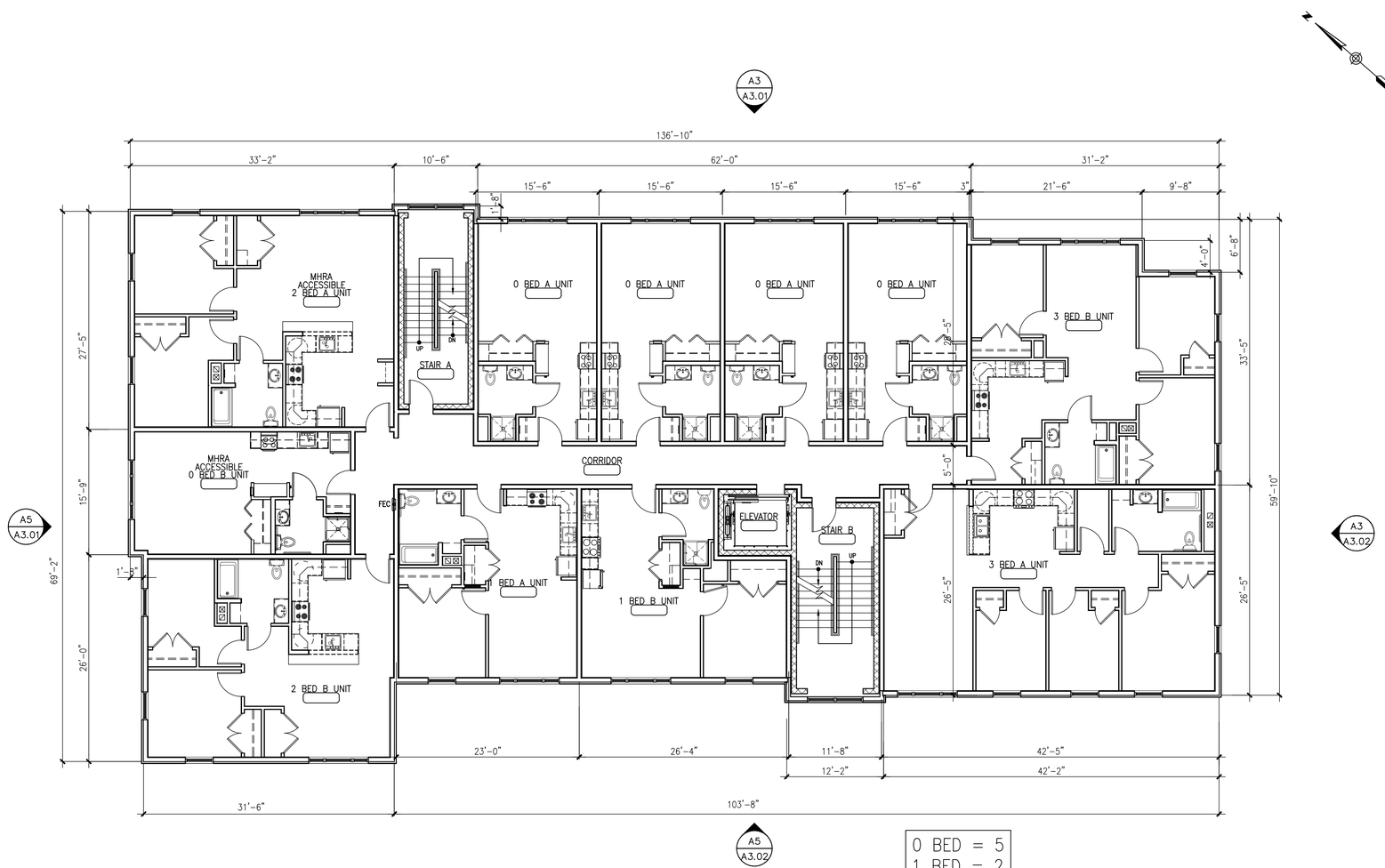
REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A1.30

SCALE: 1/8" = 1'-0"
DATE: 9/13/2017



FOURTH FLOOR GROSS AREA = 8,260 SQ. FT.

0 BED	= 5
1 BED	= 2
2 BED	= 2
3 BED	= 2
TOTAL	= 11

A5 FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

W:\2015 Design Projects\15021 PHA 58 Boyd Street Elderly\1-Drawings\pl1-4 Fourth floor plan

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OFFICE: 207 774 4441 CWSARCH.COM

DESIGNER

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
434 CUMBERLAND AVENUE
PORTLAND, MAINE 04101
T. 207.774.4441
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PORTLAND, MAINE 04101

PROJECT

58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

FOURTH FLOOR PLAN

CWS PROJECT NUMBER: 15.021

REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A1.40

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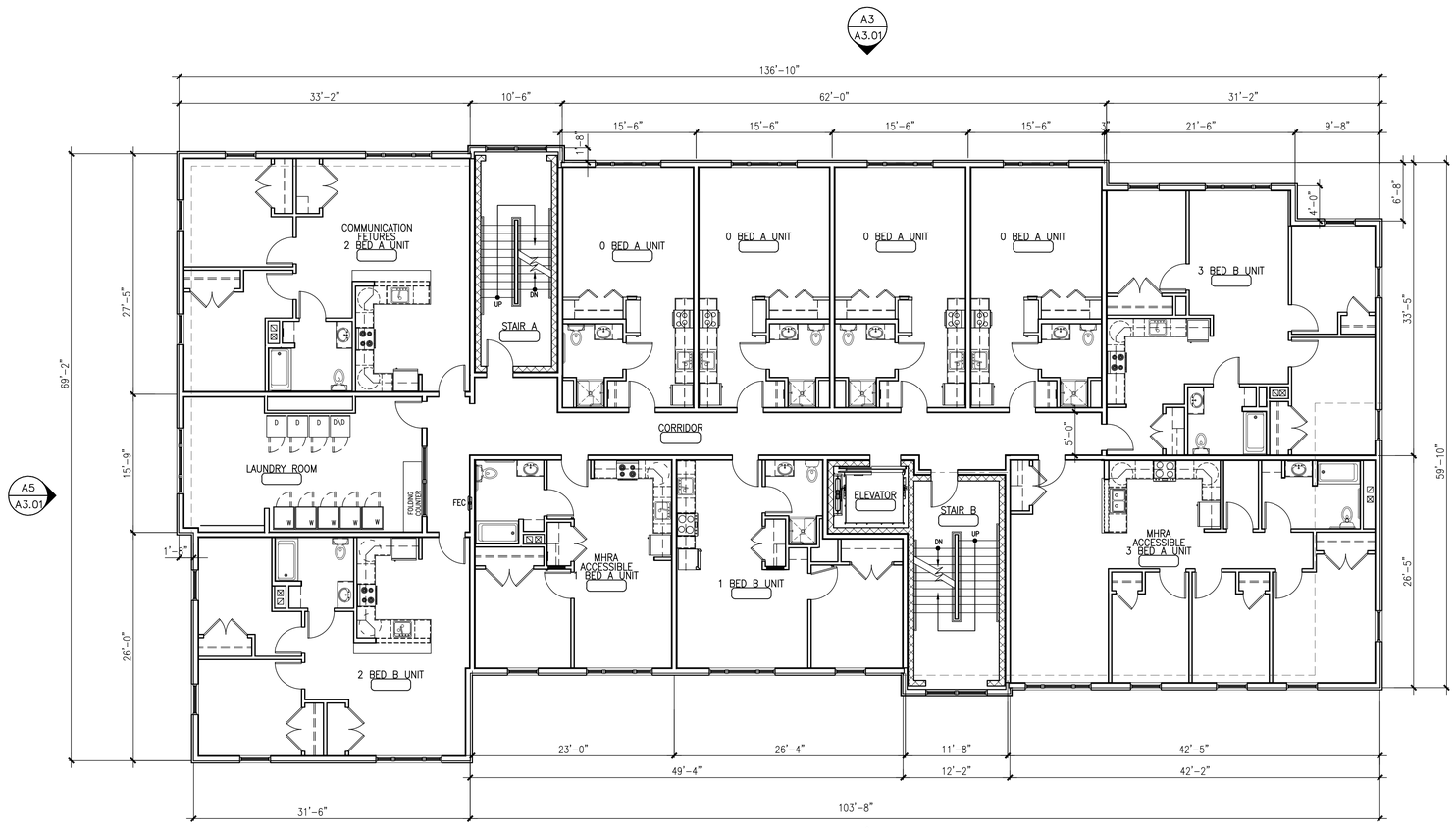
DATE: 9/13/2017



FIFTH FLOOR GROSS AREA = 8,260 SQ. FT.

0 BED	= 4
1 BED	= 2
2 BED	= 2
3 BED	= 2
TOTAL	= 10

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OFFICE: 207 774 4441 CWSARCH.COM

DESIGNER

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
43A CUMBERLAND AVENUE
PORTLAND, MAINE 04101
T. 207.774.4441
WWW.CWSARCH.COM

OWNER

PORTLAND HOUSING DEVELOPMENT CORP.
14 BAXTER BLVD
PORTLAND, MAINE 04101

PROJECT

58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

FIFTH FLOOR PLAN

CWS PROJECT NUMBER: 15.021

REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/01/2017

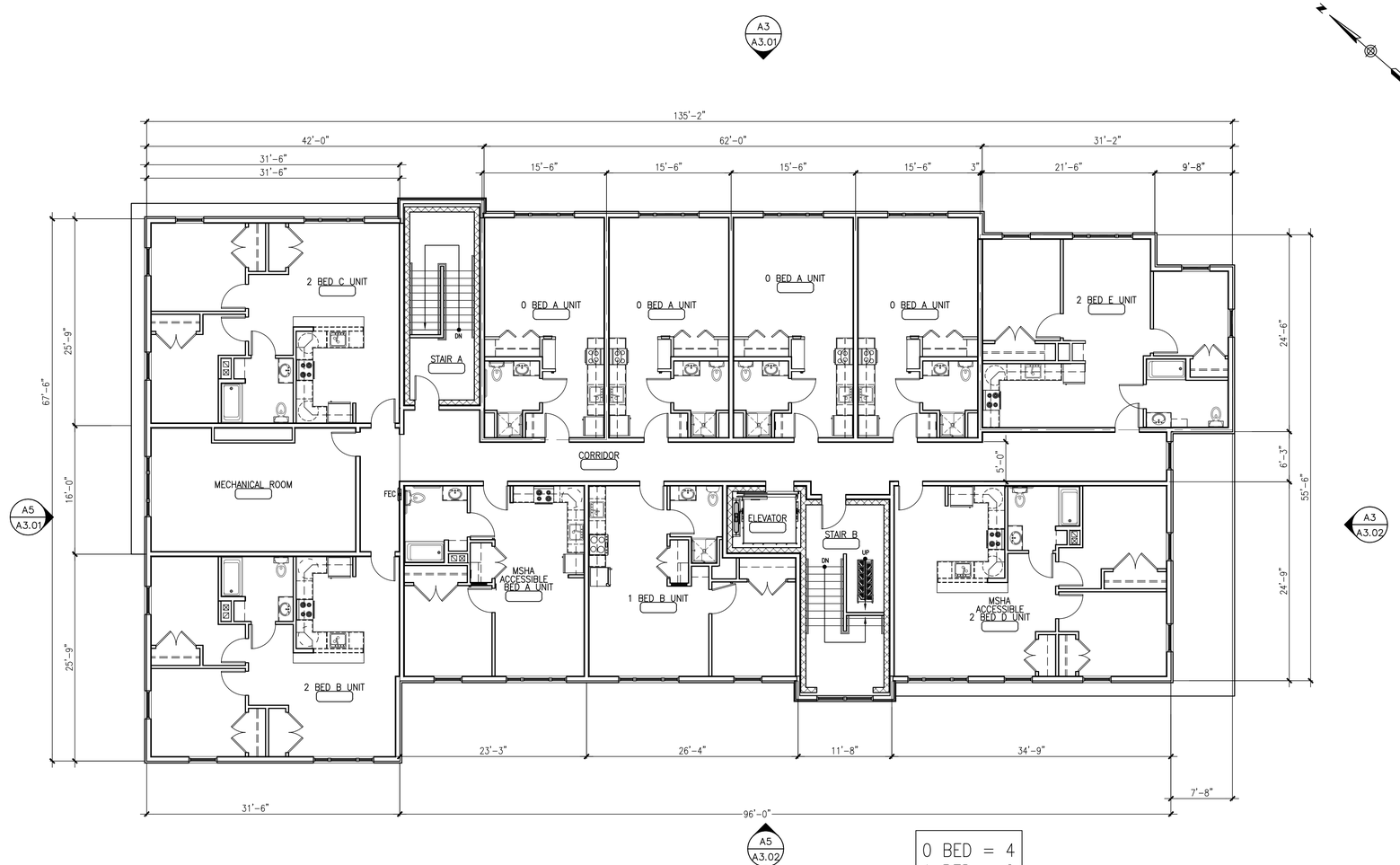
DRAWING NUMBER

A1.50

A5 FIFTH FLOOR PLAN
REFERENCED FROM: SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"
DATE: 9/13/2017

© \2015 Design Projects\15021 PHA 58 Boyd Street Elderly\1-Drawings\a1-5 Fifth floor plan



SIXTH FLOOR GROSS AREA = 7,807 SQ. FT.

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3 BED	= 0
TOTAL	= 10

A5 SIXTH FLOOR PLAN

SCALE: 1/8" = 1'-0"

W:\2015 Design Projects\15021 PHA 58 Boyd Street Oaks\1-Drawings\A1-6 Sixth floor plan

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CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
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PORTLAND, MAINE 04101

PROJECT

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58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

SIXTH FLOOR PLAN

CWS PROJECT NUMBER: 15.021

REVISIONS

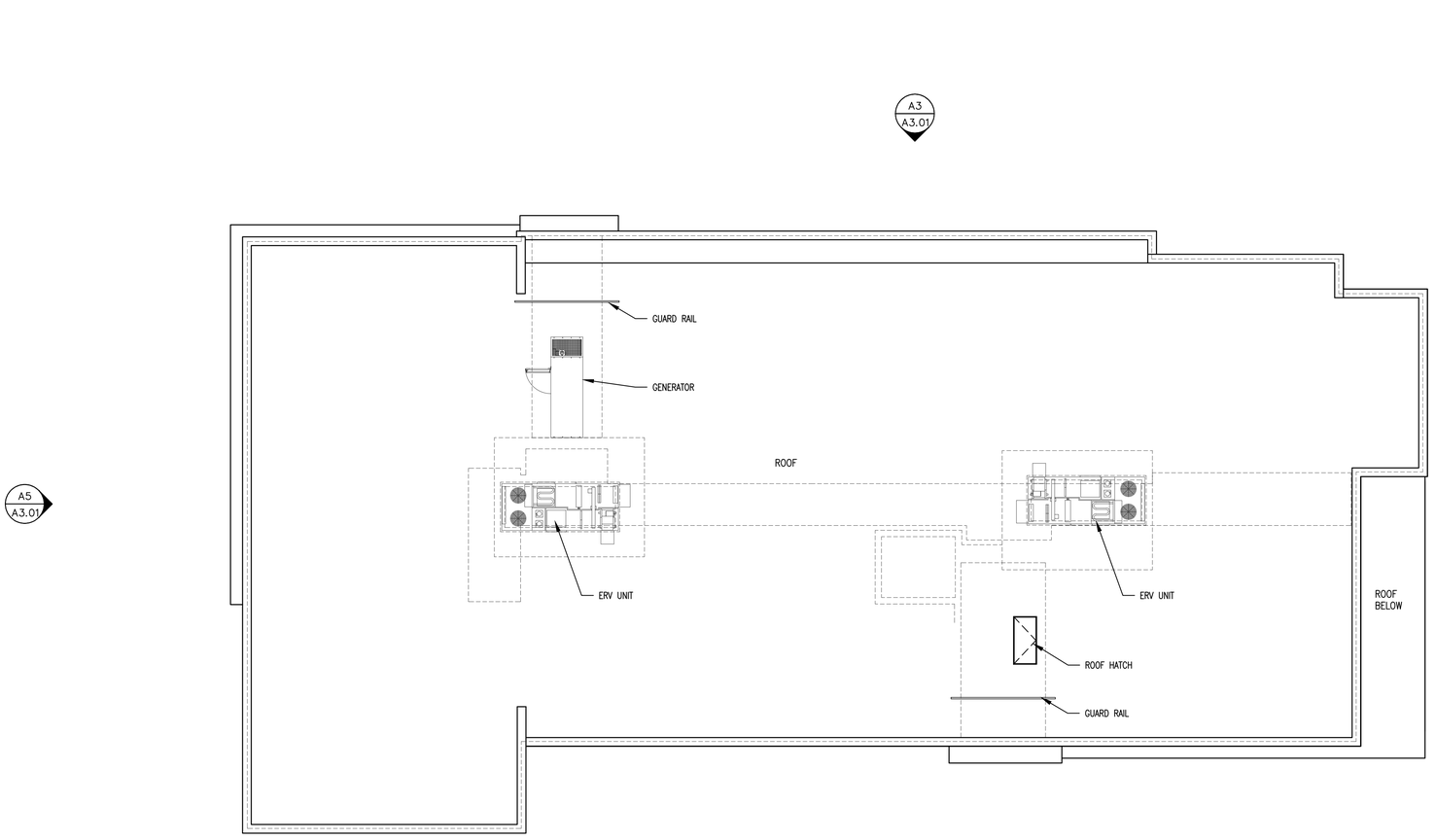
1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A1.60

SCALE: 1/8" = 1'-0"

DATE: 9/13/2017



ROOF PLAN

A5
A3.02

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PORTLAND, MAINE 04101
T. 207.774.4441
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PROJECT

58 BOYD STREET APARTMENTS

58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

ROOF PLAN

CWS PROJECT NUMBER: 15.021

REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A1.70

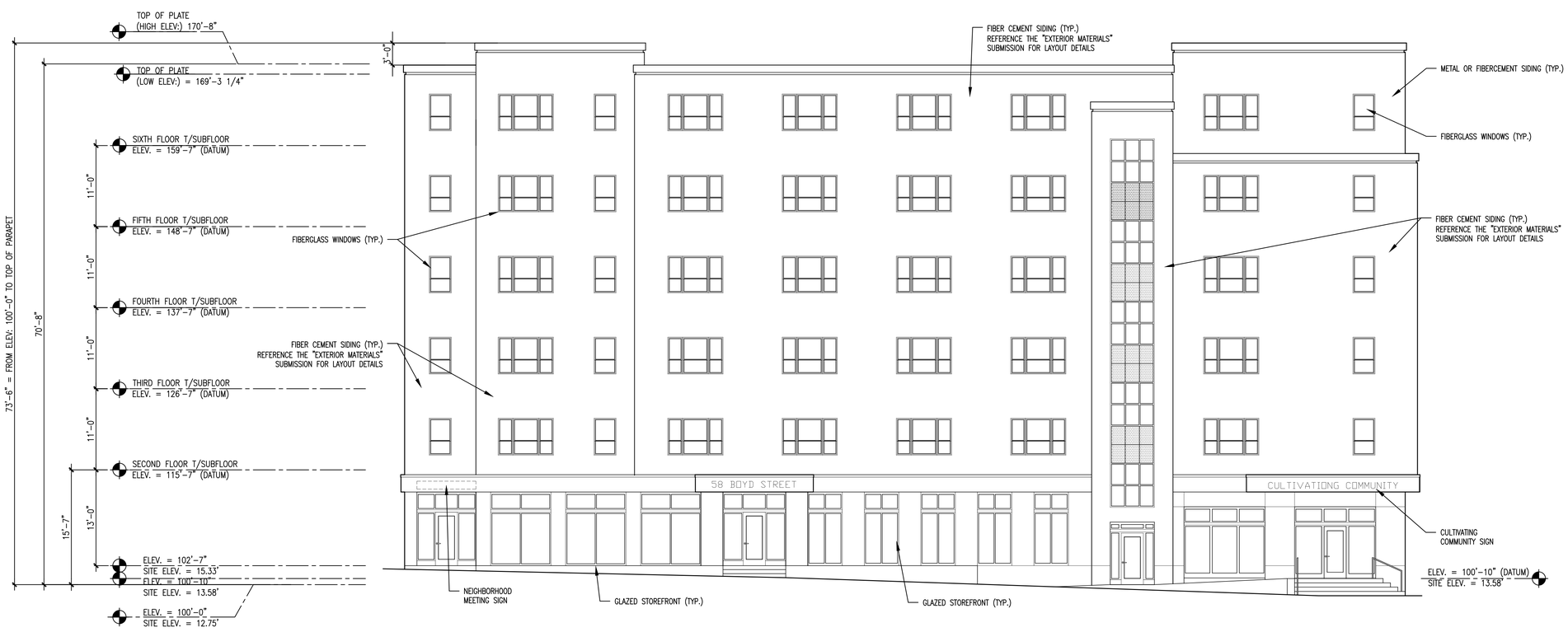
SCALE: 1/8" = 1'-0"

DATE: 9/13/2017

A5 ROOF PLAN

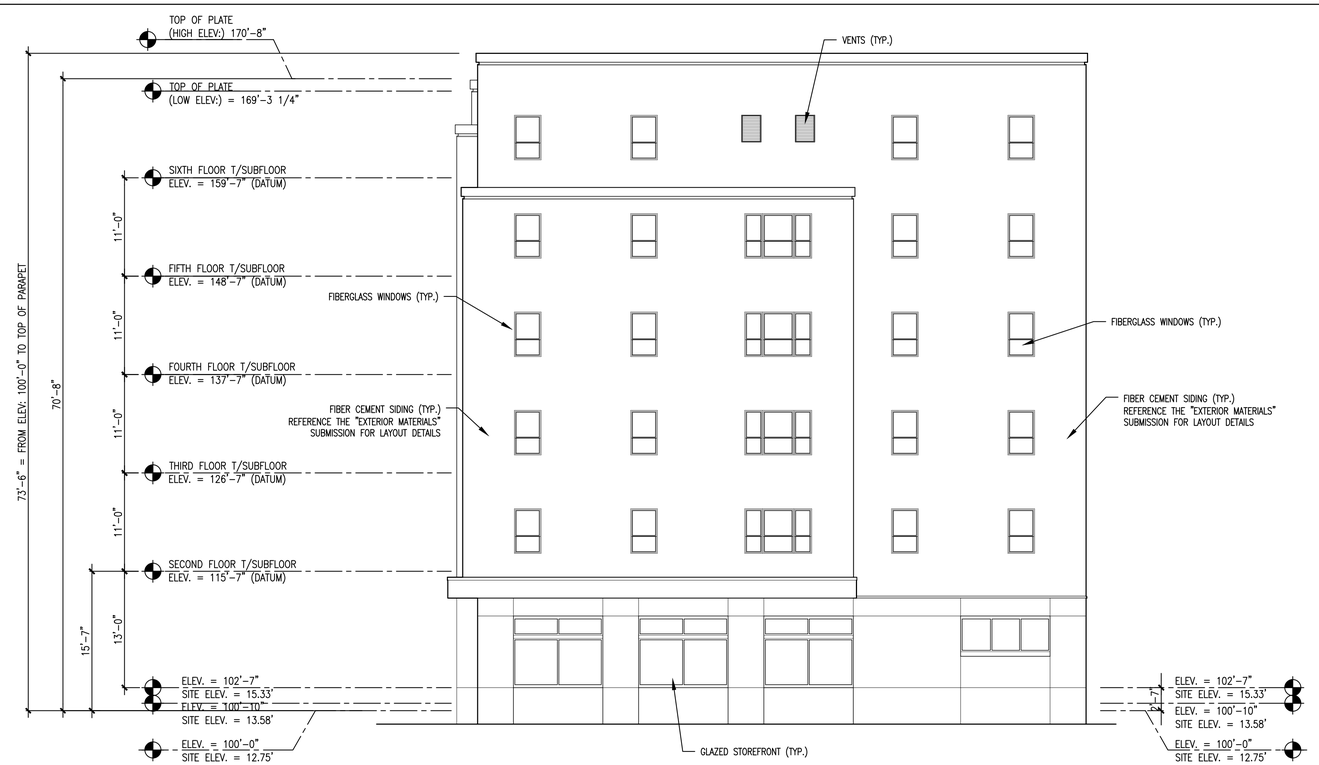
SCALE: 1/8" = 1'-0"

W:\2015 Design Projects\15021 PHA 58 Boyd Street Eden\1--Drawings\A1-7 Roof plan



A3 NORTHEAST ELEVATION

REFERENCED FROM: SCALE: 1/8" = 1'-0"



A5 NORTHWEST ELEVATION

REFERENCED FROM: SCALE: 1/8" = 1'-0"

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

264 US Route One, Suite 100-2A Scarborough ME 04074
OFFICE: 207 774 4441 CWSARCH.COM

DESIGNER

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
434 CUMBERLAND AVENUE
PORTLAND, MAINE 04101
T. 207.774.4441
WWW.CWSARCH.COM

OWNER

PORTLAND HOUSING DEVELOPMENT CORP.
14 BAXTER BLVD
PORTLAND, MAINE 04101

PROJECT

58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING

BUILDING ELEVATIONS

CWS PROJECT NUMBER: 15.021

REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER

A3.01

SCALE: AS NOTED

DATE: 9/13/2017

A3 SOUTHEAST ELEVATION

REFERENCED FROM: SCALE: 1/8" = 1'-0"

A5 SOUTHWEST ELEVATION

REFERENCED FROM: SCALE: 1/8" = 1'-0"

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

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DESIGNER
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14 BAXTER BLVD
PORTLAND, MAINE 04101

PROJECT
58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

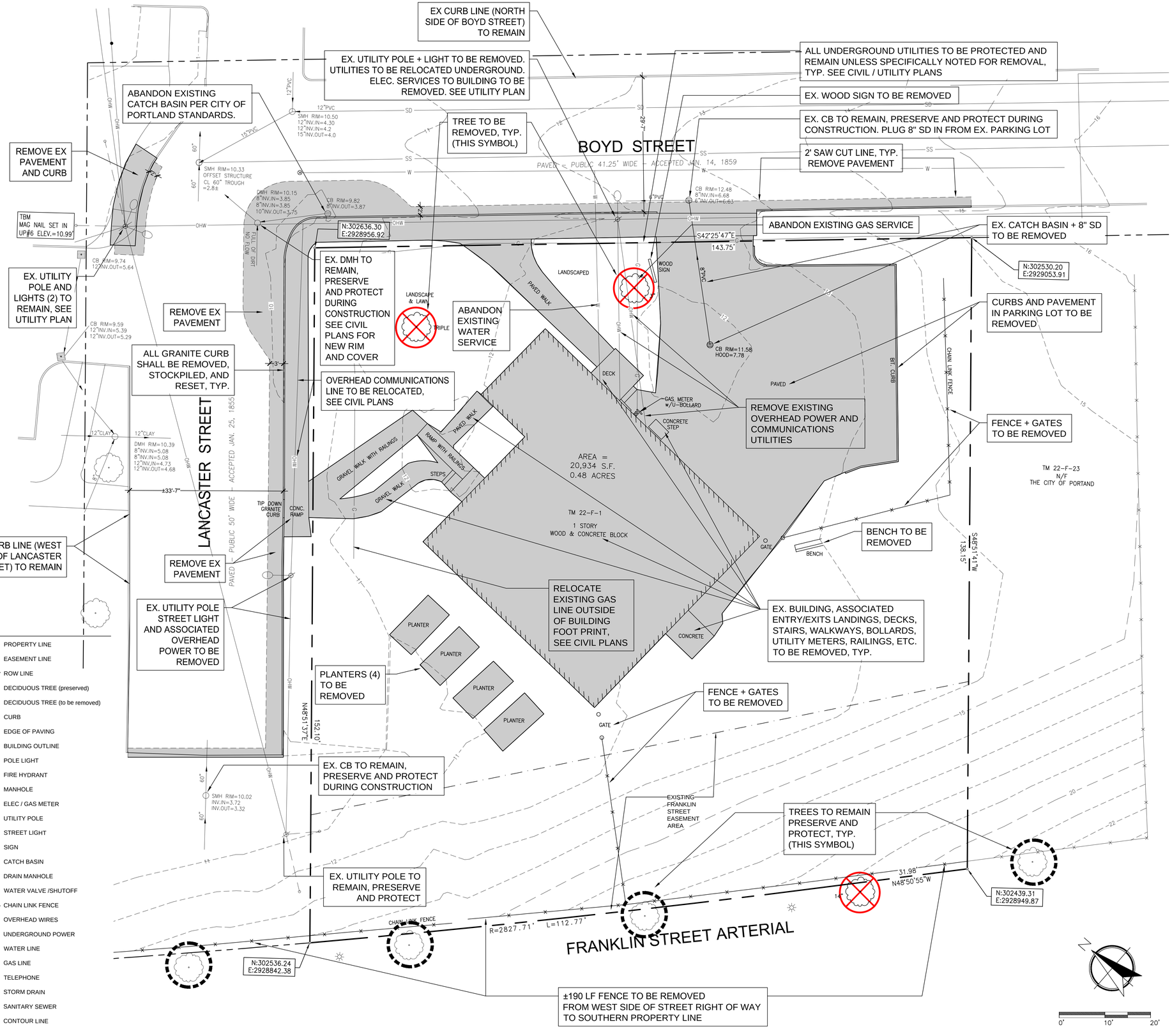
DRAWING
BUILDING ELEVATIONS
CWS PROJECT NUMBER: 15.021

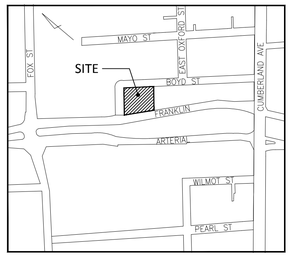
REVISIONS

1	REVISED PER CITY REVIEW COMMENTS	11/07/2017

DRAWING NUMBER
A3.02

SCALE: AS NOTED
DATE: 9/13/2017





LOCATION MAP
SCALE: NTS

GENERAL NOTES:

1. TOTAL SITE AREA:	±0.48 ACRES (±20,934 SF)
2. ZONING DISTRICT:	RESIDENTIAL ZONE (R-7)
3. OWNER:	PORTLAND HOUSING AUTHORITY 14 BAXTER BLVD. PORTLAND, ME 04101 (207) 773.4753
APPLICANT:	58 BOYD STREET, LP 14 BAXTER BLVD. PORTLAND, ME 04101 (207) 773.4753
4. TAX MAP	TAX MAP 22, BLOCK F, LOT 1
5. BOOK AND PAGE:	CCRD BOOK 3129, PAGE 374
6. PROJECT ADDRESS:	58 BOYD STREET / 54 LANCASTER STREET

7. BOUNDARY, TOPOGRAPHY, AND EXISTING CONDITIONS INFORMATION TAKEN FROM A PLAN TITLED: "BOUNDARY & TOPOGRAPHIC SURVEY" AT 58 BOYD STREET, PORTLAND, MAINE. MADE FOR PORTLAND HOUSING AUTHORITY, 14 BAXTER BLVD., PORTLAND, MAINE 04101. DATED AUGUST 29, 2017. PREPARED BY OWEN HASKELL, INC. 390 US ROUTE ONE, FALMOUTH, ME 04105, TELEPHONE 207.774.0424

8. BEARINGS ARE BASED ON MAINE STATE PLAN COORDINATE SYSTEM, MAINE WEST NAD 83 PER CITY POINTS:

T102-78-101	L751-8-3007
N: 302993.85	N: 302902.11
E: 2929365.05	E: 2929788.62

9. BENCH MARK: MONUMENT T102-77-1 AT NORTHWEST CORNER OF ANDERSON STREET AND EAST LANCASTER STREET, ELEVATION 19.57 CITY DATUM.

DEMO + SITE PREP NOTES:

1. ALL TREES TO BE PRESERVED SHALL BE PROTECTED WITHIN APPROVED FENCING OR BARRIERS AT THE EXISTING DRIPLINE, SEE DETAIL 5, SHEET L2.1
2. NO EQUIPMENT OR MATERIALS SHALL BE PLACED OR STORED WITHIN THE PROTECTED DRIPLINE AREA OF PRESERVED TREES
3. ALL TREES TO BE PRESERVED SHALL BE MONITORED ON A REGULAR BASIS FOR SIGNS OF STRESS OR OTHER IMPACT DUE TO CONSTRUCTION AND APPROPRIATE TREE CARE SHALL BE INITIATED IMMEDIATELY.
4. OWNER SHALL RETAIN A LICENSES ARBORIST TO PREPARE A TREE CARE PROGRAM FOR ALL PRESERVED TREES TO INCLUDE PRE, DURING AND POST CONSTRUCTION MANAGEMENT.
5. TREE MANAGEMENT SHALL CONSIST OF SELECT PRUNING, WATERING, FERTILIZATION, AND AERATION AS REQUIRED AND SPECIFIED TO EACH TREE SPECIES.
6. THE CONTRACTOR IS ADVISED THAT ANY UNFORESEEN SUBSURFACE CONDITIONS ENCOUNTERED DURING THE COURSE OF WORK SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY AND ANY UNAUTHORIZED REMOVALS SHALL BE DONE SO AT NO EXTRA EXPENSE TO THE OWNER.
7. REFER TO THE CIVIL PLANS FOR ADDITIONAL SPECIFICS AND DETAILS.

APPLICANT:

58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project: 58 BOYD STREET APARTMENTS

Revisions	Date	Description
1	9.15.2017	CITY OF PORTLAND, LEVEL III SITE PLAN SUBM.
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawn By: MP | Approved By: PC | Scale: AS SHOWN

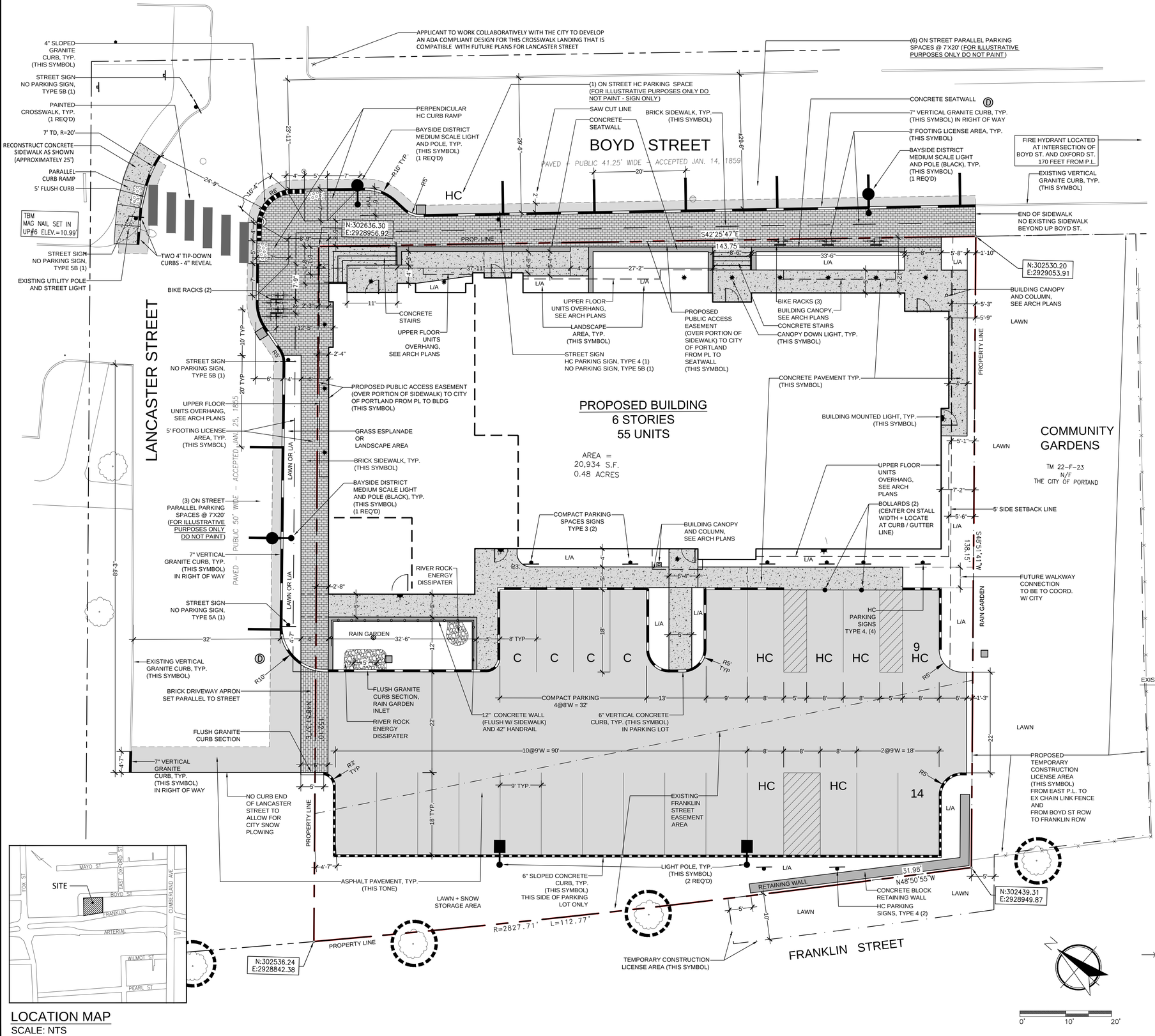
DEMO + SITE PREP PLAN

Phase: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date: SEPT 15, 2017

Sheet No: C-1.0



LOCATION MAP
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GENERAL NOTES:

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2. ZONING DISTRICT: RESIDENTIAL ZONE (R-7)

3. OWNER: PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD.
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(207) 773.4753

APPLICANT: 58 BOYD STREET, LP
14 BAXTER BLVD.
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10. SPACE AND BULK (W/ DIVISION 30 AFFORDABLE HOUSING BONUSES APPLIED):

	R-7	PROPOSED
TOTAL DWELLING UNITS		55 DU
% AFFORDABLE		80% (44 DU)
MIN. LOT SIZE	NONE	0.48 AC
MIN. STREET FRONTAGE	NONE	+295 FT.
MIN. FRONT YARD	NONE	2 INCHES
MIN. REAR / SIDE YARD	5 FT.	5 FEET + 1 INCH
MAX. LOT COVERAGE	100%	83%
MAX. BLDG HT. (+25' BONUS)	50 FT.	72-75 FT.
OFF-STREET PARKING	1 PS / D.U.	23 PS
BIKE PARKING	22 PS	25 PS (18 PS IN BLDG + 7 PS ON-SITE)

11. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

12. ALL DIMENSIONS SHOWN ARE TO FACE OF ALL WALLS, BUILDINGS, CURBS, AND OTHER SITE ELEMENTS UNLESS OTHERWISE NOTED.

13. EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY. CALL DIG-SAFE PRIOR TO BEGINNING WORK (1-800-225-4977).

14. ALL EXISTING VEGETATION TO BE PRESERVED AS SHOWN ON PLANS. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING. AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED.

15. STORAGE OR PARKING WILL NOT BE ALLOWED OVER THE ROOTS OF VEGETATION WHICH ARE TO BE PRESERVED. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS REQUIRED FOR THE WORK ON THESE PLANS.

16. ALL WORK SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

17. ALL AREAS DISTURBED OR WORK REQUIRED WITHIN TEMPORARY CONSTRUCTION AREAS ON PROPERTY SHALL BE REPAIRED BY RE-PAVING OR LOAM/SEEDING AS REQUIRED TO RETURN THE SITE TO PRE-CONSTRUCTION CONDITIONS.

18. ALL WORK WITHIN THE RIGHT-OF-WAY MUST BE COORDINATED WITH THE DEPARTMENT OF PUBLIC SERVICES.

19. ALL EXTERIOR MECHANICAL EQUIPMENT WILL BE SCREENED FROM PUBLIC STREETS AND ADJACENT SITES BY STRUCTURE WALLS, EVERGREEN LANDSCAPING, FENCING, MASONRY WALLS OR A COMBINATION THEREOF.

20. SNOW MAY BE STORED WITHIN THE TEMPORARY SNOW STORAGE AREAS ONLY. ANY SNOW THAT CANNOT BE STORED ON-SITE SHALL BE PHYSICALLY REMOVED AND TRANSPORTED OFF-SITE WITHIN 24-48 HOURS FOLLOWING A STORM. SNOW TRANSPORTED OFF-SITE SHALL BE BROUGHT TO A MAINE DEP APPROVED 'SNOW DUMP' OR MEET THE EXEMPTION REQUIREMENT SPECIFIED WITHIN CHAPTER 573 WHEN THE ABOVE REQUIREMENTS CANNOT BE MET DUE TO AN ABUNDANCE OF SNOW. THE SNOW CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO VEGETATION, LANDSCAPING, CURBING, LIGHTING, FENCING, ETC. RESULTING FROM THEIR ACTIVITIES. THE SNOW CONTRACTOR SHALL USE SALT OR CHLORIDE SUBSTITUTE TO DEICE THE PARKING LOT. THE BUILDING OWNER / ASSOCIATION IS RESPONSIBLE FOR SNOW REMOVAL BEING UNDERTAKEN IN A TIMELY FASHION.

EXISTING	PROPOSED
PROPERTY LINE	EASEMENT / LICENSE LINE
EASEMENT LINE	SETBACK LINE
ROW LINE	LIMIT OF WORK LINE
DECIDUOUS TREE (preserved)	DECIDUOUS TREE
DECIDUOUS TREE (to be removed)	SHRUBS
CURB	PERENNIALS / GROUND COVER
EDGE OF PAVING	ASPHALT PAVEMENT
BUILDING OUTLINE	CONCRETE PAVEMENT
POLE LIGHT	BRICK PAVEMENT
FIRE HYDRANT	EDGE OF PAVING
MANHOLE	CURB
EM/GM ELEC / GAS METER	CROSSWALK STRIPING
UTILITY POLE	LIGHT
STREET LIGHT	TRAFFIC SIGNAGE
SIGN	CATCH BASIN
CATCH BASIN	SEWER MANHOLE
DRAIN MANHOLE	TRANSFORMER
WATER VALVE /SHUTOFF	BOLLARD
CHAIN LINK FENCE	CONTOUR LINE
	SPOT ELEVATION
	CAPPED IRON ROD SET
	CATCH BASIN / FIELD INLET
	SEWER MANHOLE
	DRAIN MANHOLE

APPLICANT:
58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:
PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project: 58 BOYD STREET APARTMENTS

Revisions	Date	Description
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS
1	9.15.2017	CITY OF PORTLAND LEVEL II SITE PLAN SUBM.

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawn By: MP | Approved By: PC | Scale: AS SHOWN

SITE PLAN

Phase: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date: SEPT 15, 2017

Sheet No: C-2.0

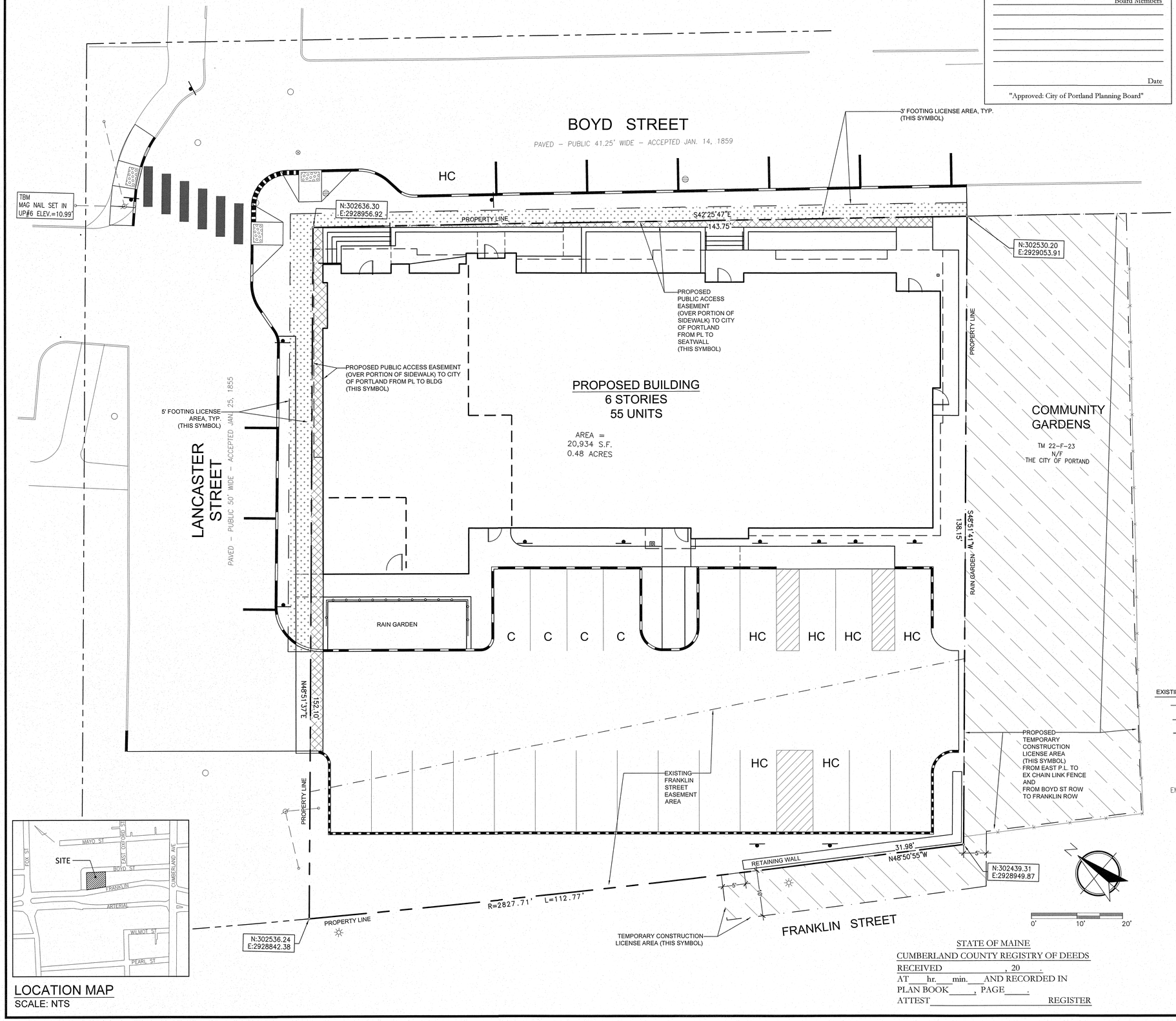
City of Portland Planning Board

Chairman

Board Members

Date

"Approved: City of Portland Planning Board"



LOCATION MAP
SCALE: NTS

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3. OWNER: PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD.
PORTLAND, ME 04101
(207) 773.4753

APPLICANT: 58 BOYD STREET, LP
14 BAXTER BLVD.
PORTLAND, ME 04101
(207) 773.4753

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EXISTING	PROPOSED
PROPERTY LINE	EASEMENT / LICENSE LINE
EASEMENT LINE	EDGE OF PAVING
ROW LINE	CURB
CURB	CROSSWALK STRIPING
EDGE OF PAVING	TRAFFIC SIGNAGE
MANHOLE	
EM/GM ELEC / GAS METER	
UTILITY POLE	
CATCH BASIN	
DRAIN MANHOLE	
WATER VALVE /SHUTOFF	

STATE OF MAINE
CUMBERLAND COUNTY REGISTRY OF DEEDS
RECEIVED _____, 20____.
AT___hr.___min.___AND RECORDED IN
PLAN BOOK_____, PAGE_____.
ATTEST_____REGISTER

APPLICANT:

58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project: 58 BOYD STREET APARTMENTS

Revisions	Date	Description
1	9.15.2017	CITY OF PORTLAND, LEVEL III SITE PLAN SUBM.
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS

STATE OF MAINE REGISTERED LANDSCAPE ARCHITECT PAUL I. BIBEAU 1993 SURVEYOR

Drawn By: MP | Approved By: PC | Scale: AS SHOWN

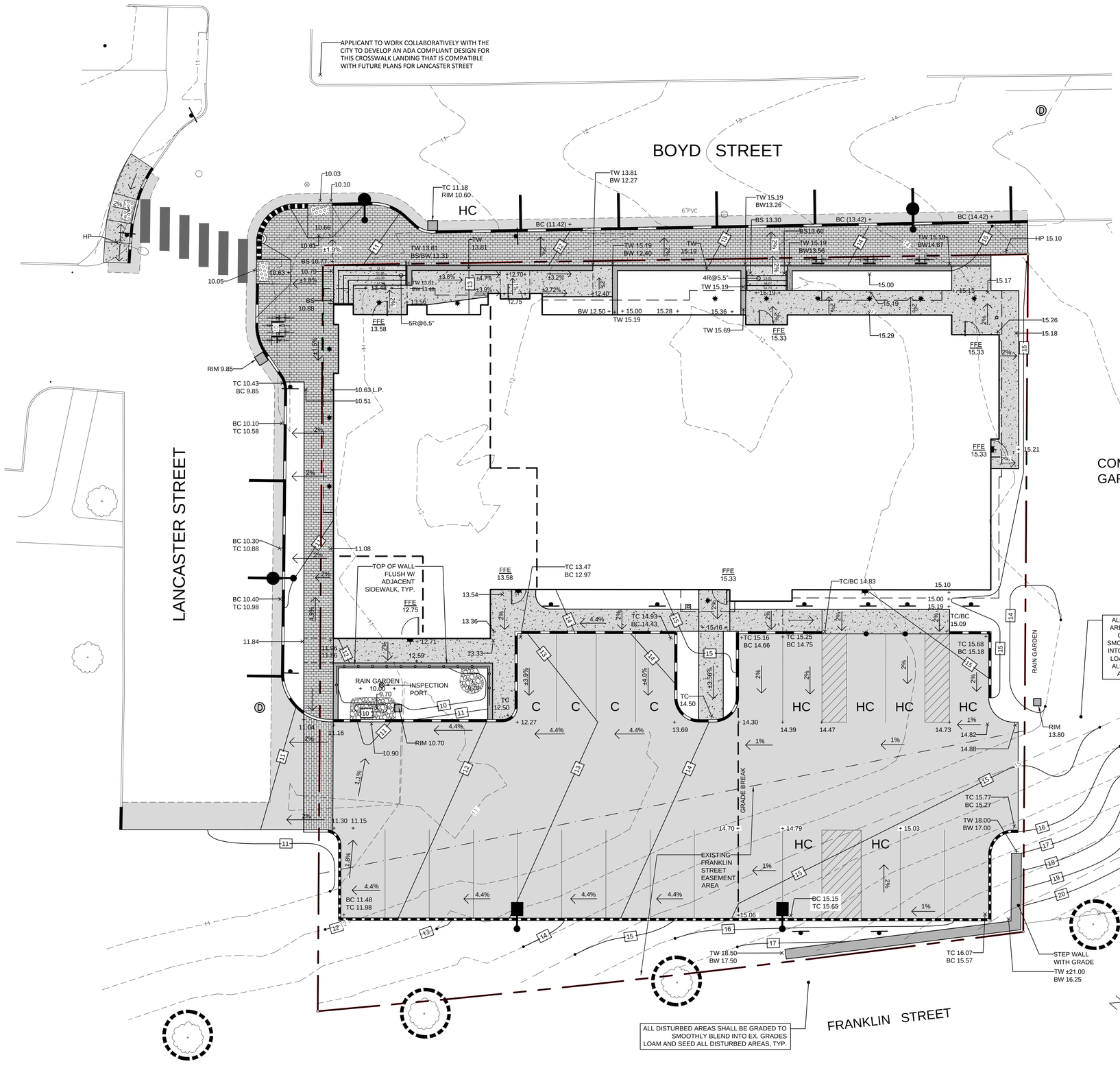
SUBDIVISION PLAN

Phase: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date: SEPT 15, 2017

Sheet No: C-3.0



EXISTING

- PROPERTY LINE
- EASEMENT LINE
- ROW LINE
- DECIDUOUS TREE (preserved)
- DECIDUOUS TREE (to be removed)
- CURB
- EDGE OF PAVING
- BUILDING OUTLINE
- POLE LIGHT
- FIRE HYDRANT
- MANHOLE
- EM/GM — ELEC / GAS METER
- UTILITY POLE
- STREET LIGHT
- SIGN
- CATCH BASIN
- DRAIN MANHOLE
- WATER VALVE /SHUTOFF
- CHAIN LINK FENCE
- OHW — OVERHEAD WIRES
- E — UNDERGROUND POWER
- W — WATER LINE
- G — GAS LINE
- T — TELEPHONE
- SD — STORM DRAIN
- SS — SANITARY SEWER
- 15 — CONTOUR LINE

PROPOSED

- EASEMENT / LICENSE LINE
- SETBACK LINE
- LIMIT OF WORK LINE
- DECIDUOUS TREE
- SHRUBS
- PERENNIALS / GROUND COVER
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- BRICK PAVEMENT
- EDGE OF PAVING
- CURB
- CROSSWALK STRIPING
- LIGHT
- TRAFFIC SIGNAGE
- CATCH BASIN
- SEWER MANHOLE
- T — TRANSFORMER
- BOLLARD
- 14 — CONTOUR LINE
- 14.50 + 13.69 — SPOT ELEVATION
- CAPPED IRON ROD SET
- CATCH BASIN / FIELD INLET
- S — SEWER MANHOLE
- D — DRAIN MANHOLE

GENERAL NOTES:

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5. ALL DIMENSIONS SHOWN ARE TO FACE OF ALL WALLS, BUILDINGS, CURBS, AND OTHER SITE ELEMENTS UNLESS OTHERWISE NOTED.

6. EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY. CALL DIG-SAFE PRIOR TO BEGINNING WORK (1-800-225-4977).

7. THE CONTRACTOR SHALL ESTABLISH PERMANENT BENCH MARKS. MAINTAIN ALL ESTABLISHED BOUNDS AND BENCH MARKS AND REPLACE AS DIRECTED ANY WHICH ARE DESTROYED OR DISTURBED.

8. LIMIT OF WORK LINE IS NOTED ON DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE DUE TO OPERATIONS INSIDE AND OUTSIDE OF THE CONTRACT LIMIT LINE. CONTRACTOR SHALL MEET LINE AND GRADE OF EXISTING CONDITIONS AT THE LIMIT OF WORK LINE.

9. MAINTAIN THE INTEGRITY OF THE EXISTING DRAINAGE AND UTILITY SYSTEMS AT ALL TIMES.

10. CONTRACTOR SHALL EXERCISE SPECIAL CARE TO AVOID ANY DAMAGE TO EXISTING BUILDINGS, EXISTING TREES TO REMAIN, ETC., AND MONUMENTS RESULTING FROM SITE PREPARATION AND CONSTRUCTION OPERATIONS.

11. ADJUST ALL EXISTING UTILITY FRAMES, GRATES, COVERS, ETC. THAT ARE TO REMAIN TO PROPOSED FINISH GRADES. IF NO SPECIFIC PROPOSED GRADE IS INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL ADJUST THE UTILITIES TO MEET THE PROPOSED ADJACENT CONDITIONS.

12. FOR ALL AREAS INSIDE AND OUTSIDE THE CONTRACT LIMIT LINE THAT ARE DISTURBED BY CONSTRUCTION AND FOR WHICH NO NEW CONSTRUCTION IS INDICATED, THE CONTRACTOR SHALL REPAIR AND REPLACE IN KIND.

13. ALL EXISTING VEGETATION TO BE PRESERVED AS SHOWN ON PLANS. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING. AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED.

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15. ALL WORK SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

16. ALL AREAS DISTURBED OR WORK REQUIRED WITHIN TEMPORARY CONSTRUCTION AREAS ON PROPERTY SHALL BE REPAIRED BY RE-PAVING OR LOAM/SEEDING AS REQUIRED TO RETURN THE SITE TO PRE-CONSTRUCTION CONDITIONS.

17. ALL WORK WITHIN THE RIGHT-OF-WAY MUST BE COORDINATED WITH THE DEPARTMENT OF PUBLIC SERVICES.

18. ALL WALKWAYS, PEDESTRIAN AREAS AND ACCESSIBLE PARKING AISLES SHALL CONFORM WITH THE APPROPRIATE ADA GUIDELINES. GRADING SHALL BE AS FOLLOWS:

1.a. WALKWAYS SHALL HAVE A MAXIMUM CROSS SLOPE (PERPENDICULAR TO THE DIRECTION OF TRAVEL) OF 2% AND A MAXIMUM LONGITUDINAL SLOPE (ALONG THE DIRECTION OF TRAVEL) OF 5%.

1.b. CURB RAMPS MAY HAVE A LONGITUDINAL SLOPE OF UP TO 8% (1" PER FOOT) OVER A DISTANCE OF UP TO 8 FEET; HOWEVER, THE MAXIMUM CROSS SLOPE IS STILL 2%.

1.c. LANDING AREAS, PATIO AREAS AND AREAS WHERE PEDESTRIANS ARE TURNING SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECSIONS.

1.d. IF THE CONTRACTOR DETERMINES THAT THE ABOVE STANDARDS ARE NOT COMPATIBLE WITH THE PROPOSED GRADING THEY SHALL CONTACT THE ENGINEER/OWNER UPON DISCOVERY AND REQUEST GUIDANCE.

1.e. ANY WORK DONE OUTSIDE OF THESE GUIDELINES (WITHOUT FIRST REQUESTING GUIDANCE) SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

APPLICANT:

58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project: 58 BOYD STREET APARTMENTS

Revisions	Date	Description
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS
1	9.15.2017	CITY OF PORTLAND LEVEL III SITE PLAN SUBM.

LICENSED LANDSCAPE ARCHITECT — PATRICK J. CARROLL — NO. 127 — STATE OF MAINE

Drawn By: MP | Approved By: PC | Scale: AS SHOWN

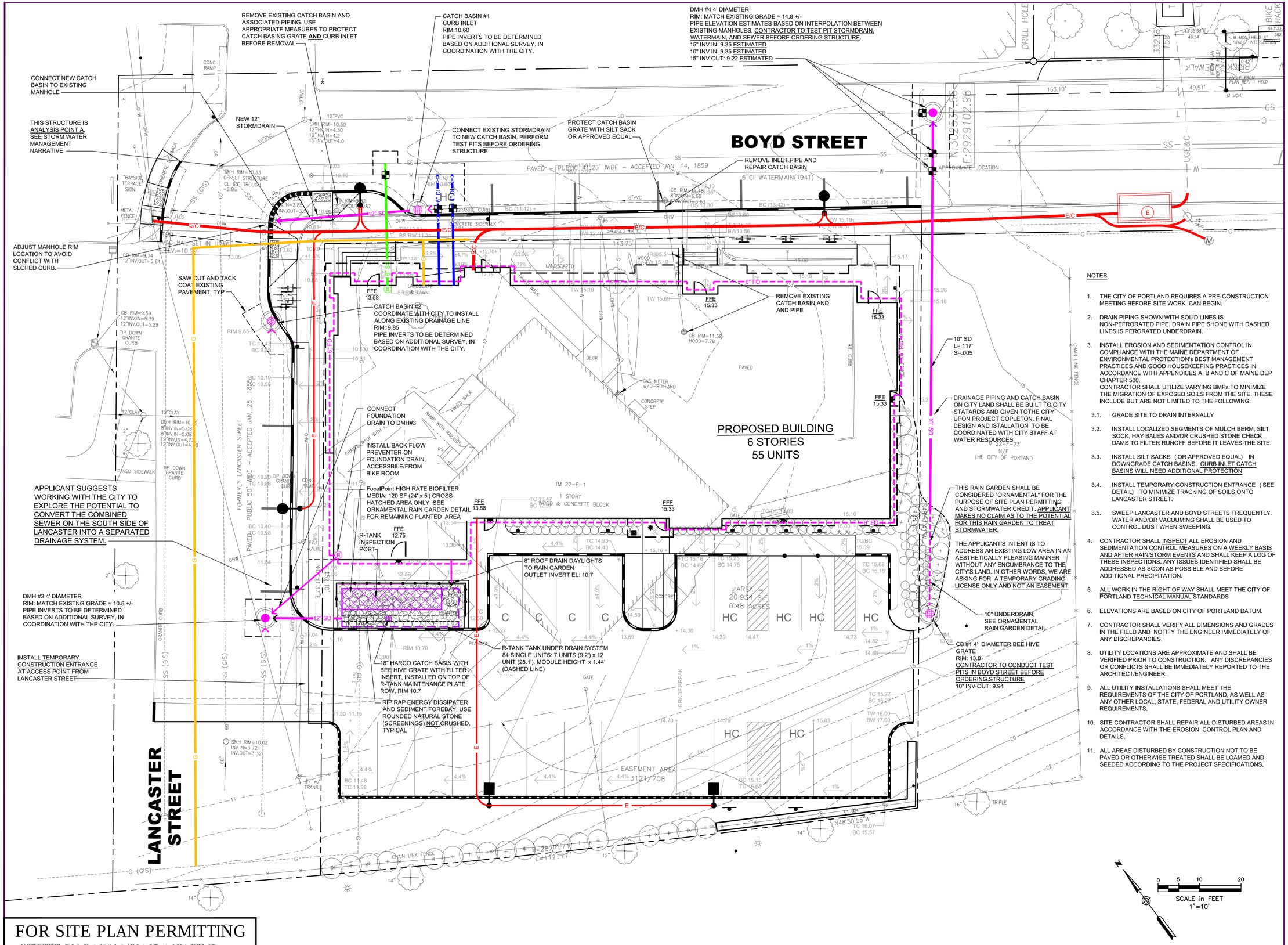
GRADING PLAN

Phase: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date: SEPT 15, 2017

Sheet No: C-4.0



NOTES

1. THE CITY OF PORTLAND REQUIRES A PRE-CONSTRUCTION MEETING BEFORE SITE WORK CAN BEGIN.
2. DRAIN PIPING SHOWN WITH SOLID LINES IS NON-PEFRORATED PIPE. DRAIN PIPE SHONE WITH DASHED LINES IS PERORATED UNDERDRAIN.
3. INSTALL EROSION AND SEDIMENTATION CONTROL IN COMPLIANCE WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION's BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING PRACTICES IN ACCORDANCE WITH APPENDICES A, B AND C OF MAINE DEP CHAPTER 500. CONTRACTOR SHALL UTILIZE VARYING BMPs TO MINIMIZE THE MIGRATION OF EXPOSED SOILS FROM THE SITE. THESE INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
   - 3.1. GRADE SITE TO DRAIN INTERNALLY
   - 3.2. INSTALL LOCALIZED SEGMENTS OF MULCH BERM, SILT SOCK, HAY BALES AND/OR CRUSHED STONE CHECK DAMS TO FILTER RUNOFF BEFORE IT LEAVES THE SITE.
   - 3.3. INSTALL SILT SACKS (OR APPROVED EQUAL) IN DOWNGRADE CATCH BASINS. CURB INLET CATCH BASINS WILL NEED ADDITIONAL PROTECTION
   - 3.4. INSTALL TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL) TO MINIMIZE TRACKING OF SOILS ONTO LANCASTER STREET.
   - 3.5. SWEEP LANCASTER AND BOYD STREETS FREQUENTLY. WATER AND/OR VACUUMING SHALL BE USED TO CONTROL DUST WHEN SWEEPING.
4. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER RAIN/STORM EVENTS AND SHALL KEEP A LOG OF THESE INSPECTIONS. ANY ISSUES IDENTIFIED SHALL BE ADDRESSED AS SOON AS POSSIBLE AND BEFORE ADDITIONAL PRECIPITATION.
5. ALL WORK IN THE RIGHT OF WAY SHALL MEET THE CITY OF PORTLAND TECHNICAL MANUAL STANDARDS
6. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM.
7. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
8. UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ANY DISCREPANCIES OR CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER.
9. ALL UTILITY INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND, AS WELL AS ANY OTHER LOCAL, STATE, FEDERAL AND UTILITY OWNER REQUIREMENTS.
10. SITE CONTRACTOR SHALL REPAIR ALL DISTURBED AREAS IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS.
11. ALL AREAS DISTURBED BY CONSTRUCTION NOT TO BE PAVED OR OTHERWISE TREATED SHALL BE LOAMED AND SEEDED ACCORDING TO THE PROJECT SPECIFICATIONS.

FOR SITE PLAN PERMITTING

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58 Boyd Street Redevelopment

BOYD STREET
PORTLAND, MAINE

PORTLAND HOUSING MAINE

OWNER:

58 BOYD STREET, LP
14 BAXTER BLVD.
PORTLAND, ME 04101

Consultants:

25 YEARS CWS ARCHITECTS ARCHITECTURE | INTERIOR DESIGN

ARCHITECT:

CWS ARCHITECTS
434 CUMBERLAND AVE
PORTLAND, ME 04101

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS

Landscape Architect
Carroll Associates
217 Commercial Street
Portland, Maine 04101
207.772.1552

RANSOM Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

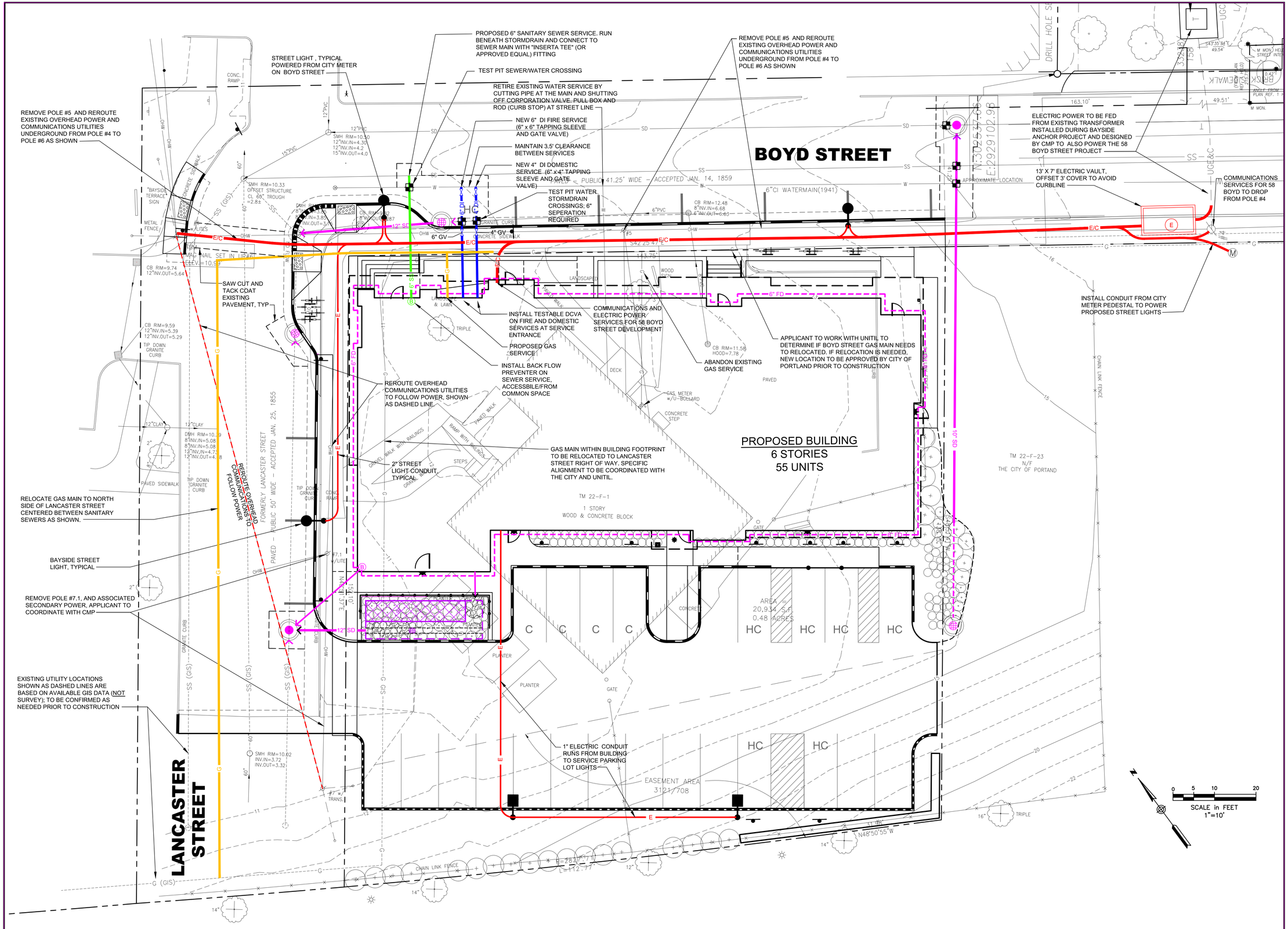
STATE OF MAINE John I. Mahoney #12340 REGISTERED PROFESSIONAL ENGINEER

STORMWATER & EROSION CONTROL PLAN

No.	Revision/Issue	Date
C	RESPONSE TO CITY COMMENTS	11–9–17
B	SITE PLAN PERMITTNG	9–26–17
A	PRELIMINARY PRICING	8–31–16

Design by: JIM	Checked by: SJB
Drawn by: JIM	Approved by: SJB
Project: 161.06034	

Sheet No: C-5.0



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PORTLAND HOUSING MAINE

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PORTLAND, ME 04101

Consultants:

25 YEARS
CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

ARCHITECT:

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Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
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STATE OF MAINE
John I. Mahoney
#12340
LICENSED PROFESSIONAL ENGINEER

UTILITY PLAN

No.	Revision/Issue	Date
C	RESPONSE TO CITY COMMENTS	11-9-17
B	SITE PLAN PERMITTNG	9-26-17
A	PRELIMINARY PRICING	8-31-16

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Drawn by: JIM	Approved by: SJB
Project: 161.06034	

Sheet No:

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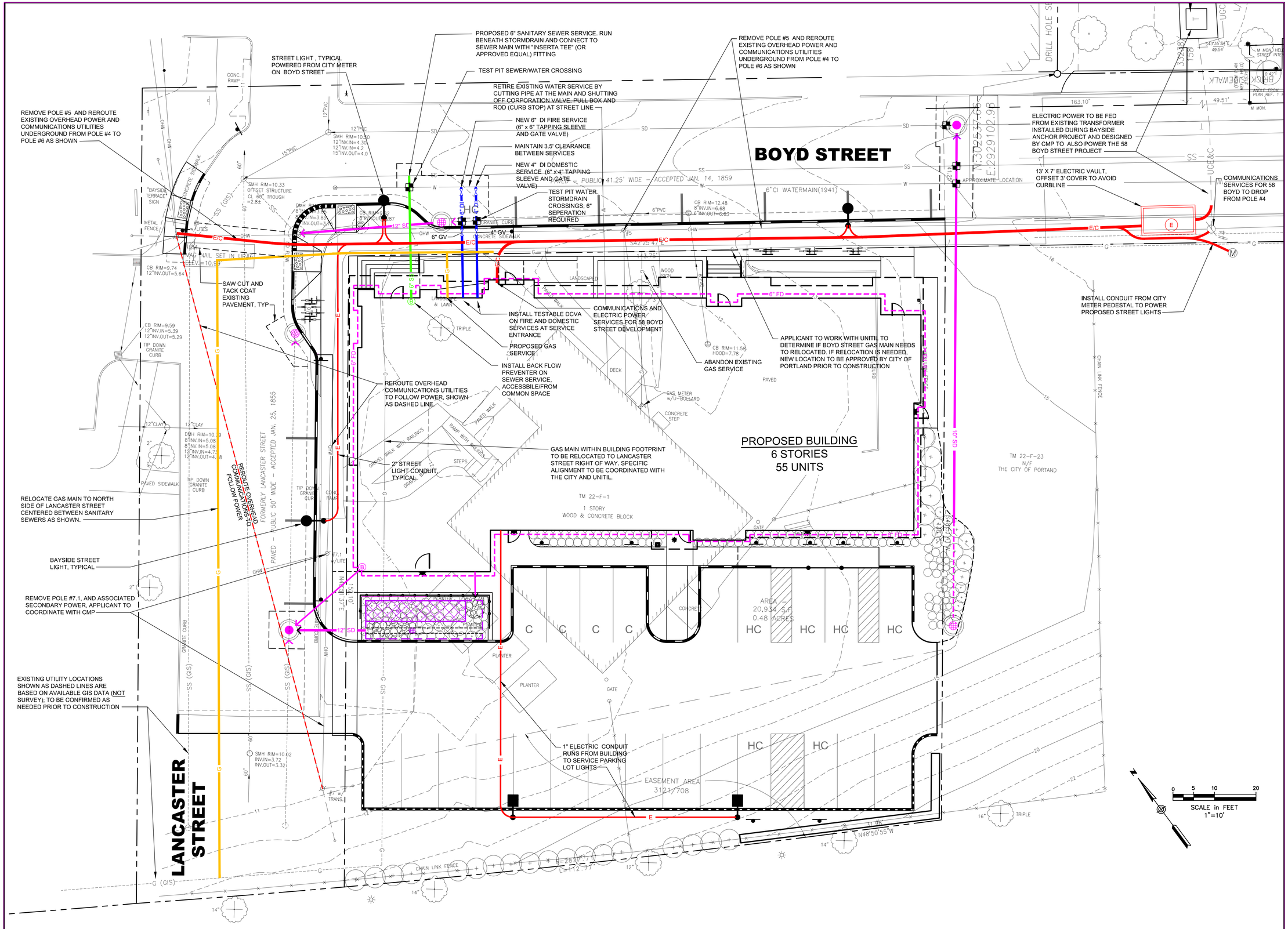

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PORTLAND HOUSING MAINE

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Consultants:

25 YEARS
CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

ARCHITECT:

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Ransom Consulting, Inc.
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STATE OF MAINE
John I. Mahoney
#12340
LICENSED PROFESSIONAL ENGINEER

UTILITY PLAN

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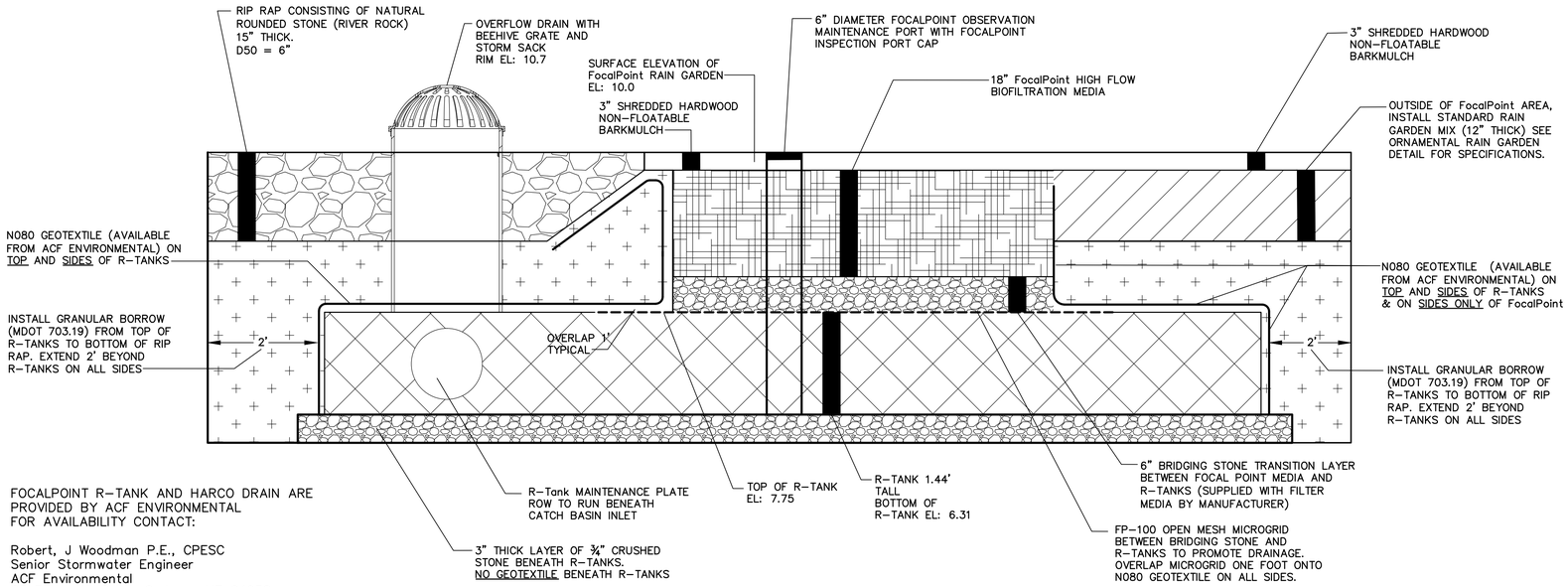
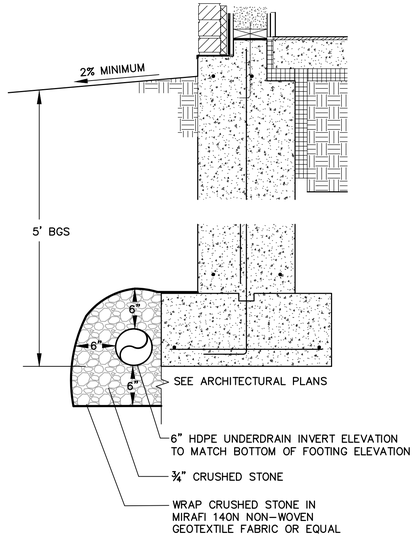


FOCALPOINT R-TANK AND HARCO DRAIN ARE PROVIDED BY ACF ENVIRONMENTAL FOR AVAILABILITY CONTACT:

Robert, J Woodman P.E., CPESC
Senior Stormwater Engineer
ACF Environmental
23 Falmouth Drive, Gorham, ME 04038
Mobile Office Phone (207) 272-4431
rwoodman@acfenv.com
www.acfenvironmental.com

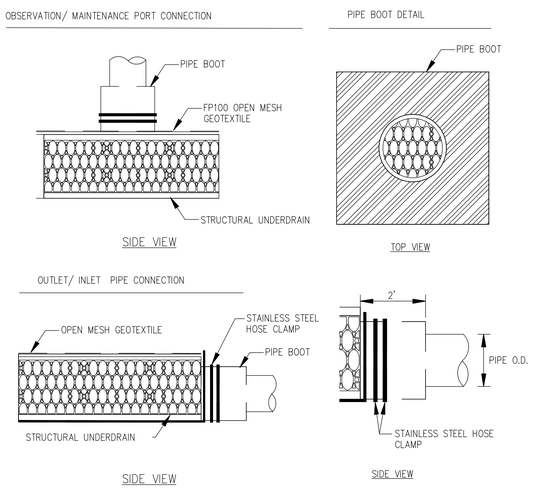
FOCAL POINT & R-TANK STORMWATER MANAGEMENT SYSTEM DETAIL

NOT TO SCALE



FOOTING DRAIN DETAIL

NOT TO SCALE



R-TANK PIPE AND OBSERVATION PORT CONNECTIONS

NOT TO SCALE

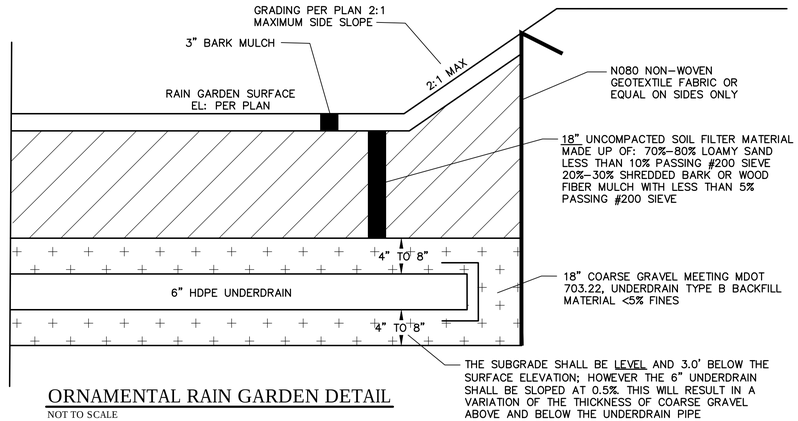
NOTES

1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION B SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION B SHALL BE AT LEAST 9".
4. DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0

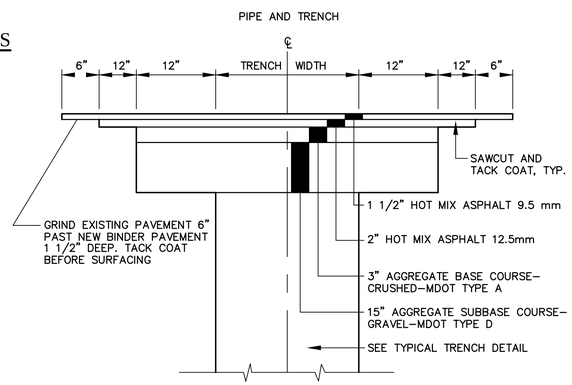
TYPICAL PIPE INSTALLATION – NOTES

NOT TO SCALE



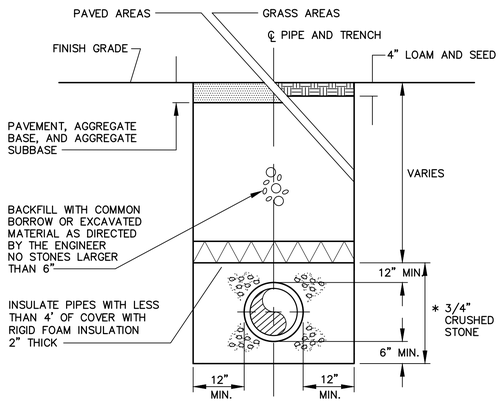
ORNAMENTAL RAIN GARDEN DETAIL

NOT TO SCALE



TYPICAL TRENCH PAVING DETAIL

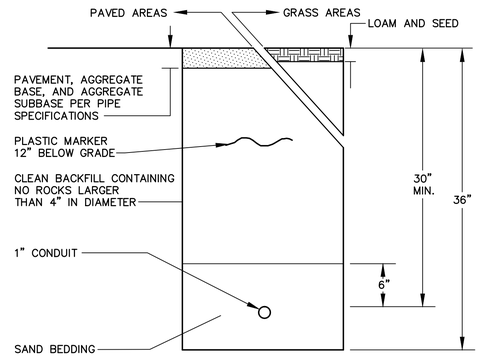
NOT TO SCALE



* USE SAND BEDDING FOR WATER INFRASTRUCTURE

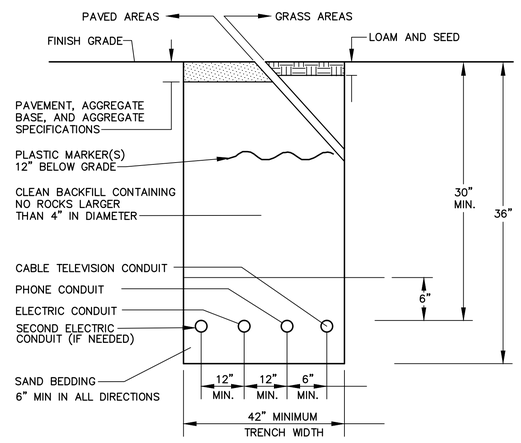
TYPICAL TRENCH REPAIR DETAIL

NOT TO SCALE



STREET LIGHTING CONDUIT TRENCH DETAIL

NOT TO SCALE



* SEE ELECTRICAL DRAWINGS FOR CONDUIT SIZES AND DETAILS ON CONDUIT BANK CONFIGURATION

UNDERGROUND ELECTRIC/COMUNICATIONS UTILITY TRENCH DETAIL

NOT TO SCALE

FOR SITE PLAN PERMITTING

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58 Boyd Street Redevelopment

BOYD STREET
PORTLAND, MAINE

PORTLAND HOUSING MAINE

OWNER:

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14 BAXTER BLVD.
PORTLAND, ME 04101

Consultants:

25 YEARS CWS ARCHITECTS ARCHITECTURE | INTERIOR DESIGN

ARCHITECT:

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STATE OF MAINE — John I. Mahoney #12340 — LICENSED PROFESSIONAL ENGINEER

CIVIL DETAILS

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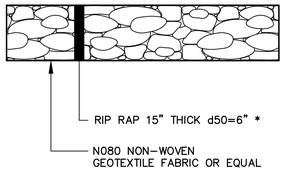
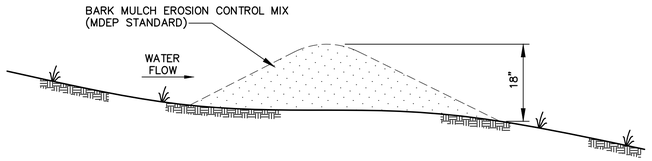


* RIP RAP TO CONSIST OF ROUNDED NATURAL STONE (SCREENINGS)

** SEE PLANS FOR SHAPE, SIZE & GRADING OF ENERGY DISSIPATERS/PLUNGE POOLS

ENERGY DISSIPATER/PLUNGE POOL DETAIL

NOT TO SCALE



MULCH BERM DETAIL

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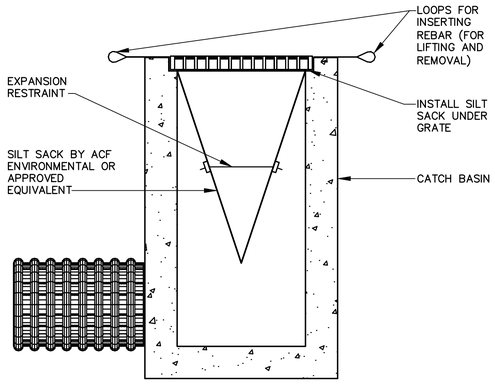
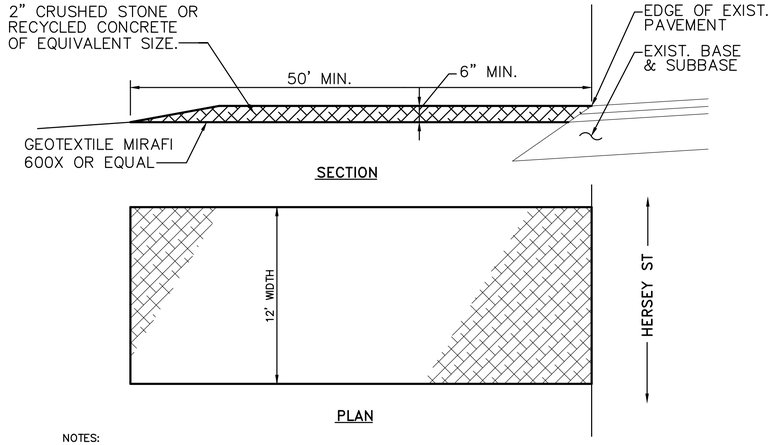


NOTES:

1. INSTALL SILTSACK PER MANUFACTURER'S RECOMMENDATIONS.
2. SILTSACKS SHALL BE CHECKED FOR SEDIMENT LEVEL AND OVERALL CONDITION IMMEDIATELY AFTER EVERY RAIN EVENT AND AT LEAST EVERY DAY DURING PROLONGED RAINFALL..
3. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE SILTSACK. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT WILL NOT ERODE.
4. SEDIMENT SHALL ONLY BE REMOVED BY REMOVING THE SILTSACKS FROM THE CATCH BASINS ACCORDING TO MANUFACTURER RECOMMENDATIONS.
6. CARE SHALL BE TAKEN TO AVOID SPILLING SEDIMENT WHILE REMOVING THE SILTSACK.
7. ANY DAMAGED SILTSACK SHALL BE REPLACED WITH A NEW SILTSACK.

INLET PROTECTION - SILT SACK

NOT TO SCALE



NOTES:

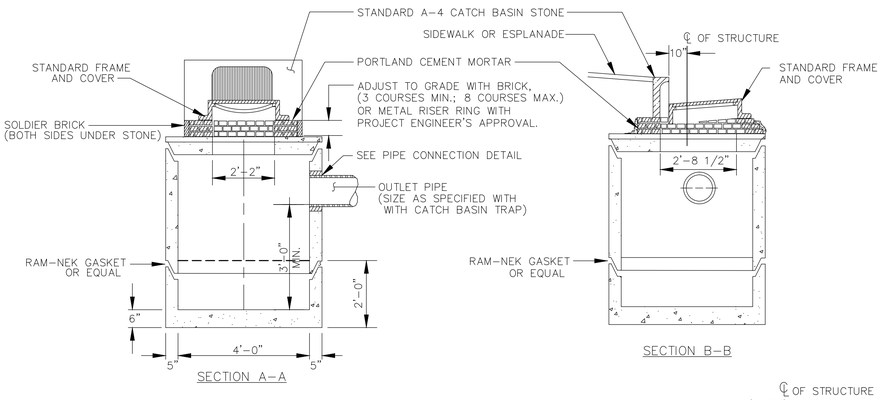
1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

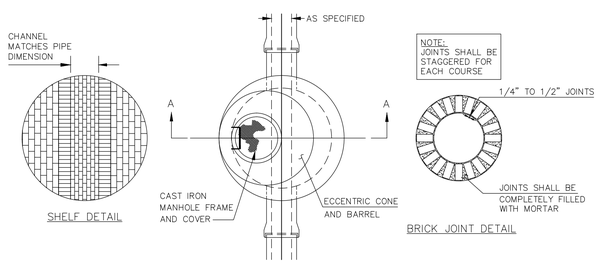
GENERAL NOTES FOR MANHOLES AND CATCH BASINS

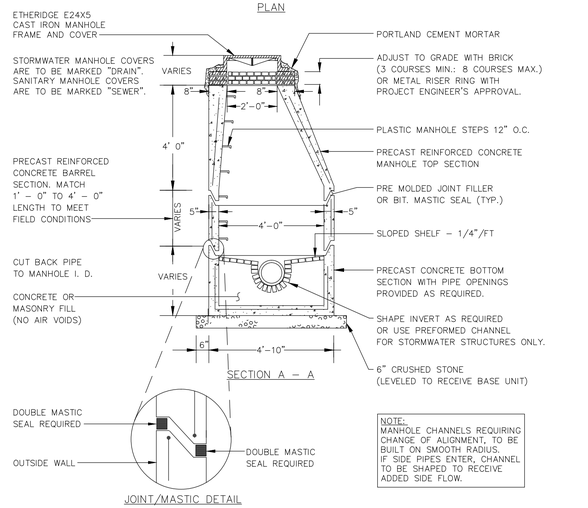
1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVED EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CASCO TRAP. SEE FIGURE II-09.



PRECAST CONCRETE CATCH BASIN - TYPE "E"

NOT TO SCALE





PRECAST CONCRETE MANHOLE

NOT TO SCALE

FOR SITE PLAN PERMITTING

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STATE OF MAINE John I. Mahoney #12340 LICENSED PROFESSIONAL ENGINEER

CIVIL DETAILS

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Project: 161.06034
Sheet No: C-8.0

58 BOYD STREET APARTMENTS

58 BOYD ST / 54 LANCASTER ST
PORTLAND, ME

TAX MAP 22, BLOCK F, LOT 1

Consultants:

OWNER:

PORTLAND HOUSING AUTHORITY
14 Baxter Blvd.
Portland, ME 04101
(207) 773.4753

APPLICANT:

58 BOYD STREET, LP
14 Baxter Blvd.
Portland, ME 04101
(207) 773.4753

ARCHITECT:

CWS ARCHITECTS
264 US Route One, Suite 100 2A
Scarborough, ME 04074
(207) 774.4441

LANDSCAPE ARCHITECT:

CARROLL ASSOCIATES
217 Commercial Street, Suite 200
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(207) 772-1552

ENGINEER:

RANSOM ENGINEERS, INC.
400 Commercial Street, Suite 404
Portland, ME 04101
(207) 772.2891

SURVEYOR:

OWEN HASKELL, INC.
390 US Route One, Unit 10
Falmouth, ME 04105
(207) 774.0424

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ISSUED FOR:	FINAL CITY PLAN SET
ISSUE DATE:	1 - SEPTEMBER 15, 2017
REVISION DATE:	2 - NOVEMBER 7, 2017

LIGHTING SCHEDULE

QTY.	SYM.	LABEL	FIXTURE MODEL + MAKE	LAMP	HEIGHT	POLE	NOTES
3		BL	BAYSIDE DIST. MED. LIGHT - HOLOPHANE LIGHTING	LED	19'-3"	TAPERED, ROUND STEEL POLE	SEE TECH. MAN. SECTION 10 FIG. X-2C, BLACK
2		BVS	VIPER S SERIES - BEACON LIGHTING (TYPE 4 WIDE)	65 WATT LED	15'	SQUARE STRAIGHT STEEL	LED 3000K, BLACK, BACKLIGHT CONTROL
4		DL	3.5" ID+ - FOCAL POINT	17 WATT LED	±10'	N/A - RECESSED CANOPY MOUNT	LED 3000K, COLOR TBD
8		DLW	3.5" ID+ - FOCAL POINT (WALL WASH)	17 WATT LED	±10'	N/A - RECESSED CANOPY MOUNT	LED 3000K, COLOR TBD
4		WL	LNC ULTRA COMPACT - HUBBLE LIGHTING (TYPE 4)	12.8 WATT LED	±10'	N/A - BUILDING MOUNT	LED 3000K, COLOR TBD

PLANT LIST - TREES

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	NATIVE
1	AR	*Acer rubrum 'Red Pointe'*	Red Maple	3" CAL.	B&B	Y
3	GT	*Gleditsia triacanthos 'Shademaster'*	Honeylocust	3" CAL.	B&B	N
3	CC	*Carpinus caroliniana*	American Hornbeam	3" CAL.	B&B, MATCHING SET	Y
5	QR	*Quercus robur x bicolor 'Long'*	Regal Prince Oak	3" CAL.	B&B, MATCHING SET	Y

PLANT LIST - SHRUBS

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	NATIVE
8	CA	*Clethra alnifolia 'Hummingbird'*	Sweet Pepperbush	# 5	CONT	Y
6	MP	*Myrica pensylvanica*	Northern Bayberry	3'-4'HT.	CONT	Y
18	TO	*Thuja occidentalis 'Globosa'*	Arborvitae	3'-3.5' HT.	B&B, MATCHING	Y

PLANT LIST - PERENNIALS + GROUND COVERS

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	NATIVE
43	DC	*Deschampsia caespitosa*	Tufted Hair Grass	# 2	CONT	Y
18	ED	*Eupatorium dubium 'Little Joe'*	Dwarf Joe Pye Weed	#2	CONT	Y
125	EF	*Euonymus fortunei 'Coloratus'*	Purpleleaf Wintercreeper	# 2	CONT - 24" O.C.	N
33	IV	*Iris versicolor*	Blue Flag Iris	#2	CONT	Y
15	MF	*Monarda fistulosa*	Wild Bergamot	#2	CONT	Y
360 sf	P	*Mixed perennials - TBD*	Mixed Perennials - TBD	# 2	CONT	Y
82	PV	*Panicum virgatum 'Heavy Metal'*	Switch Grass	# 2	CONT	Y

NOTES:

1. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
2. CONTRACTOR SHALL SUPPLY PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE WORK SHOWN ON THE PLAN. ANY DISCREPANCY BETWEEN THE QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED ON THE PLAN SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL RENUMERATION. ANY DISCREPANCIES SHALL BE CLARIFIED WITH THE LANDSCAPE ARCHITECT PRIOR TO ORDERING PLANT MATERIAL.
3. ALL MATERIALS SHALL CONFORM TO SPECIFICATIONS OF THE AMERICAN STANDARDS FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THE ORIGINAL GRADES BEFORE DIGGING.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
6. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AT THE NURSERY AND AT THE SITE.
7. ALL PLANT BEDS SHALL MEET MINIMUM TOPSOIL REQUIREMENTS (SEE SPECIFICATIONS).
8. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL GRUBBING, BED PREPARATION, AND FINISH GRADING HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
9. ALL PLANTS BEDS AND TREE WELLS SHALL HAVE A MINIMUM OF 3" OF UNIFORMLY DISTRIBUTED, DARK, SHREDDED BARK MULCH.
10. CONTRACTOR SHALL SUBMIT SOIL SAMPLE AND TEST OF TOPSOIL TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SOIL ADMIXTURE SHALL BE ADDED TO EXISTING SOIL (BY CONTRACTOR) IF DEEMED NECESSARY BY SOIL TEST RESULTS.
11. ROUGH GRADING AND BED PREPARATION SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO REQUIRED SITE VISIT.
12. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. ALL ROOT WRAPPING AND CONTAINER MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED AT THE TIME OF PLANTING.
13. ALL BROAD LEAF EVERGREEN PLANTS SHALL BE SPRAYED WITH AN ANTI-DESSICANT AT THE BEGINNING OF THEIR FIRST WINTER.
14. ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE CONTRACT SPECIFICATIONS. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. CONTRACTOR SHALL STAKE TREES IF DEEMED NECESSARY BY THE LANDSCAPE ARCHITECT.
16. THE LANDSCAPE CONTRACTOR SHALL PROVIDE PREPARED SOIL PLANTING MIX AS PER THE CONTRACT SPECIFICATIONS.
17. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE PLANT LIST AND PLANTING SPECIFICATIONS FOR SEASONAL REQUIREMENTS AND OTHER RESTRICTIONS RELATED TO THE TIME AND SEASON OF PLANTING.

EXISTING

- PROPERTY LINE
- EASEMENT LINE
- ROW LINE
- DECIDUOUS TREE (preserved)
- DECIDUOUS TREE (to be removed)
- CURB
- EDGE OF PAVING
- BUILDING OUTLINE
- POLE LIGHT
- FIRE HYDRANT
- MANHOLE
- EM/GM ELEC / GAS METER
- UTILITY POLE
- STREET LIGHT
- SIGN
- CATCH BASIN
- DRAIN MANHOLE
- WATER VALVE /SHUTOFF
- CHAIN LINK FENCE
- OHW OVERHEAD WIRES
- E UNDERGROUND POWER
- W WATER LINE
- G GAS LINE
- T TELEPHONE

PROPOSED

- EASEMENT / LICENSE LINE
- SETBACK LINE
- LIMIT OF WORK LINE
- DECIDUOUS TREE
- SHRUBS
- PERENNIALS / GROUND COVER
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- BRICK PAVEMENT
- EDGE OF PAVING
- CURB
- CROSSWALK STRIPING
- LIGHT
- TRAFFIC SIGNAGE
- CATCH BASIN
- SEWER MANHOLE
- TRANSFORMER
- BOLLARD
- 14 CONTOUR LINE
- 14.50 + 13.69 SPOT ELEVATION
- CAPPED IRON ROD SET
- CATCH BASIN / FIELD INLET
- SEWER MANHOLE
- DRAIN MANHOLE

0' 10' 20'

APPLICANT:

58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project: 58 BOYD STREET APARTMENTS

Revisions	Date	Description
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS
1	9.15.2017	CITY OF PORTLAND LEVEL III SITE PLAN SUBM.

Drawn By: MP
Approved By: PC
Scale: AS SHOWN

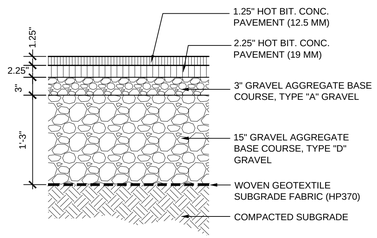
LANDSCAPE AND LIGHTING PLAN

Phase: PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V, F. 207.772.0712

Date: SEPT 15, 2017

Sheet No: L-1.0



1 BITUMINOUS CONCRETE PAVING
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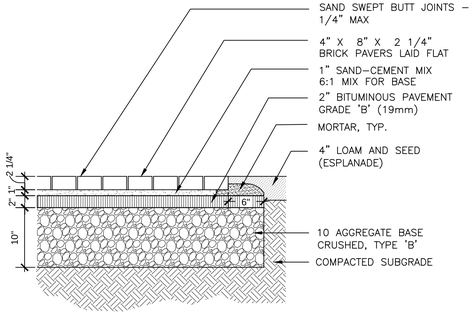

2 BRICK PAVING (IN CITY R.O.W.)
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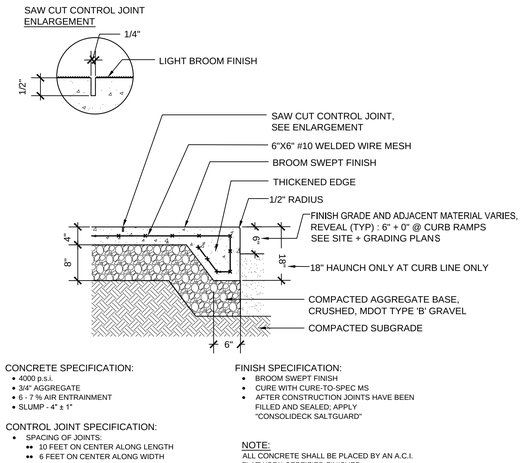

3 CONCRETE PAVING + INTEGRAL CURB
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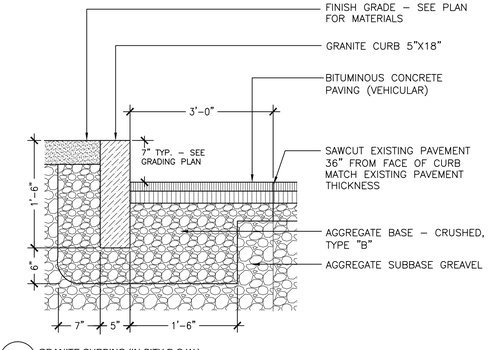

4 GRANITE CURBING (IN CITY R.O.W.)
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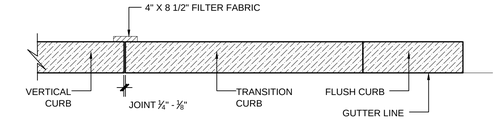

5 TRANSITION CURB
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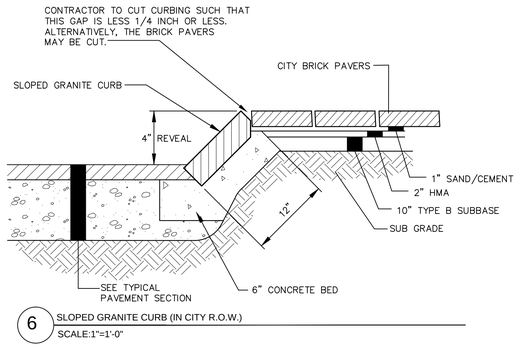

6 SLOPED GRANITE CURB (IN CITY R.O.W.)
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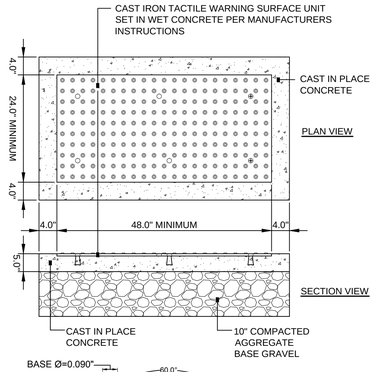
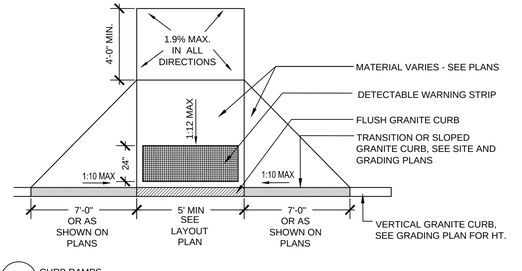
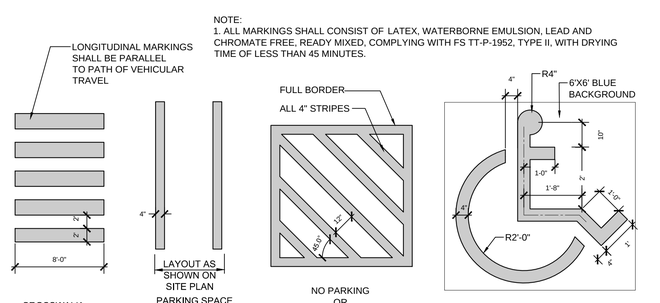


7 DETECTABLE WARNING STRIP (AT STREET CROSSING ONLY)
SCALE: N.T.S.

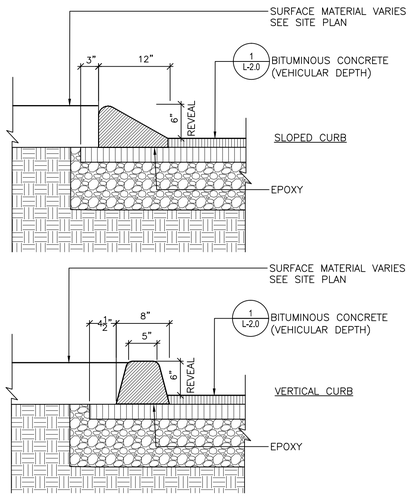


8 CURB RAMPS
SCALE:3/8"=1'-0"



NOTE:
1. ALL MARKINGS SHALL CONSIST OF LATEX, WATERBORNE EMULSION, LEAD AND CHROMATE FREE, READY MIXED, COMPLYING WITH FS TT-P-1952, TYPE II, WITH DRYING TIME OF LESS THAN 45 MINUTES.

9 LINE STRIPING
SCALE: N.T.S.



10 SLIPFORM CONCRETE CURB (NOT USED ADJACENT TO CONCRETE SIDEWALKS)
SCALE:1"=1'-0"

NOTES:

1. COMPOSITE WET SET (REPLACEABLE) TACTILE WARNING SURFACE UNITS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADATILE.COM), OR APPROVED EQUAL.

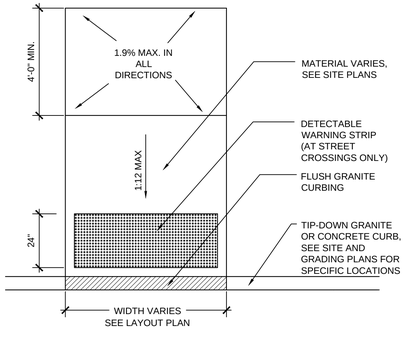
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE CONCRETE SHALL BE SEALED PRIOR TO SETTING PANELS. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A GROOVED EDGE BETWEEN THE TILE AND CONCRETE, ALONG WITH A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.

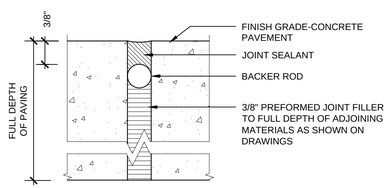
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.

4. TACTILE WARNING SURFACE UNITS SHALL BE NATURAL COLOR CAST IRON, AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADATILE.COM), OR APPROVED EQUAL.

5. SIZE: THE DETECTABLE WARNING PANEL(S) SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.

6. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTATED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.





EXPANSION JOINT DETAIL
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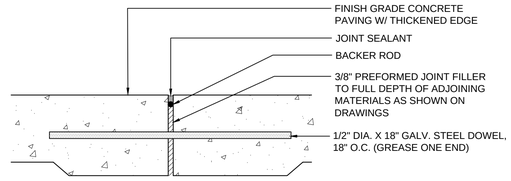
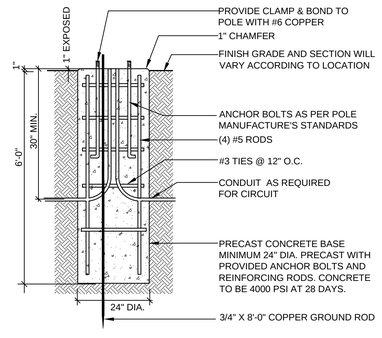


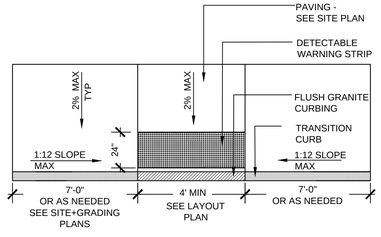
CONSTRUCTION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"

11 CONCRET JOINTS
SCALE: AS NOTED



NOTES:
1. POLE BASE ANCHOR BOLTS AND PLACEMENT TEMPLATE WILL BE SUPPLIED BY THE MANUFACTURER PRIOR TO BASE MANUFACTURING
2. SEE SPECIFICATIONS FOR LIGHT MANUFACTURER AND STYLE

12 LIGHT POLE BASE
SCALE:1/2"=1'-0"



APPLICANT:

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PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
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Project:
58 BOYD STREET APARTMENTS

Revisions	Date	Description
2	11.07.2017	REVISED PER CITY REVIEW COMMENTS
1	9.15.2017	CITY OF PORTLAND, LEVEL III SITE PLAN SUBM.

LICENSED LANDSCAPE ARCHITECT
PATRICK J. CARROLL
NO. 127
STATE OF MAINE

Drawn By: MP
Approved By: PC
Scale: AS SHOWN

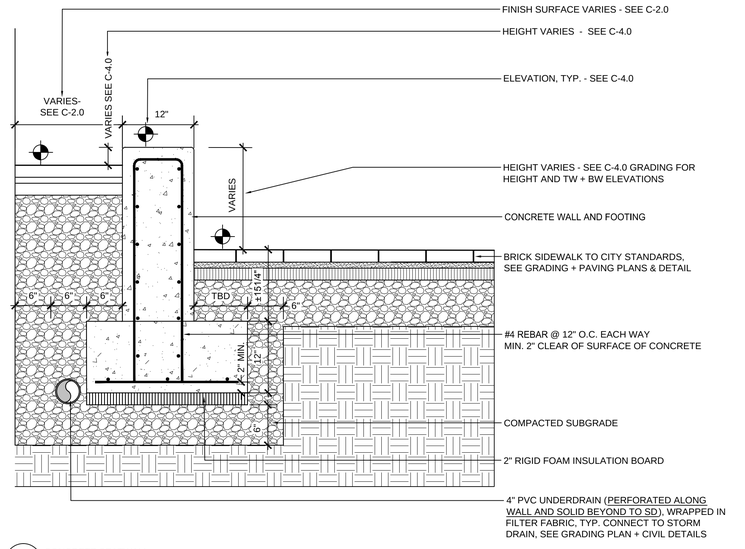
SITE DETAILS

Phase:
PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date:
SEPT 15, 2017

Sheet No:
L-2.0



1 CONCRETE SEATWALL
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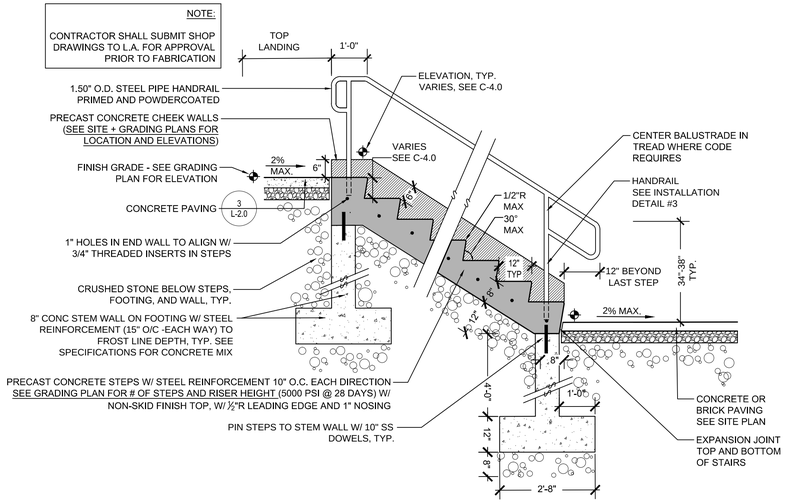
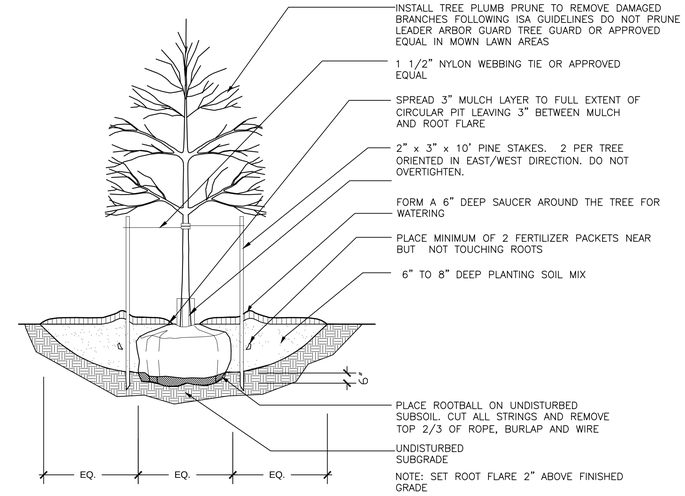
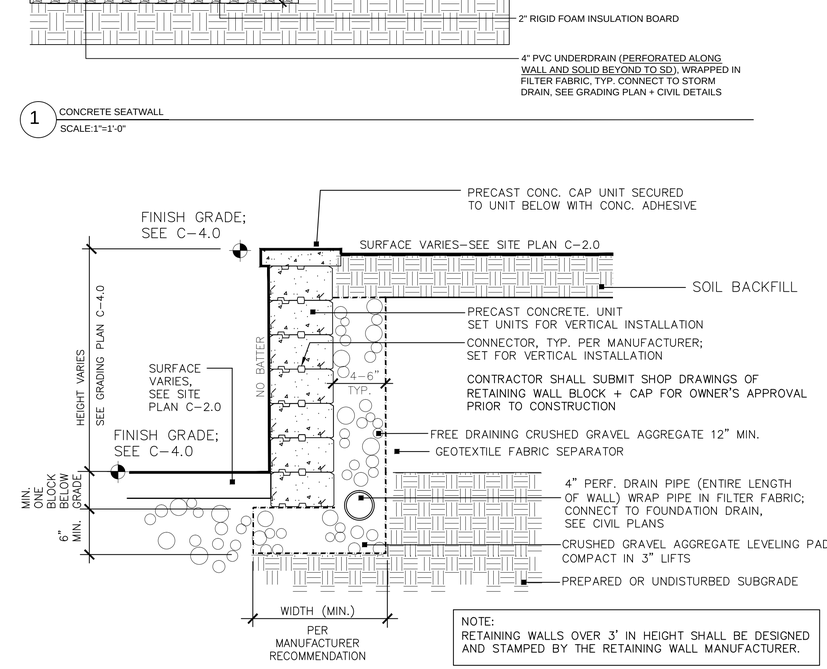


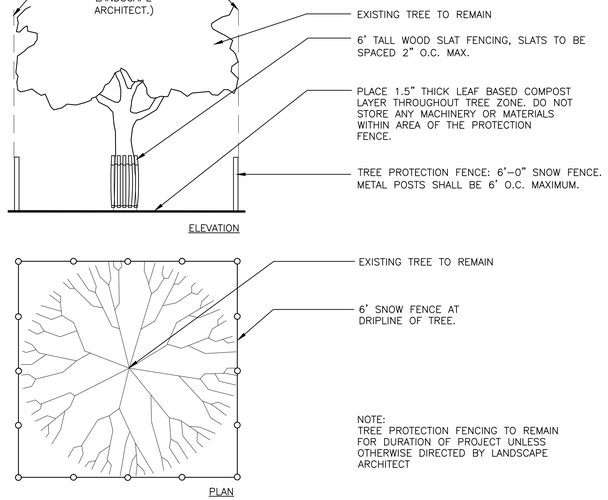
4 CONCRETE STAIRS
SCALE:1"=1'-0"



7 TREE IN LAWN OR ESPLANADE
SCALE:1"=1'-0"



2 PRECAST CONCRETE BLOCK RETAINING WALL
SCALE: NTS



5 TREE PROTECTION
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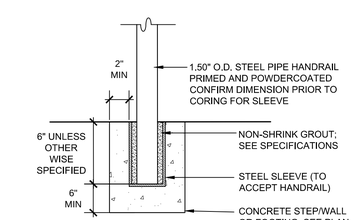
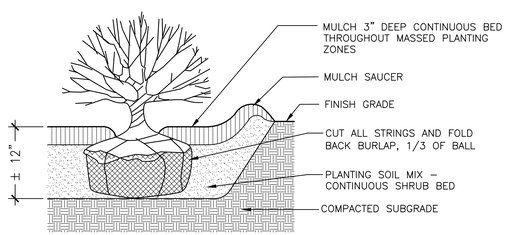


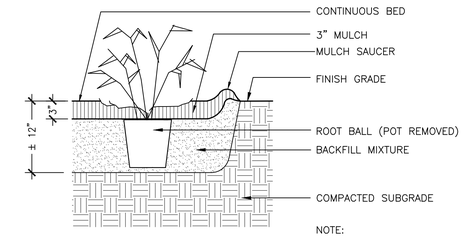
NOTES:

1. SLEEVE TO BE METAL W/ WELDED END; OPENING TO BE 1" TO 1 ½" LARGER THAN POST DIAMETER OR WIDTH
2. TOP OF POST SLEEVE TO BE FLUSH OR SLIGHTLY BELOW CONCRETE SURFACE
3. GROUT COLOR TO BE MATCH CONCRETE (TYP)
4. HANDRAIL INSTALLATION SHALL CONFORM TO ALL A.D.A. & LOCAL BLDG. CODES

3 HANDRAIL AND ATTACHMENT
SCALE:1"=1'-0"



6 SHRUB PLANTING
SCALE: 3/4"=1'-0"



8 ORNAMENTAL GRASS / PERENNIAL PLANTING
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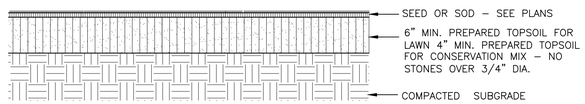

9 SEEDED OR SODDED LAWN
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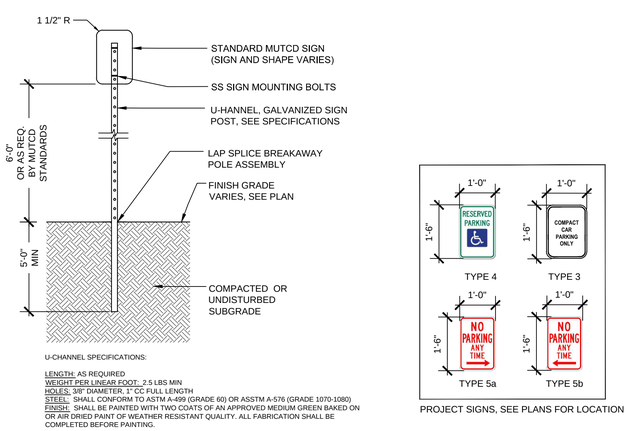

10 MUTCD SIGN
SCALE:1"=1'-0"

APPLICANT:

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14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project:
58 BOYD STREET APARTMENTS

Description	Date	Revisions
REVISED PER CITY REVIEW COMMENTS	11.07.2017	2
CITY OF PORTLAND, LEVEL III SITE PLAN SUBM.	9.15.2017	1

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawn By: MP
Approved By: PC
Scale: AS SHOWN

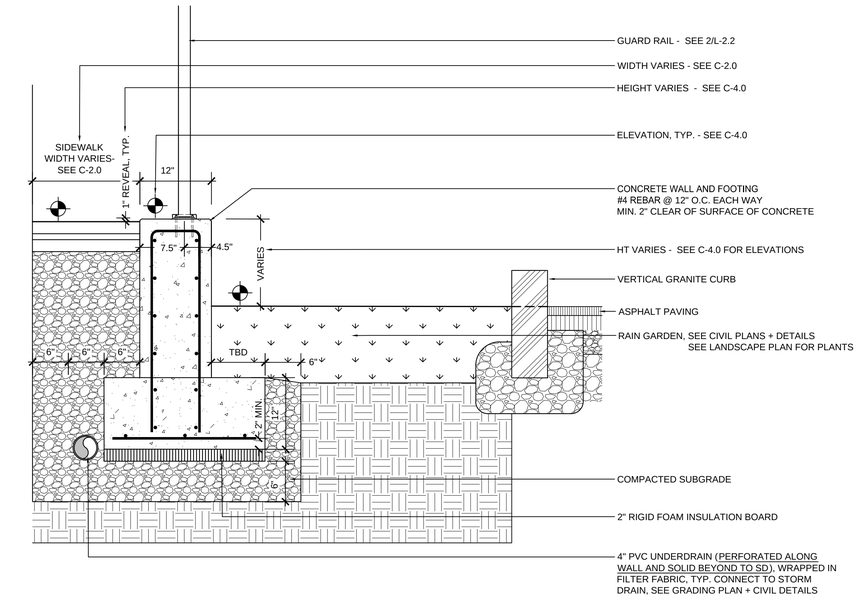
SITE DETAILS

Phase:
PERMITTING

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 COMMERCIAL STREET, STE 200
PORTLAND, MAINE 04101
207.772.1552 V. F. 207.772.0712

Date:
SEPT 15, 2017

Sheet No:
L-2.1



1 CONCRETE WALL @ RAIN GARDEN
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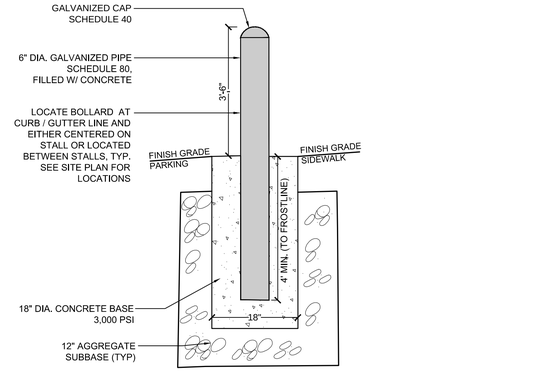

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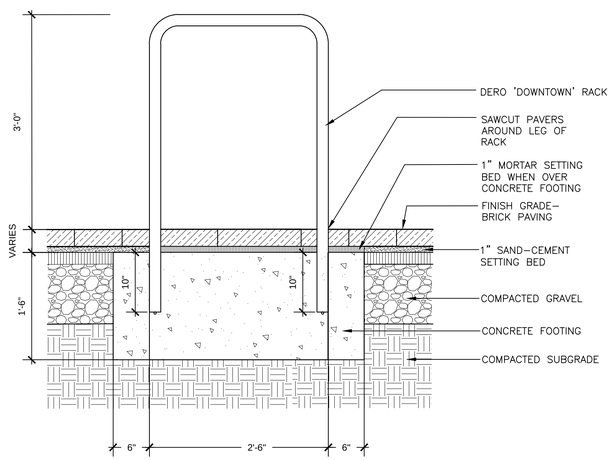
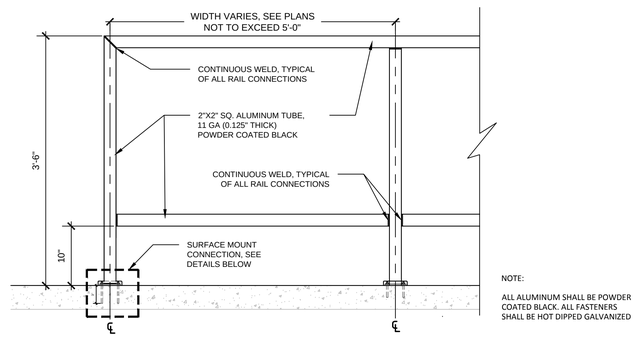


4 BIKE RACK
SCALE: NTS



GUARDRAIL DETAIL
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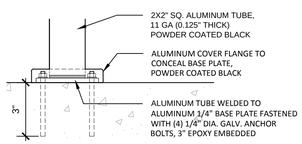

SURFACE MOUNT CONNECTION DETAIL
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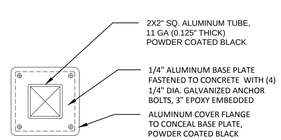

SURFACE MOUNT CONNECTION PLAN
SCALE: 3"=1'-0"

2 GUARD RAIL @ RAIN GARDEN
SCALE:1"=1'-0"

APPLICANT:

58 BOYD STREET, LP
14 BAXTER BLVD
PORTLAND, MAINE 04101

OWNER:

PORTLAND HOUSING AUTHORITY
14 BAXTER BLVD
PORTLAND, MAINE 04101

Project:
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LICENSED LANDSCAPE ARCHITECTED
PATRICK J. CARROLL
NO. 127
STATE OF MAINE

Drawn By: MP
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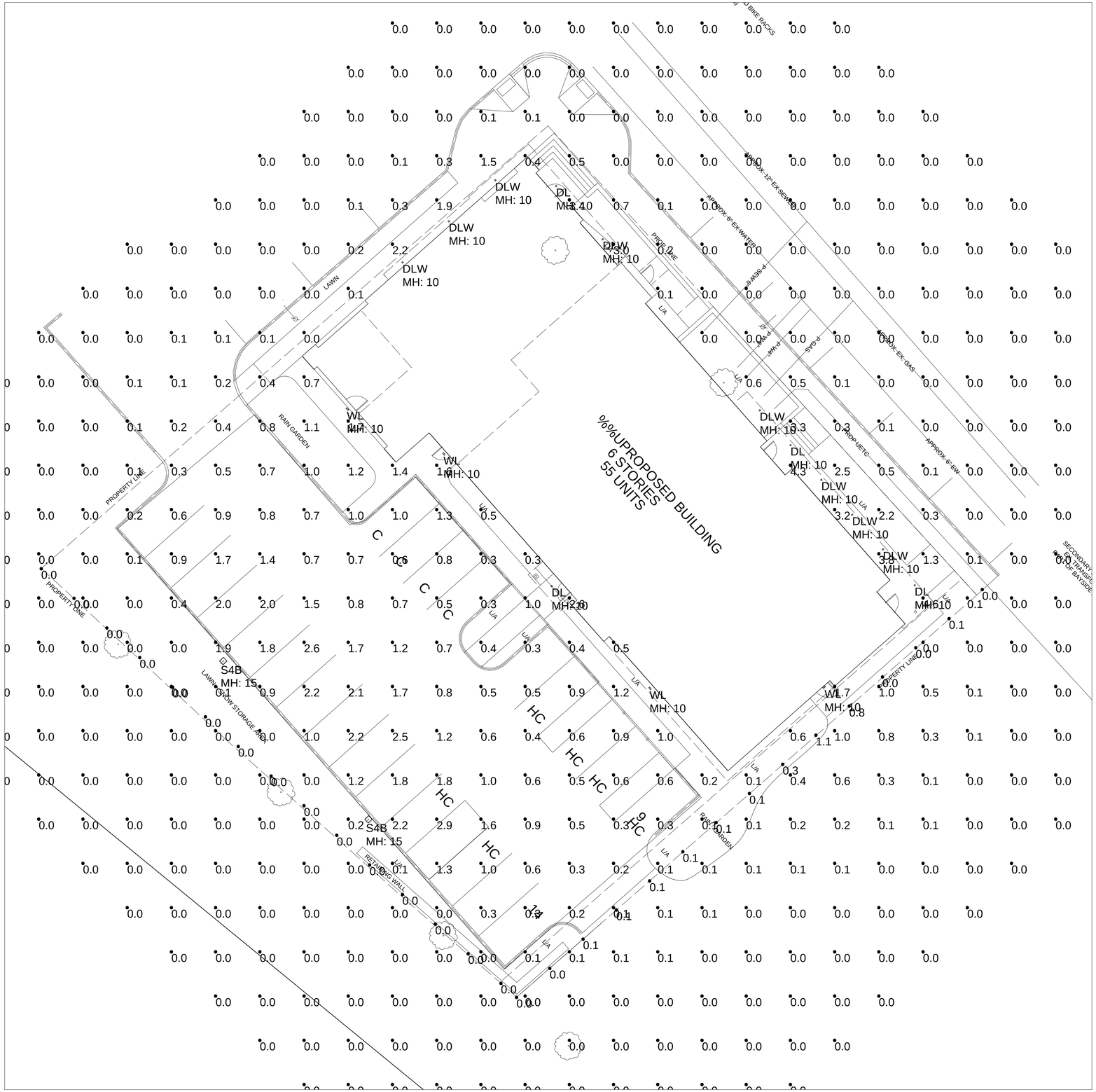


PLAN VIEW

NOTES:
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE UNLESS OTHERWISE INDICATED.
4) THIS CALCULATION IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO SWANEY LIGHTING ASSOCIATES AND STANDARD ASSUMPTIONS OF THE SPACE AND/OR SITE.
5) CONFORMANCE TO CODES AND OTHER LOCAL REQUIREMENTS AS DETERMINED BY THE AHJ ARE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
6) THIS LAYOUT DRAWING MUST BE COORDINATED WITH THE SITE LOCATION FOR CORRECT FIXTURE ORIENTATION.
7) CHECK GRAPHIC SCALE. DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY OCCUR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.

Calculation Summary

Label	Avg	Max	Min	Avg/Min	Max/Min
SITE	0.26	4.6	0.0	N.A.	N.A.
south prop line	0.19	1.1	0.0	N.A.	N.A.
west prop line	0.00	0.0	0.0	N.A.	N.A.
PARKING	1.02	2.9	0.2	5.10	14.50

Luminaire Schedule (note fixture cataloge numbers are not complete)

Type	Symbol	Qty	Lum. Lumens	LLF	Lum. Watts	Description
S4B		2	3809	0.900	65	VPS-36L-65-3K7-4W-BC
WL		4	1053	0.900	12.9	LNC-5LU-4K-4-X
DLW		8	649	0.900	8.08	LC33W-SDO-700L-35K-WFL-WWS-WH
DL		4	585	0.900	8.09	LC33-SO-700L-35K-DNT-WFL-CD

site 9-13-17.AGI

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

TITLE
58 BOYD ST
PORTLAND, ME
SITE LIGHTING LAYOUT

GENERATED FOR:
CARROLL ASSOC

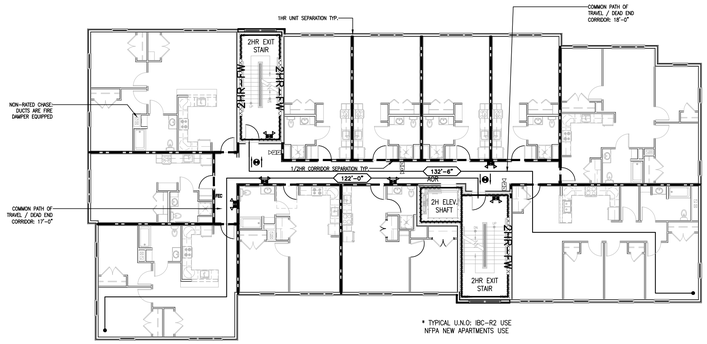
SCALE NOT TO SCALE

Page 1 of 1

Date:9/13/2017

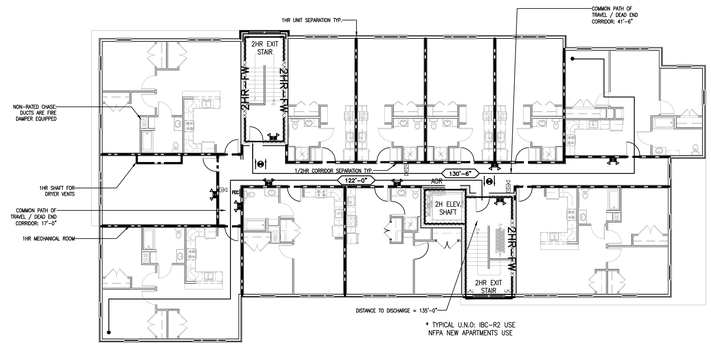
SWANEY LIGHTING ASSOCIATES, INC.

NOTICE: THIS DRAWING IS THE EXCLUSIVE PROPERTY OF SWANEY LIGHTING ASSOCIATES. ITS ACCEPTANCE CONSTITUTES AN AGREEMENT THAT THE DRAWING WILL BE TREATED AS CONFIDENTIAL. THIS DRAWING IS TO BE USED FOR NO PURPOSE OTHER THAN AS DETAILED INFORMATION CONCERNING THE OPERATION OF UNITS INDICATED. THIS DRAWING IS TO BE RETURNED UPON REQUEST AND IS NOT TO BE COMMUNICATED, DISCLOSED OR COPIED; EXCEPT AS EXPRESSLY AUTHORIZED BY SWANEY LIGHTING ASSOCIATES.
NOTICE: THE INTENT OF THIS LIGHTING LAYOUT IS TO SUGGEST THE BEST UTILIZATION OF LIGHTING FIXTURES INCLUDED IN THIS DRAWING. IT IS PROVIDED USING FIXTURE PHOTOMETRICS FURNISHED BY THE MANUFACTURER. ANY VARIATION IN FIXTURE PERFORMANCE FROM PERFORMANCE SHOWN IN ES FILE IS NOT THE RESPONSIBILITY OF THE MANUFACTURER. IT'S USE FOR ANY OTHER PURPOSE IS NOT AUTHROIZED BY SWANEY LIGHTING ASSOCIATES.



A2 THIRD FLOOR LIFE SAFETY FLOOR PLAN

SCALE: 1/16" = 1'-0"



D3 SIXTH FLOOR LIFE SAFTEY PLAN

SCALE: 1/16" = 1'-0"

A3 SECOND FLOOR LIFE SAFETY PLAN

SCALE: 1/16" = 1'-0"

D3 FIFTH FLOOR LIFE SAFTEY PLAN

SCALE: 1/16" = 1'-0"

A5 FIRST FLOOR LIFE SAFETY PLAN (LEVEL OF EXIT DISCHARGE)

SCALE: 1/16" = 1'-0"

D5 FOURTH FLOOR LIFE SAFTEY PLAN

SCALE: 1/16" = 1'-0"

CODE SUMMARY

IBC 2015
USE GROUP R-2 "APARTMENT HOUSES"
CONSTRUCTION TYPE 1A/3B
SPRINKLERED: NFPA 13

LIFE SAFETY CODE NFPA 101-2009
RESIDENTIAL OCCUPANCY / APARTMENT BUILDING (3.3.28.3)
CONSTRUCTION TYPE 1(111) / 3(000)

FIRE BARRIERS

1/2 HR FIRE RATED
1 HOUR FIRE RATED
2 HOUR FIRE RATED

FIRE WALLS

2 HOUR FIRE RATED — 2HR-FW

FIRE PARTITIONS

1 HOUR FIRE RATED — 1HR-FP

X'-XX" — EXIT ACCESS TRAVEL DISTANCE

NEW DEVICES:

- EXIT SIGN – ARROW DENOTES EXIT SIGN TO BE PROVIDED WITH DIRECTIONAL ARROW
- FEC — RECESSED FIRE EXTINGUISHER CABINET
- FEX (FE) — WALL MOUNTED FIRE EXTINGUISHER
- KB — KNOX BOX
- FACP — FIRE ALARM CONTROL PANEL
- BATTERY OPERATED EMERGENCY LIGHT

G5 LIFE SAFETY LEGEND

REFERENCED FROM: SCALE: NA

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
434 Cumberland Avenue Portland ME 04101
OFFICE: 207 774 4441 CWSARCH.COM

DESIGNER
CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN
434 CUMBERLAND AVENUE
PORTLAND, MAINE 04101
T. 207.774.4441
WWW.CWSARCH.COM

OWNER
PORTLAND HOUSING DEVELOPMENT CORP.
14 BAXTER BLVD
PORTLAND, MAINE 04101

PROJECT
58 BOYD STREET APARTMENTS
58 BOYD STREET
PORTLAND, MAINE 04101

DRAWING
LIFE SAFETY FLOOR PLANS
CWS PROJECT NUMBER: 15.021

REVISIONS

DRAWING NUMBER
LS 1.10

SCALE: 1/16" = 1'-0"
DATE: 09/13/2017

PLANNING BOARD REPORT
PORTLAND, MAINE

Five Level Parking Garage
48 Brown Street
Level III Site Plan Application

Submitted to: Portland Planning Board Date: November 22, 2017 Public Hearing Date: November 28, 2017	Prepared by: Matthew Grooms, Planner CBL: 037 D004 Project #: 2017-145

I. INTRODUCTION

Ocean Gate, LLC requests a Level III site plan review for a five-level, 98,125 SF parking garage and improved surface parking at 48 Brown Street in the city's downtown district. The proposed development is intended to provide necessary off-street parking for area tenants with the goal of converting adjacent surface parking lots into residential, commercial, office and potentially other land uses. The site is currently occupied by two separate surface parking lots.

Figure 1: Project Site (Note: Surface parking to be replaced by give level parking structure)

This development is being referred to the Planning Board for compliance with site plan standards of the land use code. The applicant has submitted final plans for Planning Board review. As this project is located within 100 feet of a historic district, this development was required to go before the Historic Preservation Board for an advisory review, which was held on June 7, 2017. The required neighborhood meeting for this project was held on September 20, 2017 and a Planning Board workshop was held on September 26, 2017. At the workshop, members of the Planning Board provided feedback regarding design of the garage in its existing context, screening of vehicle headlights, vehicular circulation, and the proposed stormwater system. A more detailed discussion of the September 26th workshop can be found below within this report.

A total of 197 notices were sent to property owners within 500 feet of the site and a legal ad ran on November 20, and 21, 2017.

Applicant: Ocean Gate, LLC
Consultants: Ethan Boxer Macomber, Anew Development; John Mahoney, Random Consulting, INC; Randy Loubier, Owen Haskell, INC; Travis Nadeau, Platz Associates; Nicholas J. Morrill, Esq., Jensen Baird Gardner & Henry;

II. REQUIRED REVIEWS

Review	***Applicable Standards***
Site Plan	*Section 14-526*
Waiver Request: To maintain the existing stormdrain outlet, which connects into a catch basin in Brown Street as opposed to connecting into the combined sewer system.	*Section 2.7.8 of the Technical Manual,* which states that no storm drain lines, with the exception of field inlets and underdrains, shall be connected into a catch basin structure.

Staff Recommendation: The applicant is working with DPW to determine if this is a viable option. If DPW approves the connection, staff support this waiver request.	

III. PROJECT DATA

Existing Zoning	B-3 Downtown Business Zone
Existing Use	Surface Parking Lot
Proposed Use	Structured Parking/Surface Parking
Proposed Development Program	Five level Garage
Parcel Size	39,039 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	0 SF	20,485 SF	20,485 SF
Building Floor Area	0 SF	98,125 SF	98,125 SF
Impervious Surface Area	37,500 SF	*37,300 SF*	*-200 SF*
Parking Spaces (on site)	92	281	189
Bicycle Parking Spaces	0	15	15
Estimated Cost of Project	$6,500,000		

IV. EXISTING CONDITIONS

The applicant proposes to develop on a 39,039 SF site on the west side of Brown Street between Cumberland Avenue to the north and Congress Street to the south. At present, the site is occupied by two surface parking lots, necessarily disconnected due a grade differential of approximately 14' feet, identified by the applicant as the "upper level" and "lower level" lot respectively. These two lots are separated by a concrete retaining wall. There is an existing right-of-way which bisects the "lower level" lot and runs along the north side of the "upper level" lot. This right-of-way provides one-way through-access between Casco Street and Brown Street.

The "upper level" parking area is accessible via two curb cuts located off of Casco Street, with the southerly most driveway providing both ingress and egress, and the northerly driveway providing egress only. A brick sidewalk, measuring approximately 7' feet in width runs along the property's Casco Street frontage within the city's right-of-way. This lot can accommodate 28 vehicles, including four handicap parking spaces and also offers a drive-through Bank of America ATM facility. Stormwater from this site sheet flows into two catch basins which connect to the city's storm sewer network located in Casco Street.

The 'lower level" parking area is similarly accessible via two curb cuts, one located off of Cumberland Avenue and the other located off of Brown Street, with both drives providing both ingress and egress. Pedestrian access to this site is provided via two sidewalks, the first being a paved sidewalk measuring approximately 8' feet in width running along the property's Brown Street frontage, and the second, a brick sidewalk measuring approximately 12' feet in width running along the property's Cumberland Avenue frontage. Two street trees are currently located within the Cumberland Avenue portion of sidewalk. This lot can accommodate 70 vehicles. This site exhibits a steady slope with a high point of approximately 80' feet in elevation at the southwest corner and a low point of 63' feet in the northeast corner. As with the "upper level" lot, this site is served by two catch basins, both connected with the city's storm sewer line located in Brown Street.

The site lies within the B-3 zone and is located within 100' feet of a Historic District and therefore, new developments at this location are required to go before the Historic Preservation Board for an advisory review to the Planning Board.

V. PROPOSED DEVELOPMENT

The applicant proposes to develop a five-level parking garage capable of accommodating 205 standard parking spaces, 48 compact spaces and 4 handicap accessible spaces, for a total of 257 parking spaces. This garage would be primarily located on the "lower level" of the site, with minimal changes proposed for the "upper level". With this proposal, the curb cuts located on Casco Street and Cumberland Avenue would remain unaltered, and the curb-cut located on Brown Street would be closed off and relocated further south within site.

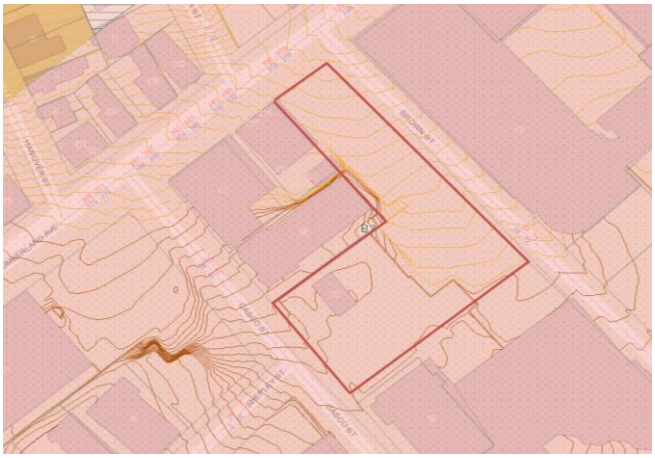


Figure 2: Site location with zoning and topography information

The parking structure itself will have three points of vehicular access; an ingress only driveway at ground level located within the existing curb-cut on Cumberland Avenue, a two-way driveway at ground level located within the newly proposed curb-cut on Brown Street and an additional two-way driveway at level two of the structure, accessible via a newly proposed internal driveway from the "upper level" of the site. The ground level of the garage does not provide vehicular access to levels two through five, which can only be accessed via the vehicular entrance located on level two by means of an internal spiral ramp system. Pedestrian access to the garage is limited to two internal stairwells located at the northeast and southeast corners of the parking structure. No elevators are proposed as handicap parking spaces are to be located at ground level.

Figure 3: Rendering (looking north along Brown Street)

The "upper level" portion of the site will be partially redeveloped to accommodate the second level access to the parking structure which will result in the loss of three existing parking spaces. The remainder of the "upper level" will remain unaltered and will retain 24 surface parking spaces.

Additional site improvements include reconstruction of the Brown Street sidewalk using brick pavers, installation of three exterior bicycle racks along Cumberland Avenue and Brown Street, and landscaping at the northeast and southeast corners proposed parking structure. Landscaping predominantly consists of low-lying shrubs, including Sweet Fern, Bar Harbor Juniper, Bayberry, Red Twig Dogwood, Sedium and Blue Lyme Grass. Along the property's southerly property line proximate to Brown Street, a mixture of the shrub Gro-Low Sumac and tree Liquidambar "Slender Silhouette" are proposed as a visual buffer. In regards to stormwater management, runoff will be collected on the rooftop level via several catch basins, which will drain to

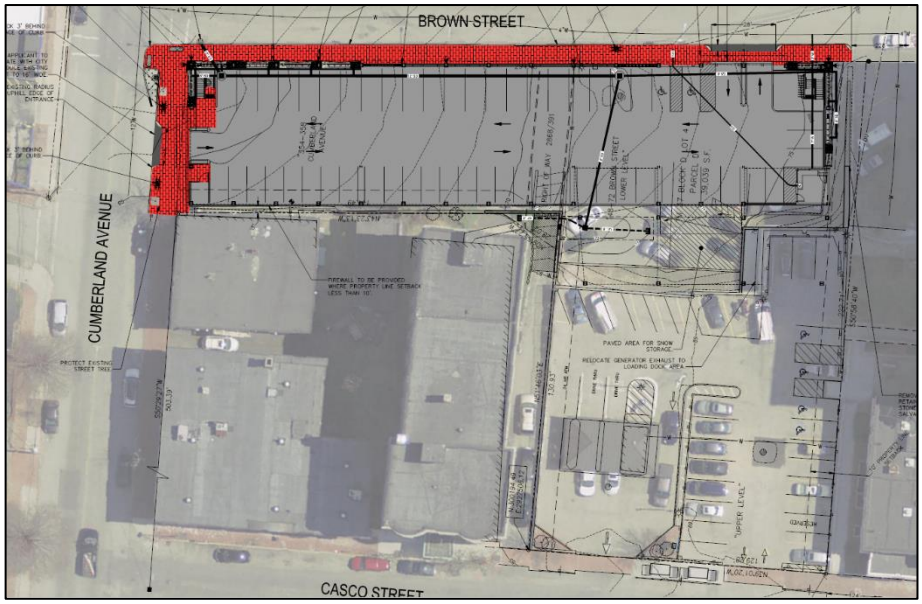


Figure 4: Proposed Site Plan

downspouts that will distribute runoff to two series of planters, previously mentioned at sidewalk level. These planters contain Focal Point biofiltration systems designed to manage stormwater quality. After passing through the Focal Point system, runoff will drain to the combined sewer system. Existing stormwater infrastructure for "upper level" parking area will remain. Eight (8) building mounted light fixtures are proposed, which will substitute for required street lighting along Brown Street, and is proposed to conform with the city's lighting standards for the downtown district as required under Section 10 of the Technical Manual.

VI. PUBLIC COMMENT

The Planning Division has received one (1) written comment in regards to this project. This comment raised concerns regarding the scale of the proposed garage within the existing neighborhood and cited the potential of the garage to degrade the pedestrian environment of Cumberland Avenue and serve as a barrier to individuals accessing Congress Street from nearby residential neighborhoods. Additional concerns raised include design standards which do not provide guidance on how parking structures should relate to their street frontage, limited guidance from City Master Plans on development and siting of parking structures, limited perceived justification for a new parking structure and limited on-site stormwater management.

In response to this comment, city staff reviewed the submitted application and accompanying material and found that the proposed use "parking structure" is permitted by right within the B-3 Downtown Business Zone. Further, the city's comprehensive plan identifies, "the encouragement of more inviting, connected, and human-scaled streets" as a key goal of the city's future growth. The proposed garage serves to eliminate existing surface parking lots currently in use by individuals commuting to 511 Congress Street. By freeing up those spaces, this garage will enable nearby properties to be redeveloped from surface parking. Finally, the garage itself, was reviewed against applicable design standards and the design has been revised per staff and Board comments to better integrate into the existing built environment. In regards to justification for this project, the purpose of constructing this garage according to the applicant is to provide parking for tenants of the property at 511 Congress Street, and is not in response to increased demand for parking city-wide. The construction of this garage will enable that property owner to eliminate existing parking leases and facilitate development of surface parking lots into other more compatible uses.

Neighborhood Meeting

The applicant held their neighborhood meeting on September 20, 2017 at the offices of Avesta Housing, 307 Cumberland Avenue. This meeting was attended by ten (10) people, and principal concerns raised by those in attendance related to project integration within the neighborhood and pedestrian circulation impacts. Specifically, individuals commented on the possibility that this garage would turn Brown Street into a barrier, impeding pedestrian traffic between Congress Street and Cumberland Avenue. Additionally, those in attendance suggested that active use retail spaces front Cumberland Avenue in order to activate the streetscape.

The applicant has been responsive to staff and Board comments, altering the appearance of the garage to better integrate into the existing built fabric, and has stated that while the original intent was to include retail bays along the garage's Cumberland Avenue frontage, that it proved to be financially infeasible. The steel framed garage, according to the applicant, has been designed to be retrofitted to accommodate construction of future commercial spaces.

Planning Board Workshop

This project came before the Planning Board as a workshop item on September 26, 2017, where building design, circulation patterns and justification for additional parking were discussed. The Board questioned whether additional parking was required in this location and asked whether or not the downtown parking study, then in progress, supported development of this structure. The applicant indicated that this garage would be serving tenants of 511 Congress Street and that its construction was not tied to a perceived need for additional parking, but instead is intended to concentrate parking for that property at one facility as opposed to multiple surface parking lots. A desired outcome is to see existing surface parking lots within the vicinity converted to other more compatible uses.

Aside from justification, members of the Board asked that the applicant revisit the design of the structure and suggested as options installation of a green or vegetated screen and or some type of art feature that would double as vehicular screening. A particular concern noted was light trespass from vehicles on adjacent properties. In discussions with the applicant following this workshop, it was determined that vehicular light trespass would be largely limited

to the east, impacting the parking structure immediately across Brown Street as no spaces are proposed facing Cumberland Avenue. The proposed railings are intended to screen the vehicles themselves.

VII. RIGHT, TITLE, & INTEREST

The applicant has provided a deed demonstrating ownership of the subject property *(Attachment C)*.

VIII. FINANCIAL & TECHNICAL CAPACITY

The estimated cost of the development is $6,500,000. The applicant has submitted a letter from Norway Savings Bank indicating that Ocean Gate, LLC has the financial capacity to fund the project *(Attachment E)*.

IX. ZONING ANALYSIS

Ocean Gate, LLC is proposing a five-level parking structure to be located entirely within the B-3 Downtown Business zoning district and within 100 feet of an Historic District. One of the specified purposes of the B-3 zone is to "provide adequate parking and transportation facilities which promote accessibility, enhance and encourage development opportunity, and enhance and protect the pedestrian environment." The proposed development is a permitted use within the B-3 zone which actively consolidates downtown parking demand currently accounted for with a variety of both surface and structured parking found elsewhere and meets the intent of the B-3 zone.

As this project is located in the B-3 Zone, it was required to undergo a staff level Design Review which is discussed further down in this report. Additionally, this project was reviewed by the Historic Preservation Board as an advisory review due to the location of this site being within 100 feet of a historic district. The proposed development is not located within a PAD Pedestrian Activity District which carries with it additional standards and meets applicable dimensional standards as outlined in the following table:

Dimensional Requirements:
The proposed 48 Brown Street project conforms to standards as outlined below:

	Requirement	Proposed
Min. lot size	None	39,039 square feet
Min. street frontage	15 ft.	280 ft. Brown St. / 63 ft. Cumberland Ave.
Min. front setback	None	1 ft.
Max. front setback	5 ft. on frontage	1 ft.
Min. back setback	None	10 in.
Min. side setback	None	1 ft.
Max. lot coverage	100%	54% (20,805 sq. ft.)
Min. lot width	None	65.9 ft.
Min. structure height	50 ft.	57 ft.
Max. structure height	210 ft. after 100' from center of Cumberland Ave. 65 ft. within 100 ft. from center of Cumberland Ave. (90' if stepped back)	57 ft. total structure height

The project as proposed meets the standards of the B-3 Downtown Business Zone.

X. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527)

Per the city's land use ordinance, the following materials are still required as part of the project's final review:

- Staff has drafted a condition of approval which would require that the construction management plan for this project be reviewed and approved by the Planning Authority and the Department of Public Works prior to issuance of a building permit.

XI. SITE PLAN REVIEW

The preliminary plans for the Sheridan Street Apartments have been reviewed by staff for conformance with the relevant review standards of the City of Portland's site plan ordinance. Staff comments are below.

1. Transportation Standards

a. Impact on Surrounding Street Systems

The applicant has stated that approximately 76 peak hour trips will be generated by the proposed development. Mr. Errico has reviewed the submittal and reports that the driveway locations and configurations on Cumberland Avenue and Brown Street are acceptable. The applicant has submitted a waiver request for corner clearance of the southerly Casco Street entrance. In review of this waiver request, Mr. Errico provides the following recommendation (Attachment 4):

> *The existing driveway does not meet corner clearance standards. Given that it is an existing driveway, I support a waiver from the noted standard given that it is a low volume/speed street.*

b. Access and Circulation

The preliminary plans show four driveways on this site with no net change from existing conditions. This includes two two-way driveways; one accessing the ground level of the garage off of Brown Street and the other accessing the surface parking lot and upper levels of the garage off of Casco Street, an entry-only driveway located on Cumberland Avenue serving the ground level of the garage and an exit-only driveway which serves patrons of the ATM kiosk on Casco Street. As mentioned previously, the ground level of the garage is not connected with the upper levels due to the location of the existing retaining wall, and traffic seeking to park on the upper levels are required to enter the site via the Casco Street driveway.

In regards to pedestrian traffic, the garage features two interior stairwells located at the northeast and southeast corners of the building. On Brown Street, the applicant is proposing to reconstruct the existing sidewalk to meet city standards and will maintain the existing sidewalks along Casco Street and Cumberland Avenue. The site will feature an internal sidewalk located between the second level entry to the garage and southeast stairwell. The parking lot layout for the "upper level" lot remains unchanged.

Tom Errico, the city's consulting traffic engineer, has reviewed the revised plans, submitted after the September 26th Workshop, and has found the revised submittal to be acceptable, with the following clarifying comments (*Attachment 4*):

1. *The applicant shall provide greater detail at the Casco Street parking lot that will serve as the major access to most parking garage levels. The details shall include:*
    a. *Pedestrian facilities, ADA compliance and safety for pedestrians walking between Casco Street and the garage. The details near the garage are difficult to see.*
    Updated Status: The applicant notes that ADA access is provided via handicap parking spaces within the garage with a connection to the building that is ADA compliant. I have no further comment.
    b. *Information on vehicle queuing at the Bank ATM and Drive-Thru shall be provided to document the garage entrance will not be blocked.*
    Updated Status: The applicant has provided some daily ATM traffic numbers and some anecdotal information. I find the response to be reasonable and I have no further comment.

c. Public Transit Access

The proposed development is not located along a public transit route and is within approximately 540 feet of an existing transit facility at 480 Congress Street. As such, the construction of a new transit facility at this location is not required.

d. Parking

Division 20 of the land use ordinance does not specify parking space requirements for parking garages where the primary use of the site is as a parking facility. This development would contain 281 parking spaces, including 257 spaces located within the proposed parking structure and 24 spaces to be located in the "upper level" surface lot. The applicant states that these parking spaces are intended for use by adjacent office space,

and that the intent for this development is to facilitate the redevelopment of area surface parking lots for other uses.

This development can accommodate parking for up to 15 bicycles, with a ground level interior rack capable of accommodating 9 bicycles, and three exterior racks capable of accommodating 6 bicycles. Given that this garage is providing motor vehicle parking that is not required in conjunction with a residential or non-residential use, bicycle parking is not strictly required under the site plan ordinance.

Tom Errico has reviewed the plans and finds the layout of the garage and proposed parking to be acceptable (*Attachment 4*).

e. Transportation Demand Management
A transportation demand management plan is not required.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features
There are no known significant natural features on the site.

b. Landscaping and Landscape Preservation
The preliminary plans show two landscaping areas; one located at the northeast corner of the proposed parking structure consisting of a mixture of low shrubs and ornamental grasses including Dwarf Red Twigged Dogwood, Bayberry, Sedium, Bar Harbor Creeping Juniper, Blue Lyme Grass and Sweet Fern, and the other located at the southeast corner of the proposed parking structure of similar design and composition to the other landscaping area. At the southeast corner of the site, a row of Columnar Sweetgum and Fragrant Sumac are proposed as a visual buffer with the adjacent site.

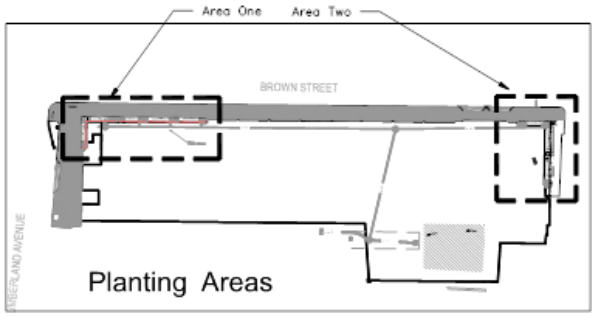


Figure 5: Proposed Planting Areas

In regards to street trees, the applicant has indicated that two existing street trees located on Cumberland Avenue are to be preserved and that the two "upper level" parking lot trees which now function as street trees for the property's Casco Street frontage will also remain. At present, no street trees are present along Brown Street. Additional landscaping has been provided for the upper lot, meeting the city's site plan requirement of at least one (1) tree and three (3) shrubs per five (5) parking spaces.

Prior to the September 26th workshop, staff asked the applicant to either plant or provide an acceptable street tree alternative as required by the site plan ordinance for their Brown Street frontage. The applicant has proposed to plant seven (7) street trees, as required for the project's Brown Street frontage at the south end of the site, perpendicular to Brown Street and visible as one approaches the project site from Congress Street. Jeff Tarling, the City Arborist has reviewed the submitted plans and has found them to be acceptable as proposed.

c. Water Quality/Storm Water Management/Erosion Control
According to the applicant's application, the proposed development will result in a net reduction in impervious surface of 200 square feet. The site at proposed retains two separate systems for on-site stormwater management and water quality control. The "upper level" retains two existing catch basins which direct runoff into the City's combined sewer system in Casco Street. The proposed parking structure will feature several rooftop level catch basins, which will drain to downspouts that distribute runoff to two series of planters. These contain Focal Point biofiltration systems designed to manage stormwater quality. After passing through the Focal Point system, runoff will drain to the combined sewer systems in Cumberland

Avenue and Brown Street. Within the proposed snow storage area, an under-drained sand filter will be installed intended to manage stormwater quality.

Of the preliminary grading and drainage plans, Lauren Swett, consulting civil engineer, offers the following comments (*Attachment 1*):

1. *In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. The project is in compliance with the standards as follows:*
    a. *Basic Standard: Notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. Please provide locations of erosion and sediment control measures (catch basin protection) on the design plans.*
2. *The City of Portland does not allow for the connection of stormdrain piping from privately owned sites to catch basins located in the street. The applicant is requesting a waiver for this requirement, and we understand that they are coordinating directly with Public Works on this request.*

3. Public Infrastructure and Community Safety Standards

a. Consistency with Related Master Plans

As noted above, the project is generally consistent with related master plans.

b. Public Safety and Fire Prevention

Keith Gautreau, Deputy Fire Chief, has reviewed the preliminary plans submitted for this project and finds the plans to be generally acceptable. A public safety question was raised regarding confusion between garages with similar names. The proposed garage is Ocean Gate Garage, which is very similar to Ocean Gateway Garage located on Fore Street. The staff recommends selecting a more unique and identifiable name for this garage.

c. Availability and Capacity of Public Utilities

The applicant proposes a new 2" water service tap into an existing 4" water main located in Brown Street to be located at the southeast corner of the property. Electrical service is being dropped from an existing utility pole located within the Brown Street right-of-way and is being placed underground with a connection to the parking structure's utility closet. Two 8" storm drains connected to the proposed snow storage underdrained soil filter and parking structure downspouts will feed into a 12" stormdrain that connects with the city's combined sewer system located in Brown Street.

Lauren Swett, in reviewing the proposed utility plan, has stated that the proposed stormdrain connection as currently proposed is unacceptable and is requesting that the applicant work with the Water Resources Division at the Department of Public Works to determine an acceptable configuration (*Attachment 1*). Determination of this connection has been made a condition of approval as recommended by Ms. Swett.

The applicant has provided an 'ability to serve' letter from the Portland Water District for this site. Wastewater Capacity and Electrical Service 'ability to serve' letters are still required. Outstanding letters have been made a condition of approval.

4. Site Design Standards

a. Massing, Ventilation, and Wind Impact

The maximum building height in the B-3 zone is 210' feet once further than 100' feet away from Cumberland Avenue towards Congress Street, and 65' feet within 100' feet of Cumberland Avenue (90' feet if stepped back). The preliminary elevations show a building height of 57', taken from an average of the four structure corner building grades. The proposed building is complimentary in massing to proximate buildings and

structures, being similar in dimension and scale with the Village Green Garage, and with an approximately median area structure height. It is not anticipated that the proposed development will have an adverse wind or ventilation impact.

b. Shadows
No shadow impacts on publicly accessible open spaces are anticipated.

c. Snow and Ice Loading
Staff has indicated concerns with the applicant's snow storage proposal, which involves the relocation of snow into the gap that exists between the garage vehicle ramp. Additional information has been requested to demonstrate that vehicles and or pedestrians would not be harmed with this proposal.

d. View Corridors
The site is not located within an established view corridor and is not anticipated to cause adverse impacts to view protection areas within the city.

e. Historic Resources
The "upper level" parking area is partially located within a historic district and the proposed parking structure is located within 100 feet of a historic district. Given its location, this proposal was required to go before the Historic Preservation Board for an advisory review to the Planning Board, though the review did not substitute for the required design review of the proposed structure. This project went before the Historic Preservation Board on June 7, 2017 and was unanimously recommended to the Planning Board. The Board reviewed the project against the Historic Preservation ordinance's Standards for Review of Construction, which included review criteria related to 'Scale and Form', 'Composition of Principal Facades' and 'Relationship to the Street'.

Historic Preservation staff generally recommended the project as it successfully takes into account grade changes in the vicinity as part of the design, and the scale and scope of the proposed structure in relation to surrounding buildings. Two concerns were raised in regards to the design (*Attachment 6*):

1. *The building's numerous decorative details strike staff as "applied decorations" rather than contributing elements of the overall design. In staff's view, the building's honest expression of structure, together with its striking corner tower elements, are sufficient to provide architectural interest. Simpler in this case might be better. Staff is also concerned that the details will soon appear dated and that the result will be a building that is not architecturally enduring.*
2. *The treatment of the west wall does not relate sufficiently to the architectural vocabulary of the rest of the building. Because the enclosed submission does not include labeled elevation drawings, it is difficult to determine what materials or finishes are proposed for this elevation. Regardless of the material, however, the organization of the wall with a defined base, middle and top seems curious in this context. Perhaps a subtler delineation of the solid façade would be more successful.*

Following the Historic Preservation Board's review, some of the decorative detail was removed from the plans. The design was further altered following the September 26th workshop to incorporate Planning Board and staff feedback as well as the received public comment.

f. Exterior Lighting
Eight wall-mounted lights are proposed. Given Brown Street's limited right-of-way width, the wall-mounted fixtures installed along the Brown Street façade will operate as street lamps as a means of reducing pedestrian scale fixtures which would impact required clearance. Staff has requested that pedestrian fixtures be installed along Cumberland Avenue in compliance with Section 10 of the City's Technical Manual.

g. Noise and Vibration

Information on the HVAC and mechanical equipment should be provided with the final plans.

h. Signage and Wayfinding
No signage or wayfinding is proposed at this time.

i. Zoning-Related Design Standards
The city's site plan ordinance states that "development in the B-3 Business Zone shall be designed to support the development of dense, mixed-use neighborhoods with attractive, safe and convenient street level pedestrian environments as demonstrated by compliance with all applicable design standards listed in the Design Manual." The Design Manual includes standards and guidelines for the B-3 zone with additional requirements for developments occurring within a Pedestrian Activity District, which do not apply for this project. The design standards for the B-3 zone require that development proposals be assessed based upon their relationship to the Pedestrian Environment and relationship to existing nearby development.

The applicant has provided preliminary building elevations and renderings, which were reviewed by city staff during a design review attended by Caitlin Cameron, Urban Designer; Deb Andrews, Historic Preservation Manager; Matthew Grooms, Planner (*Attachment 4*). These renderings show a structure façade open on three sides, with open steel framing and decorative grill work provided at each level for vehicular screening. The building's design is intended to highlight the on-site grade change and is framed by two interior stairwells located at either end of the structure on Brown Street. These stairwells utilize glass storefront materials and are intended to provide a well-lot and safe pedestrian connection through the garage.

Following the September 26th workshop, the applicant revised the façade treatments of the proposed garage, removing many of the applied details, redesigning the required fire wall, and changing the color and material palette to complement surrounding context. In reviewing the revised renderings and building elevations, Ms. Cameron offered the following comments (*Attachment 3*):

In regards to the building's facades:

> *Staff supports the simplicity of the Cumberland Avenue façade. The applicant continues to include some decorative details such as circles to provide visual interest to the Brown Street façade and wave canopies to indicate building entrances – staff support the use of decorative detail when it serves to make the building more legible (marking entrances) or to add to the screening of the cars. The solid wall was improved with changes in the materials and material banding to break down the scale.*

XII. PROPOSED MOTIONS

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on November 28, 2017 for application 2017-145 relevant to Portland's site plan ordinance ordinance and other regulations; and the testimony presented at the Planning Board hearing:

1. The Planning Board [**finds/does not find]**, based upon the consulting peer engineer's review (Attachment 3), that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard, (Section 2.7.8) which requires that no storm drain lines, with the exception of field inlets and underdrains, be connected into a catch basin structure. The Planning Board **[waives/does not waive]** the Technical Manual Standard (Section 2.7.8) to allow the proposed storm drain to connect into the existing catch basin within Brown Street subject to the following condition:

a. The proposed connection shall be reviewed and approved by the Department of Public Works. In the event that the proposed connection is not permitted, the applicant shall submit a revised stormwater plan showing an acceptable form of connection.

B. DEVELOPMENT REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on November 28, 2017 for application 2017-145 relevant to the site plan regulations; and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the site plan standards of the land use code, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. The applicant shall provide a revised construction management plan that shall be reviewed and approved by the Department of Public Works and Planning Authority. This construction management plan shall incorporate DPW review comments from the memo dated September 19, 2017 (*Attachment 5*). DPW has asked for clarification regarding the schedule of construction, and projected impacts. Explicitly, DPW does not support closure of Brown Street and/or occupation of any sidewalks or streets for an extended period of time; and

2. The applicant shall revise applicable plans and provide a revised lighting plan which shows pedestrian scale light fixtures being installed along the property's Cumberland Avenue frontage. These fixtures shall conform with Section 10 of the Technical Manual.

3. The applicant shall supply license agreements for the proposed canopy overhangs which shall be reviewed and approved by the Planning Authority and Corporation Counsel.

XIII. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Final Peer Review Comments
2. Final Planning Review Comments
3. Final Design Review Comments
4. Final Traffic Comments
5. DPW Review Comments
6. Historic Preservation Memo
7. Public Comment
    a. PC1: George Rheault

APPLICANT'S SUBMITTALS

A. Cover Letter
B. Level III Site Plan Application
C. Right Title and Interest
D. Conformity with Applicable Zoning Standards
E. Evidence of Financial Capacity
F. Transportation Memo
G. Stormwater Management Plan
H. Ability to Serve – Portland Water District
I. Building Code Review
J. Life Safety Plan
K. Design Review
L. Perspective Images

M. Boring Logs
N. Historic Preservation Narrative

PLANS

Plan 1 Boundary Survey – Existing Conditions
Plan 2 Civil Site Plan
Plan 3 Civil Site Plan – First Level
Plan 4 Civil Site Plan – Second Level
Plan 5 Civil Site Plan – Roof Level
Plan 6 Focal Point Planter Details
Plan 7 Civil Details I
Plan 8 Civil Details II
Plan 9 Landscape Plan I
Plan 10 Landscape Plan II
Plan 11 Architectural Site Plan – First Level
Plan 12 Architectural Site Plan – Second Level
Plan 13 Architectural Site Plan – Third Level
Plan 14 Architectural Site Plan – Fourth Level
Plan 15 Architectural Site Plan – Fifth Level
Plan 16 Architectural Elevations
Plan 17 Logistics Plan (Construction Management)

COMMITMENT & INTEGRITY
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41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Att. 1

MEMORANDUM

TO: Matt Grooms, Planner
FROM: Lauren Swett, P.E., and Amy LeBel E.I.T.
DATE: November 15, 2017
RE: Ocean Gate Parking Garage Peer Review
Response to Comments

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed development project located at 48 Brown Street in Portland, Maine. The project involves construction of a five deck parking garage on a site currently used for surface parking.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Application Response to Comments and attachments, dated October 30, 2017, prepared by Ransom Consulting, Inc., on behalf of Ocean Gate, LLC.
- Engineering Plans, Sheets C1-C7, dated October 24, 2017, prepared by Ransom Consulting, Inc., on behalf of Ocean Gate, LLC.
- Existing Conditions Plan, Drawing 1, dated May 17, 2017, prepared by Owen Haskell, Inc., on behalf of Ocean Gate, LLC.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. The project is in compliance with the standards as follows:
   a) Basic Standard: Notes, plans, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standard: Due to redevelopment of existing impervious area, the Applicant is required to treat at least fifty percent of Stormwater on site (General and Flooding Standards). Approximately fifty six percent of runoff from impervious surfaces on site is directed into stormwater treatment systems. The Applicant is using the FocalPoint system. The DEP requires that a subsurface chamber system be utilized with the FocalPoint. The Applicant is proposing to utilize the R-Tank subsurface system with the FocalPoint. The City of Portland Department of Public Works will allow its use on projects such as this one that do not require a DEP permit.
   c) Flooding Standard: The project is not resulting in an increase in impervious surface, and compliance with the Flooding Standard is not required. With the proposed stormwater treatment systems, it is anticipated that flows to the City's combined sewer may be decreased.
2) The City of Portland does not allow for the connection of stormdrain piping from privately owned sites to catch basins located in the street. The Applicant is requesting a waiver for this requirement, and we understand that they are coordinating directly with Public Works on this request.
3) All other comments have been addressed at this time.

Planning and Urban Development Department
Planning Division

September 14, 2017

Ed Gardner
Ocean Gate, LLC
511 Congress Street
Portland, ME 04101

Ethan Boxer Macomber
Anew Development
30 Danforth Street, Suite 213
Portland, ME 04101

RE: Staff Review Comments for Ocean Gate Garage – 48 Brown Street (2017-145) – Planning Board Review

Project Name:	Ocean Gate Garage	Project ID:	(2017-145)
Project Address:	48 Brown Street	CBL:	037 D004
Applicant:	Ed Gardner		
Planner:	Matthew Grooms		

Dear Mr. Gardner and Mr. Macomber,

Thank you for submitting a preliminary Level III Site Plan application for a new five level structured parking garage and improved surface parking lot with space for 281 vehicles at 48 Brown Street in the B-3 District. This property is being reviewed as a preliminary plan subject to the following applicable Land Use Code provisions:

- Site Plan Ordinance, Article V
- Division 12, B-3, B-3b and B-3c Downtown Business Zones
- Division 20, Off-Street Parking Standards
- Neighborhood Meeting Regulations, Section 14-32

Final Plan for Planning Board Review: Staff Review Comments

I. Site Design Standards

1. The applicant shall provide a more detailed narrative explaining intended use of this garage. Will a portion of this garage be available for public use or these spaces dedicated to certain pre-defined users?
2. Does the applicant intend for any spaces within the garage to be set aside for motorcycle or scooter parking?
3. Will there be a location within the garage for the collection of solid waste? If so, please explain how on-site waste will be managed.
4. A cut sheet with lighting details and associated photometric plan shall be provided.

5. In regards to the surface parking lot, accessible off of Casco Street, the applicant shall demonstrate compliance with standards for parking lot landscaping as found in Section 14-526(b)(2)(b)(ii) of the Site Plan Ordinance as well as Section 4.5.5 of the Technical Manual. The applicant may submit a formal waiver request subject to waiver criteria as found in the Site Plan Ordinance.
6. Two street trees are called out for preservation along Cumberland Avenue. Please note that street trees are also required along other the property's other street frontages at a rate of one tree per 30'-45' feet of frontage as stated in Section 4.6.3 of the Technical Manual.
7. The applicant shall provide an 'ability to serve' letter from Central Maine Power for this development.
8. Please note, the procurement of license agreements with the city for canopies overhanding the public right-of-way shall be made a condition for approval.
9. Does the applicant anticipate the installation of exterior, façade or roof-mounted mechanical equipment for this project? If so, please be aware that mechanicals are required to be screened from public streets in accordance with city standards found under Section 14-526(d)(7)(a)(i)(b).
10. If available, signage details for the project should be provided with the final submittal.
11. Please note, waiver requests listed out on the site plan and other plan sheets should be compiled into a document and submitted as a separate attachment.
12. The site plan appears to show an existing right-of-way which bisects the proposed garage. Has this right-of-way been abandoned, or is it still a city accepted right-of-way. Please provide additional information.
13. From the architectural elevations provided, it would appear that pedestrian access to the facility is limited to vehicular entrances. Would the applicant consider the installation of doors that would into the stairwell enclosures that would provide additional separation?
14. The project as currently proposed meets the dimensional standards of the B-3 Zoning District.
15. The applicant shall hold a neighborhood meeting for this project in accordance with the city's neighborhood meeting regulations prior to the public hearing. The meeting notice, sign-in sheet and meeting minutes shall be submitted as an attachment to the final submittal.

Additional Submittals Required:

Please upload the digital plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made and only *one set of revised plans* may be submitted for review. This item is scheduled to go before the Planning Board as a workshop item on September 26, 2017. Following the workshop process, this item will be scheduled for a public hearing at the Planning Board's next available meeting and the staff will provide the Planning Board with a recommendation to approve, approve with conditions, or deny the final site plan.

If you have any questions, feel free to contact me at (207) 874-8725 or by email at mgrooms@portlandmaine.gov.

Sincerely,
Matthew Grooms
Planner

Planning and Urban Development Department
Planning Division

Subject: B-3 Design Review – 48 Brown Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Tuesday, November 21 2017

The project at 48 Brown Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Matthew Grooms, Planner, and Deb Andrews, Historic Preservation Program Manager against *the B3 Downtown Urban Design Guidelines* (*Appendix 1* of the Design Manual).

Design Review Comments*:*

- The staff agreed with the Historic Preservation Board review comments provided in separate memo.
- Revisions include removing some of the "wave" decorations, adjusting the color of the steel structure to be similar to a rust or brick color. The solid, fire separation wall was modified to add visual interest with material texture and banding.
- See attached notes for two requested changes:
    - Revise pedestrian-scale street lighting to be pole-mounted on Cumberland Ave
    - Note the color of the "end cap" match the railing and steel in color to maintain simplicity and timelessness of materials found in context.

Below are comments specific to the B-3 Design Guidelines **(new comments are in bold)**

I. Relationship to Pedestrian Environment

A. Distinguish the lower 35 feet of building facades

A.(1) Storefront and building facades – Building placement is near the property lines on both streets. The lower portions of the building relates to the whole building architecture with a unified design. Pedestrian entries into the garage are more visible with the use of canopies. The project does not include storefront, but is transparent and includes high visibility into the building. The design is contemporary - **staff supports the simplicity of the Cumberland Avenue façade. The applicant continues to include some decorative details such as circles to provide visual interest to the Brown Street façade and wave canopies to indicate building entrances – staff support the use of decorative detail when it serves to make the building more legible (marking entrances) or to add to the screening of the cars. The solid wall was improved with changes in the materials and material banding to break down the scale.**

A.(2) Building Entrances – Pedestrian entrances are provided with direct access on both street facades and are emphasized with a curved, blue canopy pieces.

A.(3) Blank Facades – The structure remains mostly open at the ground level allowing for interest and visibility into the garage. The planters also provide a pedestrian amenity. The large solid wall interior to the block is less visible from the street – **the scale of the wall is now mitigated with the material texture and banding at each floor.**

B. Pedestrian Activity District – Not Applicable

C. Sidewalk Areas and Open Space

C. (1) Sidewalk, Crosswalk, and Street Paving Materials – The project continues the established brick sidewalk pattern on all streets.

C. (2) Landscaping, Planters, Irrigation, and Tree Guards and Grates – Planters are provided as a building interface between the structure and the sidewalk. The planters not only provide some softscape amenity but also stormwater benefits. Although staff would usually not recommend planters between the building and the sidewalk, this is not an active retail or storefront façade and so the planters provide some visual interest and human-scale components in lieu of an active storefront.

C. (3) Lighting – Building lighting placement is indicated in plan and some street light fixture arms are shown in the elevations attached to the corners of the buildings. Additional fixtures are not specified for the length of the building. Since the building program is garage and not active frontage, staff recommends the use of lighting to add visual interest and safety for the quieter frontage. **Staff support the street lighting as placed on the building on Brown Street but pedestrian-scale street lights should be placed on poles in the furnishing zone on the Cumberland Street side consistent with the established pattern on that street.**

D. Pedestrian Amenities

D. (1) Benches and other seating – The landscape planters are designed at seating wall height to provide additional pedestrian amenity.

II. Relationship to Existing Development

A. Integrate with, respect, and enhance - " . . . a fairly limited palette of available building technology and materials combined with a generally consistent approach to architectural character and building form. This has resulted in an existing building fabric noteworthy for its comfortable and consistent scale and compatibility of building materials. . . . Any development within this context, whether an infill or an individual building lot at mid-block or the redevelopment of an entire vacant block, should look to the character and prevailing pattern of development as an important frame of reference for new construction or substantial alteration."

(1) *Street walls and building setbacks* – The building is set up to the street and keeps the established street wall patterns.
(2) *Open Space* – Not applicable
(3) *Building Form, Scale, and Massing* – The building massing and form is dictated by the dimensional needs for a parking structure.
(4) *Building Façade Proportion and Composition* – The building façade design is dictated by the dimensional needs for a parking structure. The façade design is enhanced by the rhythm and scale created by the screens, railings, and expressed structure.
(5) *Pedestrian circulation and building entrances* – Building entrances on both streets
(6) *Parking Garages and Surface Lots* – This project site is too small to accommodate retail or liner buildings at the pedestrian level. The project would not be easily convertible to other uses given the ramped floors. The building design is authentic and honest in conveying its use. Screening is provided for direct line of sight to lights and views of cars. Additional landscaping and pedestrian amenity are provided as suggested in the guideline.

(7) *Areas within the Downtown* – The project is located downtown though is off the main streets. The project will meet the downtown standards for sidewalk and lighting design.

III. Rooftop Appurtenances

The project roof will be most visible from the Cumberland Avenue approaches. No significant rooftop appurtenances are proposed or are screened by the railing and parapet walls. The stair towers are at the corners of the building as architectural features.

IV. Shadow Impact on Open Space – Not applicable

V. Wind Impacts – Not applicable

VI. Setback from Existing Structures – Not applicable

VII. Building Tops – Not applicable

VIII. View Corridors, Visual Landmarks, and Gateways – Not applicable

IX. ***Signage/Awnings/Canopies –*** The placement of the blue wave elements is used to indicate the garage entrances. A parking sign is also proposed.

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

48 Brown Street - Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Fri, Nov 17, 2017 at 12:21 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>

Hi Matt – I have reviewed the revised application materials and our final traffic comments are noted as follow.

- Greater detail on the construction management plan is required (specifically closing Brown Street). The applicant shall review and comply with the City's Draft Construction Management Plan guidelines.

Status: It is my understanding that DPW will be providing comments on the CMP Plan.

- The applicant should provide greater plan detail at the Casco Street parking lot that will serve as the major access to most parking garage levels. The details shall include:

  - Sight Distance measurements at the driveway on Casco Street.

Status: The applicant has provided the requested information and I concur that no changes to on-street parking should be implemented at this time. I have no further comment.

  - Pedestrian facilities, ADA compliance and safety for pedestrians walking between Casco Street and the garage. The details near the garage are difficult to see.

Status: The applicant notes that ADA access is provided via handicap parking spaces within the garage with a connection to the building that is ADA compliant. I have no further comment.

  - The plans for the parking lot and garage should include dimensions. The plan of the parking lot is hard to following and shall be improved from a clarity perspective.

Status: The plans have been revised and I find conditions to be acceptable and I have no further comment.

  - Information on vehicle queuing at the Bank ATM and Drive-Thru shall be provided to document the garage entrance will not be blocked.

Status: The applicant has provided some daily ATM traffic numbers and some anecdotal information. I find the response to reasonable and I have no further comment.

  - The applicant shall document that changes in the surface parking lot do not impact an existing site plan approval.

Status: The applicant has noted that the project does not impact an existing approved site plan and therefore I have no further comment.

- The applicant should note if a waiver is required for corner clearance for the Casco Street southerly driveway.

Status: The existing driveway does not meet corner clearance standards. Given that it is an existing driveway, I support a waiver from the noted standard given that it is a low volume/speed street.

- I find the parking garage layout and the driveway locations on Cumberland Avenue and Brown Street to be acceptable.

Status: I have no further comment.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
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City of Portland Maine
Dept. of Public Works
Engineering Division

Memo

To: Matthew Grooms - Planner

From: Keith Gray, PE – Senior Engineer, DPW

Date: September 19, 2017

Re: 48 Brown Street (2017-145) – Level III Site Plan Application

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The following comments/concerns are in regards to the Level III Site Plan Application prepared by Ransom Consulting, Inc. and Anew Development, on behalf of the applicant, Ocean Gate, LLC, with last plan revision submitted on June 23th, 2017. Please feel free to contact me with questions. Thank you.

Construction Management Plan:

- The applicant has submitted a Construction Management Plan (CMPlan) prepared by Allied Cook Construction Company. The applicant shall revise the CMPlan to include the information enclosed in the "Draft" Construction Management Plan Template that depicts the overall detail that the City is requesting for the planning, coordination, and control of the construction site. Please note that the Construction Management Plan includes: 1) a construction management site plan, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories identified within the enclosed CMPlan Template.

- The provided CMPlan indicates that Brown Street and the sidewalk on Cumberland Avenue will be closed for an extended period of time.
    - DPW does not support the occupancy of a sidewalk and/or street for an extended period of time. The applicant shall revise the CMPlan to specify the duration required for the occupancy. Construction sequences shall be scheduled to minimize the duration of any street occupancy.
    - DPW does not support the closure of Brown Street.

General Comments:

- The plans should be updated to reflect the recently completed sidewalk along Cumberland Avenue. I have enclosed a pdf of the proposed design. As-build conditions still need to be verified.

- The proposed storm drain connection into the existing catch basin within Brown Street is not permitted. The connection should be made via a manhole in Brown Street.
- There are some concerns with the roof drainage discharging to planters:
    - The detail references riprap to be installed at outlets of roof downspouts. Provide calculations on riprap sizing including length required to dissipate energy. What can be done to ensure discharge doesn't overshoot riprap area and washout mulch?
    - There is little ponding depth around the proposed 18-inch beehive grate overflows. At what storm event will discharge overflow onto the sidewalk? Precautions should be taken to capture discharge to avoid overflowing onto sidewalk at the corner of Brown Street and Cumberland.
- Provide riprap protection from the 2 foot wide spillway (within the proposed retaining wall) to the proposed type-f catch basin.
- Provide pre-treatment to collect sediment from snow storage area prior to discharging to the underdrained sand filter.

HISTORIC PRESERVATION BOARD
CITY OF PORTLAND, MAINE

WORKSHOP – ADVISORY REVIEW
48 BROWN STREET

TO: Chair Benson and Members of the Historic Preservation Board

FROM: Deborah Andrews, Historic Preservation Program Manager

DATE: June 1, 2017

RE: June 7, 2017 **Workshop –** *Advisory Review* of Proposed Garage Construction

Address: 48 Brown Street
Southwest corner of Brown Street and Cumberland Avenue

Applicant: Ocean Gate LLC.

Development Consultant: Ethan Boxer-Macomber

Architect: Travis Nadeau, Platz Associates

Introduction

Ocean Gate LLC. is proposing to construct a 4-deck parking structure on an existing surface parking lot at the southwest corner of Brown Street and Cumberland Avenue. The parking structure, which will accommodate 261 vehicles, is intended to serve the tenants of the 511 Congress Street building, which immediately abuts the project site. Surplus spaces will be available for other businesses in the vicinity.

Shaded area: Congress St. Historic District

Although the project site is not located within a designated historic district, it immediately abuts the boundary of the Congress Street Historic District. As such, the site plan ordinance requires that the project be found to be "generally compatible with the major character-defining elements of the …portion of the district in the immediate vicinity of the proposed development"—see Attachment 1 for full text of site plan standard. As is customary for major projects abutting historic districts, staff is forwarding the proposal to the Historic Preservation Board for informal review and comment. The Board's comments will be summarized in a memo to the Planning Board, which has the final authority to make the determination regarding compatibility.

Architect Travis Nadeau of Platz Associates and development consultant Ethan Boxer-Macomber have submitted plans on behalf of Ocean Gate. Submitted materials include a written description of the proposed structure and statement of design intent, perspective views of the garage, a site plan and deck-level plans. Note that the submission does not include labeled elevations that indicate proposed materials.

Project Context

The enclosed project narrative describes the buildings that make up the proposed development's immediate context. As described and shown in the perspective views, the context is decidedly mixed, with few strong shared building patterns from which to draw in developing a contextual design response, apart from a shared directional expression of the principal facades and the absence (in most cases) of a building setback. The eclecticism that defines the Congress Street Historic District (in terms of style, scale, material palette and construction era) is even more pronounced along Cumberland Avenue. Smaller scale residential structures, several of which have been converted to businesses uses, share the street with larger scale commercial buildings. Over time, it is hoped that a number of the clearly noncontributing structures on Cumberland Avenue will be replaced with more architecturally distinguished buildings to create a more vibrant urban streetscape.

Brown Street is quite narrow and functions largely as a service street today, in part because it is abutted by parking lots and a parking garage occupy for most of its length. A surface parking lot is located immediately behind Maine Historical Society's headquarters and behind it is a structured parking garage the is in poor condition. The Brown Street elevation of 511 Congress Street building does not open to the street, reinforcing the service nature of the street.

Proposed Construction

The proposal call for a 4-level, steel-framed parking structure that is 65-feet wide on Cumberland Avenue and extends approximately 290 feet on Brown Street. Access to the garage will be from both Cumberland and Brown Street (near the southern end of the building). As required by fire code, the long, narrow structure features a solid wall next to its westerly abuttor. The material of this solid wall, which returns for a short distance on Cumberland Avenue, is not indicated on the plans. As shown, the wall is broken up vertically with a band above the ground floor level and another cornice-like band at the roofline. Other than this solid wall, the proposed garage frankly expresses its structure. Steel framing members and metal railings at each deck allow for a fair amount of visibility of the parking decks. At the corner of Brown and Cumberland is a 5-story glazed tower. Again, the tower clearly expresses its structural elements, with steel cross-braces at each floor level placed outside the glass. (Although the images suggest that the glass is tinted blue, the windows in surrounding buildings are depicted as blue as well, so this will need to be confirmed.) The stairs within the tower are clearly visible to the street.

At the southern end of the building adjacent to the rear of 511 Congress, the tower element is repeated, at the same scale and with the same design features. It is expected that most users of the garage will be heading to or from Congress Street, so this end of the building is also seen as important to highlight.

The proposed design solution incorporates a number of decorative details intended to enliven the elevations and ground plane. These include applied blue wave-like elements at the Cumberland and Brown Street entrances, at the roof line on Brown Street and at each floor level in selected locations. This wave-like theme is repeated in the railings and in the building base along the Brown Street frontage. Circular elements are also incorporated into the railings along Brown Street. This circle motif also appears at the top of each face of the two towers. The roofline of the towers traces around this circular element. Finally, the vertical piers that define each bay of the garage and which project above the surface of the top deck are terminated with a decorative cap.

Staff Comments

Given the wide range of building heights and footprints in the surrounding area, the proposed garage appears to be compatible in terms of its scale and form, especially in the context of the existing garage structure directly across Brown Street. Staff is also supportive of the general design approach for the building, which clearly expresses the garage's structure. This design choice takes advantage of the fact that the drop in grade from the southern end of Brown Street toward Cumberland means that the parking decks can be relatively level, with no visually-disconcerting ramping. The incorporation of tower elements also provides a welcome focal point for the structure, particularly on its Cumberland Avenue façade. While a tower at the southeast corner of the building, mid-block on Brown Street, might seem unnecessary, one can appreciate the desire to mark this corner as well, given the fact that many will be approaching the garage on foot from Congress Street.

Based on the images provided, staff has reservations about two aspects of the proposed design:

1) The building's numerous decorative details strike staff as "applied decorations" rather than contributing elements of the overall design. In staff's view, the building's honest expression of structure, together with its striking corner tower elements, are sufficient to provide architectural interest. Simpler in this case might be better. Staff is also concerned that the details will soon appear dated and that the result will be a building that is not architecturally enduring.

2) The treatment of the west wall does not relate sufficiently to the architectural vocabulary of the rest of the building. Because the enclosed submission does not include labeled elevation drawings, it is difficult to determine what materials or finishes are proposed for this elevation. Regardless of the material, however, the organization of the wall with a defined base, middle and top seems curious in this context. Perhaps a subtler delineation of the solid façade would be more successful.

Applicable Review Standards

In advising the Planning Board on the proposed project's compatibility with its context, the Board should refer to the historic preservation ordinance's Standards for Review of Construction apply in the review of the proposed project. Building characteristics used to gauge compatibility of new construction in an existing context include the following:

Scale and Form

Height
Width
Proportions of principal facades
Roof Shapes
Scale of the structure

Compositions of Principal Facades

Proportion of Openings
Rhythm of solids to voids in facades
Rhythm of entrance porch and other projections
Relationship of materials, texture and color
Presence of signs, canopies and awnings

Relationship to the Street

Walls of continuity
Rhythm of spacing and structures on streets
Directional expression of principal elevations

Attachments

1. Site Plan ordinance standard for projects within 100' of historic district boundary
2. Project description
3. Aerial view of site and ground level layout
4. Perspective views and aerial views
5. Floor level plans

(development in Eastern Waterfront zone).

(vii) Section (l) of the Design Manual (IS-FBC Building Design Standards)

b. Development adjacent to designated landmarks, historic districts or historic landscape districts: when any part of a proposed development is within one hundred (100) feet of any designated landmark, historic district, except the India Street historic district, or historic landscape district, such development shall be generally compatible with the major character-defining elements of the landmark or portion of the district in the immediate vicinity of the proposed development. Character-defining elements of landmarks and historic districts are identified in the historic resources inventory and respective historic district designation reports For the purposes of this provision, "compatible" design shall be defined as design which respects the established building patterns and visual characteristics that exist in a given setting and, at the same time, is a distinct product of its own time. To aid the planning board in its deliberations, historic preservation staff shall provide a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context.

c. Preservation and/or Documentation of Archaeological Resources. Where a state or local archaeological resource is known to exist or is discovered on the site, the developer shall inform the City and State and shall protect and/or document such resources.

(i) Protection shall include leaving archaeological resources untouched beneath a new development through adaptation of foundation design or architectural layout.

(ii) Where the applicant can demonstrate that

Brown Street Garage
Historic Preservation Board Review

May 30, 2017

Project Narrative

Ocean Gate, LLC proposes the construction of a new, 4-deck, steel framed, and graciously designed parking structure to accommodate approximately 261 parked vehicles. While the project is not located in a Historic District, it is sited on land adjacent to a Historic District.

Background & Project Goals

Ocean Gate, LLC is the current owner of 511 Congress Street as well as other ancillary surface parking lots on adjacent and nearby parcels on Brown, Casco, and Shepley Streets. These parking lots currently provide an aggregate total of 151 parking spaces for the use of the commercial tenants at the 511 Congress property. Total parking demand at the property, however, exceeds this capacity by over 115 spaces and Ocean Gate currently meets excess demand through costly third-party leases at private area parking garages.

The new garage will be sited directly beside 511 Congress and will greatly enhance the utility and marketability of the commercial office space at 511 Congress allowing it to better attract and retain high quality businesses and the valuable jobs they provide our Portland community.

At the same time, addressing all of the parking demands of 511 Congress in a single structure frees spaces currently leased in area garages for other commercial and residential users *and* creates future new residential development opportunities on Ocean Gate's Shepley Street surface lots.

The project will also infill and activate a vacant site that, despite the owner's best efforts at patrols and other security measures, consistently attracts litter, loitering, and nefarious activity.

Garage Configuration & Relationship to Adjacent Properties

The new parking structure on the corner of Brown and Cumberland will layer over the surface parking lot that currently exists there. In terms of grades, dimensions, and urban context, the site is ideally suited for the proposed garage which integrates into the site gracefully and with minimal impact on adjacent structures and urban context.

At the Northern end of the parcel the +/-65' wide structure will be sited in close proximity to 511 Congress for ease of access by tenants. Given the tall base of the 511 Congress building and the way the Brown Street lot slopes down from the building, office tenants at 511 will maintain their access to light and open views over the new garage.

To the East, the garage fronts Brown Street and is adjacent to another, existing parking garage. Brown Street is narrow and so public view of this long edge of the garage will be very brief and only at oblique angles.

To the South, the garage presents a narrow +/-65' face to Cumberland Avenue. As described further below, the design team has paid particular care and attention to this façade to ensure architectural definition and interest and an active, human-scaled experience. The garage will positively contribute to the Cumberland Avenue street wall as an active and well-designed building of scale and quality.

To the West, the garage abuts both a two-story, mixed-use commercial building oriented toward Cumberland Avenue and a mid-rise residential building (the Ambassador) oriented toward Casco Street. In the case of the two-story structure, the garage in-fills to its side where there are no active entries and only light secondary fenestration. In the case the Ambassador, the garage starts at a much lower grade and only affects the property at the lowest portions of its rear elevation. The garage subordinates to the mass of the Ambassador and preserves public views of the structure from most perspectives. Farther up the lot from the Ambassador the garage nestles up against an existing series of retaining walls, which conceal its lower stories and greatly reduce the vertical impact of the structure as perceived from Casco Street.

Architectural Design

Ocean Gate, LLC is highly committed to quality urban design for Portland. This commitment was front of mind when selecting Platz Associates as the project architect. Platz was selected for their proven ability to deliver garages in Lewiston and other Maine communities which look and feel traditional, light, open, and contextual.

The design of the Brown Street Garage features open steel framing, traditional architectural forms, and active, human-scaled urban edges. Particular attention was paid to the garage's most publically visible and engaging facades; those seen directly from Cumberland Street and obliquely from Congress Street. These locations were embellished with glass entry doors and glass stair towers. They will be further softened and enlivened with quality/permanent façade materials, landscaped planter beds, and through the use of well-balanced site lighting.

The design capitalizes on the steel structure of the garage as an architectural medium providing beauty in its rhythm, punctuation, and detailing.

BROWN STREET GARAGE

CUMBERLAND AVENUE AT BROWN STREET
PORTLAND, MAINE

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

RANSOM Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

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1"=16'

CONCEPTUAL LAYOUT - GROUND LEVEL -

No.	Revision/Issue	Date
A	PRELIMINARY REVIEW	4-21-17

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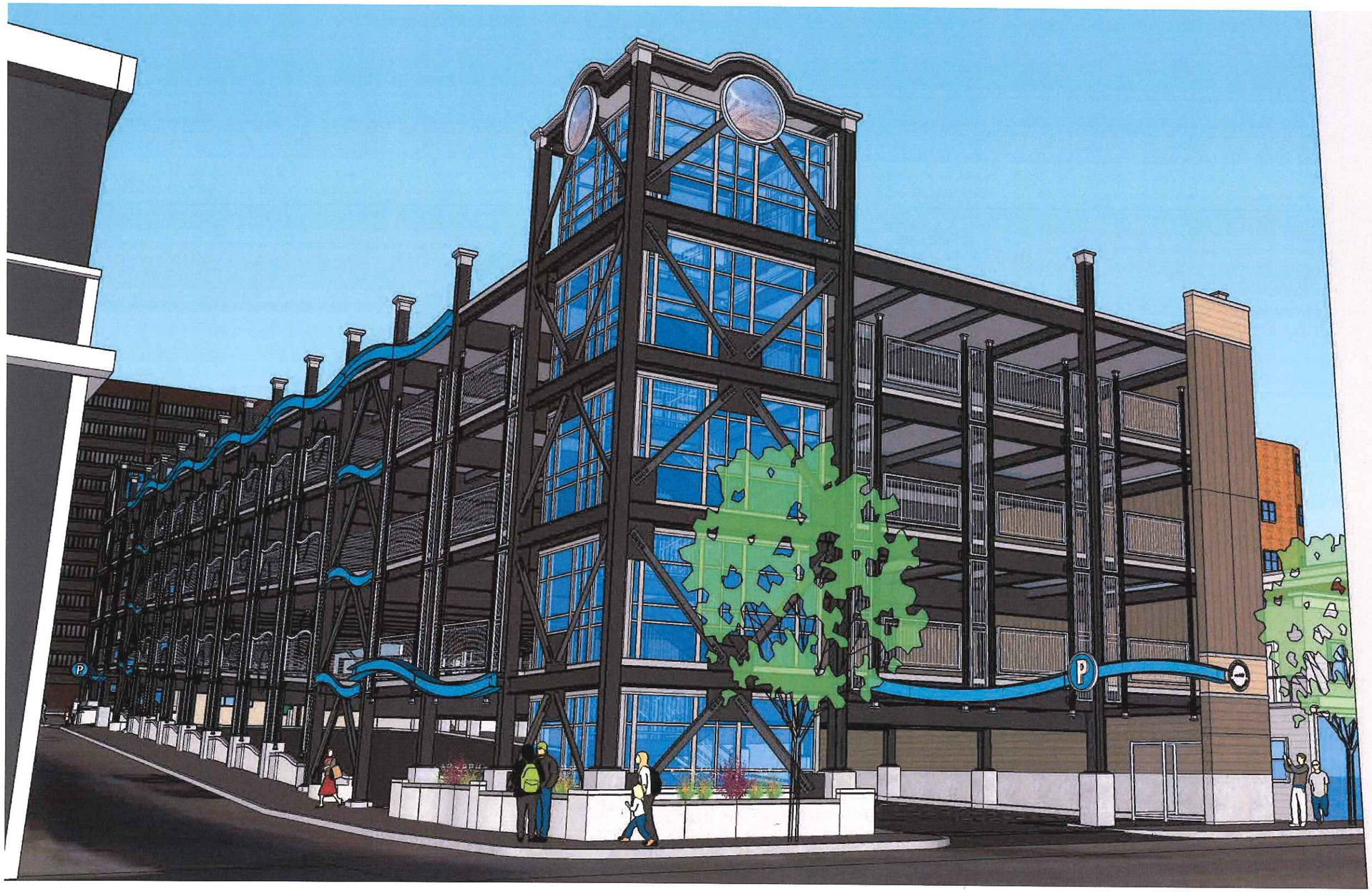
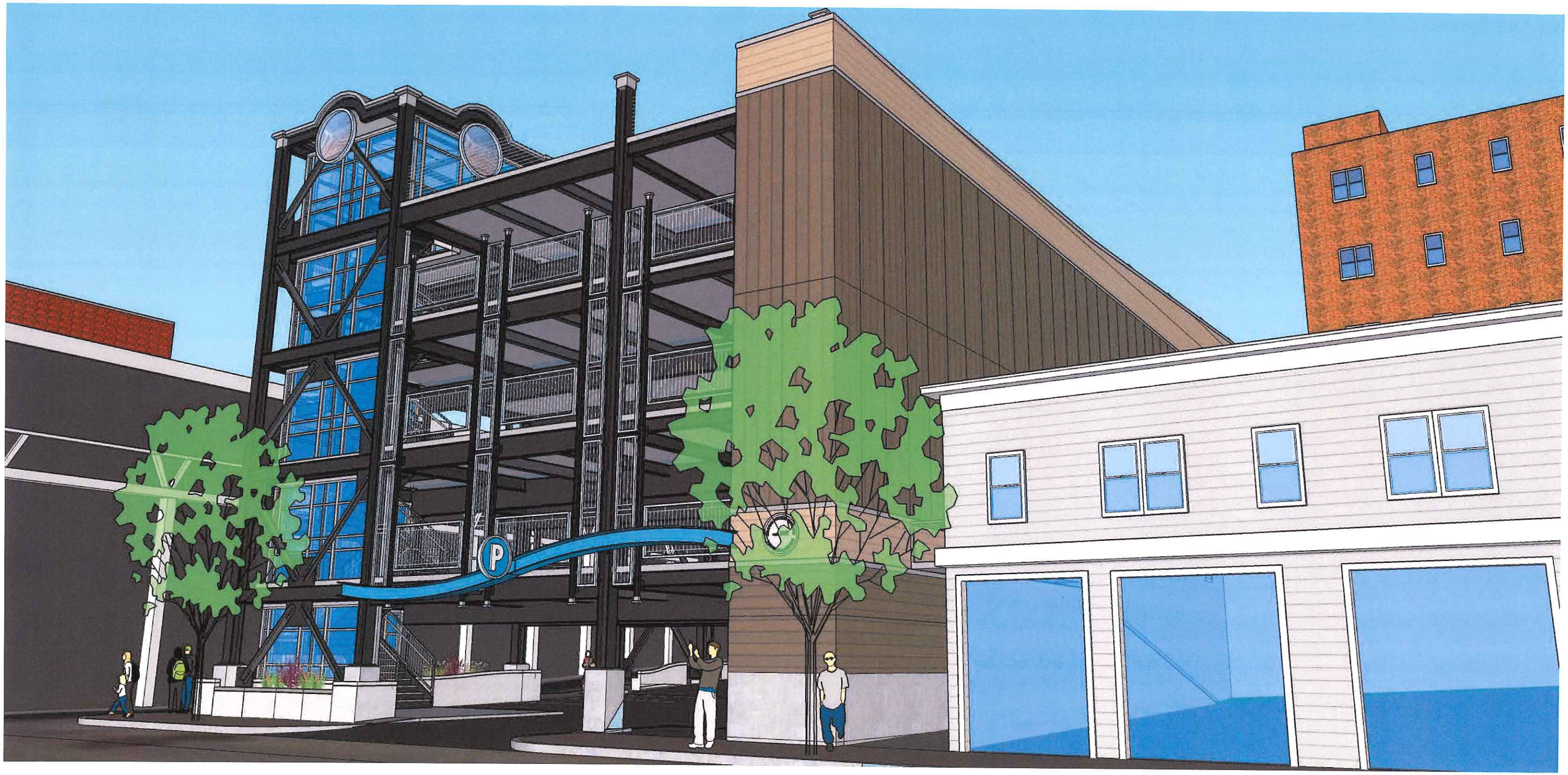
Drawn by: TGN	Approved by: SJB
Project: 151.06037	05-25-2017
Sheet No: C1	

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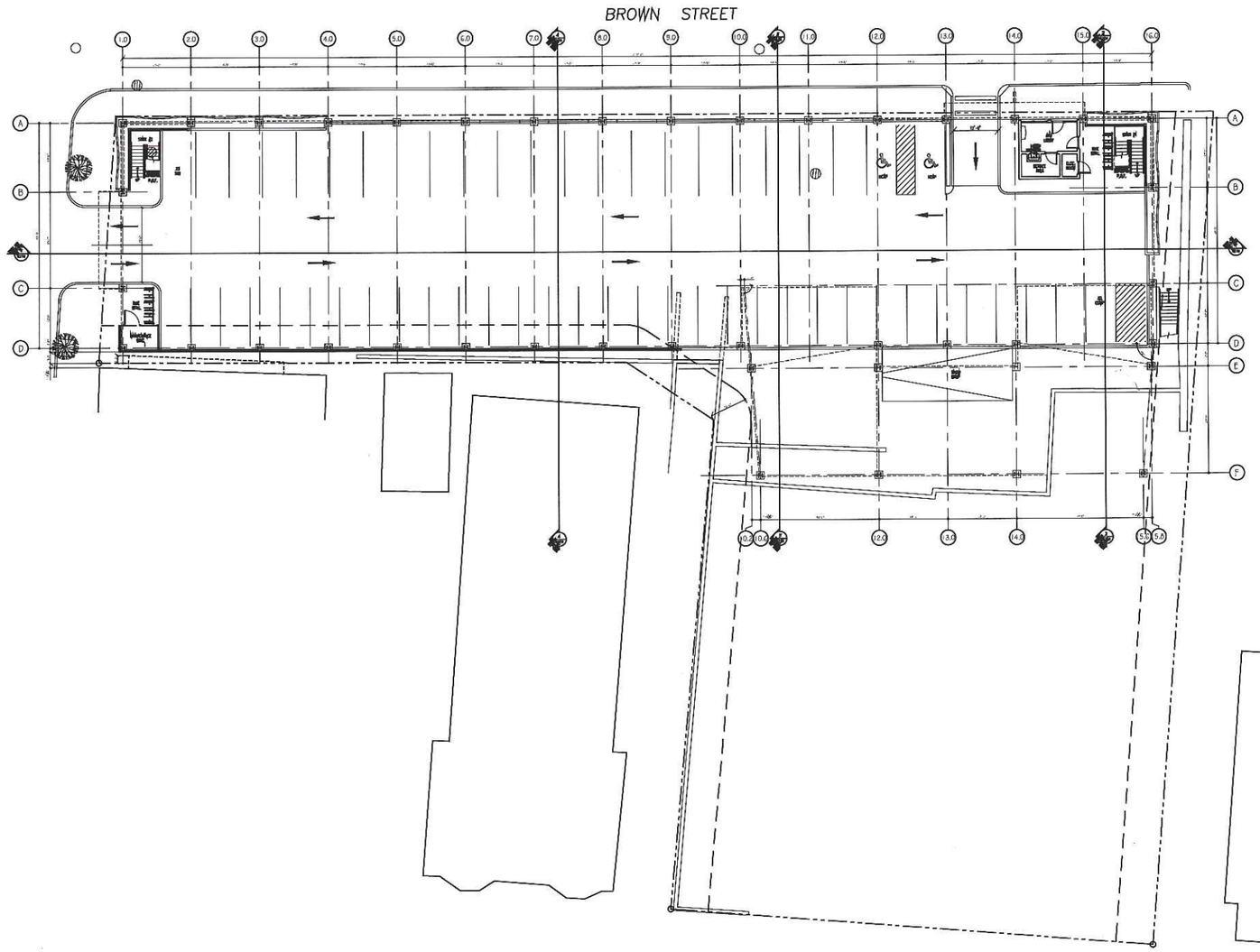

1 **FIRST LEVEL FLOOR PLAN**

~ SCALE: 1/16" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

PORTLAND GARAGE CONCEPT

Brown Street
Portland, Maine

SEAL

REVIEW COPY

DRAWING STATUS

- ☐ OFFICE REVIEW
- ☐ CLIENT REVIEW
- ☐ PERMIT REVIEW
- ☐ BID SET
- ☐ CONTRACT DRAWING
- ☐ CONSTRUCTION

No drawing shall be recognized as a construction document unless it bears a blue inked registration seal.

SHEET TITLE: FIRST LEVEL FLOOR PLAN

JOB NO.: 201601

DRAWN BY: TRN | CHECKED BY:

SCALE: AS NOTED

ORIGINAL DATE: 04-03-17

REVISION DATE: ~

SHEET: A101

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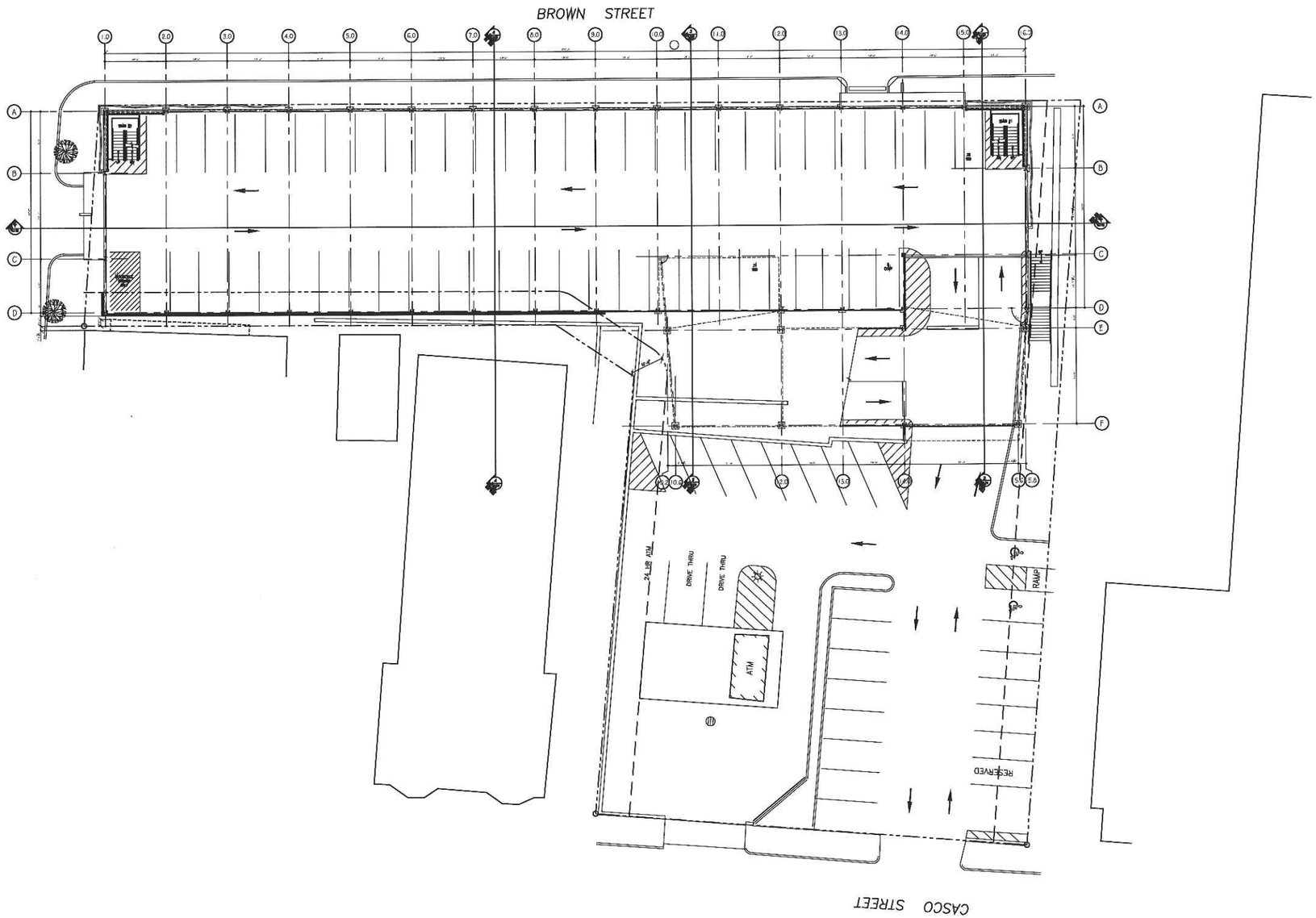

1	SECOND LEVEL FLOOR PLAN
~	SCALE: 1/16" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

PORTLAND GARAGE CONCEPT
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201601

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04-03-17

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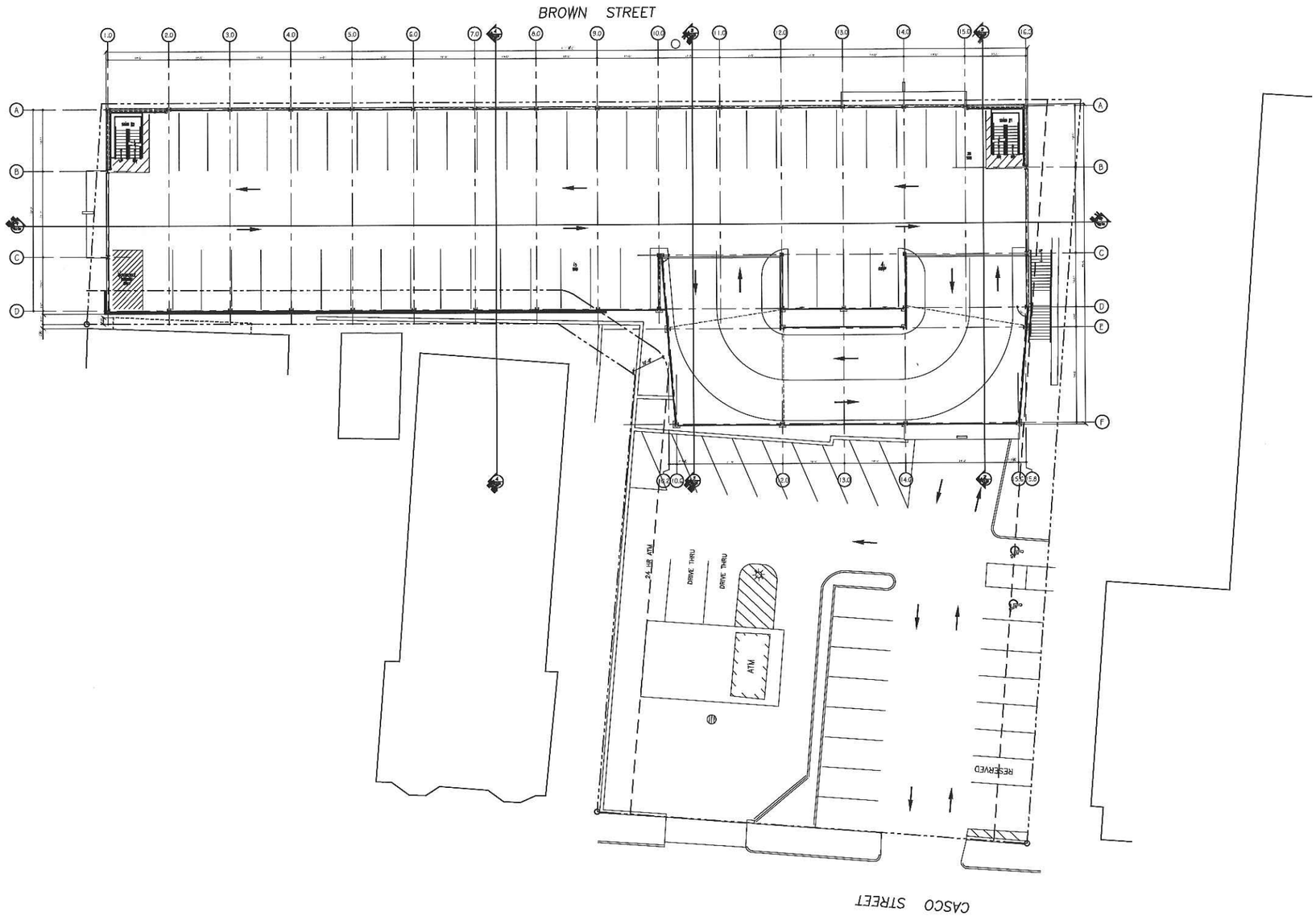

1	THIRD LEVEL FLOOR PLAN
~	SCALE: 1/16" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

PORTLAND GARAGE CONCEPT

Brown Street
Portland, Maine

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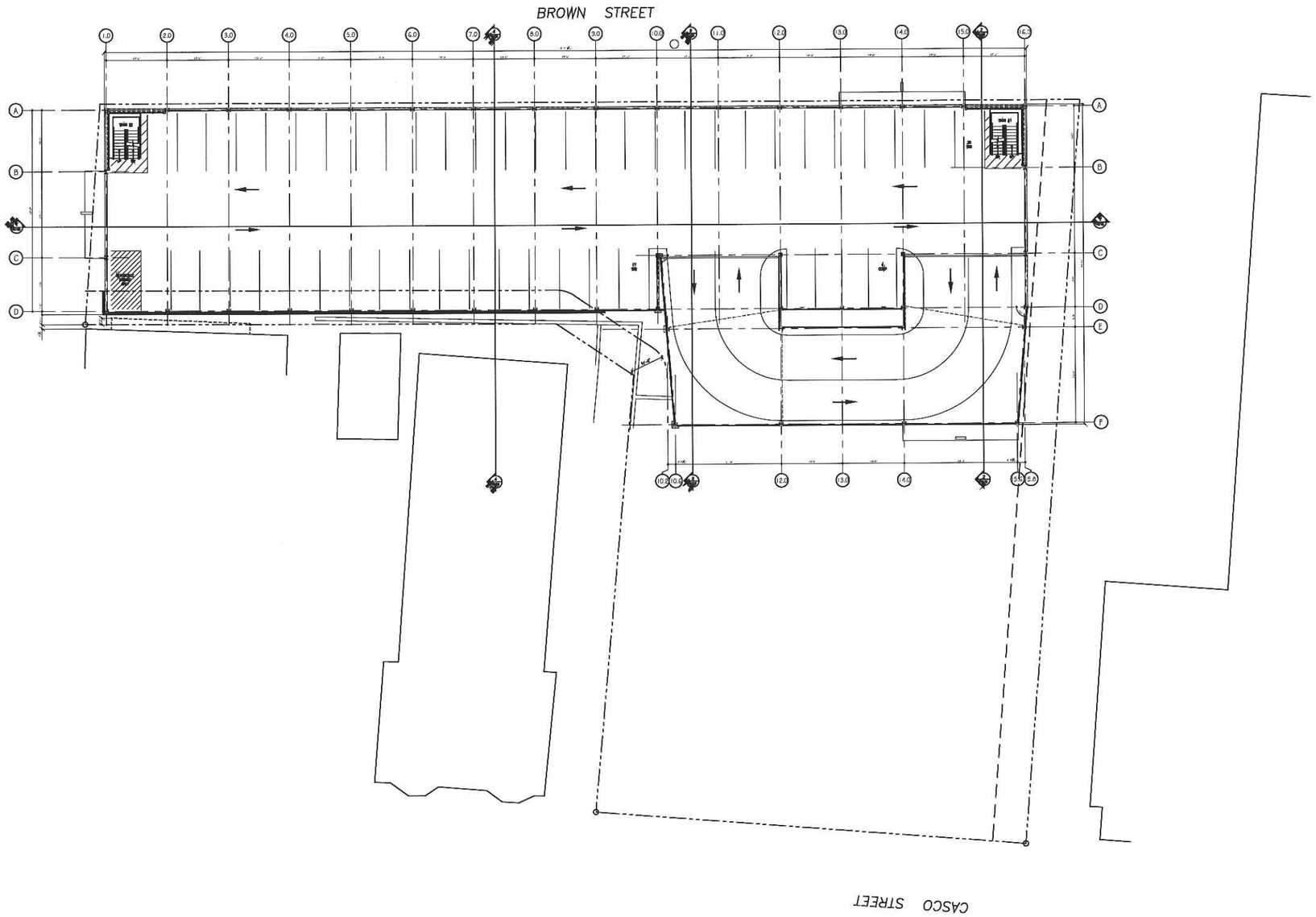

1	FOURTH LEVEL FLOOR PLAN
~	SCALE: 1/16" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

PORTLAND GARAGE CONCEPT

Brown Street
Portland, Maine

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FOURTH LEVEL FLOOR PLAN

JOB NO.
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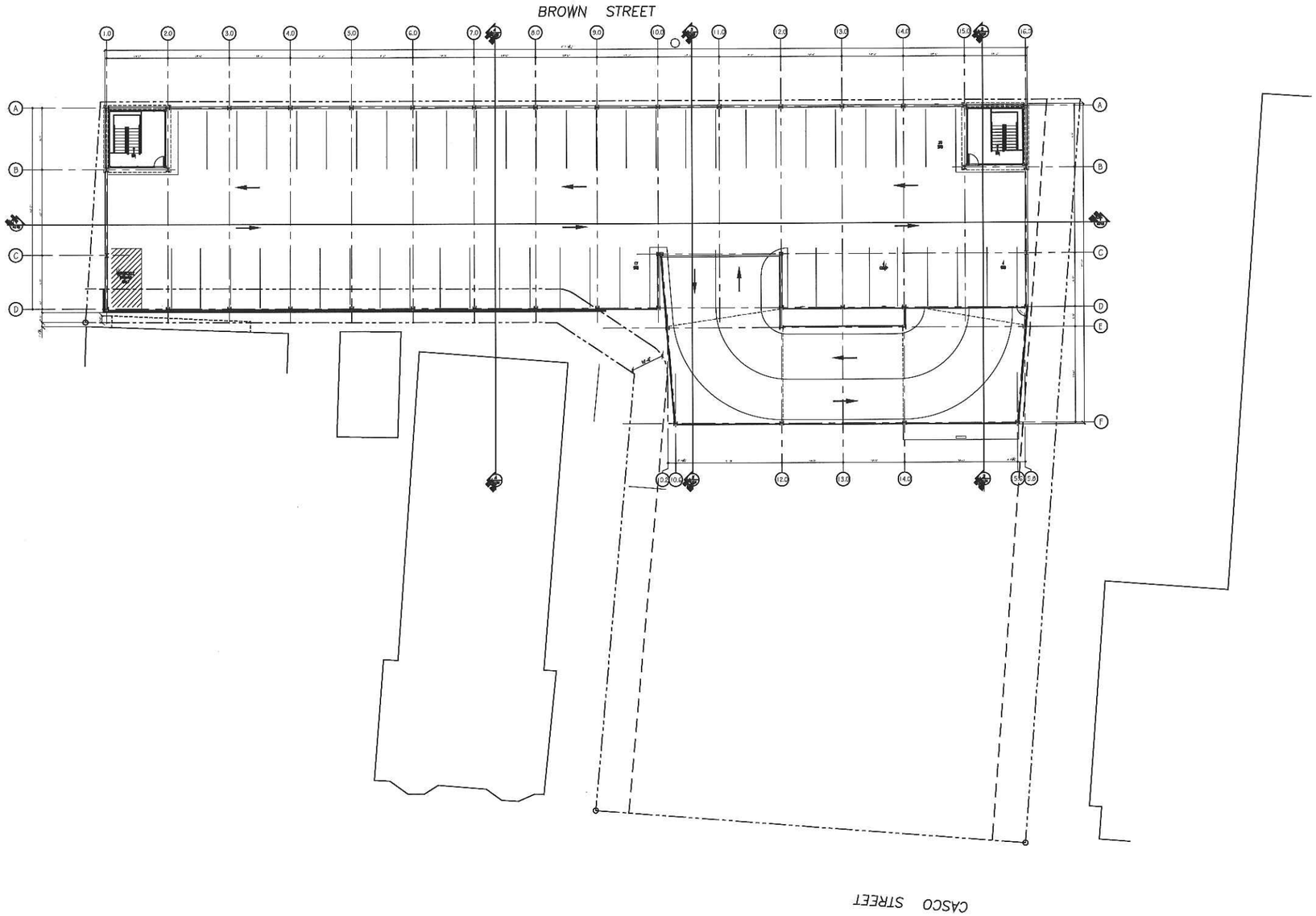

1	FIFTH LEVEL FLOOR PLAN
~	SCALE: 1/16" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

BROWN STREET PARKING GARAGE

Brown Street
Portland, Maine

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DRAWING STATUS

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SHEET TITLE
FIFTH LEVEL FLOOR PLAN

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Portland Maine | Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

Public Comment: 48 Brown Street Parking Garage (App ID# 2017-145)

George Rheault <george.rheault@gmail.com> Tue, Sep 26, 2017 at 1:43 PM
To: Barbara Barhydt <bab@portlandmaine.gov>
Cc: Matthew Grooms <mgrooms@portlandmaine.gov>

I am opposed to the proposed new structured parking facility, as currently conceived, planned for the existing surface lot at Brown & Cumberland Streets.

While the applicant's team has made itself available for two neighborhood meetings (one informal one in early May which was not widely noticed and, the "official" one, last week on September 20) and is generally thoughtful and attentive to the overall attractiveness of their proposed structure, the biggest concerns about the neighborhood impacts of the project remain unaddressed.

Those neighborhood impacts chiefly revolve around the suffocating presence of yet another bare-bones hulking parking facility in what was once a finely detailed nineteenth-century people-scaled urban grid.

While the proposed project promises to solve specific issues for the owners and tenants of 511 Congress Street and potentially make possible additional downtown redevelopment opportunities for others, the victims are likely to be a more degraded Cumberland Avenue, less inviting, less peopled, more trafficked and auto-centric as well as the sloping side-streets from Preble to Forest which would be similarly impacted as yet another wall of parking is placed as an impediment between them and some of the tenuous vibrancy found along Congress Street and beyond.

Unfortunately, in this process, the neighborhood has little in the way of protection from either a political point of view or from a planning perspective. There is no master plan for the Cumberland Avenue corridor (both close to the project site and the downtown core as well as more broadly encompassing the functioning of the wider corridor from Franklin Street to High Street) despite it being one of the City's three primary east-west downtown thoroughfares (after Congress and Commercial).

Additionally, Portland's urban design standards do nothing to address the negative aspects of structured parking facilities along street frontage. Such single-use facilities are heavily disfavored in urban planning design today but Portland's planning ordinances and staff are mute on the subject despite its downtown being saturated with structured parking sites that loom greatly over and heavily subtract from the pedestrian experience and the pleasures of what remains of Portland's urban, pre-automobile fabric.

In the Staff memo, at the bottom of page 7, under "3. Public Infrastructure and Community Safety Standards a. Consistency with Related Master Plans" there is a sentence that states "the project is generally consistent with related master plans" however there are NO RELATED MASTER PLANS to be consistent with - to my knowledge - so this staff statement is in great need of elaboration and clarification.

The advisory review by the Historic Preservation Board also appears to have been cursory and mostly a missed opportunity (or, more bluntly, a failure). According to the Staff memo, "[t]he Board reviewed the project against the Historic Preservation ordinance's Standards for Review of Construction, which included review criteria related to 'Scale and Form', 'Composition of Principal Facades' and 'Relationship to the Street'." Such effort yielded virtually no substantive improvements for anyone who must routinely experience this building and only tinkered around the margins.

The one place where HPB focus did cause a change, i.e., the composition of the west wall, was actually a backwards step as the HPB apparently has a misguided notion that the dated, largely unsuccessful (and cost-driven) modernist facade and massing at 511 Congress Street should dictate the neighborhood's experience way over on Cumberland (where, post-construction, the 511 Congress Street building will be hard to even see, never mind, contextualize). Thus a massive undifferentiated block wall is preferred by the HPB over one with some variety and interest along its base, middle and top (which is not to necessarily endorse the applicant's initial concept on this topic, but simply to suggest they keep trying to humanize a giant fire wall rather than rationalize it as a good solution simply because it echoes the modernist pile parent structure).

The applicant is not responsible for the current state of the Cumberland Avenue corridor and its status as Portland's "back-alley" to which it has been relegated (uncritically by Staff). But it is critical that someone draw a line in the sand so that the sins of the past are not repeated again and again. Sadly there does not seem to be any appetite at the staff level for ensuring that more of the same mistakes are avoided here.

It would be nice if planning staff and the members of the Planning Board took a long stroll along the length of Cumberland Avenue starting across from the steps of the Cathedral of the Immaculate Conception and heading west all the way to High Street. The neighborhood-killing parking functions (surface and structured) that litter the way as well as the repeated inert blank walls of various institutional presences (virtually all dark and empty most evenings and weekends) make for a sad and unsatisfying journey and are as much responsible for neighborhood blight as are the high concentration of social services in the area and which can be firmly laid at the foot of our planning forebears.

And it is for this reason why no one should celebrate the addition of another "service" structure that does nothing to enhance neighborhood life or vitality and arguably works hard to defeat it since the Cumberland block from Brown to Casco is one of the few places that has retained some human-scaled variety and vitality. Shoe-horning all the conveniences of a suburban office park into what was once a dense urban district is not justification enough.

An acceptable compromise here would be if the parking garage could be wrapped by mixed-use residential and the area identified as a "Pedestrian Activity District" which of course it is (simply because short-distance driving trips are inconvenient and most residents travel on foot if they are able).

The applicant has rejected this approach in neighborhood meetings replying that adding even a single level of subterranean parking would be cost-prohibitive to its project and using up the volume closest to the back of 511 Congress would be disfavored by those tenants on the lower floors whose light would be interfered with. Apparently the garage itself would not generate enough stand-alone revenue to make sense as an independent project and is essentially meant as a loss-leader to support long-term lease occupancies at 511 Congress and anything that would be an impediment to that has been rejected.

It is very important then that the Planning Board force the applicant to justify, in writing, why the neighborhood should bear the blight of yet another single-use parking structure placed in its midst while the applicant is freed from making appropriate long-term investments to ensure a diverse and healthy urban context remains after the project's construction. The public should not have to rely on conclusory statements from the applicant ("we looked at that and it won't work") but should be shown the detailed cost projections and analysis (including geo-technical examinations) that support a good faith and honest rationalization that only a single-use garage can be afforded here and now.

It is this short-termism and shifting of impacts to third-parties that has hobbled Portland's development. For structures that are likely to remain in place for five decades or more, it is essential that forward-thinking investments are fought and reached for now and, if that cannot be done in good faith, it is probably just better to wait until the right project comes along than to waste the opportunity on something that could stifle an entire area, perhaps permanently.

Parking Study

The Portland Downtown District and the City have been working on a comprehensive downtown parking study which is supposedly getting close to final. Presumably, because such studies are largely used to justify ever greater parking investments, this study will endorse and champion things like the applicant's garage. However, the Planning Board should NOT finalize the site plan for the project UNTIL the parking study is complete and its full contents released to the public.

Embedded in this study may very well be evidence (probably oblique for reasons stated above) that the applicant's desire to build out the whole site with structured parking (other than the Casco St. side) is either not supported or that perhaps other means are at the City's disposal to encourage parking solutions WITHOUT adding massive single-use structured parking that will only serve to crowd out residences or other mixed-use activity.

Also, this study may end up serving as a weak stand-in for the traffic demand study the applicant was absurdly not required to do despite the fact that the traffic flow around the site will be almost tripled due to the increase in parking stalls contemplated as well as the fact that the applicant clearly states that additional development elsewhere in the area will rely on this garage in the future.

Storm-water/Snow Loads

Based on the extreme attention paid to storm-water management measures during the recent review of the proposed apartments at 75 Chestnut Street, the requirements of this large facility for storm-water treatment seem to be extraordinarily lax. One does wonder if this applicant is being given less regulatory scrutiny here than that earlier project received (the Chestnut Street project used a large open green area to capture and retain runoff and it is not clear how that significant mitigation measure is avoided at the proposed parking garage without the presence of underground cisterns or similar capture systems - the proposed bio-filtering mechanisms seem to address water quality, not the required water retention/runoff hold-back that is meant to ease large rain event impacts on the public storm-water infrastructure).

Additionally, a facility open to the elements such as is proposed (with high upper floors) is likely to actually capture and retain a lot more wind-driven precipitation under certain storm conditions than the existing surface lot currently does. It is not clear whether the storm-water requirements are adequately modeling this possibility and whether extreme events would overwhelm the minimum requirements the applicant is currently being asked to address.

Mitigation Measures

The applicant has been quite proud of various design flourishes (blue strips of metal trim) that purport to soften and enliven what is otherwise a very conventional parking structure. As a neighborhood resident, I see little value-added from this ornamentation and I am glad that staff at various levels have not been enamored with the flourishes.

Considering how harsh is the streetscape along the entire central Cumberland Avenue corridor (Franklin to High) what would be far far better use of resources would be a thoughtful set of living wall attachments along the Cumberland Avenue facade wall. I am not suggesting a comprehensive green screen or living wall that covers the entire facade as that is an expensive proposition and probably excessive to what is required here to soften and provide some organic, human-scale counterpoints to what is basically a hulking, utilitarian structure. The planters hopefully would be primarily evergreens which would reduce annual maintenance and provide year-round visual interest.

Here is an extreme version of what I am recommending: https://www.designboom.com/architecture/vincent-callebaut-brussels-botanic-center-planted-facades-belgium-09-15-2016/

Best regards,

George Rheault
West Bayside

RANSOM
Consulting, Inc.

Consulting
Engineers
and Scientists

June 20, 2017 Project 151.06037

Barbara Barhydt, Development Review Manager
City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, Maine 04103

RE: Level III Site Plan Application
Five-Level Parking Garage
Ocean Gate Realty Garage
48 – 72 Brown Street
Portland, Maine

Dear Barbara:

On behalf of Ocean Gate, LLC, we are pleased to submit this Preliminary Level III Site Plan Application for the development of a five-level parking garage at 48-72 Brown Street in Portland's downtown area.

This project will replace an existing surface parking lot with 5 levels of structured parking. Increasing parking density on this site will facilitate the conversion of adjacent surface parking lots to residential, commercial, office and potentially other land uses. The construction of privately funded structured parking has been strongly encouraged in the City's various Master Plans.

Please consider that we will be submitting a Stormwater Credit application to the Water Resources Department for this project shortly. Our goal is to develop a design that meets both the Site Plan Standards and the Stormwater Credit requirements.

In order to demonstrate that this project meets the standards outlined in Section 14-526 of the Site Plan Ordinance, we have included the following documents in the following order:

A-Level-III-Site-Plan-Application

B-Right-Title-and-Interest

D-Zoning Assessment

G-Financial Capacity

J-Transportation Memo

L-Stormwater Management Plan

N-Ability to Serve Portland Water District

P-1-Code Review

400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
12 Kent Way, Suite 100, Byfield, Massachusetts 01922, Tel (978) 465-1822
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160

www.ransomenv.com

Barbara Barhydt, Development Review Manager
Portland Planning Department

P-2-Life Safety Plan

Q-Design Review

S-1-Cover Letter (this document)

S-2-Perspective Images

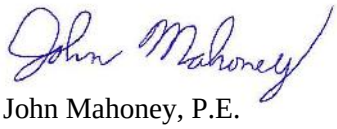
S-3-Boring Logs

S-4-Historic Preservation Narrative 5-30-17

If you have any questions regarding the attached application materials, please feel free to contact me at john.mahoney@ransomenv.com or (207) 772-2891 Ex 32.

Sincerely,

RANSOM CONSULTING, INC.



John Mahoney, P.E.
Project Engineer

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Ocean Gate Parking Garage
Proposed Development Address:	48 - 72 Brown Street
Project Description:	Consruct a 5 deck parking garage.
Chart/Block/Lot:	037 D004001
Preliminary Plan	
Final Plan	X

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	Ed Gardner
Business Name:	Ocean Gate, LLC
Address:	Ocean Gate Plaza, 511 Congress Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	(207) 773-1919
Home #:	
Cell #:	
Fax #:	
E-mail:	ed@oceangaterealty.com

OWNER

Name:	Ed Gardner
Address:	Ocean Gate Plaza, 511 Congress Street
City/State:	Portland Maine
Zip Code:	04101
Work #:	(207) 773-1919
Home #:	
Cell #:	
Fax #:	
E-mail:	ed@oceangaterealty.com

AGENT/REPRESENTATIVE

Name:	Ethan Boxer Macomber; Anew Development
Address:	30 Danfourth Street, Suite 213
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-272-8550
Home #:	
Cell #:	
Fax #:	
E-mail:	ethan@anew-development.com

BILLING (to whom invoices will be forwarded to)

Name:	Ocean Gate, LLC; care of Ed Gardner
Address:	Ocean Gate Plaza, 511 Congress Street
City/State:	Portland, Maine
Zip Code:	04101
Work #:	(207) 773-1919
Home #:	
Cell #:	
Fax #:	
E-mail:	ed@oceangaterealty.com

ENGINEER

Name:	John Mahoney; Ransom Consulting, Inc.
Address:	400 Commercial Street, Suite 404
City/State:	Portland, Maine
Zip Code:	
Work #:	207-772-2891
Home #:	
Cell #:	
Fax #:	
E-mail:	john.mahoney@ransomenv.com

SURVEYOR

Name:	Randy Loubier; Owen Haskell, Inc.
Address:	390 US Route 1
City/State:	Falmouth, Maine
Zip Code:	04105
Work #:	207-408-0168
Home #:	
Cell #:	
Fax #:	
E-mail:	rloubier@owenhaskell.com

ARCHITECT

Name:	Travis Nadeau; Platz Associates
Address:	2 Great Falls Plaza Auburn Maine
City/State:	Auburn, Maine
Zip Code:	04210
Work #:	207-784-2941
Home #:	
Cell #:	
Fax #:	
E-mail:	TNadeau@platzassociates.com

ATTORNEY

Name:	Nicholas J. Morrill, Esq.; Jensen Baird Gardner & Henry
Address:	Ten Free Street, 4th Floor; P.O. Box 4510
City/State:	Portland Maine
Zip Code:	04112-4510
Work #:	(207) 775-7271, Ext. 5919
Home #:	
Cell #:	
Fax #:	
E-mail:	nmorrill@JBGH.com

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	Tom Nosal
E-mail:	thomas.nosal@ransomenv.com
Name:	John Mahoney
E-mail:	john.mahoney@ransomenv.com
Name:	
E-mail:	

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☐	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☑	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☐	Traffic Movement	$1,500.00
☑	Stormwater Quality	$250.00
☐	Subdivision	$500.00
	# of Subdivision Lots x $25.00 (per lot)	$
☐	Site Location	$3,500.00
	# of Site Location Lots x $200.00 (per lot)	$
☐	Change of Use	
☐	Flood Plain	
☐	Shoreland	
☐	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$ 1,250

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($50.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	39,039	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	25,100	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	37,500	sq. ft.
Impervious Area (Total Proposed)	37,300	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	0	sq. ft.
Building Footprint (Total Proposed)	20,485	sq. ft.
Building Floor Area (Total Existing)	0	sq. ft.
Building Floor Area (Total Proposed)	98,125	sq. ft.
ZONING		
Existing	B3	
Proposed, if applicable	NA	
LAND USE		
Existing	Surface Parking	
Proposed	Parking Garage	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	NA	
# of Residential Units (Total Proposed)	NA	
# of Lots (Total Proposed)	NA	
# of Affordable Housing Units (Total Proposed)	NA	
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	NA	
# of One-Bedroom Units (Total Proposed)	NA	
# of Two-Bedroom Units (Total Proposed)	NA	
# of Three-Bedroom Units (Total Proposed)	NA	
PARKING SPACES		
# of Parking Spaces (Total Existing)	92	
# of Parking Spaces (Total Proposed)	281	
# of Handicapped Spaces (Total Proposed)	7	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	0	
# of Bicycle Spaces (Total Proposed)	15	
ESTIMATED COST OF THE PROJECT	$6,500,000	

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	[signature] III / Manager Ocean Gate LLC
Date:	June 16, 2017

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
		1	Completed Application form
		1	Application fees
		1	Written description of project
		1	Evidence of right, title and interest
		1	Evidence of state and/or federal approvals, if applicable
		1	Written assessment of proposed project's compliance with applicable zoning requirements
		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
		Proposed grading and contours;	
		Existing structures with distances from property line;	
		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
		Preliminary infrastructure improvements;	
		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Completed Application form
✓		1	* Application fees
✓		1	* Written description of project
✓		1	* Evidence of right, title and interest
NA		1	* Evidence of state and/or federal permits
✓		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
✓		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
✓		1	* Evidence of financial and technical capacity
✓		1	Construction Management Plan
✓		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
NA		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
✓		1	Stormwater management plan and stormwater calculations
✓		1	Written summary of project's consistency with related city master plans
✓		1	Evidence of utility capacity to serve
NA		1	Written summary of solid waste generation and proposed management of solid waste
✓		1	A code summary referencing NFPA 1 and all Fire Department technical standards
✓		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
NA		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
✓		1	**Final Site Plans including the following:**
✓			Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);
✓			Existing and proposed structures on parcels abutting site;
✓			All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
✓			Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
✓			Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
NA			Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
NA			Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
✓			Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
✓			Location of all snow storage areas and/or a snow removal plan;
✓			A traffic control plan as detailed in Section 1 of the Technical Manual;
NA			Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);
NA			Location and proposed alteration to any watercourse;
NA			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
NA			Proposed buffers and preservation measures for wetlands;
✓			Existing soil conditions and location of test pits and test borings;
✓			Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
✓			A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;
✓			Grading plan;
NA			Ground water protection measures;
✓			Existing and proposed sewer mains and connections; No sewer proposed

- Continued on next page -

✓		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
✓		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
✓		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
NA		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
✓		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
NA		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
NA		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance; Advisory Review Only
NA		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
✓		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
✓		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
✓		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review.

1. Name, address, telephone number of applicant
2.
3. Name address, telephone number of architect

4. Proposed uses of any structures [NFPA and IBC classification]
5.
6. Square footage of all structures [total and per story]

7. Elevation of all structures

8. Proposed fire protection of all structures
   - ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***

9. Hydrant locations

10. Water main[s] size and location

11. Access to all structures [min. 2 sides]

12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division

Date: _____

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: _____

Chart Block Lot Number: _____

Proposed Use: _____
Previous Use: _____
Existing Sanitary Flows: _____GPD
Existing Process Flows: _____GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

_____
_____

Site Category

Commercial *(see part 4 below)*	☐
Industrial *(complete part 5 below)*	☐
Governmental	☐
Residential	☐
Other *(specify)*	☐

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: _____ Phone: _____
Owner/Developer Name: _____
Owner/Developer Address: _____
Phone: _____ Fax: _____ E-mail: _____
Engineering Consultant Name: _____
Engineering Consultant Address: _____
Phone: _____ Fax: _____ E-mail: _____

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: _____ GPD
Peaking Factor/ Peak Times: _____
Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, Other (specify)* _____

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: _____

Size of External Grease Interceptor: _____

Retention Time: _____

Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: _____ GPD

Do you currently hold Federal or State discharge permits? Yes ____ No ____

Is the process wastewater termed categorical under CFR 40? Yes ____ No ____

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

A Guide to Holding Neighborhood Meetings
Portland, Maine

Planning and Urban Development Department
Planning Division and Planning Board

In order to improve communication between applicants and neighbors, the City of Portland requires applicants who are proposing certain types of development review projects, to hold a neighborhood meeting.

Developments requiring a neighborhood meeting

- Proposed map amendments, contract zones and zoning text amendments that would result in major development;
- Subdivisions of five or more units or lots;
- Master Development Plans; and
- Level III site plan proposals as defined in Section 14-523.

(The Land Use Code, including Article II (Planning Board) and Article V (Site Plan – which contains the neighborhood meeting requirements), are available on the City's web site at www.portlandmaine.gov/citycode/chapter014.pdf)

Timing of meeting

- **Subdivisions of 5 or more units or lots, zone changes, contract zones, zoning text amendments and Level III site plans:**
  - Preliminary Site Plan - The meeting should be held within 30 calendar days of filing the application.
  - Final Site Plan – If only a final plan is submitted, the meeting should be held within 21 calendar days of filing the application and no less than 7 calendar days before the public hearing.
- **Master Plan Development:**
  - The meeting should be held within 30 calendar days of filing the application.
  - The meeting should be held on a date no less than 7 calendar days before a public workshop or public hearing.
  - The meeting shall not be combined with any required neighborhood meeting for the Level III applications.

Location of meeting

- The meeting should be held in the evening, during the week, at a convenient location within the Portland neighborhood surrounding the proposed site. Community meeting spaces at libraries, schools or other places of assembly are recommended. Neighborhood schools are usually available for evening meetings.
- Meetings should not be held on the same day as scheduled Planning Board or City Council meetings. The City Council generally meets on the 1st and 3rd Monday of each month and the Planning Board generally meets on the 2nd and 4th Tuesday of each month; however additional meetings may be scheduled. An updated schedule may be found on the City's website: www.portlandmaine.gov

Invitation List

- Property owners within 500 feet of the proposed development (1000 feet for proposed industrial subdivisions and industrial zone changes)
- Interested citizens and neighborhood groups.

The Planning Division provides the mailing labels. We require at least 48 hours notice to generate the mailing labels and a charge of $1.00 per sheet will be payable upon receipt of the labels. An electronic version (excel or word format) of the labels can also be e-mailed upon request.

A digital copy of the notice must be provided to the Planning Office (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner, which will then be forwarded to those on the interested citizen list who receive e-mail notices.

When to Send Invitations

- Invitations must be sent **no less than 10 days (to include weekends)** prior to the neighborhood meeting.
- Notices may be sent by regular mail and do not need to be sent by certified mail.

Notice Description

A recommended invitation format is included in this packet of material.

Attendance Sheet and Meeting Minutes

- Sign-in sheet must be circulated for those in attendance.
- Applicant shall take accurate minutes of the meeting.
- The sign-in sheet and minutes shall be submitted to the Planning Division.

A public hearing will not be scheduled until the meeting minutes and sign-up sheet are submitted to the Planning Division.

A Certification form is included with this packet to be completed and signed by the applicant.

Please call the Planning Division at 874-8721 or 874-8719 if you have any questions.

Attachments

1. Neighborhood Meeting Invitation Format
2. Neighborhood Meeting Certification

EXAMPLE: Neighborhood Meeting Invitation Format

Applicant/Consultant
Letterhead

(Date)

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for a (development proposal) located at (location/number and street address).

Meeting Location: _____
Meeting Date: _____
Meeting Time: _____

(The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.)

If you have any questions, please call (telephone number of applicant or consultant).

Sincerely,

(Applicant)

Note:
Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plans was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

EXAMPLE: Neighborhood Meeting Certification

I, (applicant/consultant) hereby certify that a neighborhood meeting was held on (date) at (location) at (time).

I also certify that on (date at least ten (10) days prior to the neighborhood meeting), invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,

_____ _____ (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

QUITCLAIM DEED WITH COVENANT
Maine Statutory Short Form

MAINE REAL ESTATE TAX PAID

KNOW ALL PERSONS BY THESE PRESENTS THAT **511 PLAZA LIMITED PARTNERSHIP**, a Maine limited partnership having an address at 21 Technology Drive, Suite 6, West Lebanon, New Hampshire 03784, for consideration paid, grants to **OCEAN GATE, LLC**, a Maine limited liability company with a place of business at 151 Newbury Street, Portland, Maine 04101 with **QUITCLAIM COVENANTS**, the land, together with any improvements thereon, situated in the City of Portland, County of Cumberland, and State of Maine more particularly described in **Exhibit A-1 and Exhibit A-2** attached hereto and made a part hereof.

IN WITNESS WHEREOF, the said 511 PLAZA LIMITED PARTNERSHIP has caused this instrument to be signed and sealed this 18th day of April, 2014.

WITNESS:

_____

511 Plaza Limited Partnership
By. BBBC 511 Plaza, LLC
Its General Partner

By: _____
Name: William Braucher
Its: Manager

STATE OF MAINE
COUNTY OF CUMBERLAND

April 18, 2014

Then personally appeared the above named William Braucher, in his said capacity as Manager of BBBC 511 Plaza, LLC, in its capacity as General Partner of 511 Plaza Limited Partnership and acknowledged the foregoing instrument to be his free act and deed, the free act and deed of said BBBC 511 Plaza, LLC and free act and deed of 511 Plaza Limited Partnership, before me.

_____
Attorney at Law/~~Notary Public~~
Drew A. Anderson
Printed Name

EXHIBIT A-1

511 Congress Street, Portland, Maine

A certain lot or parcel of land, with any buildings or improvements thereon, situated at the westerly corner of Congress and Brown Streets in the City of Portland, County of Cumberland and State of Maine, being bounded and described as follows:

BEGINNING at a point where the southwesterly side of Brown Street intersects the northwesterly side of Congress Street, which point is also the most easterly corner of land conveyed by W. H. Clifford Company to Maine Savings Bank by deed dated July 21, 1972, and recorded in the Cumberland County Registry of Deeds in Book 3271, Page 139; thence by said Congress Street South 59° 24' 30" West, one hundred eighty-five and ninety-three hundredths (185.93) feet to the most easterly corner of land owned by the Maine Charitable Mechanics Association; thence by said land of Maine Charitable Mechanics Association by the follow courses and distances: North 23° 58' West, forty-two and fifty hundredths (42.50) feet to a point; thence North 66° 02' East, four and thirty-three hundredths (4.33) feet to a point; thence North 23° 58' West, fifty-six and eighty-six hundredths (56.86) feet to the most northerly corner of said land of Maine Charitable Mechanics Association; thence South 65° 52' West, sixty and forty hundredths (60.40) feet to the easterly side of Casco Street; thence North 23° 51' West by the easterly side of Casco Street, twenty-six and ninety-six hundredths (26.96) feet to the southerly corner of the existing, or formerly existing, Maine Savings Bank Building; thence around the perimeter of the existing, or formerly existing, Maine Savings Bank Building by the following courses and distances:

North 66° 09' East, seventy-five and seventy-five hundredths (75.75) feet to a corner in said Building; thence North 23° 51' West, seventy-nine and ninety-five hundredths (79.95) feet to another corner in said Building; thence North 66° 09' East, four and fifty hundredths (4.50) feet to another corner in said Building; thence North 23° 51' West, fourteen and twenty-two hundredths (14.22) feet to another corner in said Building; thence South 66° 09' West, four and fifty hundredths (4.50) feet to another corner in said Building; thence North 23° 51' West, twenty-two and eighty-seven hundredths (22.87) feet to another corner in said Building; thence South 66° 09' West, seventy-five and seventy-five hundredths (75.75) feet by the northwesterly line of said Building, and said line extended, to the easterly side of Casco Street; thence by the easterly side of Casco Street North 23° 51' West, twelve and nine hundredths (12.09) feet to a point and other land of the successors or assigns of Maine Savings Bank; thence by said other land formerly of Maine Savings Bank North 66° 09' East two hundred twenty-two and fifty-nine hundredths (222.59) feet to the westerly side of Brown Street; thence by the westerly side of Brown Street South 28° 20' 29" East, two hundred thirty-four and five hundredths (234.05) feet to the intersection of the westerly side of Brown Street with the northerly side of Congress Street

and the point of beginning.

Together with the benefit of and subject to the easements as described in the Quitclaim Deed With Covenant from 511 Plaza Limited Partnership to 15 Casco Street, LLC, dated October 19, 2006 and recorded in said Registry of Deeds in Book 24517, Page 152.

Together with easements and rights granted to Maine Charitable Mechanics' Association as set forth or referred to in an indenture dated February 26, 1910, by and between Maine Charitable Mechanics' Association and John S. Russell, et al. recorded in said Registry of Deeds in Book 852, Page 191, as modified and amended by Agreement dated July 31, 1973 between Maine Charitable Mechanics' Association and Maine Savings Bank dated July 31, 1973, and recorded at said Registry of Deeds in Book 3439, Page 245, and as may be affected by Easement Deed granted to Northern Utilities, Inc. dated July 13, 1995, and recorded at said Registry of Deeds in Book 12012, Page 115, subject to rights of others to also use such easement.

Being a portion of the premises conveyed to 511 Plaza Limited Partnership by Quitclaim Deed With Covenant from Spring Street Limited Partnership dated June 2, 2005 and recorded in said Registry of Deeds in Book 22717, Page 79.

EXHIBIT A-2

Surface Parking Lots, Portland, Maine

The following described parcels of land shown on Plans entitled "ALTA/ACSM Land Title Survey on Casco Street, Shepley Street and Oak Street, Portland, Maine" made for C.B. Richard Ellis by Owen Haskell, Inc. dated October 21, 2002, last revised November 12, 2002, Sheets 1 of 2 and 2 of 2, recorded in the Cumberland County Registry of Deeds in Plan Book 203, Pages 11 and 12; and "ALTA/ACSM Land Title Survey Portland, Maine, Maine Savings Plaza" made for C.B. Richard Ellis by Owen Haskell, Inc., last revised October 23, 2002, original plan dated June 27, 1973 and made by H.I. & E.C. Jordan Surveyors."

Parcel "B & C" - the Oak-Shepley Lot and the Shepley-Casco Lot

A certain lot or parcel of land located on the southeasterly side of Shepley Street, the northeasterly side of Oak Street and the southwesterly side of Casco Street, in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

BEGINNING at a point at the intersection of the southeasterly side of Shepley Street with the northeasterly side of Oak Street;

Thence N 58° 34' 13" E, along the southeasterly side of said Shepley Street, 290.00 feet to the intersection of the southeasterly side of said Shepley Street with the southwesterly side of Casco Street;

Thence S 23° 51' 00" E, along with southwesterly side of Casco Street, 54.39 feet to the northerly corner of land now or formerly owned by John J. Quirk and Sally L. Quirk as described in Book 11794, Page 306;

Thence S 66° 06' 44" W, along land of said Quirk, 68.20 feet to a point;

Thence S 30° 25' 49" E, along land of said Quirk, 35.19 feet to a point;

Thence S 58° 31' 12" W, along land of said Quirk, also along the northwesterly line of land now or formerly of Survey Properties, Inc. as described in Book 11113, Page 126, 122.49 feet to a 5/8 inch rebar set on the northeasterly line of land now or formerly of Henry D. Audesse et al. as described in Book 7686, Page 334;

Thence N 30° 39' 41" W, along land of said Audesse, 14.64 feet to a 5/8 inch rebar set;

Thence S 57° 06' 52" W, along land of said Audesse, 93.52 feet to a 5/8 inch rebar set on the northeasterly side of said Oak Street;

Thence N 30° 25' 49" W, along the northeasterly side of said Oak Street, 68.00 feet to the point

of beginning.

Grantor specifically excludes from the limited warranty covenants (quitclaim with covenants) contained in this deed with respect to so much of the above-described Oak-Shepley Lot and Shepley-Casco Lot as is shown on said ALTA/ACSM Land Title Survey dated October 21, 2002 and last revised November 12, 2002, Sheet 1 of 2 as "Gore" and "Building Encroachment".

Parcel D – the 354-358 Cumberland Avenue Lot and the 48-72 Brown Street Lower Level and Upper Level Lots

A certain lot or parcel of land located on the southeasterly side of Cumberland Avenue, southwesterly side of Brown Street, and the northeasterly side of Casco Street, in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

BEGINNING at the intersection of the southeasterly side of Cumberland Avenue with the southwesterly side of Brown Street;

Thence S 28° 19' 02" E, along the southwesterly side of Brown Street, 294.48 feet to a 5/8 inch rebar set on the northwesterly line of land now or formerly of the October Corporation as described in Book 12007, Page 156 (being the 511 Congress Street Parcel hereinabove described);

Thence S 66° 09' 00" W, along said 511 Congress Street Parcel, 222.59 feet to the northwesterly side of Casco Street;

Thence N 23° 51' 00" W, along the northeasterly side of Casco Street, 129.28 feet to the southerly corner of land now or formerly of John J. Quirk and Sally L. Quirk as described in Book 4798, Page 12;

Thence N 66° 56' 23" E, along land of said Quirk, 130.93 feet to a point;

Thence N 5° 14' 53" E, along land of said Quirk, 28.02 feet to a point;

Thence N 28° 12' 53" W, along land of said Quirk, also along land now or formerly of Cumby Corporation as described in Book 10797, Page 147, 141.49 feet to the southeasterly side of said Cumberland Avenue;

Thence N 65° 40' 30" E, along the southeasterly side of said Cumberland Avenue, 66.00 feet to the point of beginning.

Being a portion of the premises conveyed to 511 Plaza Limited Partnership by Quitclaim Deed With Covenant from Spring Street Limited Partnership dated June 2, 2005 and recorded in said Registry of Deeds in Book 22717, Page 79.

Received
Recorded Register of Deeds
Apr 18,2014 01:04:13P
Cumberland County
Pamela E. Lovley

RANSOM Consulting Engineers and Scientists

Memo

Response to Comments: Brown Street Garage (2017-145)

Date: October 30, 2017

Dear Matt:

Thank you for the comments regarding our site plan submission for the construction of a Parking Garage on the corner of Brown Street and Cumberland Ave. The following response is subdivided based on the individual comment memos and we have endeavored to include the attachments in the order that they are referenced. Please let us know if you have additional questions or require clarification.

Comments Submitted by: Matthew Grooms, Planning Division on 2017-09-14

1. The applicant shall provide a more detailed narrative explaining intended use of this garage. Will a portion of this garage be available for public use or these spaces dedicated to certain pre-defined users?

   *Response: See **first attachment***

2. Does the applicant intend for any spaces within the garage to be set aside for motorcycle or scooter parking?

   Response: Yes, dedicated motorcycle and scooter parking will be provided on the second, third, fourth, and fifth levels as indicated on the architectural drawing.

3. Will there be a location within the garage for the collection of solid waste? If so, please explain how on-site waste will be managed.

   Response: The garage will not have a location for solid waste collection. On-site waste will be actively managed on a daily basis by security personnel.

4. A cut sheet with lighting details and associated photometric plan shall be provided.

400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
12 Kent Way, Suite 100, Byfield, Massachusetts 01922-1221, Tel (978) 465-1822
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090

www.ransomenv.com

*Response: The exterior of the garage will be illuminated by the City's standard pedestrian street light specification (Esplanade by Holophane) while the interior of the garage will be illuminated by surface-mounted directional LED fixtures (PBL7 by Kim) and pole-mounted LED at the top deck (ARX09 by Kim). See **second attachment** for Photometrics and fixture cut sheet.*

5. In regards to the surface parking lot, accessible off of Casco Street, the applicant shall demonstrate compliance with standards for parking lot landscaping as found in Section 14526(b)(2)(b)(ii) of the Site Plan Ordinance as well as Section 4.5.5 of the Technical Manual. The applicant may submit a formal waiver request subject to waiver criteria as found in the Site Plan Ordinance.

   Response: Please refer to our revised landscape plan, which provides more than 1 tree and 3 shrubs per 5 parking spaces in the Casco Street surface parking lot. These changes will also reduce impervious area by removing pavement in island areas. Good comment, thank you!

6. Two street trees are called out for preservation along Cumberland Avenue. Please note that street trees are also required along other the property's other street frontages at a rate of one tree per 30'-45' feet of frontage as stated in Section 4.6.3 of the Technical Manual.

   Response: The sidewalk on Brown Street is only 7' wide. Maintaining 4' clear for pedestrians and including the 6" for the width of the granite curbing leaves only 2.5' for tree pits. Considering the constrained conditions it is the applicant's opinion that the survival rate for trees planted on Brown Street would be low. On Casco Street, our evaluation did not reveal any location where it would be feasible to install street trees without impacts to electric utilities or impacts to existing trees that are on our property at the back of the sidewalk.

   Our frontage on Casco Street is 129-feet which would require three trees. We suggest that the two trees at the back of the sidewalk on our property will function as street trees and that the applicant pay into the City's tree fund for the one remaining tree.

   Our frontage on Brown Street is 293-feet, which would require 7 street trees. We are proposing to install 7 street trees along the south end of the garage in a row perpendicular to Brown Street. These trees will be visible as one walks down Brown Street from Congress Street, and will tend to visually "soften" the massing of the garage as viewed from public sidewalks. We request that the City consider these trees as a practical solution for satisfying our tree requirement for Brown Street.

7. The applicant shall provide an 'ability to serve' letter from Central Maine Power for this development.

   *Response: Please see **third attachment**, which is an email from CMP indicating that they have the capacity to serve the proposed project.*

8. Please note, the procurement of license agreements with the City for canopies overhanging the public right-of-way shall be made a condition for approval.

   Response: Understood.

9. Does the applicant anticipate the installation of exterior, façade or roof-mounted mechanical equipment for this project? If so, please be aware that mechanicals are required to be screened from public streets in accordance with city standards found under Section 14526(d)(7)(a)(i)(b).

   Response: The applicant intends to install one 8" diameter wind powered vent on each stair tower. These vents will not be visible from the public right of way.

10. If available, signage details for the project should be provided with the final submittal.

    Response: Signage details will be submitted as they become available. Please see first attachment for text on wayfinding.

11. Please note, waiver requests listed out on the site plan and other plan sheets should be compiled into a document and submitted as a separate attachment.

    Response: We are requesting waivers as listed in the ***fourth attachment*** *(Ransom memo)*

12. The site plan appears to show an existing right-of-way which bisects the proposed garage. Has this right-of-way been abandoned, or is it still a city accepted right-of-way. Please provide additional information.

    Response: Yes, this right of way has been abandoned. The applicant is working with the adjacent property owners (beneficiaries of this easement)Ambassador LLC on documentation of the abandonment and wall forward this information under a separate cover.

13. From the architectural elevations provided, it would appear that pedestrian access to the facility is limited to vehicular entrances. Would the applicant consider the installation of doors that would into the stairwell enclosures that would provide additional separation?

    Response: Each of the three entrances (Brown Street, Cumberland Avenue and the second level in the Casco St Lot) has a separate sidewalk for pedestrian access. The drawings have been clarified to better reflect this. On the Brown Street and Cumberland Avenue entrances, brick will extend from the sidewalk into the building in order to provide visually consistent pedestrian space. On the second (Casco Street) level a brick sidewalk into the garage is proposed. It should also be noted that the stairways are open, rather than enclosed.

14. The project as currently proposed meets the dimensional standards of the B-3 Zoning District.

    Understood, thanks.

15. The applicant shall hold a neighborhood meeting for this project in accordance with the city's neighborhood meeting regulations prior to the public hearing. The meeting notice, sign-in sheet and meeting minutes shall be submitted as an attachment to the final submittal.

    Response: This has been completed and documentation has already been submitted to the City.

Additional Submittals Required:

Please upload the digital plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made and only *one set of revised plans* may be submitted for review. This item is scheduled to go before the Planning Board as a workshop item on September 26, 2017. Following the workshop process, this item will be scheduled for a public hearing at the Planning Board's next available meeting and the staff will provide the Planning Board with a recommendation to approve, approve with conditions, or deny the final site plan.

Comments Submitted by: by Tom Errico on 9/18/2017

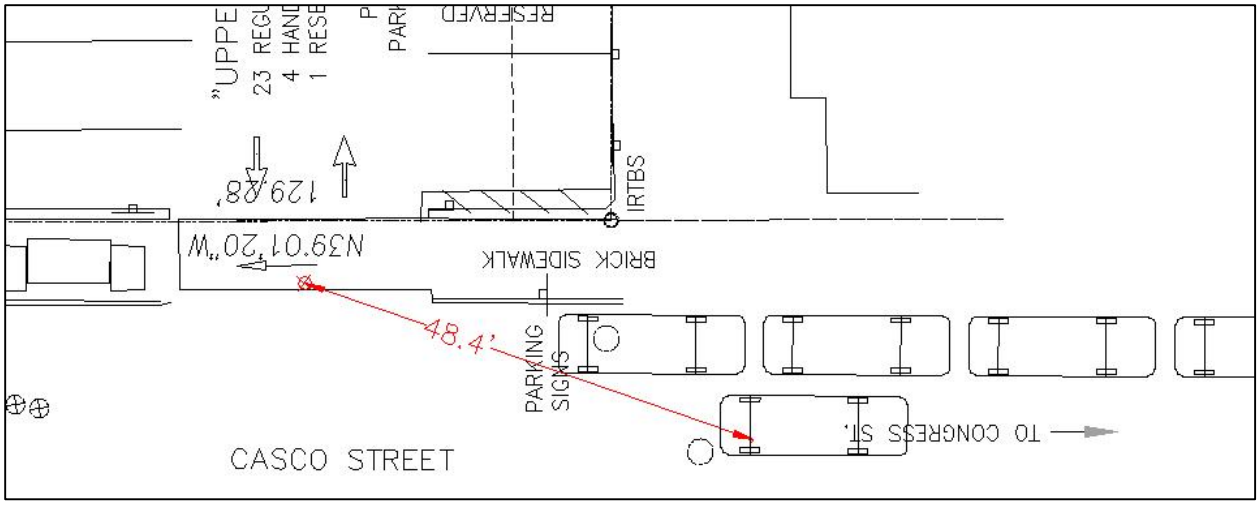
1. Greater detail on the construction management plan is required (specifically closing Brown Street). The applicant shall review and comply with the City's Draft Construction Management Plan guidelines.

   Response: The applicant is requesting the ability to submit an updated Construction Management Plan (CMPlan) as a condition of approval, prior to the issuance of a building permit. Ransom proposes to convene a meeting with City staff, Allied Cook (the applicant's construction manager) and the design team prior to submitting the final CMPlan.

2. The applicant should provide greater plan detail at the Casco Street parking lot that will serve as the major access to most parking garage levels. The details shall include:
   a. Sight Distance measurements at the driveway on Casco Street.

   *Response: Sight distance was evaluated based on criteria provided in Maine DOT's Chapter 299, Highway Driveway and Entrances Rules, which states that "*sight distance is measured to and from the point on the centerline of the proposed access that is located 10 feet from the edge of traveled way*". As demonstrated in the figure below, due to on-street parking in close proximity to the access, sight distance between a vehicle in the access to the parking lot and a northbound vehicle on Casco Street is restricted to approximately 50', which is less than the specified minimum of 200' for a 25 mph street. Sight distance could be increased by reducing the number of on-street parking spaces; however, demand for parking is high, and these conditions are not atypical in Portland's downtown core. In addition, the narrow width of this street helps to keep speeds relatively low, which is a mitigating factor.*

   Sight distance between a vehicle in the access to the parking lot and a vehicle heading southbound on Casco Street is in excess of 200' because parking is restricted to the north of the access.



Sight distance between access and northbound vehicle on Casco St. (Not to Scale)

b. Pedestrian facilities, ADA compliance and safety for pedestrians walking between Casco Street and the garage. The details near the garage are difficult to see.

Response: The plans depicting the entrance to the garage and access to/from Casco Street have been edited and amended for clarity.

There is an existing sidewalk (pictured in the aerial image below) that connects Casco Street to the entrance of the existing building, and that will connect Casco Street to the proposed garage entrance. However, this sidewalk has two steps at Casco Street and two steps at the eastern end near the plaza that render it inaccessible to those with physical disabilities. Eliminating these steps to make the sidewalk accessible would be challenging because the sidewalk is not on the applicant's property, and because it is on top of a duct bank that carries primary, high voltage power that would be difficult and costly to relocate.

Existing sidewalk between Casco Street and existing building entrance – steps circled in red. (Not to Scale)

Reasonable access to the garage entrance is provided through the parking lot. However, it is intended that most people using this entrance to the garage will be patronizing the existing

building. There will be a direct, fully ADA-compliant route between the second level of the garage and the entrance to the existing building. As shown on C-3.

c. The plans for the parking lot and garage should include dimensions. The plan of the parking lot is hard to following and shall be improved from a clarity perspective.

Response: As noted above, the plans depicting the entrance to the garage and access to/from Casco Street have been edited and amended for clarity. Dimensions have been added in the existing parking lot. The architectural plans of the proposed garage are dimensioned.

d. Information on vehicle queuing at the Bank ATM and Drive-Thru shall be provided to document the garage entrance will not be blocked.

Response: An employee of the Bank of America indicated that the average number of cars using this ATM on a non-holiday weekday is approximately 90 – 100 cars. The typical dwell time at the ATM is approximately 90-120 seconds, and rarely is it greater than 2.5 minutes. He also indicated that there is typically no wait time to use the ATM. Anecdotally, employees of Ocean Gate Realty stated that they cannot recall ever seeing more than 2 cars at the ATM kiosk at one time. Based on this information, it seems unlikely that users of the drive-thru will block the garage entrance. See email from property manager, ***fifth attachment****.*

e. The applicant shall document that changes in the surface parking lot do not impact an existing site plan approval.

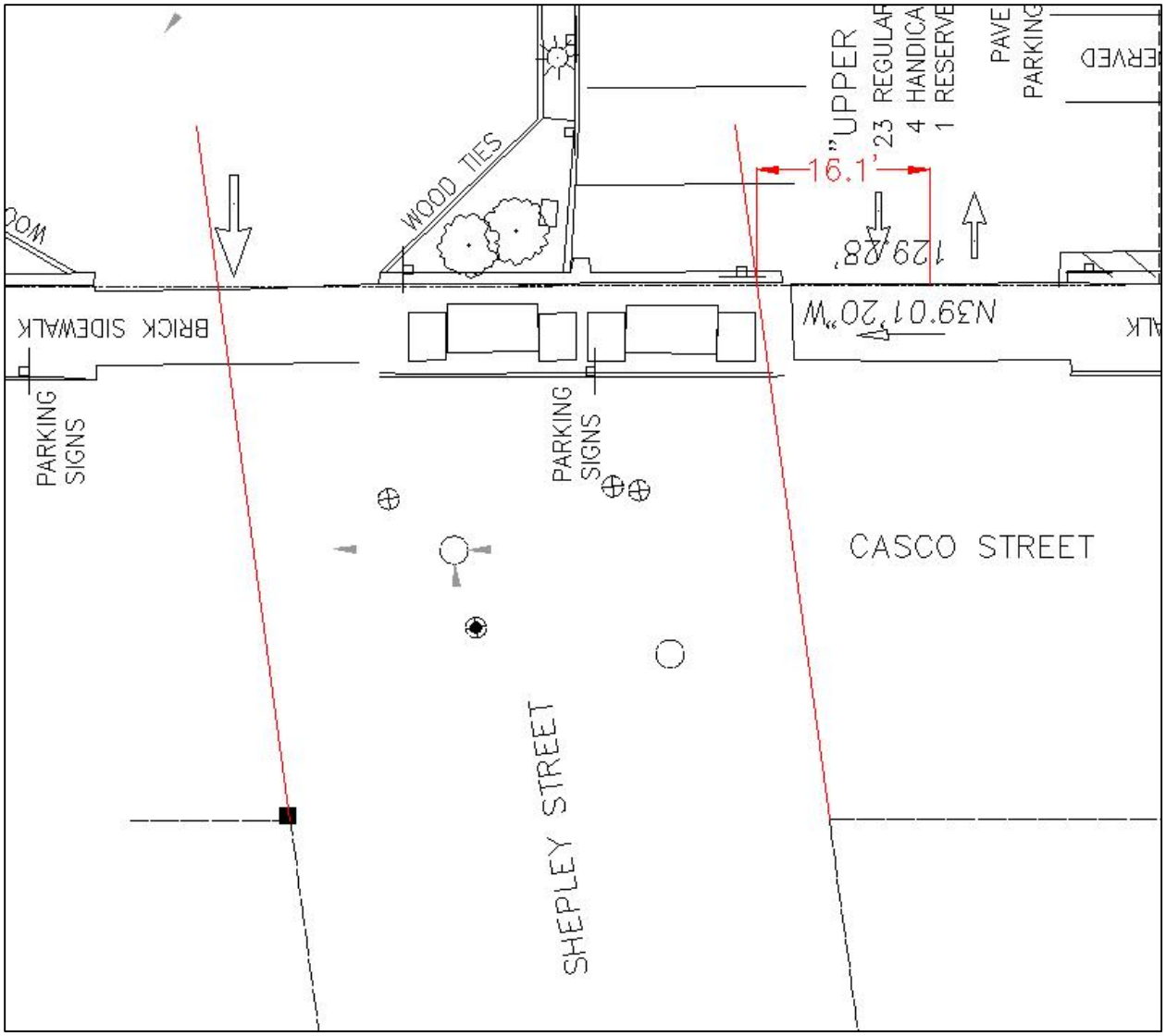
Response: The applicant is unaware of existing site plan approvals that would affected by the proposed garage. An inquiry to the Planning Department found no existing site plan approvals associated with the CBL of the Site. Furthermore, changes to the existing lot are minimal: one handicap parking space is being relocated to the garage (where additional spaces will be provided), and one non-compliant handicap space will be removed.

f. The applicant should note if a waiver is required for corner clearance for the Casco Street southerly driveway.

Response: The Technical Manual states that "Along local streets, access driveways to corner lots shall be located a minimum of thirty-five (35) feet from the intersection of the projection of right-of-way lines to the center line of the driveway…."

We do not believe that a waiver is technically required, because the the subject property is not a "corner lot" on Casco Street. Whereas a driveway located in close proximity to a corner at a four-way intersection could produce conflicts between turning vehicles and vehicles exiting a lot, the configuration of this intersection affords good sight lines between vehicles entering/exiting the Casco Street lot and vehicles on Shepley Street.

However, if the standard were to be applied to this intersection, the distance between the projected ROW line and the center of the access that serves that garage is 16 feet (see figure below).



Comments Submitted by: by Lauren Swett on 9/1/2017

1. Additional information should be provided on the proposed snow management system for the garage. Snow from the roof will be directed to a small opening that is located between parking spaces and the access ramps. Of particular concern is the protection of vehicles, both parked adjacent to this opening and driving on the ramp, at the time of snow plowing. We understand that a final snow management plan may not be developed at this time, but additional details on vehicle protection should be provided.

   The snow management plan begins with the cordoning off of the spaces on all floors immediately adjacent to the snow "chute" between the ramped sections. Arranging for the parked vehicles to be elsewhere during active snow removal is the best, most safe process. When vehicles are not traveling on the ramp system, the plow truck or mini-excavator operators will dump snow over the edge of deck to the reinforced concrete snow dump slab

below. When the snow has been removed from the upper deck(s), cars would then be allowed to park in the cordoned areas. The snow dump is designed to store a large amount of snow, but snow could also be trucked off-site from this position if it becomes full over the course of a season.

2. In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
    a. Basic Standard: Notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. Please provide locations of erosion and sediment control measures (catch basin protection) on the design plans.

        Response: Notes identifying the location of catch basins have been added to the plans. The contractor is directed to use Silt Sacks and additionally Gutter Eel, Gutter Gator or approved equal products to prevent material from bypassing the silt sack via curb inlets.

    b. Due to redevelopment of existing impervious area, the Applicant is required to treat at least fifty percent of Stormwater on site (General and Flooding Standards). Approximately fifty six percent of runoff from impervious surfaces on site is directed into the proposed sand filter and rain gardens, providing adequate treatment in according to the standard. We have the following comments on the stormwater design:
        i. The Maine DEP has approved the FocalPoint system as a proprietary stormwater treatment system with specific design guidelines. One requirement of this system is that flow from the FocalPoint be directed to a subsurface chamber-based treatment row (i.e. an Isolator Row) to provide additional treatment. The design currently does not include a chamber system, but we understand that the Applicant is considering including this system or providing documentation that the DEP finds the system acceptable without the additional chambers.

            *Response: The applicant is submitting the R-Tank maintenance row as an "equal" to the Isolator Row. Please see letter from the Manufacturer's representative Scott Gorneau and cut sheet for the R-Tank maintenance module, **sixth attachment**.*

    c. The project is not resulting in an increase in impervious surface, and compliance with the Flooding Standard is not required. With the proposed stormwater treatment systems, it is anticipated that flows to the City's combined sewer may be decreased.

3. The City of Portland does not allow for the connection of stormdrain piping from privately owned sites to catch basins located in the street. Connections must be made to the main in the street, with the method of connection dependent on the size of the existing main and the proposed connection pipe. The Applicant should review their proposed stormdrain connection

with the Water Resources Division at Public works to determine the appropriate method of connection.

*Response: The applicant is requesting a waiver from requirement; see **forth attachment,** Waiver Requests.*

4. The Stormwater Management Plan should include a stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances. The Applicant has included narrative from the ordinance and a detailed stormwater inspection log. Additional site-specific narrative should be provided addressing inspection requirements (i.e. timing of inspections).

   *Response: See attached maintenance log, which provides details and frequency for maintenance requirements, **seventh attachment.***

5. The plans currently depict a catch basin at the corner that appears to be located within a curbed area. We understand that there is ongoing coordination with the City with regards to sidewalk and curbline infrastructure improvements on Brown Street and Cumberland Avenue, and changes to the site work and any division of work should be reflected on the final plans.

   Response: The site plans have been updated to reflect what was generally installed based on field observations.

   The drawings provided by the City appear to be design drawings as they differ from what was constructed. Will the City be developing record drawings for this corner or should the applicant anticipate re-surveying this area as needed for final design?

Comments Submitted by: Keith Gray, Public Works on 2017-09-19

Construction Management Plan

1. The applicant has submitted a Construction Management Plan (CMPlan) prepared by Allied Cook Construction Company. The applicant shall revise the CMPlan to include the information enclosed in the "Draft" Construction Management Plan Template that depicts the overall detail that the City is requesting for the planning, coordination, and control of the construction site. Please note that the Construction Management Plan includes: 1) a construction management site plan, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories identified within the enclosed CMPlan Template.

   Response: Understood

2. The provided CMPlan indicates that Brown Street and the sidewalk on Cumberland Avenue will be closed for an extended period of time.
   a. DPW does not support the occupancy of a sidewalk and/or street for an extended period of time. The applicant shall revise the CMPlan to specify the duration required for the occupancy. Construction sequences shall be scheduled to minimize the duration of any street occupancy.
   b. DPW does not support the closure of Brown Street.

Response: The applicant is requesting the ability to submit an updated Construction Management Plan as a condition of approval before issuance of a building permit. At that time we will have more information, such as the size of steel trusses for the garage and what type/size of crane will be needed and for how long. Before we submit our CMPlan, Ransom proposes to convene a meeting between City staff, Allied Cook (the applicant's construction manager), and the design team.

General Comments

3. The plans should be updated to reflect the recently completed sidewalk along Cumberland Avenue. I have enclosed a pdf of the proposed design. As-build conditions still need to be verified.

   Response: See our response to bullet 5 of Lauren Swett's memo.

4. The proposed storm drain connection into the existing catch basin within Brown Street is not permitted. The connection should be made via a manhole in Brown Street.

   *Response: The applicant is requesting a waiver from requirement, see **forth attachment,** Waiver Requests.*

5. There are some concerns with the roof drainage discharging to planters:
   a. The detail references riprap to be installed at outlets of roof downspouts. Provide calculations on riprap sizing including length required to dissipate energy. What can be done to ensure discharge doesn't overshoot riprap area and washout mulch?

      Response: It is expected that the 25-year storm would generate a peak runoff rate of approximately 0.8 cfs for the largest of the drainage areas on the roof of the proposed building (Drainage Area C on Sheet C4). The Maine DEP ESC BMP Guide (2016) offers plunge pool sizing criteria based on pipe diameter; the d50 riprap size and minimum length corresponding to a pipe diameter of 12" (the smallest pipe size specified) are 5" and 4' – 6', respectively. The Maine DOT BMP guide for ESC recommends a plunge pool size of D x W x L = pipe diameter x (1 x 2 x 4). The roof drains will discharge from a pipe with a diameter of 6". By providing a plunge pool 6" deep and 5' long (plus 1' beyond the lip of the pool), we are meeting or exceeding the criteria offered in these guidelines. See sheet C5 for greater detail. In addition, a 45-degree fitting will be uses at the end of the downspout to direct flows into the stone, as opposed to parallel to the surface of the rain garden, which should help limit the risk of washing out mulch and other material.

   b. There is little ponding depth around the proposed 18-inch beehive grate overflows. At what storm event will discharge overflow onto the sidewalk? Precautions should be taken to capture discharge to avoid overflowing onto sidewalk at the corner of Brown Street and Cumberland.

      Response: Under current conditions, the majority of the parking lot area drains towards an existing catch basin at the northern end of the lot. Under the proposed conditions, there is comparable freeboard above the beehive overflow to the difference between the existing rim and the back of the sidewalk. In order to improve this condition, an additional 15" beehive grate has been added to the lower planter area to provide

additional overflow capacity, and 8" beehive grates will be added to the remaining planters in order to increase overflow capacity.

6. Provide riprap protection from the 2 foot wide spillway (within the proposed retaining wall) to the proposed type-f catch basin.

   Response: The area below the 2' spillway within the proposed retaining wall and paved snow apron will be 1½" crushed stone. We expect that this will be sufficient for energy dissipation and erosion control.

7. Provide pre-treatment to collect sediment from snow storage area prior to discharging to the underdrained sand filter.

   Response: We evaluated installing a sediment forebay; however, because this area is snow storage with a crushed stone surface the forebay depression would likely be smoothed out by plowing and snow removal operations. For this reason it is our opinion that a forebay would not be a practical option. As discussed, the catch basin in this area has been increased in size to 4' diameter to provide additional volume to capture sediment before discharge to the City's drainage system.

Please refer to the attached memo from Platz Associates (*eighth attachment)* for our response to comments submitted by Caitlin Cameron, Urban Designer on 9/15/ 2017

48 Brown Street Garage Development
Use and Management Narrative

October 30, 2017

Ground Level 1 Use

Level 1 will receive incoming cars at a vehicular entrance at the mid-block of Brown Street as well as a one-way, in only entrance centered on the garage at Cumberland Avenue. Level one will stand alone in terms of access and circulation. Level 1 will only be accessible from these street grade entrances and there will be no vehicular access between level 1 and the upper levels of the garage.

Level 1 will feature a "Pay-to-Park" payment system much like those used by the City of Portland in the Old Port. As such, the Brown and Cumberland entrances will be signed with a universal, blue circular "P" sign to alert the passing general public that 24/7 public parking is available in this location.

The Level 1 spaces will also be available to tenants of 511 Congress Street t the extent they hold a monthly parking pass.

The availability of safe, secure public parking in this location is expected to be of great benefit to downtown businesses as public parking is in short supply during peak hours of the vibrant and active Arts District.

Upper Levels 2-5 Use

Levels 2-5 will share a single, common point of vehicular entrance and exit via Casco Street. The Casco Street entrance is obscured from the public view along the major arterials streets; Cumberland and Congress. Levels 2-5 will be used primarily to accommodate monthly pass holders / tenants of 511 Congress Street during business hours.

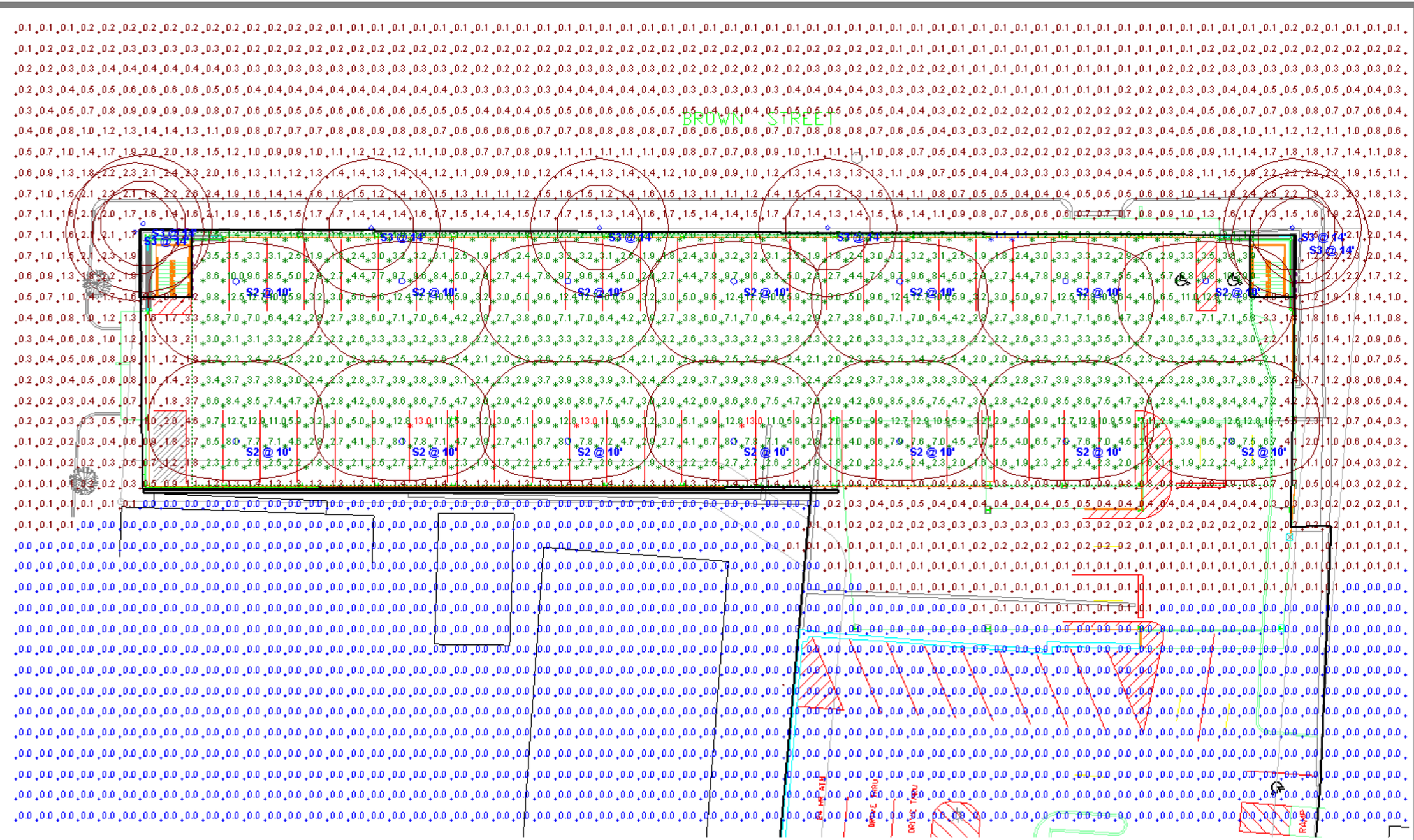
Some night and weekend use may be offered to area residents and "Pay-to "Park may be employed here if Level 1 demonstrates excess demand on nights and weekends. In that event, Level 2-5 Pay-to Park hours would be strictly limited to nights and weekends.

Wayfinding to the upper levels will be limited as this intended for pass holders and not the general public. This is just as well since the entrance to the upper levels from Casco Street is not visible from the primary corridors of Congress and Cumberland.

Management and Maintenance

Ocean Gate, LLC, the owner of 511 Congress Street employs a full-time site management staff of 4 and may take on additional personnel to assist with the garage. Ocean Gate will have web cameras throughout the garage and adjacent grounds for continual monitoring. Ocean Gate will perform regular foot patrols of the garage during business hours to inspect for trash, graffiti, loiterers, or other activities of concern. Ocean Gate will self-perform and/or contract regular grounds maintenance to ensure removal of trash, the health of landscaping, and the oversight of winter operations.

Ocean Gate, LLC take enormous pride in providing the highest level of property and asset management at 511 Congress Street and its attention to and care for the garage at 48 Brown Street will assure that same level of service.



TYPICAL PARKING LEVEL

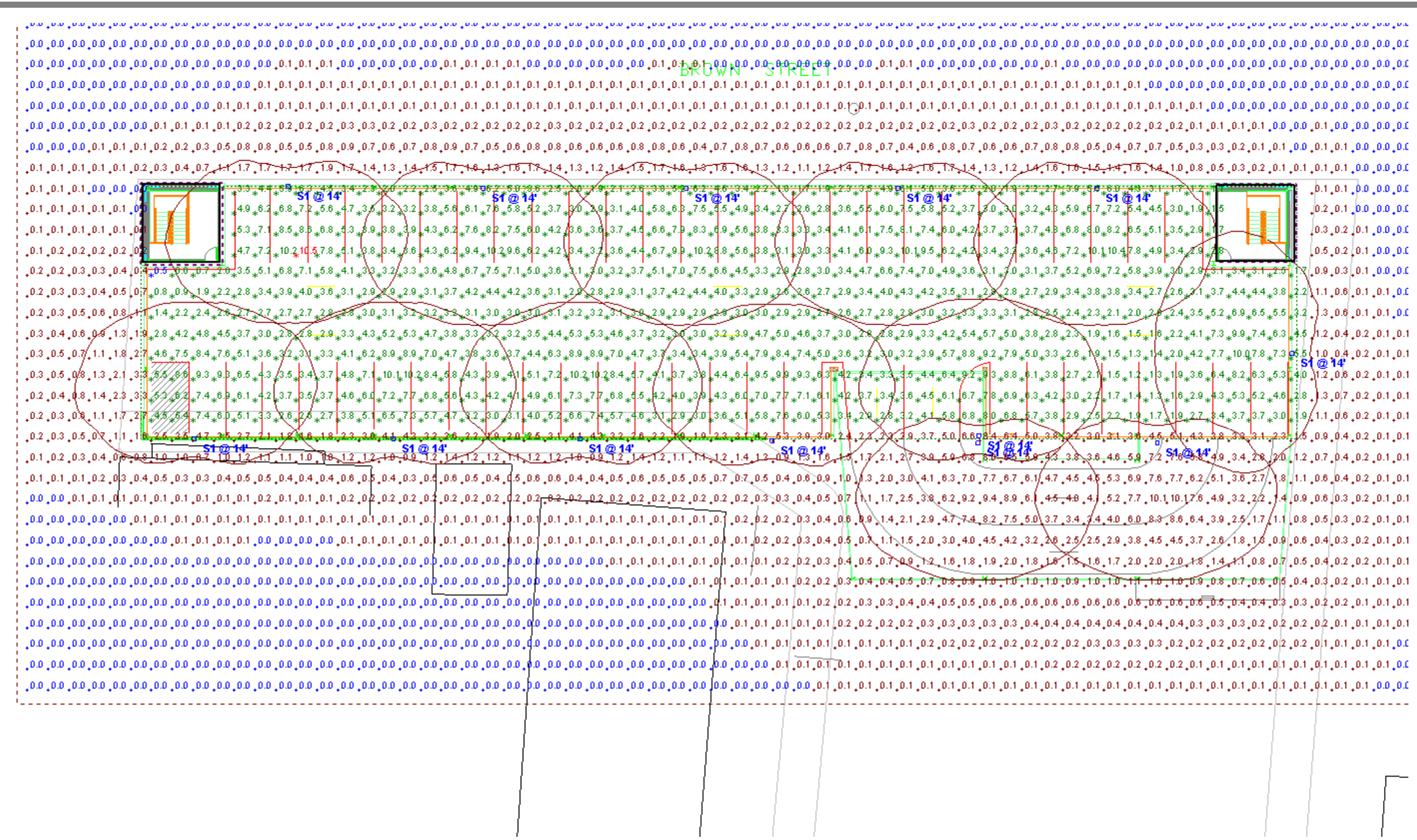
Statistics

Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min	Avg / Max
Typical Parking Level		4.6 fc	13.0 fc	1.1 fc	11.8:1	4.2:1	0.4:1

VISUAL

OCEAN GATE GARAGE
PHOTOMETRICS

Designer
SAJ
Date
10/17/2017
Scale
Not to Scale
Drawing No.
E0
Summary



Top Parking Level

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
Top Parking Level	✳	4.5 fc	10.5 fc	0.5 fc	21.0:1	9.0:1	0.4:1

VISUAL

OCEAN GATE GARAGE
PHOTOMETRICS

Designer
SAJ
Date
10/17/2017
Scale
Not to Scale
Drawing No.
E0
Summary

Luminaire Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	13	KIM LIGHTING	ARX09D4-4K55	DIE-CAST ALUMINUM ALLOY HOUSING WITH INTEGRAL COOLING RIBS. DIE-CAST ALUMINUM LENS FRAME (LESS LENS). TYPE X OPTICAL MODULE CONSISTING OF DIODES, HEATSINK AND PRISMS.	LED 54 DIODES. 4000K	1	ARX09D4-4K55.ies	9784.855	0.8	94
	S2	14	KIM LIGHTING	PGL74NE35-60L3K-ESOL	PBL7 LED LUMINAIRE		1	PGL74NE35-60L3K-ESOL.IES	7203.781	0.8	67
	S3	7	Holophane	ESP70DMH12A5-PR	ESPLANADE PEDESTRIAN	70W COATED MH	1	ESP70DMH00X5.ies	5600	0.8	95

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
Top Parking Level	+	4.5 fc	10.5 fc	0.5 fc	21.0:1	9.0:1	0.4:1
Typical Parking Level	+	4.6 fc	13.0 fc	1.1 fc	11.8:1	4.2:1	0.4:1

VISUAL

OCEAN GATE GARAGE
PHOTOMETRICS

Designer
SAJ
Date
10/17/2017
Scale
Not to Scale
Drawing No.
E0
Summary

ARX09 Without Lens

ArcheType® X Site/Area

kl_arx09_nolens_spec.pdf

KIM LIGHTING

JOB _____ TYPE _____

NOTES _____ APPROVALS _____

FEATURES

- Independently aimed LEAR™ modules
- 355° rotation and 70° tilt module adjustment
- Wide range of drive currents available
- Design software interface for user-defined Type X distribution creation
- Traditional NEMA distributions available
- IP66 rated LEAR module and driver

Certifications

c UL us LISTED

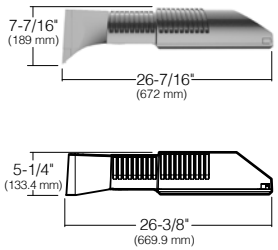
IDA DARK SKY APPROVED 2016 — 3000K and warmer CCTs only

IK09

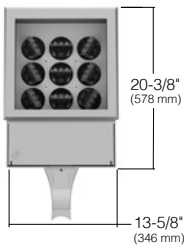
DLC DLC PLUS LISTED

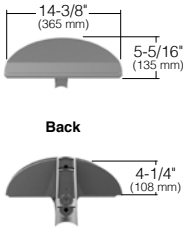
SPECIFICATIONS

Max Weight = 28 lbs.

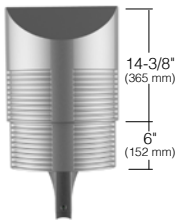


Side - EPA 0.842





Front - EPA 0.458



EPA 2.117

ORDERING CODE

Configuration			EPA
	1SA	1 Arm Side Mt.	0.6
	2SB	2 Arm Side Mt.	1.2
	2SL	2 Arm Side Mt.	1.2
	3ST	3 Arm Side Mt.	1.8
	3SY*	3 Arm Side Mt.	1.4
	4SC	4 Arm Side Mt.	1.8
	1W	Single Wall Mt.	0.6
	HSF	Horizontal Slip Fitter	0.3

*Available round poles only. EPA is for Fixture only

Fixture: ARX09

Distribution

1	Type I
2	Type II
3	Type III
4	Type IV
5	Type V
L	Left
R	Right
X	Type X[1] — Type X IES File Name

Electrical Module

Color Temperature	Drive Current	Drive Current	Voltages
3K 3000K	35 350mA	75 750mA	UV 120-277V
4K 4000K	40 400mA	80 800mA	347 347V
5K 5000K	45 450mA	85 850mA	480 480V
	50 500mA	90 900mA	
	55 550mA	95 950mA	
	60 600mA	100 1000mA	
	65 650mA	105 1050mA	
	70 700mA		

Fixture Finish

BL	Black
DB	Dark Bronze
GT	Graphite
LG	Light Gray
PS	Platinum Silver
TT	Titanium
WH	White
CC	Custom Color[2]

Arm Support

US	Upswept
ST	Straight

Fuse Options

SF	120, 277, 347 Line Volts
DF	208, 240, 480 Line Volts

NFO Option

NFO Neighbor Friendly Optic

SiteSync Lighting Control is available from our most popular brands in a broad range of award-winning product families.

Control Options

Wireless

WIR-RMI-IO	120 - 347V 1000 Foot Range WiScape RF mesh control system with off/on/dim, motion, photo, GPS location, alert, monitoring and metering capabilities.
SWP[3,4,5]	SiteSync Wireless Pre-Commission
SWPM[3,4,5,6]	SiteSync Wireless Pre-Commission w/ Occupancy Sensor

Catalog Number

SWUSB†	SiteSync loaded on USB flash drive (Windows® operating system only)
SWTAB†	SiteSync Windows® based Tablet
SWBRG†	SiteSync Wireless Bridge Node

† When ordering with SiteSync, one of the following interface options must be chosen and ordered separately. Each option contains the SiteSync License, GUI and Bridge Node.

Motion

SCL	Fixture Mounted Occupancy Sensor up to 16'
SCH	Fixture Mounted Occupancy Sensor 16' to 30'
SCL-R	Round Pole Mounted Occupancy Sensor up to 16'
SCL-S	Square Pole Mounted Occupancy Sensor up to 16'
SCH-R	Round Pole Mounted Occupancy Sensor 16' to 30'
SCH-S	Square Pole Mounted Occupancy Sensor 16' to 30'

Mounting Options

VSF	Vertical Slipfitter Mount for 2" pipe tenon, (2-3/8" O.D.)
SVSF	Vertical Slipfitter Mount square for 2" pipe tenon, (2-3/8" O.D.)

Side Arm Mount

3-4RD	3.3" to 4.2" O.D. round pole
4-6RD	4.5" to 6" O.D. round pole
SQ	Square Pole

For Pole Spec Select: http://www.kimlighting.com/products/arms_and_poles/
For Control Spec Select: http://trpssl.com/index.html

Microsoft, Encarta, MSN, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Kim Lighting reserves the right to change specifications without notice.

[1] User-defined distributions must include IES# file where indicated
[2] Custom colors subject to additional charges, minimum quantites and extended lead times. Consult representative.
[3] SiteSync is not compatable with products using 480V option.
[4] Not available with other control or sensor options. PEC is available with MOB and OCS.
[5] Specify group and zone. See SiteSync product page www.hubbelllighting.com/controls/sitesync for more details.
[6] Specify time delay; dimming level and mounting height.

TYPE S2

KIM LIGHTING

PGL7
LED Parking Garage Luminaire
kl_pgl7led_spec.pdf

JOB _____ TYPE _____

NOTES _____ APPROVALS _____

FEATURES

- PicoEmitter technology[1]
- The PGL7 offers exceptional uniformity in wide or narrow optics in two distribution patterns
- Multiple control options available for a intelligent parking garage lighting solution
- Motion sensing, photocell, daylight/nighttime harvesting capabilities

Certifications

c UL us LISTED

ida DARK SKY APPROVED 2016

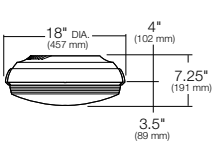
DLC PLC QPL LISTED

3000K and warmer CCTs only

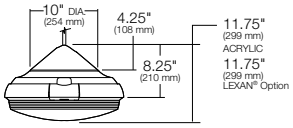
SPECIFICATIONS

Approx. Weight = 19 lbs.

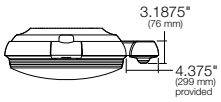
PGL7 with standard Refractor Lens



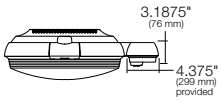
PGL7 with Optional Balanced Pendant J-Box and Bird Shroud (PB2)



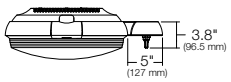
Occupancy Sensor



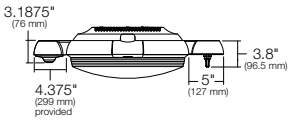
LimeLight Control System



SiteSync Control System



SiteSync with Occ. Sensor



ORDERING CODE - example: PGL71W/E3560L4K120/PS/PB2/ESOL/SCP

LED Fixture

Cat. Nos.	Distribution
PGL7	1N Type V Narrow
	1W Type V Wide
	4N Type III Narrow
	4W Type III Wide

Electrical Module

Current	Source	Color Temperature	Voltages
E35 350mA, 67W	60L 60 LEDs	2K 580nm	120 120V
E45 450mA, 85W		3K 3000K	208 208V
		4K 4000K	240 240V
		5K 5000K	277 277V
			347 347V
			480 480V

Fixture Finish

- PS Platinum Silver (Standard)
- WH White
- CC Custom Color*

*Consult factory

Fixture Options

- SF 120, 277, 347 Line Volts
- DF 208, 240, 480 Line Volts
- PB2 Balanced Pendant J-Box and Bird Shroud
- NFO Neighbor Friendly Optic

Lens Options

- Leave Blank for Clear Lens
- ESOL Low Glare Acrylic Refractor Lens
- LS Polycarbonate Refractor Lens
- LSOL Semi-Diffused Polycarbonate Lens

Smart Control Options

Occupancy Sensor	Wireless Control Systems
SCO[1] On/Off Control	SWP[4,5] SiteSync Wireless Pre-Commission
SCP[2,3] High/Low Control	SWPM[4,5,6] SiteSync Wireless Pre-Commission w/ Occupancy Sensor
	LLCM LimeLight Radio and Occupancy Sensor Module

Accessories and Services (Ordered Seperately) Catalog Number

- SWUSB[7] SiteSync loaded on USB flash drive (Windows® operating system only)
- SWTAB[7] SiteSync Windows® based tablet
- SWBRG[7] SiteSync Wireless Bridge Node
- LLGWT-03 LimeLight Ethernet Gateway Hardware
- LLGWT-04 LimeLight Cellular Gateway Hardware
- LLSC-100 LimeLight Group Software & Commissioning, up to 100 Fixtures
- LLSC-1 LimeLight Group Software & Commissioning, for Each Fixture Over the 100 Unit Threshold

PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with occupancy sensor (SWPM) require the mounting height of the fixture for selection of the lens.

Examples:

SiteSync only :
PGL71W/60L4K120/PS/SWP

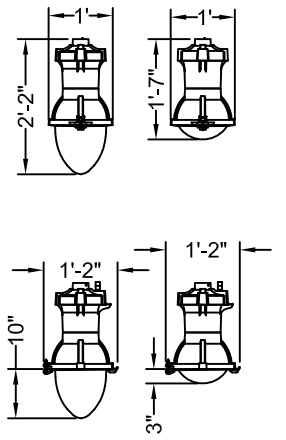
SiteSync with Motion Control:
PGL71W/60L4K120/PS/SWPM-8F

[1] For more information, refer to PGL7 Product Specification Sheet at www.kimlighting.com.
[2] No light output when no motion detected.
[3] No light output when no motion detected. User programmable settings of 70, 60, 50, 20% of power. Factory default is 50%. PGL7 driver is a 0-10V dimming interface
[4] Not available with other control or sensor options.
[5] Specify group and zone. See SiteSync product page www.hubbelllighting.com/controls/sitesync for more details.
[6] Specify time delay; dimming level and mounting height.
[7] When ordering with SiteSync, one of the following interface options must be chosen and ordered separately. Each option contains the SiteSync License, GUI and Bridge Node.

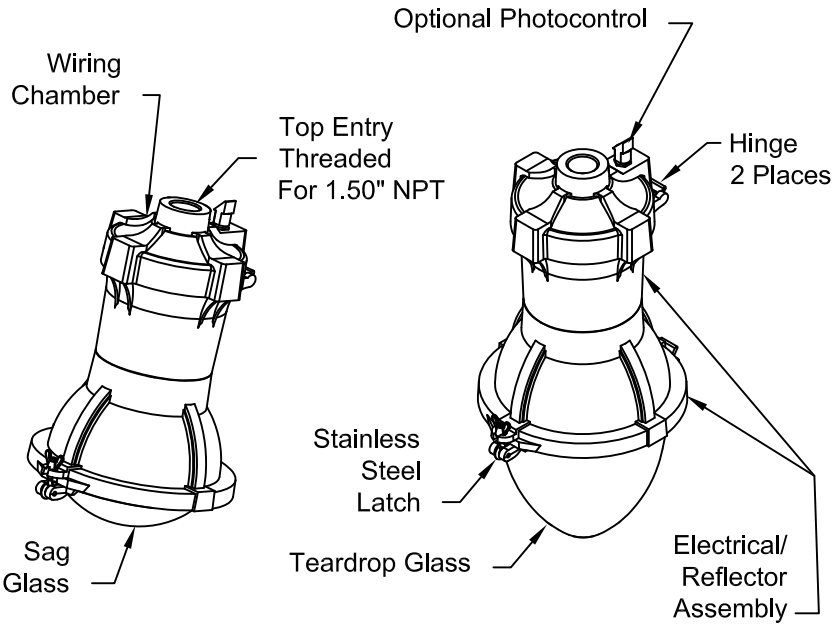
For Pole Spec Select: http://www.kimlighting.com/products/arms_and_poles/
For Control Spec Select: http://trpssl.com/index.html

Kim Lighting reserves the right to change specifications without notice.

TYPE S3



Maximum Effective Projected Area - 1.43 ft²
Maximum Weight - 49 lbs.



ORDERING INFORMATION:

ESP *15AHP* *12* *B* *S* *6*

COVER TYPE
ESP = Esplanade Pedestrain

BALLAST TYPE (MOGUL BASE)
****050HP = 50W HPS
070HP = 70W HPS
100HP = 100W HPS
15AHP = 150W 55V HPS
**175PM = 175W MH PULSE

BALLAST TYPE (MEDIUM BASE)
35DHP = 35W HPS (120V ONLY)
50DHP = 50W HPS
70DHP = 70W HPS
10DHP = 100W HPS
15DHP = 150W 55V HPS
**10DMH = 100W MH
20DIN = 200W INCANDESCENT
70DEM = 70W MH ELECTRONIC
10DEM = 100W MH ELECTRONIC

VOLTAGE
12 = 120 VOLT
20 = 208 VOLT
24 = 240 VOLT
27 = 277 VOLT
48 = 480 VOLT
34 = 347 VOLT
MA = MT (PREWIRED TO 120V)
MB = MT (PREWIRED TO 208V)
MC = MT (PREWIRED TO 240V)
MD = MT (PREWIRED TO 277V)

HOUSING COLOR
A = As Specified
B = Black
N = Green
Z = Bronze

TOP ENTRY
P = 1.50 NPT Pendant Mount
S = Quick Lock Stem Mount

OPTICS
4 = TEARDROP ASYMMETRIC REFRACTOR FOR IES TYPE IV DISTRIBUTION
5= SYMMETRIC REFRACTOR FOR IES TYPE V DISTRIBUTION
6 = SAG CLEAR SYMMETRIC
7 = SAG CLEAR ASYMMETRIC

NOTE:
MH is compliant with DOE/EISA regulations starting February 10, 2017.

**NOT AVAILABLE IN 347V OR 480V

****NOT AVAILABLE IN 347V

OPTIONS
DS= DECORATIVE DEEP SKIRT
SS= DECORATIVE SHALLOW SKIRT
PS= PROTECTED STARTER FOR HPS UNITS ONLY
PR= BUTTON STYLE PHOTOCELL WITH PRISMASCOPE (NOT AVAILABLE WITH 480 VOLT)

ACCESSORIES
LAMP = SHIP APPROPRAITE LAMP AS A LINE ITEM. SEE LAMP SHEET

Esplanade®
Pedestrian Luminaire

DECORATIVE OUTDOOR

HOLOPHANE® LEADER IN LIGHTING SOLUTIONS
An AcuityBrandsCompany

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ORDER #:
TYPE:
DRAWN: RAF
DATE: 02/10/2017
DWG NO: US-1591

RANSOM Consulting Engineers and Scientists

Memo

Waiver Requests – Brown Street Garage (2017-145)

Attachment #4

Date: October 26, 2017

Waiver Request No. 1

1. The applicant is requesting waiver to maintain our existing stormdrain outlet, which connects into a catch basin in Brown Street as opposed to connecting this stormdrain directly to the combined sewer main. Our reasons for this request are as follows:
    a. The drainage system in this area is combined; i.e. a single system for stormwater and sanitary sewers.
    b. Combined drainage systems can have negative impacts on the water quality of Casco Bay because stormwater runoff entering the system during rain events can overwhelm the system, which can result in the discharge of untreated sewerage into Casco Bay.
    c. The City is actively working towards separating its drainage system, which involves removing stormdrain inlets from the sanitary sewer system.
    d. Strictly meeting this standard would make future separation more difficult because the applicant would be required to add a stormdrain connection into the combined sewer. A future separation project would then need to bear the additional cost and complexity of removing an additional drainage connection. Whereas, the configuration proposed would not add a stormwater connection to the combined sewer.
    e. It is our understanding that the City is concerned that it may be held liable for property damage if a stormdrain connection made into a catch basin were to be blocked and water were to back up on to private property.
    f. The City's drainage system is a public stormwater utility, which provides a service that users pay for on a periodic basis. From our perspective, blockage of a stormdrain would be in interruption in utility service similar to a watermain break or power outage. We are not aware a legal vehicle that would facilitate holding a public utility responsible for collateral damages that result in an interruption of service. *Please*

400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
12 Kent Way, Suite 100, Byfield, Massachusetts 01922-1221, Tel (978) 465-1822
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090

www.ransomenv.com

consider that confirmation of above is essentially a legal question. We are not legal experts and not intending to provide a legal opinion.

g. If it is determined that a liability related to the proposed configuration would exist then the applicant is willing to sign a liability waiver.

h. In this case, if the catch basin in Brown Street is blocked and stormwater were to back up onto our property, there would be no property damage because the development is a parking garage and the first floor is exterior space designed for wet conditions.

i. Considering the specific context of this site and the combined sewer-stormdrain system in this area, this requirement would place a financial hardship (increased construction cost) on the applicant and would also place a financial hardship on the City's ongoing efforts to improve water quality through stormwater separation.

Waiver Request No. 2

2. The applicant requests the ability to pay into the City's tree fund for one required tree on Casco Street and to count trees on our property towards our street tree requirements as described in more detail in the preceding Comment Response memo. Additionally we are requesting that 7 trees installed on our property count towards our Street Tree requirement for Brown Street (see our response to Comment 6 from Matt Grooms for additional detail).

Waiver Request No. 3

3. With regards to Tom Errico's comment on corner clearance for the southerly driveway on Casco, we request a waiver to the corner clearance requirement if, in the City's determination, this requirement applies to this context (See our response to Comment 2.f. from Tom Errico for additional detail)

John I. Mahoney

From: Ethan Boxer-Macomber <ethan@anew-development.com>
Sent: Monday, October 09, 2017 12:23 PM
To: Kelley Craig
Cc: Ed Gardner; John I. Mahoney; Travis Nadeau
Subject: Re: Bank of America ATM

Kelley,

Thanks! This is great information and should give John the narrative he needs to answer the question. The fact that these facts come form BofA based on recorded ATM data is excellent.

I've cced John Mahoney.

John, would you please incorporate this into your written response to staff's various memos?

Ethan

Ethan Boxer-Macomber, LEED AP
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, ME 04101
207-272-8550

> On Oct 6, 2017, at 1:40 PM, Kelley Craig <kelley@oceangaterealty.com> wrote:
>
> Hello, a few weeks ago you asked me to explore the current car count at the ATM.
> I just had a conversation with a live person, a miracle after playing in their phone tree.
>
> He gave me some figures, but said his reports are based on numbers of transactions. This would be different than car counts as one car can do 1-3 transactions and in this location there are folks who walk up to use the machine.
>
> But - he said he estimates cars on any normal non-holiday weekday to be between 90-100 at that location. Higher (120-140) on fridays and 1st and 2nd days of the month. Sat/Sunday hover around 40 - 50 cars.
>
> Typical "dwell" time at the ATM is 90-120 seconds. More if they need to use the language translators but rarely longer than 2.5 minutes.
>
> I asked if he could see if there was a time when the cars backed up at all and he said hardly ever based on the time between transactions. If you see 20 transactions in 20 minutes you can guess that that is about 10 cars in line, but that just does not happen at this location. He said the typical wait time here is zero.

Personally I can't ever recall seeing more than 2 cars at a time there, but I'll ask staff for their thoughts.

We spoke of the garage at length and he didn't see the increased traffic in Casco as a problem. He said that the morning was very slow at this ATM until after 9am when a lot of tenants will be already at work. Busiest from 5-10pm. He was happy to hear the ground floor (pay by the hour) was exiting onto Brown st.

It is 200 extra cars accessing the Casco lot on work days but he didn't see a problem as their transactions are so spread out.

I asked about seasonality and he said in this location it's sheer payroll habit - meaning zero seasonality outside of the actual holiday days. Minimal usage on the federal holidays.

Is there anything else I can ask him?

Kelley

Sent from my iPhone

Total Control Panel Login

To: john.mahoney@ransomenv.com Remove this sender from my allow list

From: ethan@anew-development.com

You received this message because the sender is on your allow list.

October 17, 2017

John Mahoney, P.E.
Project Manager
Ransom Consulting, Inc.
400 Commercial St. Suite 404
Portland, Maine 04101

RE: Treatment Row Equivalency
Brown Street Garage Project
Portland, ME

Dear John:

Thanks for your request to provide further documentation on the functional equivalency of the treatment row. Typically, MeDEP requires a treatment row for 'polishing' of the runoff after passing through the FocalPoint system. Several chamber products (e.g., Cultec) and one modular tank product have demonstrated the ability to run cleaning/jet equipment through each system and are approved by the MeDEP for use in a treatment row configuration. They all work in a similar fashion with treatment being accomplished by the fabric layers wrapped around the chamber/tanks. These fabrics generally consist of one or two layers of woven geotextile on the bottom and a layer of non-woven fabric around the sides and top. Chambers rows are sized by calculating the post developed 1-yr 24 hr peak flow rate and dividing by the unit processing rate of the chamber. The R-Tank treatment row is expected to follow these specifications and provide equivalent treatment.

Up until recently, the R-Tank system used webbed plates, making the passing of equipment through the system impossible. Several weeks ago, we teamed up with Ted Berry Company to run a test on our new module (pictured below).

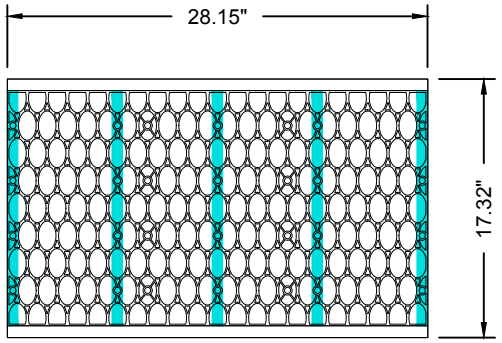
● □a□e □ Oct□□er □□□□□□□

The test was successful and we are in the process of preparing a submittal to the MeDEP to accept the R-Tank Maintenance Row as an equal to approved treatment rows.

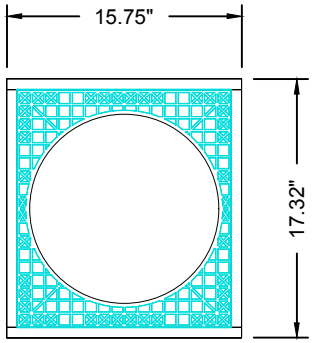
Kindest Regards,

W. Scott Gorneau, P.E.
National Manager – Stormwater Systems
ACF-Convergent Alliance

cc: Rob Woodman, P.E., Senior Stormwater Engineer, ACF Environmental



SIDE



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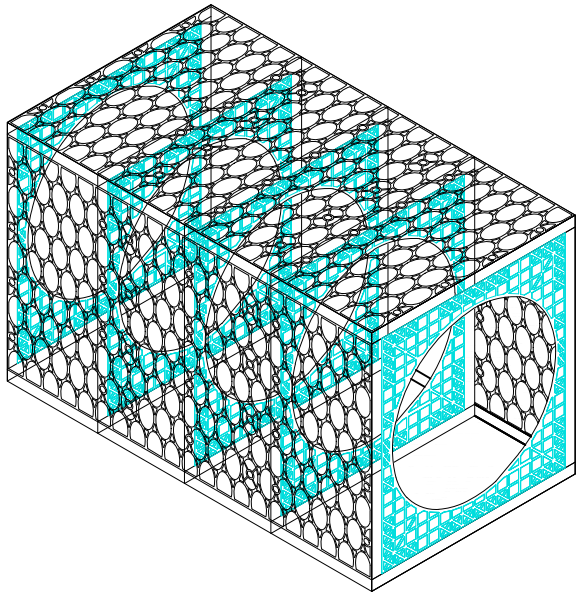

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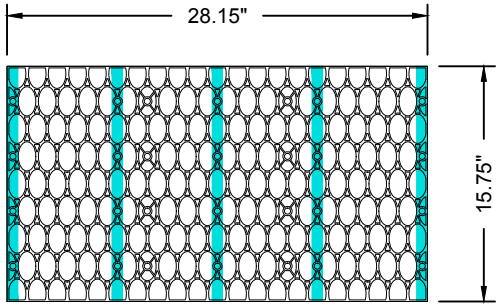

TOP

MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20, (WITH ACF COVER SYSTEM)
MATERIAL:
100% RECYCLED
POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL:
5/5

09/25/2017

R-TANK^{HD} - SINGLE MAINTENANCE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

Brown Street Garage: Stormwater BMP Inspection and Maintenance Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	**Brown Street Garage**	**Inspection Date:**	
Parcel Map, Block and Lot:	**037 D004**	**Current Weather:**	
BMP Owner:	**Ocean Gate, LLC**	**Date / Amount Last Precip:**	
Owner Mailing Address:	**151 Newbury Street, Portland, Maine 04101**	**3PI Company:**	
		3PI Mailing Address:	
Owner Phone #:	207 773 1919		
Owner Email:	ed@oceangaterealty.com	**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Focal Point Stormwater Treatment Planters (Planter Rain Gardens)	8
R-Tank Subsurface Detention-Infiltration System	8
Underdrained Sand Filter	1
Catch Basins	3
Vegetated Areas (Grass)	---
Other (describe	

C. Inspection Results

FAIL** ☐

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS ☐

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Form Adapted from the City of South Portland's Annual Structural BMP Inspection Report Cover Sheet

	Date:
General Information	**Observations**
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	☐ Yes ☐ No ☐ NA
Nearby natural resources	☐ Yes ☐ No ☐ NA
Copy of ESC plan	☐ Yes ☐ No ☐ NA
MEDEP Permit # (*if applicable*)	
General info notes	

Vegetated Areas	**Observations**
No bare areas (< 90% covered) with sparse growth	☐ Yes ☐ No ☐ NA
No erosion	☐ Yes ☐ No ☐ NA
Note: *Inspect annually*	
Catch Basin Systems	**Observations**
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and floating oils have been removed from any baffle or grease trap	☐ Yes ☐ No ☐ NA
Notes: *Inspect annually*	
Focal Point Stormwater Treatment Planters (Rain Gardens) and R-Tank System	**Observations**
Accumulated sediments and debris (trash) within the infiltration area have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Storm Sack catch basin filters have been emptied	☐ Yes ☐ No ☐ NA
Plantings are healthy	☐ Yes ☐ No ☐ NA
No erosion has occurred; grading of stone transition areas is as designed.	☐ Yes ☐ No ☐ NA
Overflow riser pipe and beehive grate in downstream planters is free and un-obstructed by material or plant growth.	☐ Yes ☐ No ☐ NA
Mulch replaced (annually).	☐ Yes ☐ No ☐ NA
Notes *If sediment accumulates beyond an acceptable level in the R-Tank storage system, it will be necessary to flush the underdrain. This can be done by pumping water into the Observation/Maintenance Port or adjacent overflow structure, allowing the turbulent flows through the underdrain to re- suspend the fine sediments. If multiple Observation/Maintenance Ports have been installed, water should be pumped into each port to maximize flushing efficiency. Measures shall be taken to capture sediment before discharge to municipal drainage system. The FocalPoint areas must be inspected <u>twice</u> annually, with one site visit during a rain event.*	

Parking/Driveway Area	
Accumulated winter sand has been cleared	☐ Yes ☐ No ☐ NA
Pavement swept to help remove sediment	☐ Yes ☐ No ☐ NA
No stormwater is impeded by accumulations of material	☐ Yes ☐ No ☐ NA
Notes:	

Other Comments	**Observations**
Corrective action needed	☐ Yes ☐ No ☐ NA
If corrective action in needed, please explain detail	
Verbal notification provided to responsible party	☐ Yes ☐ No
Verbal notification contact	
Follow up required	☐ Yes ☐ No
Final comment notes	

Photos (*use additional pages as needed*)

Review Notes
Date Reviewed: Reviewed by: Date entered: Date edited: Edited by:

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tel (207) 784-2941
fax (207) 784-3856

James A. Platz, P.E.
Thomas H. Platz, AIA

Brown Street Parking Garage – Planning Board Review Response

48 Brown Street, Portland, Maine 04101
October 19, 2017

Response to PLANNING DIVISION COMMENTS from Caitlin Cameron, Urban Designer

I. Relationship to Pedestrian Environment

A. Distinguish the lower 35 feet of building facades

1. Storefront and building facades:
Special attention was paid to accentuating the first 35' of the façade design, which looks and feels traditional, light, open, and contextual, featuring; open steel framing, traditional architectural forms, and active, human-scaled urban edges. The design capitalizes on the steel structure of the garage as an architectural medium, accentuated with sculptural grillwork and cast stone elements, to provide beauty in its rhythm, punctuation, and detailing. Particular attention was paid to the garage's most publically visible and engaging facades; those seen directly from Cumberland and obliquely from Congress along Brown Street. These locations were embellished with glass storefront entry towers, providing well-lit and safe pedestrian connections through the garage. They are further softened and enlivened with quality façade materials like decorative grillwork and architectural cast stone elements, landscaped planter beds, and through the use of well-balanced site lighting. The design team is responding to staff comment to restrain superfluous details at the endcaps, including along Cumberland Avenue so the façade is more consistent with the more simple and subdued context, and at the ramped sections, we responded to neighborhood and planning board comments to add visual interest and detail by providing a more sculptural curvelinear top rail to the grillwork, paired with curved architectural beams to both disguise the ramped sections of the garage and provide some large and small-scale detail elements to punctuate the façade. The solid wall has been enhanced as detailed in Item 3 below.

2. Building Entrances:
Sidewalk connections, emphasized on the façade with curved canopy features, are made with high-quality granite curbs and brick pavers that extend into the garage at the most important connections, providing a safe and seamlessly-integrated pedestrian experience from parking stall to the City's sidewalk system on all three accessible sides of the building. The building integrates with the adjacent context at Cumberland and Brown Street, activating the street wall with vehicular and pedestrian connections and aesthetically appealing as a well-designed building of scale and quality.

3. Blank Facades:
The building's massing is couched by the elevation level-change from Casco to Brown Street, which greatly reduces the vertical impact of the structure as perceived from Casco Street. The solid wall has been enhanced with additional trim elements and will be color-matched to the garage color scheme to provide a more articulated, smaller-scaled element more integrated to the overall design.

B. Pedestrian Activity District- *n/a*

C. Sidewalk Areas & Open Space
   1. Sidewalk, Crosswalk, and Street Paving Materials:
      The design team concurs with staff comments that the project continues the established brick sidewalk pattern on all streets.
   2. Landscaping, Planters, Irrigation, Tree Guards and Grates:
      The design team concurs with staff comments that the landscape planters provide visual interest and human-scaled elements while also providing important storm water benefits.
   3. Lighting:
      The building's lighting program has been enhanced to provide the City's pedestrian streetlight fixture at the building's corner entrance towers and along the façade at Brown Street. Additional LED downlighting will be provided at the entrance canopies to improve safety and security, while directional LED lights will be employed within the garage to reduce driver glare and off-site light trespass. Specifications for all proposed lighting and a photometric of each level are attached.

D. Pedestrian Amenities
   1. Benches and other seating:
      The design team concurs with staff comments that the landscape planters are designed at seating wall height to provide additional pedestrian amenity.

II. Relationship to Existing Development
A. Integrate respect and enhance existing development
   1. Street Walls and building setbacks:
      The design team concurs with staff comments that the building is set up to the street and keeps the established street wall patterns.
   2. Open Space: *n/a*
   3. Building form, scale, and massing:
      The design team concurs with staff comments that the building's form is dictated by the dimensional needs of the parking garage.
   4. Building façade & proportion:
      The design team concurs with staff comments that the façade is enhanced by the rhythm and scale created byt the screens, railings, and expressed structure. Responding to calls for less articulation by staff and more detail and interest by the public and planning board, we have sought to reduce the extraneous detailing at the highly visible facades at both ends, while incorporating some sculptural elements to articulate the façade while serving to screen the ramped portions of the garage. Also, the solid wall facing the historic district will be enhanced with additional trim detail to help reduce the scale, and color-matched to the steel garage color scheme to provide a more integrated design aesthetic.
   5. Pedestrian circulation and building entrances:
      ADA accessible building entrances are provided on all frontages, with sidewalk connections into the garage entries separated from the vehicular entries and protected by a curb. Covered bicycle parking is provided at the South entrance tower and motorcycle parking provided at the second thru fifth parking levels.
   6. Parking Garages & Surface Lots:
      The design team concurs with staff comments that the building design is authentic and honest in conveying its use. Screening is provided for direct line of sight to lights and views of cars on all levels, and landscaping with additional pedestrian amenity is provided as suggested in the guideline. Due to the steel structure of the garage and level decks placed on the frontage along Cumberland Avenue, the end of the garage without the sloped ramps could be converted to other uses if they become economically-feasible in the future. The steel structure is also highly-recyclable as a material, versus a concrete design.
   7. Areas within the downtown:
      The design team concurs with staff comments that the project is off the main streets and will meet the downtown standards for sidewalk and lighting design.

III. Rooftop Appurtenances-

The design team concurs with staff comments that there are no significant rooftop appurtenances proposed and the stair towers at the corners are integrated as architectural features.

IV. Shadow Impact on Open Space – *n/a*

V. Wind Impacts- *n/a*

VI. Setback from Existing Structures- *n/a*

VII. Building Tops- *n/a*

VIII. View Corridors, Visual Landmarks, and Gateways- *n/a*

IX. Signage/Awnings/Canopies-
The design team provides clear wayfinding signage incorporated into design features at the vehicular entries to promote visibility and safety. As all levels of the garage are open to public parking at most (if not all) times, the MUBEC public parking symbol and white-on-blue colors were used as a universally-recognizable public parking sign over these vehicular entry canopies.

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James A. Platz, P.E.
Thomas H. Platz, AIA

Brown Street Garage Zoning Review

48 Brown Street, Portland, Maine 04101
August 4th, 2017

Compliance with Zoning

Purpose:

One of the specified purposes of the B-3 zone is to "provide adequate parking and transportation facilities which promote accessibility, enhance and encourage development opportunity, and enhance and protect the pedestrian environment". The proposed 48 Brown Street project would utilize the site of an existing surface parking lot, and provide an additional four levels of parking in a fitting structure that would serve adapted (ADA), compact, and full-sized vehicles with a total of 257 available parking spots. Through sidewalk-level landscaping, lighting, and other design features, the project will enhance the pedestrian environment.

Permitted Uses:

A multi-story parking facility is permitted in the B3 downtown business zone, as prescribed in the Downtown Urban Design Guide, with the first story having vehicle access in from Cumberland Avenue, out to Brown Street, and the top four levels having vehicle entry, and exit access at Casco Street. The project proposes full pedestrian access to all ground levels, with accessibility (ADA) parking at both the Brown Street, and Casco Street levels adjacent to sidewalk interfaces.

Dimensional Requirements:

The proposed 48 Brown Street project conforms to standards as outlined below:

	Requirement	Proposed
Min. lot size	None	39,039 square feet
Min. street frontage	15 ft.	280 ft. Brown St. / 63 ft. Cumberland Ave.
Min. front setback	None	1 ft.
Max. front setback	5 ft. on frontage	1 ft.
Min. back setback	None	10 in.
Min. side setback	None	1 ft.
Max. lot coverage	100%	54% (20,805 sq. ft.)
Min. lot width	None	65.9 ft.
Min. structure height	50 ft.	57 ft.
Max. structure height	210 ft. after 100' from center of Cumberland Ave. 65 ft. within 100 ft. from center of Cumberland Ave. (90' if stepped back)	57 ft. total structure height

Norway Savings Bank
COLORFUL SOLUTIONS™

June 16, 2017

City of Portland, ME
Planning Board
Attn: Barb Barhydt
389 Congress Street
Portland, ME 04101

Re: 48 Brown Street, Portland, ME
Ocean Gate, LLC

To Whom It May Concern;

This letter is to verify that Edmund Gardner and his entity Ocean Gate, LLC has applied for commercial financing to develop the surface lot located at 48 Brown Street, Portland, ME into a 5-level steel frame parking garage.

While this letter is in no way to be construed as a commitment to lend funds, we firmly believe that Edmund Gardner and Ocean Gate, LLC has the financial capacity and expertise to successfully develop this property as proposed.

Mr. Gardner and his various entities have been clients of Norway Savings Bank since 2009 and all accounts have been handled as agreed.

I trust this letter complies with Section 3, subsection B3c of the Site Location law, but if you should need further information or clarification, please don't hesitate to contact me at rflagg@norwaysavingsbank.com or (207) 482-7902.

Sincerely,

Richard R. Flagg
Vice President, Commercial Lending

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Ocean Gate Garage – Transportation Memorandum

Date:	June 13, 2017
From:	Thomas Nosal, E.I.
Peer Review:	John, Mahoney, P.E.
	Stephen J. Bradstreet, P.E.
Location:	48-72 Brown Street, Portland, Maine

Existing Conditions

The site is a 0.90 acre parcel located at 48-72 Brown Street and comprised of two parking lots: an Upper Lot (accessed from Casco Street) and a Lower Lot (accessed from Brown Street and Cumberland Avenue).

The Lower Lot has space for approximately 65 vehicles to park. There are driveway openings to both Brown Street and Cumberland Avenue that accommodate both entering and exiting traffic. Brown Street allows only northbound traffic, and so the Brown Street driveway accommodates left turns in and left turns out. Cumberland Avenue allows eastbound and westbound traffic, and there are currently no restrictions on particular turning movements in or out of the parking lot.

The Upper Lot has space for 27 vehicles to park, as well as a drive-through bank ATM kiosk. There are two driveway openings onto Casco Street, one of which accommodates entering and exiting traffic, and one of which accommodates exiting traffic only (for the drive-through ATM). Because Casco Street is a two-way street, both left and right turns in an out of the lot are accommodated.

Proposed Development

The proposed development consists of a five-level parking garage with a total of 205 standard spaces (9’ wide), 48 compact spaces (8’ wide), and 4 handicap accessible spaces. The redevelopment will be confined almost entirely to the Lower Lot only.

The lower level is not connected to the upper levels, and will provide 21 standard parking spaces, 32 compact spaces, and 2 accessible spaces. It will have driveway openings on Brown Street and Cumberland Avenue; however, unlike the existing lot, the Cumberland Avenue driveway opening will allow for entering traffic only. The proposed building will restrict sightlines to/from traffic exiting from Brown Street, and because the driveway opening on Cumberland Avenue is

only approximately 25' from the intersection of Brown Street and Cumberland Avenue, it was decided in preliminary discussions with Tom Errico that precluding exiting traffic on Cumberland would be safest. As such, the width of the driveway opening will be reduced from 27' to 16'. Both the Cumberland Avenue and Brown Street entrances will provide ADA-accessible routes to/from the garage.

The upper levels of the garage will be accessible from the existing Upper Lot, which has a two-way driveway opening onto Casco Street. The upper levels will have 184 standard parking spaces, 16 compact spaces, and 2 accessible spaces. The entrance/exit to the garage itself will include a 5' sidewalk that will allow for an accessible pathway to the garage from the lot and from the adjacent buildings.

Estimated Trip Generation

The first level of the proposed garage, which has entrances from Brown Street and Cumberland Avenue and an exit onto Brown Street, is not expected to generate an increase in trips to/from the project site because it will provide seven fewer parking spaces than the existing lot. It is also expected that the distribution of trips over the course of the day and throughout the adjacent street network will be much the same as the existing conditions.

Because the proposed garage will introduce parking supply, but not additional development that would generate trips (such as office space or residences), it is not expected that the garage will generate a significant number of new motor vehicle trips. However, because the upper levels of the garage represent an increase in parking supply, the garage will likely result in a redistribution of trips.

In order to estimate the additional trips to/from the project site (Casco Street access, in particular), it is assumed that the garage will largely serve the adjacent office space. Based on the 9th edition of the *ITE Trip Generation Manual*, traffic associated with office space tends to exhibit peaks that coincide with those of the adjacent street network. If it is also assumed that the upper levels of the garage are empty at 5 AM and full by 10 AM (202 parking spaces), then based on a typical hourly traffic distribution for home-based work trips[1], the proposed garage would result in an additional 76 trips during the peak hour (7 AM – 8 AM). Home-based work trips tend to exhibit a higher peak in the AM.

Given the diffuse nature of urban trips and the wide variety of land uses in close proximity to the site, it is expected that the surrounding street grid will be able to efficiently absorb this traffic with minimal impact.

Traffic Crashes

Based on data from 2013-2015, the most recent three-year analysis period, the nearest high crash location is Oak Street between Congress Street and Shepley Street (9 crashes; CRF: 4.87). All 9 crashes were identified as rear-end or sideswipe crashes, and all resulted in property damage

[1] NCHRP Report 365: Travel Estimation Techniques for Urban Planning
https://ntl.bts.gov/lib/21000/21500/21563/PB99126724.pdf

only. While this location does not interface directly with the project site, it is possible that the traffic to/from the Brown Street Garage may result in a small increase in traffic on Oak Street, as motorists coming from Congress Street may use it to access Shepley Street and then the Upper Lot. However, given the relatively low severity of the crashes and the modesty of the additional traffic resulting from this project, it is not expected that this project will exacerbate the situation on Oak Street.

Bicycle Parking

Because the parking garage is providing motor vehicle parking that is not required in conjunction with a residential or non-residential use, providing bicycle parking is not strictly required, as per the Site Plan ordinance. Regardless, the applicant is proposing to include a bicycle rack inside the garage on the first level to provide sheltered bicycle parking for 9 bicycles, as well as three bicycle racks (which will accommodate a total of 6 bicycles) on the sidewalks of Brown Street and Cumberland Avenue, in accordance with City standard details. Furthermore, the adjacent office building owned by the applicant, located on the corner of Brown and Cumberland and accessible from the Upper Lot, has indoor bicycle parking for a large number of bicycles.

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Ocean Gate Garage Stormwater Management Narrative

Date:	June 13, 2017
From:	Thomas Nosal, E.I.
Peer Review:	John Mahoney, P.E.
	Stephen J. Bradstreet, P.E.
Location:	48-72 Brown Street, Portland, Maine

Existing Conditions:

The site is a 39,039 SF (0.90 acres) parcel located at 48-72 Brown Street, comprised of an Upper Lot (accessed from Casco Street) and Lower Lot (accessed from Brown Street and Cumberland Avenue) which are separated by a retaining wall.

The lower lot, bordered by Cumberland Avenue and Brown Street, represents approximately 60% of the total parcel and consists almost entirely of surface parking. It slopes at approximately 5% from south to north, draining primarily to a catch basin at the northeast corner of the lot which is connected to the combined sewer on Brown Street.

The upper lot, bordered by Casco Street, represents approximately 40% of the total parcel and is also devoted almost entirely to surface parking, with the exception of an approximately 1,000 SF drive-through bank kiosk. The upper lot is sloped more gently at approximately 1%, and drains towards catch basins which are connected to the combined sewer on Casco Street.

Based on the Cumberland County USDA soil survey GIS data, the existing soils on this site belong to hydrological soil group A, excessively drained.

Proposed Development:

The owner is proposing to construct a five-level parking garage with parking for 257 vehicles. The new structure will occupy almost the entire lower lot, and will be accessible from Cumberland Avenue, Brown Street, and from the existing upper lot. Because nearly the entire existing site is impervious, the project will not produce a significant change in impervious area.

Runoff will be collected on the rooftop level via several catch basins, which will drain to downspouts that will distribute runoff to two series of planters located at sidewalk level. As described in more detail below, the planters will contain Focal Point biofiltration systems designed to manage stormwater quality. After passing through the Focal Point system, runoff

will drain to the combined sewer. Runoff from rain events that exceed the infiltration capacity of the Focal Point system will bypass directly to the combined sewer.

Stormwater Management – Basic Standards:

Erosion and sedimentation control measures are detailed and described in the plans. Good housekeeping practices shall be in accordance with Maine DEP Best Management Practices. A post construction stormwater management plan and a stormwater BMP inspection and maintenance log are included with this submission.

Stormwater Management - Quality:

Because this project qualifies as a redevelopment project, it is required that management of stormwater quality in accordance with Chapter 500 be provided for a minimum of 50% of the redeveloped area. However, the applicant is proposing to exceed this requirement by using the FocalPoint biofiltration system to manage stormwater quality for a runoff volume generated by 1.6" of rain across the entire roof of the proposed parking garage. Furthermore, an under-drained sand filter will be installed to filter discharge from the area in which snow will be stored in the winter; this area will also receive runoff from the existing driveway of the Ambassador apartment complex, 37 Casco Street.

The FocalPoint system is similar in configuration to a standard rain garden system where stormwater runoff flows through a soil filter that removes pollutants and reduces temperature. R-Tanks are positioned below the soil filter to act as high-capacity underdrains. Where standard rain gardens have permeability rates in the range of 2 – 3 inches per hour; the FocalPoint system's engineered soil filter media provides permeability rates in excess of 100 inches per hour. This permeability rate is guaranteed by the manufacturer and they provide testing at no additional cost. This high permeability facilitates treatment of relatively large impervious areas with small rain gardens making the FocalPoint system ideal for compact urban developments.

The FocalPoint system is approved by Maine DEP and is sized and designed in accordance with Chapter 7.5 in Volume III of the Maine Stormwater Best Management Practices Manual.

The applicant is proposing to install a 360 SF FocalPoint system with a 4" ponding depth. The FocalPoint system will be contained within two series of concrete planters (one series of 3 planters and a series of 5 planters for 8 planters total) at sidewalk level at the edge of the building. Each concrete planter is approximately 45 SF, and because they follow the grade of the sidewalk in a stepped fashion, runoff that cannot infiltrate in an upstream planter will overflow to the next planter. The FocalPoint chambers (which underdrain the filtration media) will be connected to a stormdrain system. The downstream planter in each series will have a riser pipe with a beehive to collect runoff that exceeds the infiltration capacity of the entire series of planters. See the plan sheet C5 for details of the norther set of planters on Brown Street and Cumberland Avenue, as well as sections of the planters.

The drainage areas of the roof of the parking garage are depicted in plan sheet C4. Drainage Areas A and B are directed to the northernmost series of planters. Drainage Area C is directed to the two uphill planters on the northern set of planters on Brown Street. Drainage Areas D and E are directed to the southern set of planters. The calculations in the attached spreadsheet demonstrate that these subsets of planters are appropriately sized to accommodate runoff generated by their sub-catchment areas from 1.6" of rainfall without overflowing. In total, approximately 21,000 SF of impervious area is treated by the FocalPoint system.

Stormwater Management - Quantity:

Because the land use and impervious cover of the site will not change significantly with the construction of the proposed parking garage, this project is not required to provide management of stormwater quantity. However, although not required, it is expected that the Focal Point system will reduce peak flows to the combined sewer. Significant storage will be provided by the ponding in the planters, by the crushed stone surrounding the R-Tank chambers, and by installing the outlets of the Focal Point R-Tank chambers approximately 8" above the invert of the chambers themselves. This runoff stored in the planters will infiltrate into the ground. This in turn will help to reduce the occurrence, duration and severity of combined sewer overflows.

Ocean Gate Garage: Post-Construction Stormwater Compliance Requirements

The Applicant shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with the plan as follows:

(a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, pipes and related structures, and other treatment devices in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post- construction stormwater management plan.

(b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services ("DPS") in the annual report.

(c) *Annual report.* The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.

(d) *Filing fee.* Any persons required to file and annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

Ocean Gate Garage: Stormwater BMP Inspection and Maintenance Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	**Ocean Gate Garage**	**Inspection Date:**	
Parcel Map, Block and Lot:	**037 D004**	**Current Weather:**	
BMP Owner:	**Ocean Gate, LLC**	**Date / Amount Last Precip:**	
Owner Mailing Address:	**151 Newbury Street, Portland, Maine 04101**	**3PI Company:**	
		3PI Mailing Address:	
Owner Phone #:	207 773 1919		
Owner Email:	ed@oceangaterealty.com	**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Focal Point Stormwater Treatment Planters (Planter Rain Gardens)	8
Underdrained Sand Filter	1
Catch Basins	3
Vegetated Areas (Grass)	---
Other (describe	

C. Inspection Results

FAIL** ☐

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS ☐

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Form Adapted from the City of South Portland's Annual Structural BMP Inspection Report Cover Sheet

	Date:
General Information	**Observations**
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	☐ Yes ☐ No ☐ NA
Nearby natural resources	☐ Yes ☐ No ☐ NA
Copy of ESC plan	☐ Yes ☐ No ☐ NA
MEDEP Permit # (*if applicable*)	
General info notes	

Vegetated Areas	**Observations**
No bare areas (< 90% covered) with sparse growth	☐ Yes ☐ No ☐ NA
No erosion	☐ Yes ☐ No ☐ NA
Notes	
Catch Basin Systems	**Observations**
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and floating oils have been removed from any baffle or grease trap	☐ Yes ☐ No ☐ NA
Notes	
Focal Point Stormwater Treatment Planters (Rain Gardens)	**Observations**
Accumulated sediments and debris (trash) within the infiltration area have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Plantings are healthy	☐ Yes ☐ No ☐ NA
No erosion has occurred; grading of stone transition areas as designed.	☐ Yes ☐ No ☐ NA
Overflow riser pipe and beehive grate in downstream planters is free and obstructed by material or plant growth.	☐ Yes ☐ No ☐ NA
Mulch replaced (annually).	☐ Yes ☐ No ☐ NA
Notes	
Parking/Driveway Area	
Accumulated winter sand has been cleared	☐ Yes ☐ No ☐ NA
Pavement swept to help remove sediment	☐ Yes ☐ No ☐ NA
No stormwater is impeded by accumulations of material	☐ Yes ☐ No ☐ NA

Notes:	
Other Comments	**Observations**
Corrective action needed	☐ Yes ☐ No ☐ NA
If corrective action in needed, please explain detail	
Verbal notification provided to responsible party	☐ Yes ☐ No
Verbal notification contact	
Follow up required	☐ Yes ☐ No
Final comment notes	

Photos (*use additional pages as needed*)
Review Notes
Date Reviewed: Reviewed by: Date entered: Date edited: Edited by:

Ocean Gate Garage, Portland, Maine

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT AND
RELEASE FROM LIABILITY

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to a plan entitled **Ocean Gate Garage** prepared for **Adams Apple LLC,** by **Ransom Consulting, Inc**. dated **_____, 20__** recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____ (the "Plan") and pursuant to a condition thereof, **Ocean Gate LLC** (owner) having a mailing address of **151 Newbury Street, Portland, Maine 04101**, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the **Focal Point stormwater treatment planters (rain gardens) and catch basin system** in strict compliance with the Maintenance of Facilities as described in the **Ocean Gate Garage Stormwater Management Narrative and the Ocean Gate Garage Stormwater Inspection and Maintenance Log** (Stormwater Management Plan) dated **, 20__** and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the **Focal Point stormwater treatment planters (rain gardens) and catch basin system** thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this_____day of _____, 20__.

_____
By:_____
Its: _____

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named_____, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said_____.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

CONVERGENT WATER TECHNOLOGIES

ACF FP and RT Calc 1.8

This calculator is designed to provide sizing and performance guidance for the FocalPoint Bio-Filtration and RTank Underground Storage Systems based on TR-55 protocol and distribution curves. There are three types of cells the user will want to be familiar with: White Cells are intended for user input, Green Cells require a selection off of the dropdown toggle switch and the Blue Cells contain the calculated result.

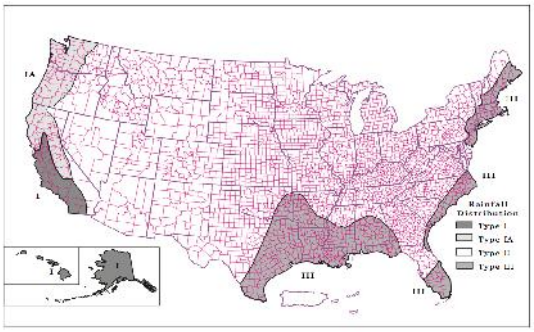
Contact:	John Mahoney	Project Name:	Portland Housing Project
Company:	Ransom Consulting Inc.	Location:	Portland Maine
Phone:			
Email:			

Water Quality Volume Calculator

Step 1 - Rainfall Distribution

1.1 - SCS Type: Type III

See TR-55 Map Tab below to determine which type event is appropriate for your area



Step 2 - Basis for Water Quality Volume

2.1 - Enter Methodolgy: Maine (Scroll Down)

Directions

Select one of the following from Toggle:
Manual if WQv is already calculated
TR-55 to Calculate WQv and use that volume in one step
New York to Calculate WQv off Figure 4.1 of NY SWM Manual
Maine to Calculate WQv as 1" off Impervious and 0.4" off pervious

Step 3 - Enter Data As Described For Basis for Water Quality Chosen in Step 2 Highlighted in Blue Below

3 - Manual Input			Directions
3.1 If "Manual", enter Water Quality volume	10,000	ft^3	Enter the Water Quality Volume (WQv) here.
3.2 If "Manual", enter Design Event volume	25,000	ft^3	Enter the Design Event here (if different than WQv).

Note: If FocalPoint not being used and runoff will be routed directly to RTank, enter "No" in cell E10 on FocalPoint Design worksheet

3.2 - TR-55 Input				Directions
Enter Methodology	Toggle	W.Q. Volume		Use Toggle to select first flush of full event volume
Runoff (First Flush) or Rainfall (W.Q. Volume) Depth		7.54		Depth of First Flush treatment Requirement - in inches
Design Event Rainfall Depth		7.54		Depth of total rainfall event in inches

Subarea	Cover Condition	Area to BMP (ft^2)	TR-55 CN Value	
Post Cover 1	Roof	2,919	98	Enter cover conditions and CNs
Post Cover 2				
Post Cover 3				
	Total	2,919		

	W.Q. Event	Design Event	
Post Cover 1	1,776	1,776	ft^3
Post Cover 2	0	0	ft^3
Post Cover 3	0	0	ft^3
RESULTS	**1,776**	**1,776**	ft^3

3.3 - New York			
90% Rainfall Amount (P)	1.00	inches	Enter rainfall depth from Figure 4.1, page 4-2 of NY SWM Design Man.
Impervious cover (I)	55.00%		Enter % of Impervious Cover
Drainage Area (A)	103,456	ft^2	Enter Drainage Area
Water Quality Volume (WQ_v)	4,699	ft^3	
Design Event Volume (Manual Entry)	10,000	ft^3	Enter Design Event Volume

3.4 - Maine			
Drainage Area A+B			
Impervious Cover	8,113	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	0	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,082	ft^3	
Drainage Area C			
Impervious Cover	5,656	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	0	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	754	ft^3	
Drainage Area D+E			
Impervious Cover	7,231	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	0	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	964	ft^3	

FocalPoint
BIOFILTRATION SYSTEMS

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,082	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,082	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	135	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	45	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,082	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	Flow through	2	0	0	0
0.4	0.00	4	2	Flow through	2	0	0	0
0.6	0.01	6	2	Flow through	2	0	0	0
0.8	0.01	9	2	Flow through	2	0	0	0
1.0	0.01	11	2	Flow through	2	0	0	0
1.2	0.01	13	2	Flow through	2	0	0	0
1.4	0.01	15	2	Flow through	2	0	0	0
1.6	0.02	17	2	Flow through	2	0	0	0
1.8	0.02	19	2	Flow through	2	0	0	0
2.0	0.02	22	2	Flow through	2	0	0	0
2.2	0.02	24	2	Flow through	2	0	0	0
2.4	0.02	26	2	Flow through	2	0	0	0
2.6	0.03	28	2	Flow through	2	0	0	0
2.8	0.03	31	2	Flow through	2	0	0	0
3.0	0.03	33	2	Flow through	2	0	0	0
3.2	0.03	36	2	Flow through	2	0	0	0
3.4	0.04	38	3	Flow through	3	0	0	0
3.6	0.04	41	3	Flow through	3	0	0	0
3.8	0.04	44	3	Flow through	3	0	0	0
4.0	0.04	47	3	Flow through	3	0	0	0
4.2	0.05	49	3	Flow through	3	0	0	0
4.4	0.05	52	3	Flow through	3	0	0	0
4.6	0.05	55	3	Flow through	3	0	0	0
4.8	0.05	58	3	Flow through	3	0	0	0
5.0	0.06	61	3	Flow through	3	0	0	0
5.2	0.06	65	3	Flow through	3	0	0	0
5.4	0.06	68	3	Flow through	3	0	0	0
5.6	0.07	71	3	Flow through	3	0	0	0
5.8	0.07	74	3	Flow through	3	0	0	0
6.0	0.07	78	3	Flow through	3	0	0	0
6.2	0.08	81	4	Flow through	4	0	0	0
6.4	0.08	85	4	Flow through	4	0	0	0
6.6	0.08	89	4	Flow through	4	0	0	0
6.8	0.09	93	4	Flow through	4	0	0	0
7.0	0.09	98	4	Flow through	4	0	0	0
7.2	0.09	103	5	Flow through	5	0	0	0
7.4	0.10	107	5	Flow through	5	0	0	0
7.6	0.10	113	5	Flow through	5	0	0	0
7.8	0.11	118	5	Flow through	5	0	0	0
8.0	0.11	123	6	Flow through	6	0	0	0
8.2	0.12	129	6	Flow through	6	0	0	0
8.4	0.13	136	6	Flow through	6	0	0	0
8.6	0.13	142	7	Flow through	7	0	0	0
8.8	0.14	150	7	Flow through	7	0	0	0
9.0	0.15	158	8	Flow through	8	0	0	0
9.2	0.15	166	8	Flow through	8	0	0	0
9.4	0.16	175	9	Flow through	9	0	0	0
9.6	0.17	184	9	Flow through	9	0	0	0
9.8	0.18	194	10	Flow through	10	0	0	0
10.0	0.19	204	10	Flow through	10	0	0	0
10.2	0.20	216	11	Flow through	11	0	0	0
10.4	0.21	228	12	Flow through	12	0	0	0
10.6	0.22	241	13	Flow through	13	0	0	0
10.8	0.24	255	14	Flow through	14	0	0	0

11.0	0.25	271	15	Flow through	15	0	0	0
11.2	0.27	288	18	Flow through	18	0	0	0
11.4	0.29	310	22	Flow through	22	0	0	0
11.6	0.31	340	30	Flow through	30	0	0	0
11.8	0.37	404	64	Flow through	64	0	0	0
12.0	0.50	541	137	Flow through	137	0	0	0
12.2	0.63	678	137	Flow through	137	0	0	0
12.4	0.69	742	64	Flow through	64	0	0	0
12.6	0.71	772	30	Flow through	30	0	0	0
12.8	0.73	794	22	Flow through	22	0	0	0
13.0	0.75	812	18	Flow through	18	0	0	0
13.2	0.76	827	15	Flow through	15	0	0	0
13.4	0.78	841	14	Flow through	14	0	0	0
13.6	0.79	854	13	Flow through	13	0	0	0
13.8	0.80	866	12	Flow through	12	0	0	0
14.0	0.81	878	11	Flow through	11	0	0	0
14.2	0.82	888	10	Flow through	10	0	0	0
14.4	0.83	898	10	Flow through	10	0	0	0
14.6	0.84	907	9	Flow through	9	0	0	0
14.8	0.85	916	9	Flow through	9	0	0	0
15.0	0.85	924	8	Flow through	8	0	0	0
15.2	0.86	932	8	Flow through	8	0	0	0
15.4	0.87	940	7	Flow through	7	0	0	0
15.6	0.87	946	7	Flow through	7	0	0	0
15.8	0.88	953	6	Flow through	6	0	0	0
16.0	0.89	959	6	Flow through	6	0	0	0
16.2	0.89	964	6	Flow through	6	0	0	0
16.4	0.90	969	5	Flow through	5	0	0	0
16.6	0.90	975	5	Flow through	5	0	0	0
16.8	0.91	979	5	Flow through	5	0	0	0
17.0	0.91	984	5	Flow through	5	0	0	0
17.2	0.91	989	4	Flow through	4	0	0	0
17.4	0.92	993	4	Flow through	4	0	0	0
17.6	0.92	997	4	Flow through	4	0	0	0
17.8	0.92	1,001	4	Flow through	4	0	0	0
18.0	0.93	1,004	4	Flow through	4	0	0	0
18.2	0.93	1,008	3	Flow through	3	0	0	0
18.4	0.93	1,011	3	Flow through	3	0	0	0
18.6	0.94	1,014	3	Flow through	3	0	0	0
18.8	0.94	1,017	3	Flow through	3	0	0	0
19.0	0.94	1,021	3	Flow through	3	0	0	0
19.2	0.95	1,024	3	Flow through	3	0	0	0
19.4	0.95	1,027	3	Flow through	3	0	0	0
19.6	0.95	1,030	3	Flow through	3	0	0	0
19.8	0.95	1,033	3	Flow through	3	0	0	0
20.0	0.96	1,035	3	Flow through	3	0	0	0
20.2	0.96	1,038	3	Flow through	3	0	0	0
20.4	0.96	1,041	3	Flow through	3	0	0	0
20.6	0.96	1,044	3	Flow through	3	0	0	0
20.8	0.97	1,046	3	Flow through	3	0	0	0
21.0	0.97	1,049	3	Flow through	3	0	0	0
21.2	0.97	1,051	3	Flow through	3	0	0	0
21.4	0.97	1,054	2	Flow through	2	0	0	0
21.6	0.98	1,056	2	Flow through	2	0	0	0
21.8	0.98	1,059	2	Flow through	2	0	0	0
22.0	0.98	1,061	2	Flow through	2	0	0	0
22.2	0.98	1,063	2	Flow through	2	0	0	0
22.4	0.99	1,066	2	Flow through	2	0	0	0
22.6	0.99	1,068	2	Flow through	2	0	0	0
22.8	0.99	1,070	2	Flow through	2	0	0	0
23.0	0.99	1,072	2	Flow through	2	0	0	0
23.2	0.99	1,074	2	Flow through	2	0	0	0
23.4	0.99	1,076	2	Flow through	2	0	0	0
23.6	1.00	1,078	2	Flow through	2	0	0	0
23.8	1.00	1,080	2	Flow through	2	0	0	0
24.0	1.00	1,082	2	Flow through	2	0	0	0
24.2					0	0	0	0
24.4					0	0	0	0
24.6					0	0	0	0
24.8					0	0	0	0
25.0					0	0	0	0
25.2					0	0	0	0
25.4					0	0	0	0
25.6					0	0	0	0
25.8					0	0	0	0
26.0					0	0	0	0
26.2					0	0	0	0
26.4					0	0	0	0
26.6					0	0	0	0
26.8					0	0	0	0
27.0					0	0	0	0
27.2					0	0	0	0
27.4					0	0	0	0
27.6					0	0	0	0
27.8					0	0	0	0
28.0					0	0	0	0
28.2					0	0	0	0
28.4					0	0	0	0
28.6					0	0	0	0
28.8					0	0	0	0
29.0					0	0	0	0
29.2					0	0	0	0
29.4					0	0	0	0
29.6					0	0	0	0

FocalPoint
BIOFILTRATION SYSTEMS

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	754	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	754	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	90	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	30	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	754	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	**Flow through**	2	0	0	0
0.4	0.00	3	2	**Flow through**	2	0	0	0
0.6	0.01	5	2	**Flow through**	2	0	0	0
0.8	0.01	6	2	**Flow through**	2	0	0	0
1.0	0.01	8	2	**Flow through**	2	0	0	0
1.2	0.01	9	2	**Flow through**	2	0	0	0
1.4	0.01	11	2	**Flow through**	2	0	0	0
1.6	0.02	12	2	**Flow through**	2	0	0	0
1.8	0.02	14	2	**Flow through**	2	0	0	0
2.0	0.02	15	2	**Flow through**	2	0	0	0
2.2	0.02	17	2	**Flow through**	2	0	0	0
2.4	0.02	18	2	**Flow through**	2	0	0	0
2.6	0.03	20	2	**Flow through**	2	0	0	0
2.8	0.03	21	2	**Flow through**	2	0	0	0
3.0	0.03	23	2	**Flow through**	2	0	0	0
3.2	0.03	25	2	**Flow through**	2	0	0	0
3.4	0.04	27	2	**Flow through**	2	0	0	0
3.6	0.04	29	2	**Flow through**	2	0	0	0
3.8	0.04	30	2	**Flow through**	2	0	0	0
4.0	0.04	32	2	**Flow through**	2	0	0	0
4.2	0.05	34	2	**Flow through**	2	0	0	0
4.4	0.05	36	2	**Flow through**	2	0	0	0
4.6	0.05	39	2	**Flow through**	2	0	0	0
4.8	0.05	41	2	**Flow through**	2	0	0	0
5.0	0.06	43	2	**Flow through**	2	0	0	0
5.2	0.06	45	2	**Flow through**	2	0	0	0
5.4	0.06	47	2	**Flow through**	2	0	0	0
5.6	0.07	50	2	**Flow through**	2	0	0	0
5.8	0.07	52	2	**Flow through**	2	0	0	0
6.0	0.07	54	2	**Flow through**	2	0	0	0
6.2	0.08	57	2	**Flow through**	2	0	0	0
6.4	0.08	59	3	**Flow through**	3	0	0	0
6.6	0.08	62	3	**Flow through**	3	0	0	0
6.8	0.09	65	3	**Flow through**	3	0	0	0
7.0	0.09	68	3	**Flow through**	3	0	0	0
7.2	0.09	71	3	**Flow through**	3	0	0	0
7.4	0.10	75	3	**Flow through**	3	0	0	0
7.6	0.10	78	4	**Flow through**	4	0	0	0
7.8	0.11	82	4	**Flow through**	4	0	0	0
8.0	0.11	86	4	**Flow through**	4	0	0	0
8.2	0.12	90	4	**Flow through**	4	0	0	0
8.4	0.13	94	4	**Flow through**	4	0	0	0
8.6	0.13	99	5	**Flow through**	5	0	0	0
8.8	0.14	104	5	**Flow through**	5	0	0	0
9.0	0.15	110	6	**Flow through**	6	0	0	0
9.2	0.15	116	6	**Flow through**	6	0	0	0
9.4	0.16	122	6	**Flow through**	6	0	0	0
9.6	0.17	128	6	**Flow through**	6	0	0	0
9.8	0.18	135	7	**Flow through**	7	0	0	0
10.0	0.19	143	7	**Flow through**	7	0	0	0
10.2	0.20	150	8	**Flow through**	8	0	0	0
10.4	0.21	159	8	**Flow through**	8	0	0	0
10.6	0.22	168	9	**Flow through**	9	0	0	0
10.8	0.24	178	10	**Flow through**	10	0	0	0

11.0	0.25	189	11	Flow through	11	0	0	0
11.2	0.27	201	12	Flow through	12	0	0	0
11.4	0.29	216	15	Flow through	15	0	0	0
11.6	0.31	237	21	Flow through	21	0	0	0
11.8	0.37	281	44	Flow through	44	0	0	0
12.0	0.50	377	96	Flow through	96	0	0	0
12.2	0.63	473	96	Flow through	96	0	0	0
12.4	0.69	517	44	Flow through	44	0	0	0
12.6	0.71	538	21	Flow through	21	0	0	0
12.8	0.73	553	15	Flow through	15	0	0	0
13.0	0.75	566	12	Flow through	12	0	0	0
13.2	0.76	576	11	Flow through	11	0	0	0
13.4	0.78	586	10	Flow through	10	0	0	0
13.6	0.79	595	9	Flow through	9	0	0	0
13.8	0.80	604	8	Flow through	8	0	0	0
14.0	0.81	611	8	Flow through	8	0	0	0
14.2	0.82	619	7	Flow through	7	0	0	0
14.4	0.83	626	7	Flow through	7	0	0	0
14.6	0.84	632	6	Flow through	6	0	0	0
14.8	0.85	638	6	Flow through	6	0	0	0
15.0	0.85	644	6	Flow through	6	0	0	0
15.2	0.86	650	5	Flow through	5	0	0	0
15.4	0.87	655	5	Flow through	5	0	0	0
15.6	0.87	660	5	Flow through	5	0	0	0
15.8	0.88	664	4	Flow through	4	0	0	0
16.0	0.89	668	4	Flow through	4	0	0	0
16.2	0.89	672	4	Flow through	4	0	0	0
16.4	0.90	676	4	Flow through	4	0	0	0
16.6	0.90	679	4	Flow through	4	0	0	0
16.8	0.91	683	3	Flow through	3	0	0	0
17.0	0.91	686	3	Flow through	3	0	0	0
17.2	0.91	689	3	Flow through	3	0	0	0
17.4	0.92	692	3	Flow through	3	0	0	0
17.6	0.92	695	3	Flow through	3	0	0	0
17.8	0.92	697	3	Flow through	3	0	0	0
18.0	0.93	700	2	Flow through	2	0	0	0
18.2	0.93	702	2	Flow through	2	0	0	0
18.4	0.93	704	2	Flow through	2	0	0	0
18.6	0.94	707	2	Flow through	2	0	0	0
18.8	0.94	709	2	Flow through	2	0	0	0
19.0	0.94	711	2	Flow through	2	0	0	0
19.2	0.95	713	2	Flow through	2	0	0	0
19.4	0.95	715	2	Flow through	2	0	0	0
19.6	0.95	718	2	Flow through	2	0	0	0
19.8	0.95	720	2	Flow through	2	0	0	0
20.0	0.96	722	2	Flow through	2	0	0	0
20.2	0.96	724	2	Flow through	2	0	0	0
20.4	0.96	725	2	Flow through	2	0	0	0
20.6	0.96	727	2	Flow through	2	0	0	0
20.8	0.97	729	2	Flow through	2	0	0	0
21.0	0.97	731	2	Flow through	2	0	0	0
21.2	0.97	733	2	Flow through	2	0	0	0
21.4	0.97	734	2	Flow through	2	0	0	0
21.6	0.98	736	2	Flow through	2	0	0	0
21.8	0.98	738	2	Flow through	2	0	0	0
22.0	0.98	740	2	Flow through	2	0	0	0
22.2	0.98	741	2	Flow through	2	0	0	0
22.4	0.99	743	2	Flow through	2	0	0	0
22.6	0.99	744	2	Flow through	2	0	0	0
22.8	0.99	746	2	Flow through	2	0	0	0
23.0	0.99	747	1	Flow through	1	0	0	0
23.2	0.99	749	1	Flow through	1	0	0	0
23.4	0.99	750	1	Flow through	1	0	0	0
23.6	1.00	751	1	Flow through	1	0	0	0
23.8	1.00	753	1	Flow through	1	0	0	0
24.0	1.00	754	1	Flow through	1	0	0	0
24.2					0	0	0	0
24.4					0	0	0	0
24.6					0	0	0	0
24.8					0	0	0	0
25.0					0	0	0	0
25.2					0	0	0	0
25.4					0	0	0	0
25.6					0	0	0	0
25.8					0	0	0	0
26.0					0	0	0	0
26.2					0	0	0	0
26.4					0	0	0	0
26.6					0	0	0	0
26.8					0	0	0	0
27.0					0	0	0	0
27.2					0	0	0	0
27.4					0	0	0	0
27.6					0	0	0	0
27.8					0	0	0	0
28.0					0	0	0	0
28.2					0	0	0	0
28.4					0	0	0	0
28.6					0	0	0	0
28.8					0	0	0	0
29.0					0	0	0	0
29.2					0	0	0	0
29.4					0	0	0	0
29.6					0	0	0	0

FocalPoint
BIOFILTRATION SYSTEMS

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	964	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	964	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	135	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	45	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	964	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	**Flow through**	2	0	0	0
0.4	0.00	4	2	**Flow through**	2	0	0	0
0.6	0.01	6	2	**Flow through**	2	0	0	0
0.8	0.01	8	2	**Flow through**	2	0	0	0
1.0	0.01	10	2	**Flow through**	2	0	0	0
1.2	0.01	12	2	**Flow through**	2	0	0	0
1.4	0.01	13	2	**Flow through**	2	0	0	0
1.6	0.02	15	2	**Flow through**	2	0	0	0
1.8	0.02	17	2	**Flow through**	2	0	0	0
2.0	0.02	19	2	**Flow through**	2	0	0	0
2.2	0.02	21	2	**Flow through**	2	0	0	0
2.4	0.02	23	2	**Flow through**	2	0	0	0
2.6	0.03	25	2	**Flow through**	2	0	0	0
2.8	0.03	27	2	**Flow through**	2	0	0	0
3.0	0.03	30	2	**Flow through**	2	0	0	0
3.2	0.03	32	2	**Flow through**	2	0	0	0
3.4	0.04	34	2	**Flow through**	2	0	0	0
3.6	0.04	37	2	**Flow through**	2	0	0	0
3.8	0.04	39	2	**Flow through**	2	0	0	0
4.0	0.04	41	3	**Flow through**	3	0	0	0
4.2	0.05	44	3	**Flow through**	3	0	0	0
4.4	0.05	47	3	**Flow through**	3	0	0	0
4.6	0.05	49	3	**Flow through**	3	0	0	0
4.8	0.05	52	3	**Flow through**	3	0	0	0
5.0	0.06	55	3	**Flow through**	3	0	0	0
5.2	0.06	58	3	**Flow through**	3	0	0	0
5.4	0.06	60	3	**Flow through**	3	0	0	0
5.6	0.07	63	3	**Flow through**	3	0	0	0
5.8	0.07	66	3	**Flow through**	3	0	0	0
6.0	0.07	69	3	**Flow through**	3	0	0	0
6.2	0.08	73	3	**Flow through**	3	0	0	0
6.4	0.08	76	3	**Flow through**	3	0	0	0
6.6	0.08	80	4	**Flow through**	4	0	0	0
6.8	0.09	83	4	**Flow through**	4	0	0	0
7.0	0.09	87	4	**Flow through**	4	0	0	0
7.2	0.09	91	4	**Flow through**	4	0	0	0
7.4	0.10	96	4	**Flow through**	4	0	0	0
7.6	0.10	100	5	**Flow through**	5	0	0	0
7.8	0.11	105	5	**Flow through**	5	0	0	0
8.0	0.11	110	5	**Flow through**	5	0	0	0
8.2	0.12	115	5	**Flow through**	5	0	0	0
8.4	0.13	121	6	**Flow through**	6	0	0	0
8.6	0.13	127	6	**Flow through**	6	0	0	0
8.8	0.14	134	7	**Flow through**	7	0	0	0
9.0	0.15	141	7	**Flow through**	7	0	0	0
9.2	0.15	148	7	**Flow through**	7	0	0	0
9.4	0.16	156	8	**Flow through**	8	0	0	0
9.6	0.17	164	8	**Flow through**	8	0	0	0
9.8	0.18	173	9	**Flow through**	9	0	0	0
10.0	0.19	182	9	**Flow through**	9	0	0	0
10.2	0.20	192	10	**Flow through**	10	0	0	0
10.4	0.21	203	11	**Flow through**	11	0	0	0
10.6	0.22	215	12	**Flow through**	12	0	0	0
10.8	0.24	227	13	**Flow through**	13	0	0	0

11.0	0.25	241	14	Flow through	14	0	0	0
11.2	0.27	257	16	Flow through	16	0	0	0
11.4	0.29	276	19	Flow through	19	0	0	0
11.6	0.31	303	27	Flow through	27	0	0	0
11.8	0.37	360	57	Flow through	57	0	0	0
12.0	0.50	482	122	Flow through	122	0	0	0
12.2	0.63	604	122	Flow through	122	0	0	0
12.4	0.69	661	57	Flow through	57	0	0	0
12.6	0.71	688	27	Flow through	27	0	0	0
12.8	0.73	707	19	Flow through	19	0	0	0
13.0	0.75	723	16	Flow through	16	0	0	0
13.2	0.76	737	14	Flow through	14	0	0	0
13.4	0.78	749	13	Flow through	13	0	0	0
13.6	0.79	761	12	Flow through	12	0	0	0
13.8	0.80	772	11	Flow through	11	0	0	0
14.0	0.81	782	10	Flow through	10	0	0	0
14.2	0.82	791	9	Flow through	9	0	0	0
14.4	0.83	800	9	Flow through	9	0	0	0
14.6	0.84	808	8	Flow through	8	0	0	0
14.8	0.85	816	8	Flow through	8	0	0	0
15.0	0.85	824	8	Flow through	8	0	0	0
15.2	0.86	830	7	Flow through	7	0	0	0
15.4	0.87	837	7	Flow through	7	0	0	0
15.6	0.87	843	6	Flow through	6	0	0	0
15.8	0.88	849	6	Flow through	6	0	0	0
16.0	0.89	854	5	Flow through	5	0	0	0
16.2	0.89	859	5	Flow through	5	0	0	0
16.4	0.90	864	5	Flow through	5	0	0	0
16.6	0.90	868	5	Flow through	5	0	0	0
16.8	0.91	873	4	Flow through	4	0	0	0
17.0	0.91	877	4	Flow through	4	0	0	0
17.2	0.91	881	4	Flow through	4	0	0	0
17.4	0.92	884	4	Flow through	4	0	0	0
17.6	0.92	888	4	Flow through	4	0	0	0
17.8	0.92	891	3	Flow through	3	0	0	0
18.0	0.93	895	3	Flow through	3	0	0	0
18.2	0.93	898	3	Flow through	3	0	0	0
18.4	0.93	901	3	Flow through	3	0	0	0
18.6	0.94	904	3	Flow through	3	0	0	0
18.8	0.94	906	3	Flow through	3	0	0	0
19.0	0.94	909	3	Flow through	3	0	0	0
19.2	0.95	912	3	Flow through	3	0	0	0
19.4	0.95	915	3	Flow through	3	0	0	0
19.6	0.95	917	3	Flow through	3	0	0	0
19.8	0.95	920	3	Flow through	3	0	0	0
20.0	0.96	923	3	Flow through	3	0	0	0
20.2	0.96	925	3	Flow through	3	0	0	0
20.4	0.96	927	2	Flow through	2	0	0	0
20.6	0.96	930	2	Flow through	2	0	0	0
20.8	0.97	932	2	Flow through	2	0	0	0
21.0	0.97	935	2	Flow through	2	0	0	0
21.2	0.97	937	2	Flow through	2	0	0	0
21.4	0.97	939	2	Flow through	2	0	0	0
21.6	0.98	941	2	Flow through	2	0	0	0
21.8	0.98	943	2	Flow through	2	0	0	0
22.0	0.98	945	2	Flow through	2	0	0	0
22.2	0.98	948	2	Flow through	2	0	0	0
22.4	0.99	950	2	Flow through	2	0	0	0
22.6	0.99	951	2	Flow through	2	0	0	0
22.8	0.99	953	2	Flow through	2	0	0	0
23.0	0.99	955	2	Flow through	2	0	0	0
23.2	0.99	957	2	Flow through	2	0	0	0
23.4	0.99	959	2	Flow through	2	0	0	0
23.6	1.00	961	2	Flow through	2	0	0	0
23.8	1.00	962	2	Flow through	2	0	0	0
24.0	1.00	964	2	Flow through	2	0	0	0
24.2					0	0	0	0
24.4					0	0	0	0
24.6					0	0	0	0
24.8					0	0	0	0
25.0					0	0	0	0
25.2					0	0	0	0
25.4					0	0	0	0
25.6					0	0	0	0
25.8					0	0	0	0
26.0					0	0	0	0
26.2					0	0	0	0
26.4					0	0	0	0
26.6					0	0	0	0
26.8					0	0	0	0
27.0					0	0	0	0
27.2					0	0	0	0
27.4					0	0	0	0
27.6					0	0	0	0
27.8					0	0	0	0
28.0					0	0	0	0
28.2					0	0	0	0
28.4					0	0	0	0
28.6					0	0	0	0
28.8					0	0	0	0
29.0					0	0	0	0
29.2					0	0	0	0
29.4					0	0	0	0
29.6					0	0	0	0

Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

June 14, 2017

John Mahoney
Ransom Consulting Engineers
400 Commercial Street, Suite 404
Portland, ME 04101

Re: 48 Brown Steet, PO
Ability to Serve with PWD Water

Dear Mr. Mahoney:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on June 4, 2017. Based on the information provided per plans dated 6/6/17, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 2-inch service may be installed from the water main in Brown Street. The service should enter through the properties frontage on Brown Street at least 10-feet from any side property lines.

- Due to the nature of this site, a backflow prevention device will be required at the service entrance after the meter.

Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.

Existing Site Service

According to District records, the project site does not currently have existing water service.

Water System Characteristics

According to District records, there is an 6-inch diameter ductile iron water main in Brown Street and a public fire hydrant located 300 feet from the site. The most recent static pressure reading was 70 psi on April 3, 2017.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project.

Private Fire Protection Water Needs

You have not indicated whether this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Robert A. Bartels, P.E.
Senior Project Engineer

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Construction Managers
www.platzassociates.com

Two Great Falls Plaza
Auburn, Maine 04210
***tel* (207) 784-2941**
***fax* (207) 784-3856**

James A. Platz, P.E.
Thomas H. Platz, AIA

Brown Street Garage Code Review

48 Brown Street, Portland, Maine 04101
June 13, 2017

BUILDING INFORMATION

Construction Classification: Type IIB Construction

Garage Type: Open garage design

Fire Protection: Dry standpipes in stair towers with 4" storz connection at each level of garage

CLASSIFICATION OF USE AND OCCUPANCY

International Building Code- 2006

Section 302.1: Use Group S-2 (Open or Enclosed Parking Garage)

NFPA 101- Life Safety Code- 2006

Section 6.1: Storage Occupancy (Low & Ordinary Hazard) Motor Vehicle Parking Garage

Section 6.1.14.1.3: Where incidental to another occupancy, areas used for mercantile, business, or storage use shall be subject to the Code requirements of the predominant occupancy.

NFPA 88A- National Fire Code- 2008

Section 3.3.2.3: The occupancy classification the parking garage shall be Open Parking Garage as defined by Section 4.7.1.

SPECIAL REQUIREMENTS BASED ON USE AND OCCUPANCY

International Building Code- 2006

Section 406.2.1: Parking garage shall be classified as open, as defined in Section 406.3.

Section 406.2.2: Clear height of 7 feet shall be maintained in all vehicle and pedestrian travel areas on all floors. Van accessible spaces required per Section 1106.5 shall conform to ICC A117.1.

Section 406.2.3: Guards shall be provided in accordance with Section 1013 at all areas where vertical distance to the ground of any opening exceeds 30 inches.

Section 406.2.4: Vehicle barriers designed per Section 1607.7 shall be provided, except at access points. Barriers not less than 2 feet high shall be provided at the end of drive lanes where floor elevations differ by more than 1 foot.

Section 406.2.5: Vehicle ramps that are utilized for circulation as well as for parking shal not exceed a slope of 1:15.

Section 406.2.6: Parking surfaces shall be of concrete, except at ground level, where asphalt is allowed as an alternate.

Section 406.2.7 (via Section 508.3): Parking garages shall be separated from other occupancies according to Section 508.3.

Section 406.2.8: Connection of the garage to any room with a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation, unless the appliances ignition source is 18 inches above the floor.

Section 406.3.3.1: Openings of at least 20% of perimeter wall area shall be uniformly distributed on two or more sides.

Section 406.3.4: Mixed uses are allowed in conformance with Sections 508.3, 406.3.13, 509.3, 509.4, and 509.7.

Section 406.3.13: Vehicle repair work, parking of busses and trucks, and closing required openings in exterior walls are not allowed.

NFPA 88A- National Fire Code- 2008

Section 4.3.1: Floor surfaces shall be of noncombustible material.

Section 4.3.1.2: Floors at grade are allowed to be of asphalt.

Section 4.3.2: Floors shall be graded and equipped with drains.

CONSTRUCTION CLASSIFICATION

International Building Code- 2006

Section 406.3.3: Open parking garages shall be of Type I, II, or IV Construction.

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II	
	A	B	A[e]	B
Structural frame[a]	3[b]	2[b]	1	0
Bearing walls Exterior[g] Interior	3 3[b]	2 2[b]	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602			
Nonbearing walls and partitions Interior[f]	0	0	0	0
Floor construction Including supporting beams and joists	2	2	1	0
Roof construction Including supporting beams and joists	$1^1/_2$[c]	1[c, d]	1[c, d]	0[d]

For SI: 1 foot = 304.8 mm.

a. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not a part of the structural frame.

b. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

c. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

d. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

e. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.

f. Not less than the fire-resistance rating required by other sections of this code.

g. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP M	OCCUPANCY GROUP A, B, S-2
X < 5[c]	All	2	1
5 ≤ X <10	IA Others	2 1	1 1
10 ≤ X< 30	IA, IB IIB, VB Others	1 0 1	1[d] 0 1[d]
X ≥ 30	All	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. For special requirements for Group U occupancies see Section 406.1.2

c. See Section 705.1.1 for party walls.

d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

NFPA 88A- National Fire Code- 2008

Section 4.7.2: Open Parking Garages shall be of Type I or Type II construction.

GENERAL BUILDING HEIGHTS & AREA LIMITATIONS

International Building Code- 2006

Section 406.3.5: Area and height allowances for open parking occupancies shall be per Chapter 5 and Section 508.3 for S-2 occupancies.

Section 503.1 (via Table 503):

TABLE 503
ALLOWABLE HEIGHT AND BUILDING AREAS[a]
Height limitations shown as stories and feet above grade plane.
Area limitations as determined by the definition of "Area, building," per story

		TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
GROUP	HGT(feet) HGT(S)	UL	160	65	55	65	55	65	50	40
A-2	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
B	S	UL	11	5	4	5	4	5	3	2
	A	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
S-2[b,c]	S	UL	11	5	4	4	4	5	4	2
	A	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
M	S	UL	11	4	4	4	4	4	3	1
	A	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.
UL = Unlimited, NP = Not permitted.
a. See the following sections for general exceptions to Table 503:
1. Section 504.2, Allowable height increase due to automatic sprinkler system installation.
2. Section 506.2, Allowable area increase due to street frontage.
3. Section 506.3, Allowable area increase due to automatic sprinkler system installation.
4. Section 507, Unlimited area buildings.
b. For open parking structures, see Section 406.3.
c. For private garages, see Section 406.1.
d. See Section 415.5 for limitations.

BUILDING HEIGHTS & AREA MODIFICATIONS

International Building Code- 2006

Section 504.2: Where a building is equipped with an automatic sprinkler system, the maximum building height may be increased by 20 feet or 1 story.

Section 506.2: Frontage Increase = [building perimeter fronting open space / total building frontage - 0.25] width of open space / 30

Section 506.3: Sprinkler system provided throughout increases allowed area by 200% for buildings with more than 1 story above grade. Area increase not allowed in conjunction with fire rating reduction.

FIRE SEPARATION REQUIREMENTS

International Building Code- 2006

Section 406.3.7: Exterior walls and openings shall comply with Tables 601 and 602. The distance to adjacent lot line shall be per Table 602 and Section 704.

Section 508.2: Spaces which are incidental to the main occupancy shall be separated or the building shall be classified as mixed occupancy. Those separation requirements include; Furnace or Boiler Room require 1-hour separation requirement or sprinkler; Storage Rooms over 100 sf require 1-hour separation or sprinkler; Waste and linen collection rooms require 1-hour separation or sprinkler.

Section 508.3.3.1: Separated Occupancies- each fire area shall comply with the occupancy classification of that area.

Section 508.3.3.2: Allowable Area- at each floor, the building area shall be such that the sum of the ratios of the actual floor area of each occupancy divided by the allowable area shall not exceed one.

Section 508.3.3.3: Allowable Height- the height of each fire area shall be measured from grade, inclusive of intervening fire areas.

NFPA 88A- National Fire Code- 2008

Section 4.1.2: Parts of a parking garage located within 10 feet of from another building shall be separated by a 2-hour rating, except pedestrian bridges.

Section 4.1.4: Portions of a parking garage under another use shall extend rating requirements of other use to all principal supporting members of all floors.

Section 4.6.1: Vertical openings connecting four or more floors shall be enclosed with a 2-hour fire resistance rating.

Section 4.7.1.1: Each parking level shall have wall openings 1.4 sq ft in area per linear foot of perimeter.

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Auburn, Maine 04210
tel (207) 784-2941
fax (207) 784-3856

James A. Platz, P.E.
Thomas H. Platz, AIA

Ocean Gate Garage Life Safety Plan

48 Brown Street, Portland, Maine 04101
June 13, 2017

3.1. CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) PRINCIPLES

The site plan is designed to create formal and informal natural surveillance networks on the site to increase on-site visibility and the safety of legitimate users and to deter potential offenders. The placement and design of physical features maximizes visibility to allow for surveillance opportunities to and from site features such as entrances and exits, walkways, stairways, windows, parking lots, landscaping, and site fences or walls. The lighting of the site and building shall meet the City's technical standards for site lighting, as detailed in Section 12 of this manual, and enable users to observe movement and activities on the site during the day and at night. Motion sensor activated lighting is permitted to provide adequate illumination of the site at night while still complying with applicable lighting curfew standards of Section 12 of the Technical Manual. Specifically, the lighting plan will create nighttime illumination of pedestrian travel paths and gathering areas, entrances and exits, and parking lots and garages. Clear views of each parking area from a distance will enable anyone moving in or immediately around it to be easily seen. Potential hiding spaces are denied adjacent to existing and proposed pedestrian travel routes with low-wall planters and parking bumpers. Well-lit and glass-enclosed stair towers and illuminated parking areas will permit facial identification at a distance of at least 30' and create the perception of being identified. Mechanical surveillance systems will be installed to monitor areas not easily observed and will connect to a security office within the garage and in the adjacent building at 511 Congress Street.

The site plan is designed to provide visible pathways and to offer proper guidance for legitimate users to access the site and to discourage unauthorized use of the site
With proper wayfinding signage the site is designed to clearly guide the movement of vehicles and pedestrians along safe and predictable paths both during the daytime and nighttime. Specifically, the placement of signage, lighting fixtures, landmarks, and landscape design features shall clearly guide users to and from the facility. If necessary, mechanical access control systems may be implemented such as assigning personnel at key building entry points or establishing other procedures such as mechanical auto closing devices, key cards, gates and other locking devices.

3.2. FIRE HYDRANT STANDARDS

The development has a hydrant within five hundred (500') feet of the structure, complying with city code Chapter 10 and the Portland Water Districts standards.

3.4. SITE ACCESS STANDARDS

The development provides access for Fire Department vehicles to at least two sides of the structure. The structure will display the assigned street number, clearly visible from the public right of way.

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Two Great Falls Plaza
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fax (207) 784-3856

James A. Platz, P.E.
Thomas H. Platz, AIA

Ocean Gate Garage: Design Review

48 Brown Street, Portland, Maine 04101
June 13, 2017

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CITY OF PORTLAND DESIGN MANUAL

B-3 Downtown Business Zone

- ~ Meet Section 14-526 of Land Use Code
- ~ Relationship to pedestrian = first 35' of height shall enhance the character, comfort, security, and usability of pedestrian level.
- ~ Storefronts and building facades, materials and detailing, pedestrian character, transparency, and contemporary design.
- ~ Building entrances, street prominence, street access, ADA accessibility.
- ~ Reduce blank facades.
- ~ Special features such as arcades, skywalks, or elevated walkways.
- ~ Sidewalk areas per City of Portland Technical Manual, important factors include: materials, landscaping, lighting, pedestrian amenities, vendors or sidewalk cafes.
- ~ Integrate with the neighboring context with respect to: street walls and building setbacks, open space, building form/massing/scale, façade proportions/composition, pedestrian circulation and building entrances.

DOWNTOWN URBAN DESIGN GUIDELINES

I – Relationship to Pedestrian Environment

Section A: Distinguish lower 35' of Building Facades

- ~ Storefronts and building facades should relate to the architecture of the building.
- ~ Signage should be incidental to the storefront and not overwhelm the façade.
- ~ High quality materials that are durable and low-maintenance.
- ~ Building entrances that relate to the building façade, have prominence on the City street, and provide access to the street, and provide ADA accessibility.
- ~ No more than 30' of blank façade.

Section C: Sidewalks and Open Space

- ~ Brick sidewalks required, or concrete pavers that look like brick, per City's Technical and Design Standards Guidelines.
- ~ Painted crosswalks with thermally-applied markings allowed.
- ~ Street design per City's Technical and Design Standards Guidelines.
- ~ Landscaping is encouraged, especially flowers, colorful foliage, distinctive bark, and interesting shapes, with plant selection per City's Technical and Design Standards Guidelines.
- ~ Landscape lighting is encouraged.
- ~ Tree grates and guards are encouraged.
- ~ Coordinated lighting program between: sidewalk & building lighting, building façade illumination, street lighting.
- ~ Sidewalk luminaries per City's Technical and Design Standards Guidelines.

Section D: Pedestrian Amenities

~ Benches, trash receptacles, directional and informational signage per City's Technical and Design Standards Guidelines.
~ Walls should be as low as possible, and integrated with landscaping where possible.

II – Relationship to Existing Development

Section A: Integrate with, Respect and Enhance

~ Maintain urban street wall context.
~ Building form, scale, and massing that is consistent with the structure of the City.
~ Distinctive elements on the skyline.
~ Diminish mass and bulk by: varying exterior walls with setbacks/recesses, varying building height, articulate different sections.
~ Composition in traditional base/middle/top relationship.
~ Proportions should strive to respect the surrounding development.
~ Pedestrian circulation and building entrances should be frequent to support pedestrian activities.
~ Parking garages:
    1. Street-level uses should be pedestrian-oriented uses where feasible, or accommodate conversion in the future.
    2. Incorporate through-block pedestrian connections, clearly designated, to allow connections separate and distinct from vehicular travel lanes.
    3. Positive aesthetic solution that supports pedestrian interest.
    4. Screen of direct sight to vehicles and lighting is important.
    5. Provide additional landscaping near public sidewalks.
    6. Adequate signage to attract and direct motorist without overwhelming the pedestrian environment.
    7. Public parking signage per City's Technical and Design Standards Guidelines.
    8. Consider shared-use strategies, including the City's residential clearinghouse program.

VI – Setback from Existing Structures

~ Maintain adequate setback to address snow loading.
~ Allow existing means of egress.

DESIGN GUIDELINES COMPLIANCE STATEMENT

CITY OF PORTLAND DESIGN MANUAL

Responding to the B-3 Downtown Business Zone requirements, the project meets Section 14-526 of the Land Use Code.

Special attention was paid to accentuating the first 35' of the façade design, which looks and feels traditional, light, open, and contextual.

The design of the Brown Street Garage features open steel framing, traditional architectural forms, and active, human-scaled urban edges.

Particular attention was paid to the garage's most publically visible and engaging facades; those seen directly from Cumberland and obliquely from Congress along Brown Street. These locations were embellished with glass storefront entry towers, providing well-lit and safe pedestrian connections through the garage. They are further softened and enlivened with quality façade materials like decorative grillwork and architectural cast stone elements, landscaped planter beds, and through the use of well-balanced site lighting.

Sidewalk connections are made with high-quality granite curbs and brick pavers that extend into the garage at the most important connections, providing a safe and seamlessly-integrated pedestrian experience from parking stall to the City's sidewalk system on all three accessible sides of the building.

ADA accessibility is enhanced with signed and striped ADA and van accessible parking provided on both stories with ground level connections.

The design capitalizes on the steel structure of the garage as an architectural medium, accentuated with sculptural grillwork and cast stone elements, to provide beauty in its rhythm, punctuation, and detailing.

The building's massing is couched by the elevation level-change from Casco to Brown Street, which greatly reduces the vertical impact of the structure as perceived from Casco Street. The building integrates with the adjacent context at Cumberland and Brown Street, activating the street wall with vehicular and pedestrian connections and aesthetically appealing as a well-designed building of scale and quality.

Signage is integrated into the vehicular entry canopy design, extending the visual impact artfully in a way that will enhance the effectiveness and design appeal of the garage.

RANSOM
Consulting, Inc.

Consulting
Engineers
and Scientists

June 20, 2017 Project 151.06037

Barbara Barhydt, Development Review Manager
City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, Maine 04103

RE: Level III Site Plan Application
Five-Level Parking Garage
Ocean Gate Realty Garage
48 – 72 Brown Street
Portland, Maine

Dear Barbara:

On behalf of Ocean Gate, LLC, we are pleased to submit this Preliminary Level III Site Plan Application for the development of a five-level parking garage at 48-72 Brown Street in Portland's downtown area.

This project will replace an existing surface parking lot with 5 levels of structured parking. Increasing parking density on this site will facilitate the conversion of adjacent surface parking lots to residential, commercial, office and potentially other land uses. The construction of privately funded structured parking has been strongly encouraged in the City's various Master Plans.

Please consider that we will be submitting a Stormwater Credit application to the Water Resources Department for this project shortly. Our goal is to develop a design that meets both the Site Plan Standards and the Stormwater Credit requirements.

In order to demonstrate that this project meets the standards outlined in Section 14-526 of the Site Plan Ordinance, we have included the following documents in the following order:

A-Level-III-Site-Plan-Application

B-Right-Title-and-Interest

D-Zoning Assessment

G-Financial Capacity

J-Transportation Memo

L-Stormwater Management Plan

N-Ability to Serve Portland Water District

P-1-Code Review

400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
12 Kent Way, Suite 100, Byfield, Massachusetts 01922, Tel (978) 465-1822
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160

www.ransomenv.com

Barbara Barhydt, Development Review Manager
Portland Planning Department

P-2-Life Safety Plan

Q-Design Review

S-1-Cover Letter (this document)

S-2-Perspective Images

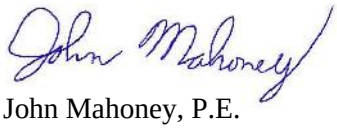
S-3-Boring Logs

S-4-Historic Preservation Narrative 5-30-17

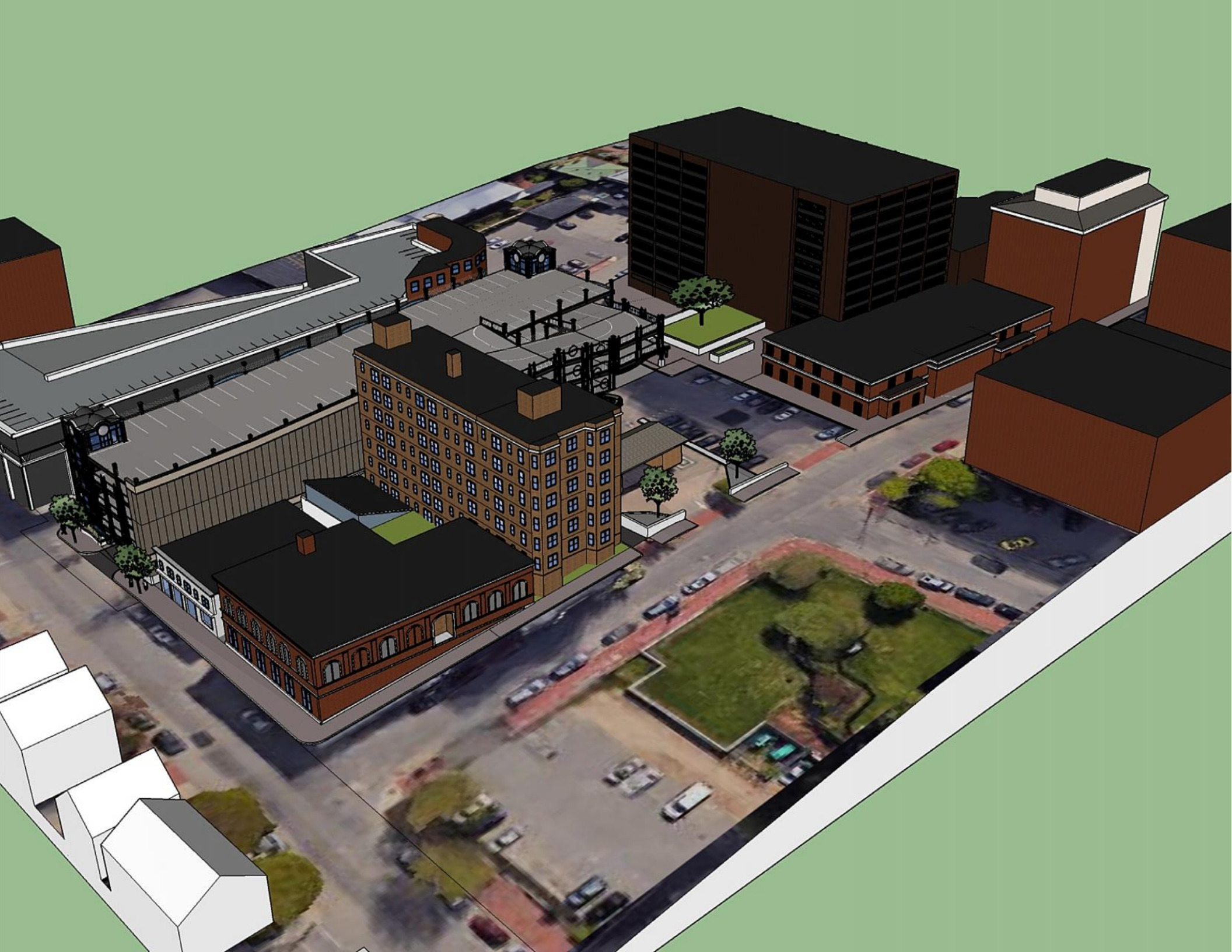
If you have any questions regarding the attached application materials, please feel free to contact me at john.mahoney@ransomenv.com or (207) 772-2891 Ex 32.

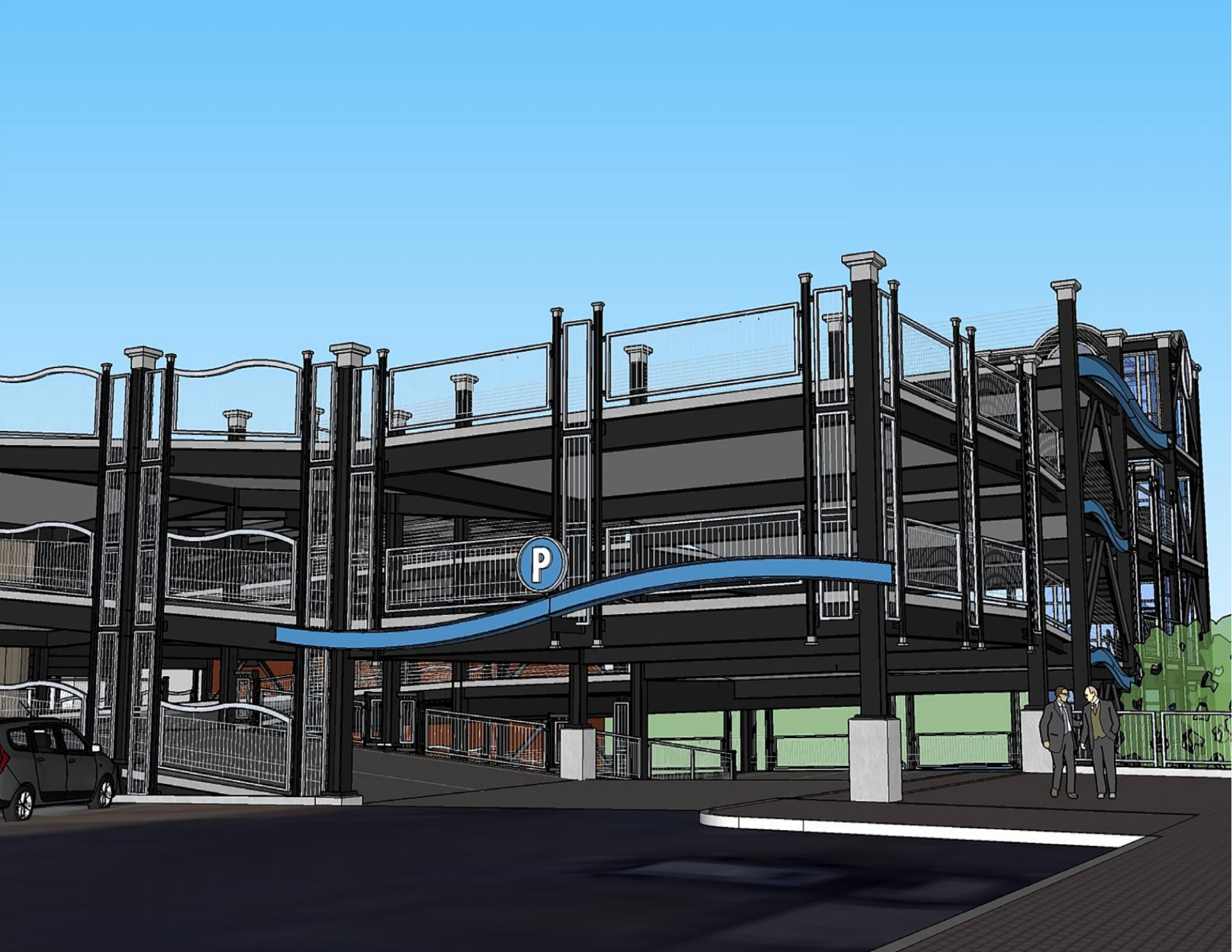
Sincerely,

RANSOM CONSULTING, INC.



John Mahoney, P.E.
Project Engineer

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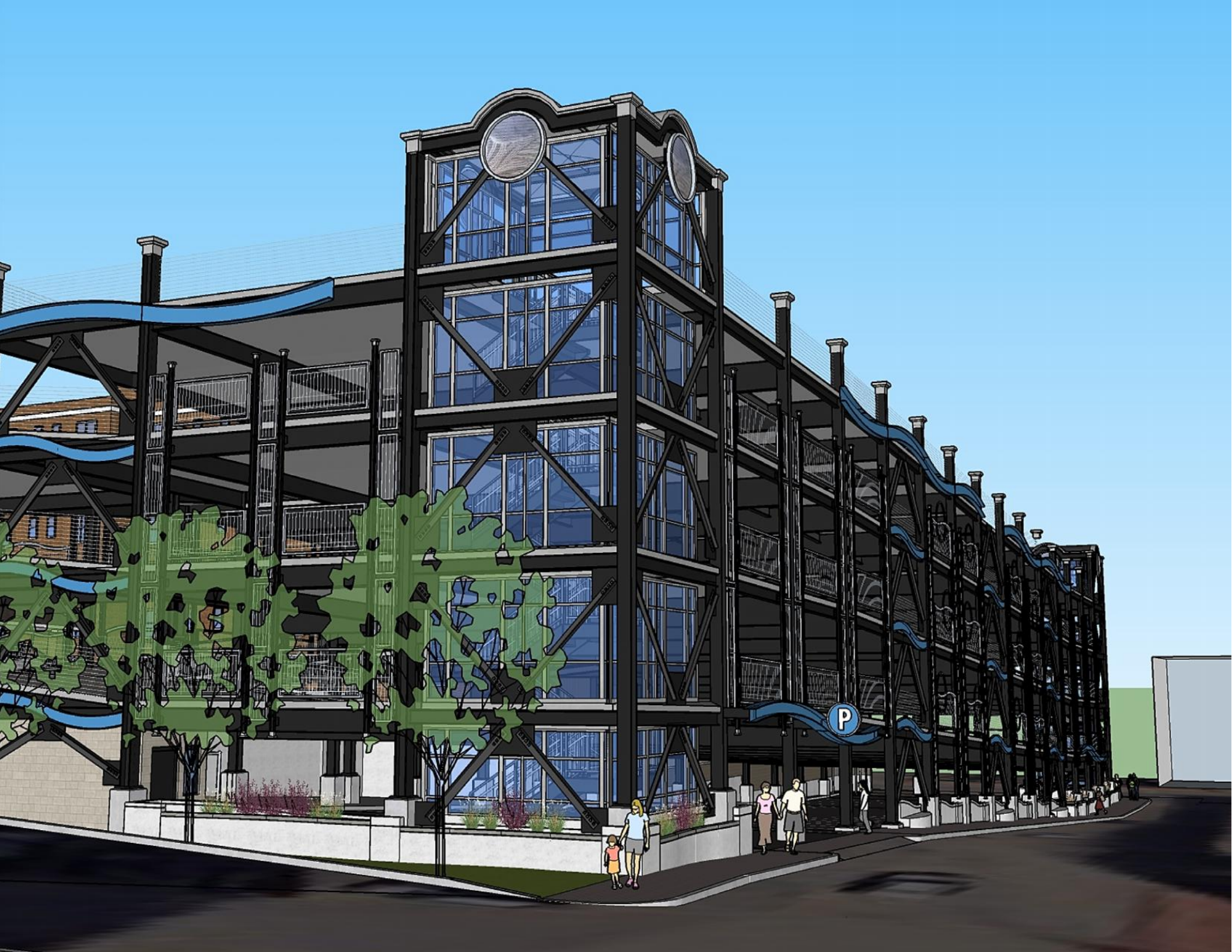
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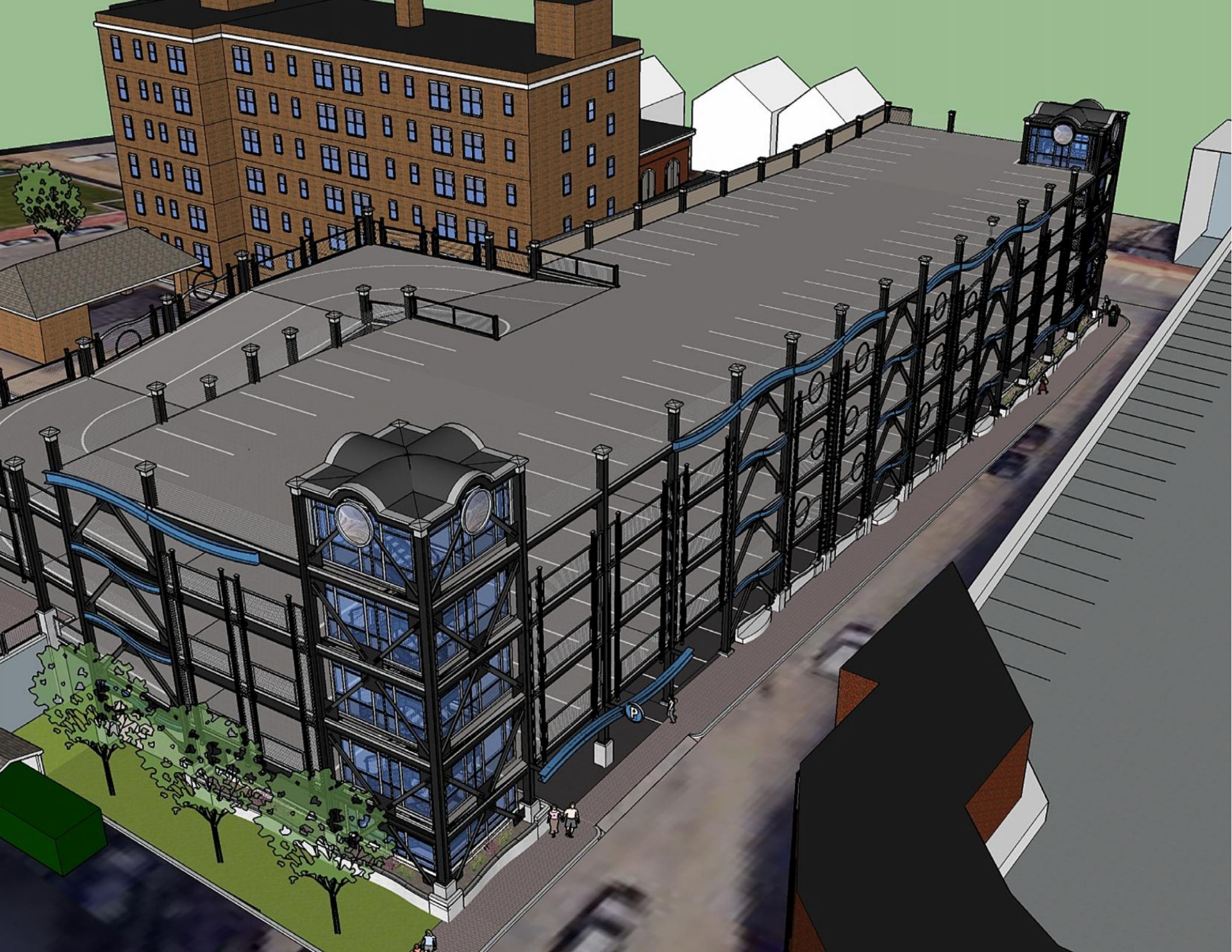

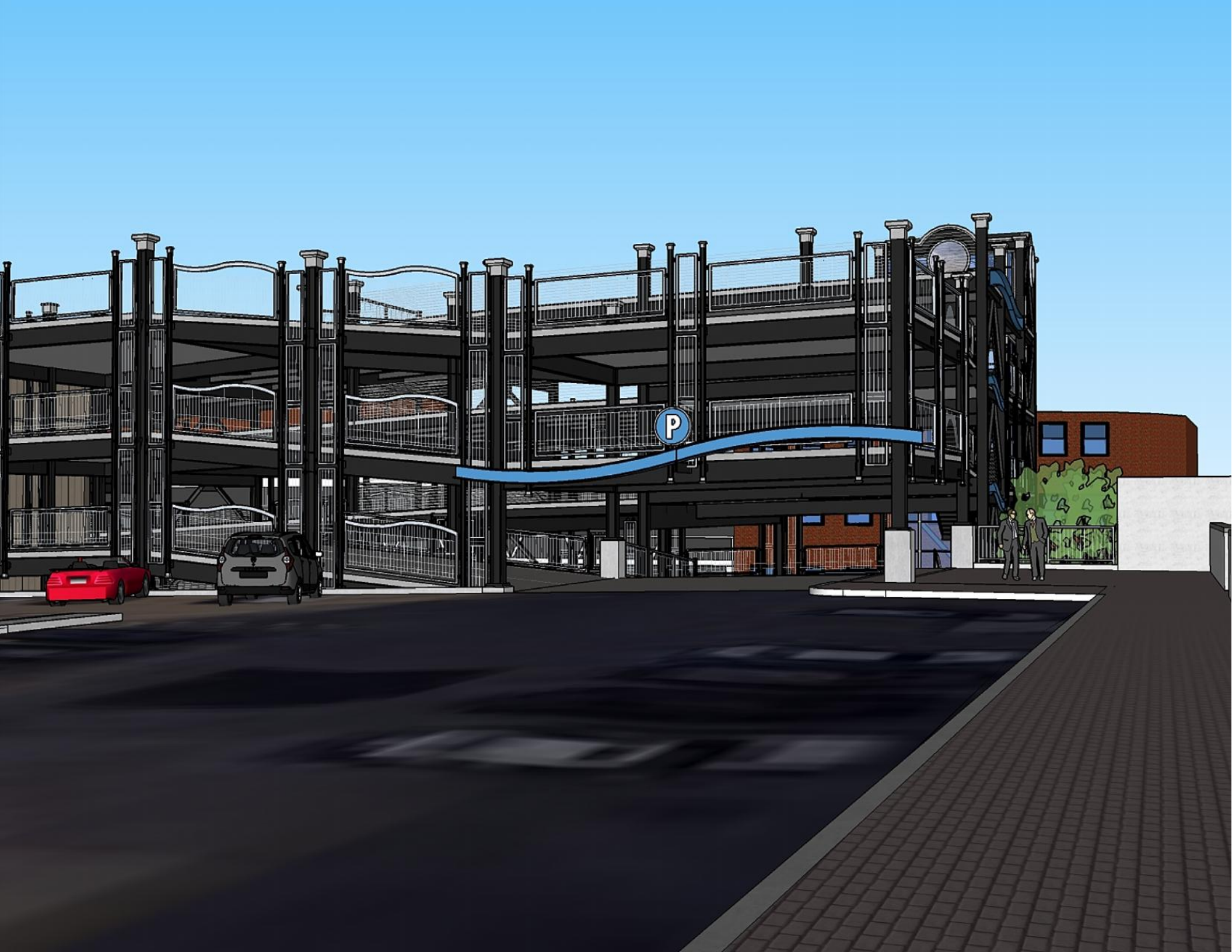
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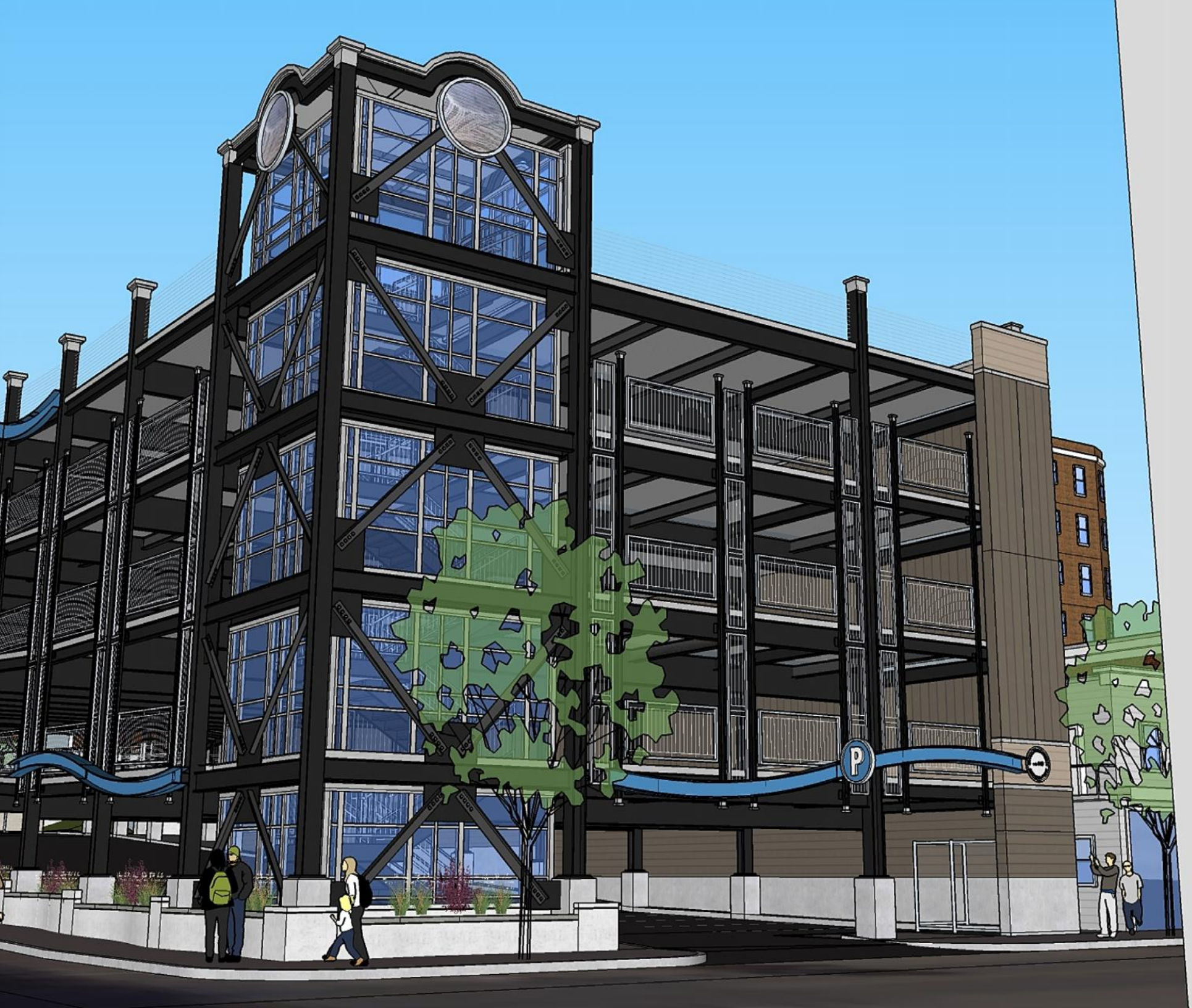
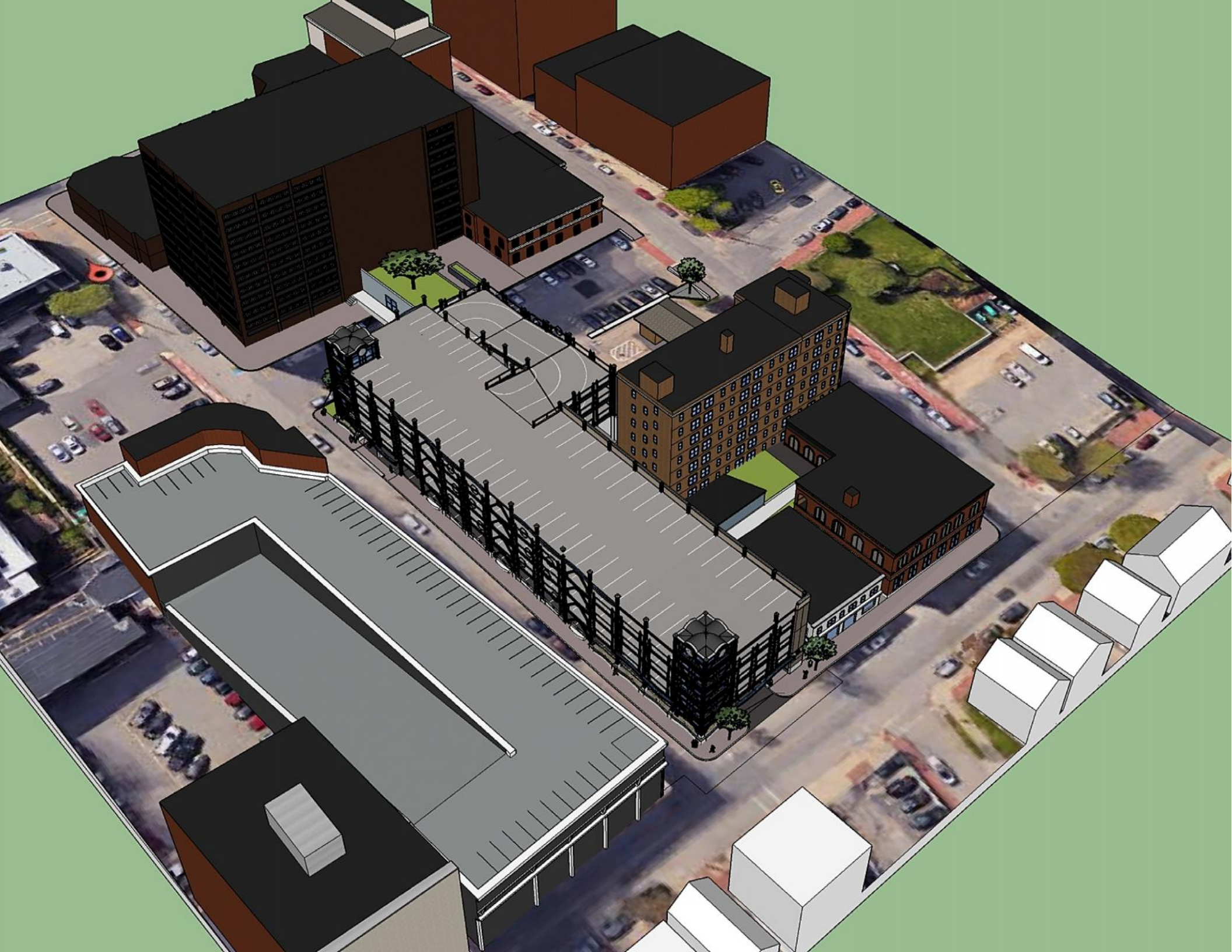


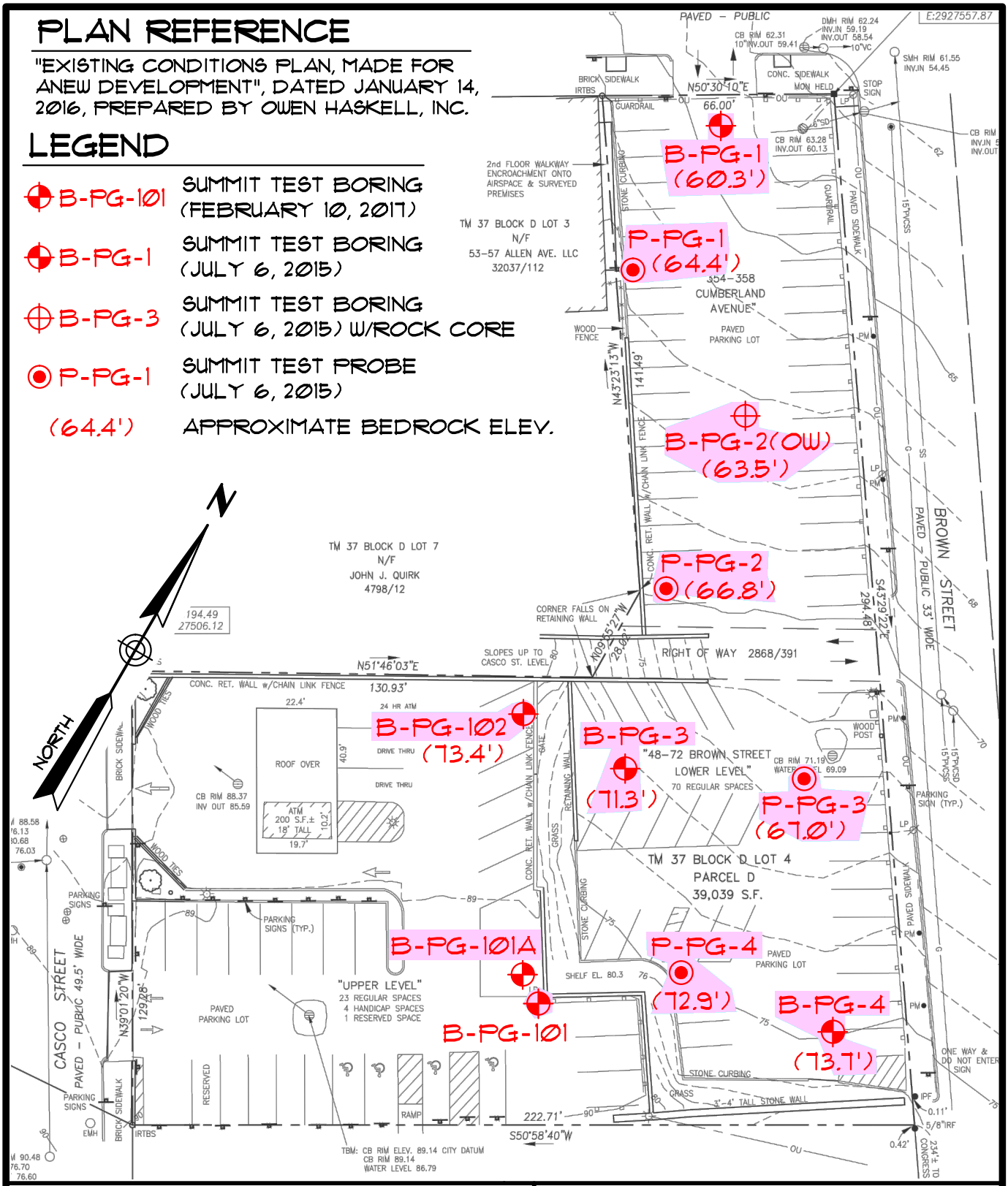


PLAN REFERENCE

"EXISTING CONDITIONS PLAN, MADE FOR ANEW DEVELOPMENT", DATED JANUARY 14, 2016, PREPARED BY OWEN HASKELL, INC.

LEGEND

B-PG-101	SUMMIT TEST BORING (FEBRUARY 10, 2017)
B-PG-1	SUMMIT TEST BORING (JULY 6, 2015)
B-PG-3	SUMMIT TEST BORING (JULY 6, 2015) W/ROCK CORE
P-PG-1	SUMMIT TEST PROBE (JULY 6, 2015)
(64.4')	APPROXIMATE BEDROCK ELEV.



TEST BORING LOCATION PLAN
PROPOSED PARKING GARAGE

BROWN STREET - PORTLAND, MAINE

PREPARED FOR

ANEW DEVELOPMENT

DATE: 2-13-2017	DRAWN BY: KRF	CHECKED BY: WMP
JOB: 15108.1	SCALE: 1" = 40'	FILE: 15108 BOR

145 LISBON ST. - SUITE 601
LEWISTON, ME 04240
Tel.: (207) 576-3313

173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7761

SUMMIT
GEOENGINEERING SERVICES
www.summitgeoeng.com

SUMMIT
GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Brown Street Parking Garage	Boring #:	**B-PG-101**
Location:	511 Congress St	Project #:	15108.1
City, State:	Portland, Maine	Sheet:	1 of 1
		Chkd by:	

Drilling Co:	New England Boring Contractors	Boring Elevation:	89 ft +/-
Driller:	P. Schofield	Reference:	Existing Conditions Plan, January 2016, Owen Haskell
Summit Staff:	B. Peterlein, P.E.	Date started: 2/10/2017	Date Completed: 2/10/2017

DRILLING METHOD		SAMPLER	
Vehicle:	Truck	Length:	24" SS
Model:	Mobil B48	Diameter:	2"OD/1.5"ID
Method:	2-1/2 inch H.S.A.	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/10/2017			None Observed

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
						4" Pavement		
1	S-1	24/12	0.2 to 2.5	6		Brown Sandy GRAVEL, trace Silt, moist, compact,		
				8		GP		FILL
2				9				
				11				
3	S-2	24/8	2.5 to 4.5	4		Dark brown Sandy SILT, trace Clay and Gravel,		
				5		trace Brick and Ash, damp, firm, ML		
4				3				
				4				
5								
6								
7								
						Auger Refusal at 7.1 ft - Bedrock or Rubble		BEDROCK OR RUBBLE
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT
GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-PG-101A**

Project:	Brown Street Parking Garage	Project #:	15108.1
Location:	511 Congress St	Sheet:	1 of 1
City, State:	Portland, Maine	Chkd by:	

Drilling Co:	New England Boring Contractors	Boring Elevation:	89 ft +/-
Driller:	P. Schofield	Reference:	Existing Conditions Plan, January 2016, Owen Haskell
Summit Staff:	B. Peterlein, P.E.	Date started: 2/10/2017	Date Completed: 2/10/2017

DRILLING METHOD		SAMPLER	
Vehicle:	Truck	Length:	24" SS
Model:	Mobil B48	Diameter:	2"OD/1.5"ID
Method:	2-1/2 inch H.S.A.	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/10/2017			None Observed

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
1						AUGER to 4 ft		FILL
2								
3								
4								
	S-2	24/6	4 to 6	3		Grayish-brown Sandy SILT, trace Clay and Gravel		
5				2		trace white Ash, damp, firm, ML		
				4				
6				2				
7						Auger Refusal at 6.5 ft - Bedrock or Rubble		BEDROCK OR RUBBLE
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT
GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Brown Street Parking Garage	Boring #:	**B-PG-102**
Location:	511 Congress St	Project #:	15108.1
City, State:	Portland, Maine	Sheet:	1 of 1
		Chkd by:	

Drilling Co:	New England Boring Contractors	Boring Elevation:	89 ft +/-
Driller:	P. Schofield	Reference:	Existing Conditions Plan, January 2016, Owen Haskell
Summit Staff:	B. Peterlein, P.E.	Date started: 2/10/2017	Date Completed: 2/10/2017

DRILLING METHOD		SAMPLER	
Vehicle:	Truck	Length:	24" SS
Model:	Mobil B48	Diameter:	2"OD/1.5"ID
Method:	2-1/2 inch H.S.A.	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/10/2017			None Observed

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
1			0.5 to 2	2		6" Pavement Brown Gravelly SAND, trace Silt, moist, compact, SP		FILL
2				9				
3				6				
4			2 to 4	6		Black Silty SAND, trace Gravel, trace Ash and Brick, moist, compact, SM		
5				9				
6				11				
7				8				
8			4 to 6	7		Same as above, little to some brick pieces		
9				6				
10				5				
11				6				
12								
13								
14								
15			9 to 11	4		Olive-brown slightly mottled Sandy SILT, trace Gravel and Clay, damp		REWORKED GLACIAL TILL
16				4				
17				3				
18				1				
19								
20								
21								
22								

Ocean Gate Garage
Historic Preservation Board Review

May 30, 2017

Historic Preseration Narrative

Ocean Gate, LLC proposes the construction of a new, 4-deck, steel framed, and graciously designed parking structure to accommodate approximately 261 parked vehicles. While the project is not located in a Historic District, it is sited on land adjacent to a Historic District.

Background & Project Goals
Ocean Gate, LLC is the current owner of 511 Congress Street as well as other ancillary surface parking lots on adjacent and nearby parcels on Brown, Casco, and Shepley Streets. These parking lots currently provide an aggregate total of 151 parking spaces for the use of the commercial tenants at the 511 Congress property. Total parking demand at the property, however, exceeds this capacity by over 115 spaces and Ocean Gate currently meets excess demand through costly third-party leases at private area parking garages.

The new garage will be sited directly beside 511 Congress and will greatly enhance the utility and marketability of the commercial office space at 511 Congress allowing it to better attract and retain high quality businesses and the valuable jobs they provide our Portland community.

At the same time, addressing all of the parking demands of 511 Congress in a single structure frees spaces currently leased in area garages for other commercial and residential users *and* creates future new residential development opportunities on Ocean Gate's Shepley Street surface lots.

The project will also infill and activate a vacant site that, despite the owner's best efforts at patrols and other security measures, consistently attracts litter, loitering, and nefarious activity.

Garage Configuration & Relationship to Adjacent Properties
The new parking structure on the corner of Brown and Cumberland will layer over the surface parking lot that currently exists there. In terms of grades, dimensions, and urban context, the site is ideally suited for the proposed garage which integrates into the site gracefully and with minimal impact on adjacent structures and urban context.

At the Northern end of the parcel the +/-65' wide structure will be sited in close proximity to 511 Congress for ease of access by tenants. Given the tall base of the 511 Congress building and the way the Brown Street lot slopes down from the building, office tenants at 511 will maintain their access to light and open views over the new garage.

To the East, the garage fronts Brown Street and is adjacent to another, existing parking garage. Brown Street is narrow and so public view of this long edge of the garage will be very brief and only at oblique angles.

To the South, the garage presents a narrow +/-65' face to Cumberland Avenue. As described further below, the design team has paid particular care and attention to this façade to ensure architectural definition and interest and an active, human-scaled experience. The garage will positively contribute to the Cumberland Avenue street wall as an active and well-designed building of scale and quality.

To the West, the garage abuts both a two-story, mixed-use commercial building oriented toward Cumberland Avenue and a mid-rise residential building (the Ambassador) oriented toward Casco Street. In the case of the two-story structure, the garage in-fills to its side where there are no active entries and only light secondary fenestration. In the case the Ambassador, the garage starts at a much lower grade and only affects the property at the lowest portions of its rear elevation. The garage subordinates to the mass of the Ambassador and preserves public views of the structure from most perspectives. Farther up the lot from the Ambassador the garage nestles up against an existing series of retaining walls, which conceal its lower stories and greatly reduce the vertical impact of the structure as perceived from Casco Street.

Architectural Design

Ocean Gate, LLC is highly committed to quality urban design for Portland. This commitment was front of mind when selecting Platz Associates as the project architect. Platz was selected for their proven ability to deliver garages in Lewiston and other Maine communities which look and feel traditional, light, open, and contextual.

The design of the Brown Street Garage features open steel framing, traditional architectural forms, and active, human-scaled urban edges. Particular attention was paid to the garage's most publically visible and engaging facades; those seen directly from Cumberland Street and obliquely from Congress Street. These locations were embellished with glass entry doors and glass stair towers. They will be further softened and enlivened with quality/permanent façade materials, landscaped planter beds, and through the use of well-balanced site lighting.

The design capitalizes on the steel structure of the garage as an architectural medium providing beauty in its rhythm, punctuation, and detailing.

Neighborhood Meeting Certification

48 Brown Street – Ocean Gate Realty Parking Garage

I, Ethan Boxer-Macomber, on behalf of Ocean Gate, LLC (Applicant), hereby certify that a neighborhood meeting was held on September 20, 2017 at the offices of Avesta Housing, 307 Cumberland Avenue at 6:30pm.

I also certify that on September 8, 2017, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development.

2. Residents on the "interested parties" list.

3. A copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed, _____ 9/25/17

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

Attachment #1
Copy of Invitation Sent

Sample Post Card Notice

September 8, 2017

Dear Neighbor:

Please join us for a **Neighborhood Meeting** to discuss our proposed plans for development of a **New Parking Structure located at 48 Brown Street**.

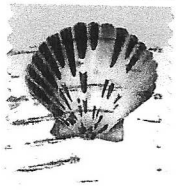
Location: 307 Cumberland Avenue (Avesta Housing Conference Room)
Date: Wednesday, September 20, 2017
Time: 6:30 PM

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board. If you have any questions, please call Ethan Boxer-Macomber, Project Developer at 207-272-8550 or ethan@anew-development.com. Should you wish to offer additional comments on this proposed development, you may also contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street Portland, ME 04101 or by email to mgrooms@portlandmaine.gov.

Sincerely,
Ethan Boxer-Macomber, Anew Development, LLC

Anew Development, LLC
30 Danforth Street, Suite 213
Portland, ME 04101

SOUTH PORTLAND MAINE P&DC 04074
08 SEP 2017



PACKARD JEFFREY G & RICHARD H
PACKARD JTS
547 CONGRESS ST # 3C
PORTLAND, ME 04101

815 NEE 1 717C7209/11/17
RETURN TO SENDER
PACKARD JEFF
MOVED LEFT NO ADDRESS
UNABLE TO FORWARD
RETURN TO SENDER
FWD BC: 04101457463 *1569-01498-11-32

"Interested Parties" (1 of 1)

Anthony Donovan
27 Riverview Street
Portland, ME 04102

Barb Wood
125 Emery Street
Portland, ME 04102

Chris Castelsky
Fairpoint Communications
521 East Morehead Street
Charlotte, NC 28202

David Nowlin
215 Oxford Street
Portland, ME 04102

Deb Keenan
28 Dorothy Street
Portland, ME 04103

Devon and Pamela Platte
26 North Street, #3
Portland, ME 04101

Edward Suslovic
District 3
46 Kenwood St.
Portland, Me 04103

Greater Portland Council of Governments
970 Baxter Blvd., 2nd Floor
Portland, ME 04103

Henry Leclair
209 Range Road
Windham, ME 03087

Janice Carpenter
9 West Commonwealth Drive
Portland, ME 04103

Jennifer Munson
City of Portland
389 Congress Street
Portland, ME 04101

Jesse Thompson, RA, LEED AP
Kaplan Thompson Architects
424 Fore Street
Portland, ME 04101

John Leavitt
NE Regional Council of Carpenters
68 Bishop Street, Unit 1
Portland, ME 04103

Len Anderson
543 Allen Avenue
Portland, ME 04103

Lynn Clarkson
145 Marlborough Road
Portland, ME 04103

Mary Griffith
6 E. Promenade, Unit #2
Portland, ME 04101

Mr. Vahan Tufankijan
Seaside Healthcare Room 416-1
850 Baxter Boulevard
Portland, ME 04103

Nancy Bartlett
PO Box 7965
Portland, ME 04112

Pam Burnside
64 Lester Drive
Portland, ME 04103

Paul Dubois
Kimberly Dubois
1915 Congress Street
Portland, Me 04102

Peggy Morin
66 Farnham Street
Portland, ME 04101

Philip Haughey
1660 Soldiers Field Road
Boston, MA 02135

Portland Society of Architects
c/o James Sterling, AIA
PO Box 7305
Portland, ME 04112

Priscilla D. LaVallee
190 US Route 1, Unit 2
Falmouth, ME 04105-1380

Rebecca Halla
Waste Management
2000 Forest Avenue
Portland, ME 04103

REP Benjamin Dudley III
District 30
9 Ponce Street
Portland, ME 04101

REP Glenn Cummings
District 37
24 Nevens Street
Portland, ME 04103

REP Herb Adams
District 33
231 State Street
Portland, ME 04101-2361

Robert Hains
250 Holm Avenue
Portland, ME 04102

48 BROWN ABUTTERS (500 ft.) (1 of 6)

11 SHEPLEY STREET ASSOCIATES LLC
10 SOMERVILLE RD
HEWITT, NJ 07421

15 CASCO STREET LLC
15 CASCO ST
PORTLAND, ME 04101

207 INVESTS I LLC
140 BAY S # 7S
JERSEY CITY, NJ 07302

24 PREBLE STREET PROPERTIES LLC
31 CONCORD ST
PORTLAND, ME 04103

25 PREBLE STREET LLC
PO BOX 535
BUXTON, ME 04093

28 MSQ LLC
PO BOX 17536
PORTLAND, ME 04112

347 CUMBERLAND AVENUE ASSOCIATES LLC
782 FOREST AVE
PORTLAND, ME 04102

39 LLC
4 MILK ST STE 103
PORTLAND, ME 04101

477-481 CONGRESS STREET HOLDINGS LLC
7501 WISCONSIN AVE STE 500 WEST
BETHESDA, MD 20814

5 MONUMENT SQUARE LLC
PO BOX 4894
PORTLAND, ME 04112

50 MONUMENT LLC
PO BOX 1671
BLUE HILL, ME 04614

540 CONGRESS STREET LLC
90 CARROLL ST
PORTLAND, ME 04102

551 CONGRESS STREET LLC
551 CONGRESS ST
PORTLAND, ME 04101

8/12 HANOVER STREET LLC
40 WOODFIELD DR
SCARBOROUGH, ME 04074

ADLER JANICE B
PO BOX 462 112 DORSER TD
RANGELEY, ME 04970

AMBASSADOR LLC
104 GRANT ST
PORTLAND, ME 04101

ANDREOLI HELEN L
15 BROWN ST # 302
PORTLAND, ME 04101

ASM PROPERTIES LLC
PO BOX 8211
LEWISTON, ME 04243

AVERBACH GRETA H & JAMES M POPKIN JTS
15 BROWN ST # 403
PORTLAND, ME 04101

AVESTA OAK STREET LP
307 CUMBERLAND AVE
PORTLAND, ME 04101

AZIMI ABDUL W & COURTNEY L AZIMI JTS
98 SAWYER ST
SOUTH PORTLAND, ME 04106

BARBA NANCY L & CYNTHIA A WHEELOCK JTS
500 CONGRESS ST
PORTLAND, ME 04101

BARBERA SUSAN
10 CHERRY LN
NEWCASTLE, ME 04553

BARTHE DONNA
367 US ROUTE 1
FALMOUTH, ME 04105

BASS JONATHAN
56 PORTLAND ST
PORTLAND, ME 04101

BAUMAN PATRICIA J TRUSTEE
47 WEST 84TH ST # 4N
NEW YORK, NY 10024

BAYSIDE I LLC
ONE CANAL PLAZA
PORTLAND, ME 04101

BEAVER BLOCK LLC
796 FOREST AVE
PORTLAND, ME 04103

BLACKBURN CAROLYN W
14 HANOVER ST
PORTLAND, ME 04101

BLISSFUL BOUND LLC
547 A CONGRESS ST # 602
PORTLAND, ME 04101

BOURKE PATRICK J IV
547 CONGRESS ST # 3A
PORTLAND, ME 04101

BROAD REACH INVESTMENTS LLC
48 SOUTH ST
YARMOUTH, ME 04096

BUDDE SCOTT & CHARLOTTE F COLE JTS
28 MONUMENT SQ # 1
PORTLAND, ME 04101

CANNON LAURA-MARIE P & SEAN W KERWIN JTS
18 PARRIS ST
PORTLAND, ME 04101

CENTER CITY PLAZA ASSOC
167 PERRY ST 5D
NEW YORK, NY 10014

CENTER CONGRESS LLC
10 SOMERVILLE RD
HEWITT, NJ 07421

CHADBALLS HOLDING LLC
PO BOX 10250
PORTLAND, ME 04104

CHAMPAGNE DREAMS LLC
57 EXCHANGE ST STE 103
PORTLAND, ME 04101

CLIFF'S EDGE LLC & RIVERSIDE ASSOCIATES LLC
38 FIDDLEHEAD LN
FREEPORT, ME 04032

CLOUTIER TOOTHAKER ASSOCIATES INC
P.O. BOX 4271 STATION A
PORTLAND, ME 04101

COFFIN KATHLEEN M
15 BROWN ST # 305
PORTLAND, ME 04101

CONGRESS JOINT DEVELOPMENT LLC
PO BOX 6799
SCARBOROUGH, ME 04070

CONWAY NANCY ANN TRUSTEE
15 BROWN ST # 207
PORTLAND, ME 04101

CORRYMORE ZELLERTON LLC
555 CONGRESS ST
PORTLAND, ME 04101

DOCTOROFF MARK G
15 BROWN ST # 208
PORTLAND, ME 04101

DOCTOROFF MARK G
15 BROWN ST # 307
PORTLAND, ME 04101

DOWLING KATHARINE DAKOTA
29 PARRIS ST # 1
PORTLAND, ME 04101

DYER'S VARIETY STORE
45 PORTLAND ST
PORTLAND, ME 04101

EARL APARTMENTS LLC
104 GRANT ST
PORTLAND, ME 04104

FERRANTE DENNIS
9 HANOVER ST
PORTLAND, ME 04101

FITZPATRICK SUSAN E
547 CONGRESS ST # 4A
PORTLAND, ME 04101

FOREMAN BROCK & LESLIE E FOREMAN JTS
547 CONGRESS ST # 3B
PORTLAND, ME 04101

FORTY FIVE CASCO STREET LLC
45 CASCO ST
PORTLAND, ME 04101

FORTY NINE LLC
104 GRANT ST
PORTLAND, ME 04102

FURMAN ROSS Y
PO BOX TWO
PORTLAND, ME 04112

GRACE LLC
490 CONGRESS ST # 101
PORTLAND, ME 04101

GRANO ROBERT C TRUSTEE
88005 OVERSEAS HIGHWAY # 10-246
ISLAMORADA, FL 33036

GREEN MARIKO KUZMA TRUSTEE
29 PARRIS ST # 2
PORTLAND, ME 04101

GREENEWALT CHARLOTTE
257 PENNELLVILLE RD
BRUNSWICK, ME 04011

HADIARIS JENNIFER J
15 BROWN ST # 404
PORTLAND, ME 04101

HARRISON SYDNEY
11 BROWN ST # 02A
PORTLAND, ME 04101

HAVEY BENJAMIN M
15 BROWN ST # 203
PORTLAND, ME 04101

HAYES DANIEL C TRUSTEE
2074 ERIC SHAEFER WAY
BALTIMORE, MD 21211

HEGA REALTY LLC
218 EAST RD
HAMPSTEAD, NH 03841

HEGA REALTY TRUST
218 EAST RD
HAMPSTEAD, NH 03841

HENNING GUY W & DIANE W HENNING JTS
11 HUNT ST
FAIRFAX, VT 05454

HENRY MICHAEL T & JAIME COHEN JTS
200 W 90TH ST # 3A
NEW YORK, NY 10024

HER LLC
559 CONGRESS ST
PORTLAND, ME 04101

HIRSHON STEPHEN E & COLETTE Y BOUCHARD JTS
18 HANOVER ST
PORTLAND, ME 04101

HOWE JONATHAN G
2957 SW CHAMPLAIN DR
PORTLAND, OR 97205

HUNT RYAN ETAL
15 BROWN ST # 306
PORTLAND, ME 04101

HUNT STEPHEN C
24 HANOVER ST # B
PORTLAND, ME 04101

HUNTER BEVERLY C & HAROLD G HUNTER
130 MOSSIE LN
AMISSVILLE, VA 20106

JAMES & JUNE REALTY II LLC
10 OAK HILL RD
NATICK, MA 01760

JBG & H ASSOCIATES
PO BOX 4510
PORTLAND, ME 04112

KAPLAN 504 LLC
49 OCEAN AVE
PORTLAND, ME 04103

KIM PAUL ETAL JTS
15 BROWN ST # 401
PORTLAND, ME 04101

KIMBALL BUILDING LLC THE
490 CONGRESS ST
PORTLAND, ME 04101

LEAPING FISH LLC
377 CUMBERLAND AVE
PORTLAND, ME 04101

LMG PROPERTIES LLC
PO BOX 4182
PORTLAND, ME 04101

LOVING ROSE
33 JOHNSON CIR
TUNBRIDGE, VT 05077

MACDONALD BRICE JOHN
29 PARRIS ST # 4
PORTLAND, ME 04101

MACEACHERN ALLISON SCOTT
15 BROWN ST # 202
PORTLAND, ME 04101

MAINE CHARITABLE MECHANIC ASSOC
PO BOX 8769
PORTLAND, ME 04104

MAINE COLLEGE OF ART
522 CONGRESS ST
PORTLAND, ME 04101

MAINE HISTORICAL SOCIETY
485 CONGRESS ST
PORTLAND, ME 04101

MALLORY WILLIAM J & ELDA MARIBEL MALLORY JTS
5 HANOVER ST
PORTLAND, ME 04101

MARTIN ROGER
547 CONGRESS ST # 2
PORTLAND, ME 04101

MATERIAL OBJECTS
500 CONGRESS ST
PORTLAND, ME 04101

MCCLOSKEY SUSAN A
25 PARRIS ST
PORTLAND, ME 04101

MCGORRILL DONNA T
15 BROWN ST # 406
PORTLAND, ME 04101

MCILVAIN JOHN & ELIZABETH S MCILVAIN TRUSTEES
PO BOX 248
GEORGETOWN, ME 04548

MHS INC
485 CONGRESS ST
PORTLAND, ME 04101

MILLER MARY B & GARY A MILLER JTS
11 QUEENS DR
SCARBOROUGH, ME 04074

MONTMINY SHANE A
547 CONGRESS ST # 2E
PORTLAND, ME 04101

MOOIMAN ALAN & CHRISTINE MOOIMAN JTS
11 BROWN ST # 02B
PORTLAND, ME 04101

MOORE BRIAN D
15 BROWN ST # 304
PORTLAND, ME 04101

MORRISON CALEB
9 PARRIS ST # 3
PORTLAND, ME 04101

MORRISON K SCOTT & MARY K MORRISON
9 PARRIS ST # 1
PORTLAND, ME 04101

MORRISON K SCOTT & MARY K MORRISON JTS
9 PARIS ST # 1
PORTLAND, ME 04101

MORRISON K SCOTT & MARY K MORRISON JTS
9 PARRIS ST # 1
PORTLAND, ME 04101

MOULTON THOMAS W
10 DANA ST STE 400
PORTLAND, ME 04101

MURPHY JEAN M & RICHARD W MURPHY JTS
PO BOX 10045
PORTLAND, ME 04104

NAPOLITALNO MADELINE A & ANTHONY J NAPOLITANO
182 EASTERN PROM
PORTLAND, ME 04102

NAPOLITANO MADELINE A & ANTHONY J NAPOLITANO
182 EASTERN PROMENADE
PORTLAND, ME 04101

NELSON JOHN P
52 THOMPSON ST
SOUTH PORTLAND, ME 04106

NEVERMORE LLC
10 DANA ST STE 400
PORTLAND, ME 04101

NEWSOME JOSEPH & ANTOINETTE NEWSOM
256 STATE ST
PORTLAND, ME 04101

NORBERG DAVID J & CAROLYN N JTS
275 COTTAGE RD
SOUTH PORTLAND, ME 04106

NORBERG DAVID J & CAROLYN M
275 COTTAGE RD
SOUTH PORTLAND, ME 04106

NORTHEAST INVESTORS LLC
PO BOX 6
KENTS HILL, ME 04349

NORTHEAST REALTY INC
10 DANA ST STE 400
PORTLAND, ME 04101

NORTHERN NEW ENGLAND TELEPHONE OPERATIONS LLC
770 ELM ST
MANCHESTER, NH 03101

NORTHERN NEW ENGLAND DISTRICT COUNCIL OF THE ASSEMBLIES OF GOD
PO BOX 611
PORTLAND, ME 04104

OCEAN GATE LLC
511 CONGRESS ST
PORTLAND, ME 04101

OLIVADOTI ROBERT & ALANNA OLIVADOTI JTS
48 CLEAVES ST
NORTH YARMOUTH, ME 04097

OOBLECK LLC
100 COMMERCIAL ST BOX 411
PORTLAND, ME 04101

O'SULLIVAN MICHAEL & ALAN J LEWIS JTS
409 S HIGHLAND AVE
PITTSBURGH, PA 15206

PACHIOS BROTHERS I LLC & LACONIA LLC
167 PERRY ST 5D
NEW YORK, NY 10014

PACHIOS BROTHERS II LLC
167 PERRY ST 5D
NEW YORK, NY 10014

PACKARD JEFFREY G & RICHARD H PACKARD JTS
547 CONGRESS ST # 3C
PORTLAND, ME 04101

PARK STREET PROPERTY LLC
51 BELFIELD RD
CAPE ELIZABETH, ME 04107

PARKSIDE PROPERTIES LLC
PO BOX 10250
PORTLAND, ME 04104

PERKINS DAVID H & JANET L PERKINS JTS
225 FLAG POND RD
SACO, ME 04072

PHELPS CRAIG REAL ESTATE HOLDINGS LLC
150 GARLAND RD
RYE, NH 03870

PORTLAND STAGE COMPANY
PO BOX 1458
PORTLAND, ME 04104

PREBLE CHAPEL
331 CUMBERLAND AVE
PORTLAND, ME 04101

PREBLE STREET
38 PREBLE ST
PORTLAND, ME 04101

PREBLE STREET RESOURCE CENTER INC
331 CUMBERLAND AVE
PORTLAND, ME 04101

PREBLE STREET RESOURCE CENTER
PO BOX 1459
PORTLAND, ME 04104

R & J 545 PARTNERS LLC
PO BOX 275
BROOKLIN, ME 04616

ROCCO HOLDINGS LLC
175 SPURWINK RD
SCARBOROUGH, ME 04074

ROKOWSKI MICHAEL J & KATHLEEN A JTS
15 SANDY TOES LN
WINDHAM, ME 04062

ROKOWSKI MICHAEL J & KATHLEEN JTS
15 SANDY TOES LN
WINDHAM, ME 04062

SALVATION ARMY THE
88 PREBLE ST
PORTLAND, ME 04101

SARASON JULIE
276 PARKVIEW AVE
LOWELL, MA 01852

SCHERER STEPHANIE F
21 HANOVER ST
PORTLAND, ME 04101

SCULLY JOHN M
547 A CONGRESS ST # 202
PORTLAND, ME 04101

SEAFORTH HOUSING LLC
275 BATTERY ST STE 500
SAN FRANCISCO, CA 94111

SEASIDE PARTNERS LLC
PO BOX 2327
BANGOR, ME 04402

SHALOM HOUSE INC
106 GILMAN ST
PORTLAND, ME 04102

SHEPLEY LLC
104 GRANT ST
PORTLAND, ME 04101

SHOREY LINDA J & JOHN DECKER JTS
537 CONGRESS ST # 503
PORTLAND, ME 04101

SINGER ROBERT B TRUSTEE
430 KEARNEY CIR
MANCHESTER, NH 03104

SOMALUZO LLC
PO BOX 7211
PORTLAND, ME 04102

SPACE GALLERY
536 CONGRESS ST
PORTLAND, ME 04101

SPINELLA RONALD J & CHRISTINE L JTS
377 CUMBERLAND AVE
PORTLAND, ME 04101

SPINELLA RONALD J & CHRISTINE L SPINELLA TRUSTEES
377 CUMBERLAND AVE
PORTLAND, ME 04101

STODDARD ROBERT B & ELIZABETH W STODDARD JTS
28 MONUMENT SQ # 2
PORTLAND, ME 04101

TAYLOR HILDA A
17 HANOVER ST
PORTLAND, ME 04101

TELGENER CHRISTOPHER R
20 HANOVER ST
PORTLAND, ME 04101

THE BUZZ LLC
340 FORE ST
PORTLAND, ME 04101

THE DOROTHEA & LEO RABKIN FOUNDATION
50 MARKET ST # 194
SOUTH PORTLAND, ME 04106

THERIAULT KATHERINE A & NORMAN JOEL MOSER JTS
243 MERE POINT RD
BRUNSWICK, ME 04011

THIVIERGE JENNIFER
118 HILLS BEACH RD
BIDDEFORD, ME 04005

THREE EIGHTY CUMBERLAND ASSOCIATES LLC
120 EXCHANGE ST
PORTLAND, ME 04101

THREE FORTY ASSOCIATES LLC
120 EXCHANGE ST
PORTLAND, ME 04101

TIEMAN JAMES S
15 BROWN ST # 402
PORTLAND, ME 04101

TYSON BRUCE & ANDREA TYSON JTS
547 A CONGRESS ST # 403
PORTLAND, ME 04101

WALBRIDGE HOYT & STEPHANIE BACON JTS
531 CONGRESS ST # 505
PORTLAND, ME 04101

WALLACE KELLY LEIGH & GEORGE JOSEPH RHEAULT JTS
28 HANOVER ST
PORTLAND, ME 04101

WARREN ISLAND LLC
4724 32ND ST NW
WASHINGRON, DC 20002

WARREN ISLAND LLC
4724 32ND ST NW
WASHINGTON, DC 20002

WHEELER-BERTA FRANCES H TRUSTEE
2 NORWOOD AVE
CAMDEN, ME 04843

WHYTE PATRICIA
7 ORCHARD ST
SOUTH PORTLAND, ME 04106

WICK KIMBERLY A & COLLETTE C GRUBE JTS
24 HANOVER ST
PORTLAND, ME 04101

WILLIAMS DEBORAH J & IGOR PROKOPIW JTS
531 CONGRESS ST # 501
PORTLAND, ME 04101

ZELENER YAN & ADINA LOVE BERCOWICZ JTS
11 BROWN ST # 03A
PORTLAND, ME 04101

ZILKHA MICHAEL S
1001 MCKINNEY STE 1900
HOUSTON, TX 77002

Attachment #2

Sign In Sheet

Ocean Gate Garage – Neighborhood Meeting
September 20, 2017
Avesta Housing Conference Rm

Name	Address	email / Phone
Ethan Boxer-Macomber	30 Danforth St.	ethan@anew-development.com (207) 272-8550
TRAVIS NADEAU	32 PEOPLES ST. LISBON FALLS	TNADEAU@PLATECLASSICS.COM 784-2941
IAN JACOB	59 STATE ST 04101	IANCASPERJACOB@GMAIL.COM
Kelley Gaby	511 Congress St. Ptld.	Kelley@oceangatecrealty.com
Ed Gardner	511 Congress St. Ptld.	Ed@oceangatecrealty.com
Peter Moreau	290 Baxter Blvd D2 Ptld	peter.moreau@re.com
Sarah Michniewicz	47 Cedar St. Ptld.	SARAHMICHNIEWICZ@MAC.COM
George Rheault	28 Hanover St.	george.rheault@gmail.com
Igor Prokopiw	537 Congress St.	iprokopiw@me.com
Deborah Williams	537 Congress St.	cadeborah@yahoo.com

Attachment #3
Meeting Minutes

Neighborhood Meeting Minutes

48 Brown Street – Ocean Gate Realty Parking Garage

Meeting Location:	Avesta Housing Board Room 307 Cumberland Avenue
Date:	September 20, 2017
Time:	6:30-8:00pm

The meeting was attended by the entire development team including representatives for the owner as well as the project architect charged with both design as well as coordination and oversight of the engineering team (civil, mechanical, structural, etc).

The meeting commenced at 6:35 with four (4) members of the public in attendance.

Ethan Boxer-Macomber opened the meeting with introductions and an overview of the applicant's goals and aspirations for the project.

Travis Nadeau next presented an overview of the project design highlighting neighborhood contact, massing, and articulation as well as variable such as circulation, storm water, lighting, and security.

Ed Gardner, Kelly Craig, and Peter Morneau talked about Ocean Gates current and future management strategies- particularly with regard to dealing with safety, security, and sanitation.

Igor Prokopiw and Deborah Williams, residents of a nearby condominium development, cited a great lack of parking in the area and explained that they had come tom inquire as to whether there would be opportunities for area residents to lease spaces on nights and weekends.

Ocean Gate staff explained that, as with the current surface lots, the garage would be actively managed and that, yes, there would be opportunities for area residents to make limited use of the garage.

West End resident Ian Jacob expressed concern that the garage design did not go far enough to elevate the pedestrian experience and improve the neighborhood. Specifically, he expressed concern with the Brown Street corridor and the potential for it to "cut off" Cumberland Avenue from the downtown. Mr. Jacob thought the project should go farther to add architectural interest and embellishment to the Brown Street facade so as to draw pedestrian activity in and toward Cumberland, not repel it.

Mr. Jacob also identified that, as a one-way street, Brown Street should be controlled to limit vehicular speed and foster a more safe and pedestrian friendly environment.

My Jacob also asked questions about bike and scooter parking.

George Rheault of State Street in the West End expressed a fundamental opposition to the idea of a parking garage being developed in this location and referred to the project as a "nail in the coffin of Cumberland Avenue". Mr. Rheault expressed his opinion that Portland does not need any more parking and opined that a neighborhood master plan should be created by the City and that garages should be prohibited.

The question was asked why the garage didn't go deeper below ground. The team explained this was the original intent but that the a the site was found to have solid bedrock throughout and that going lower is not financially viable.

Mr. Rheault asked why the Cumberland Avenue face of the structure couldn't have active uses such as retail, office, and housing? The team explained that this had been the project's original intent and starting point but that, in early project exploration, it was determined to be highly financially in feasible to do so.

Mr. Rheault asked whether in the future (Uber, Self-Driving Cars) could the structure be converted to conditioned space (housing, office, etc). The team explained that, yes, the ends of the structure feature deep flat areas which are highly conducive to future conversion, if and when market forces warrant such a transition.

Mr. Rheault and Jacobs offered design ideas to soften the façade and create a more human-scaled, inviting feeling.

Bothe during and after the meeting there were conversations around the high number of homeless people who congregate in the area an how the project design could balance creating a comfortable and attractive environment without encouraging loitering, litter, and nefarious activity (drugs, prostitution, public urination, and the like).

The meeting adjourned shortly after 8:00.

GENERAL NOTES

1. OWNERS OF RECORD: OCEAN GATE LLC
   CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 31452 PAGE 305
   TAX MAP 37 BLOCK D LOT 4

2. BEARINGS ARE BASED ON CITY DATUM USING CITY CONTROL POINTS:

   L 757-34-112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE.

   L 757-34-111 "M" MONUMENT AT THE SOUTHEASTERLY CORNER OF CUMBERLAND AVE. & OAK ST.

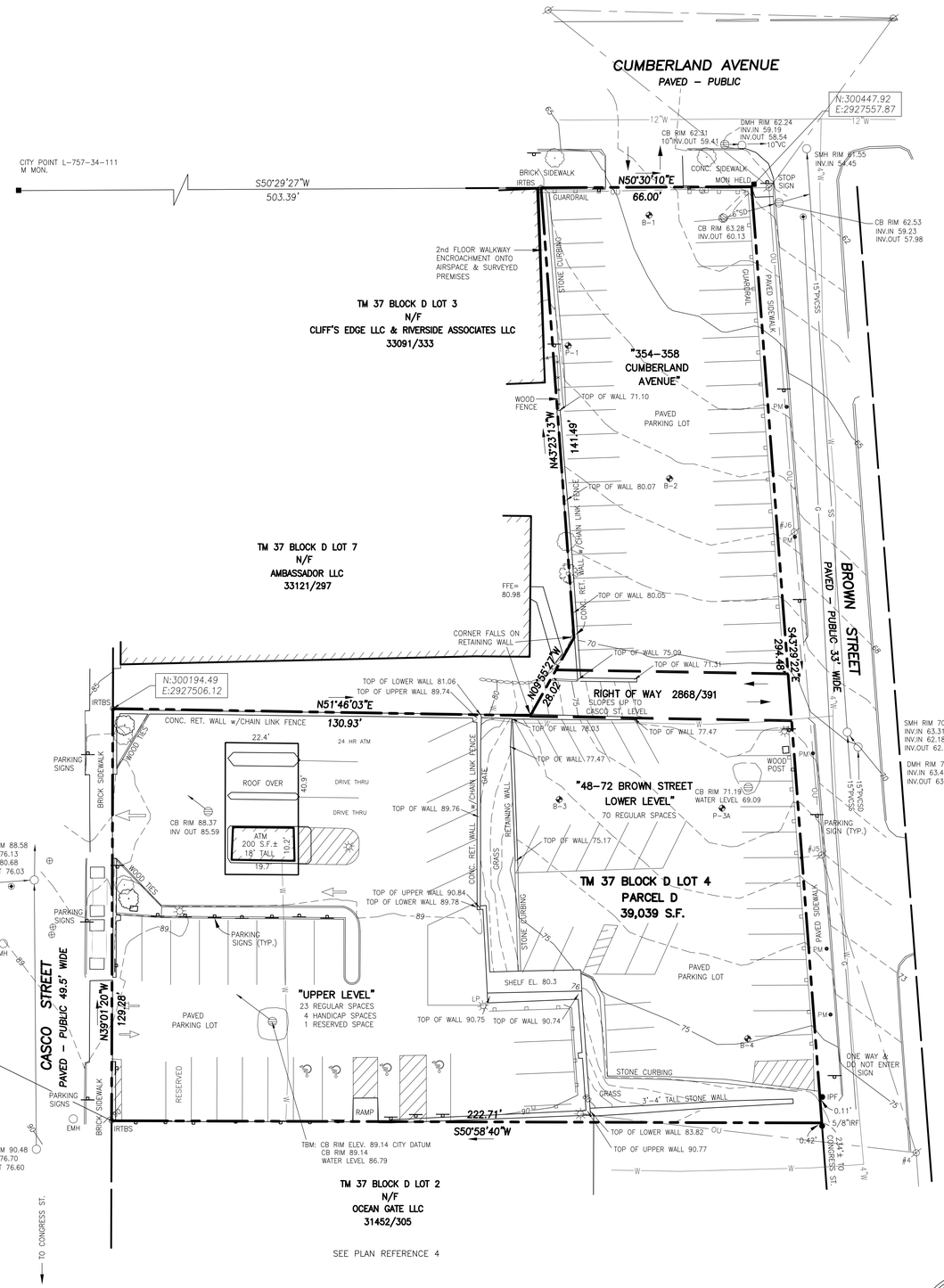
3. ELEVATIONS ARE BASED ON CITY DATUM. BENCHMARK PROVIDED BY THE CITY OF PORTLAND:

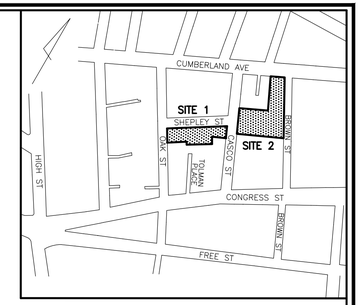
   L 757-34-112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE. ELEVATION = 80.66' (REF. CITY L.B. 725 PG. 99-100)

4. THE PARCEL SHOWN LIES WITHIN "ZONE C" AREAS OF MINIMAL FLOODING, AS SCALED FROM THE FLOOD INSURANCE RATE MAP FOR THE CITY OF PORTLAND, MAINE COMMUNITY PANEL NO. 230051-0013B EFFECTIVE DATE JULY 17, 1986.

PLAN REFERENCES

1. LAND TITLE SURVEY OF PROPERTY AT 16 CASCO STREET, PORTLAND, MAINE MADE FOR SURVEY PROPERTIES, INC., 16 CASCO ST., SUITE 200, PORTLAND, ME DATED NOV. 15, 1993 BY ROBERT J. CYR.
2. PLAN OF LAND ON SHEPLEY STREET, PORTLAND, MAINE FOR HAMPSTEAD OVERLOOK, INC. DATED AUG. 20, 1987 REV. 7/9/93 BY OWEN HASKELL, INC.
3. LAND TITLE SURVEY OF PROPERTY AT 523-547 CONGRESS ST., PORTLAND MAINE FOR HEGA REALTY TRUST, 218 EAST ROAD, HAMPSTEAD, NH 03841 DATED NOV. 9, 1993 BY OWEN HASKELL, INC.
4. PLAN OF PROPERTY IN PORTLAND, MAINE, MAINE SAVINGS PLAZA MADE FOR THE MAINE SAVINGS BANK, LAND LEASE PLAN EXHIBIT A DATED 6-27-1973 REV. 7-20-95 BY H.I. & E.C. JORDAN SURVEYORS.
5. STANDARD BOUNDARY SURVEY OF FLEET BANK PROPERTIES FOR FLEET FINANCIAL GROUP, INC. DATED 4-08-1996 BY SEBAGO TECHNICS.
6. PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR MAINE SAVINGS BANK DATED SEPT. 20, 1958 BY H.I. & E.C. JORDAN.
7. PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR MAINE SAVINGS BANK DATED MAY 1943 BY H.I. JORDAN.
8. ALTA/ACSM LAND TITLE SURVEY ON CASCO STREET, SHEPLEY STREET & OAK STREET, PORTLAND, MAINE MADE FOR 511 PLAZA LIMITED PARTNERSHIP DATED OCT. 21, 2002 REV. 3 12-12-12 BY OWEN HASKELL, INC.





LOCATION MAP

N.T.S.

LEGEND

○	IRON ROD TO BE SET
■	MONUMENT FOUND
LP	UTILITY POLE w/LIGHT
	LIGHT POLE
	MANHOLE
	CATCH BASIN
	SIGN
PM	PARKING METER
x x	CHAIN LINK FENCE
	GUARDRAIL
	CURB
	DIRECTION OF TRAFFIC
	PAINTED ARROW
100	1' CONTOUR
CONC.	CONCRETE
N/F	NOW OR FORMERLY
000/000	DEED BOOK AND PAGE
B-1	BORING
P-1	PROBE

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

GRAPHIC SCALE

0 10' 20' 40' 80'

STATE OF MAINE
RANDY R. LOUBIER
2407
PROFESSIONAL LAND SURVEYOR

RANDY R. LOUBIER, PLS NO. 2407

REV.	5/17/17	MISC. REVISIONS

EXISTING CONDITIONS PLAN

ON

CASCO STREET, SHEPLEY STREET & OAK STREET
PORTLAND, MAINE

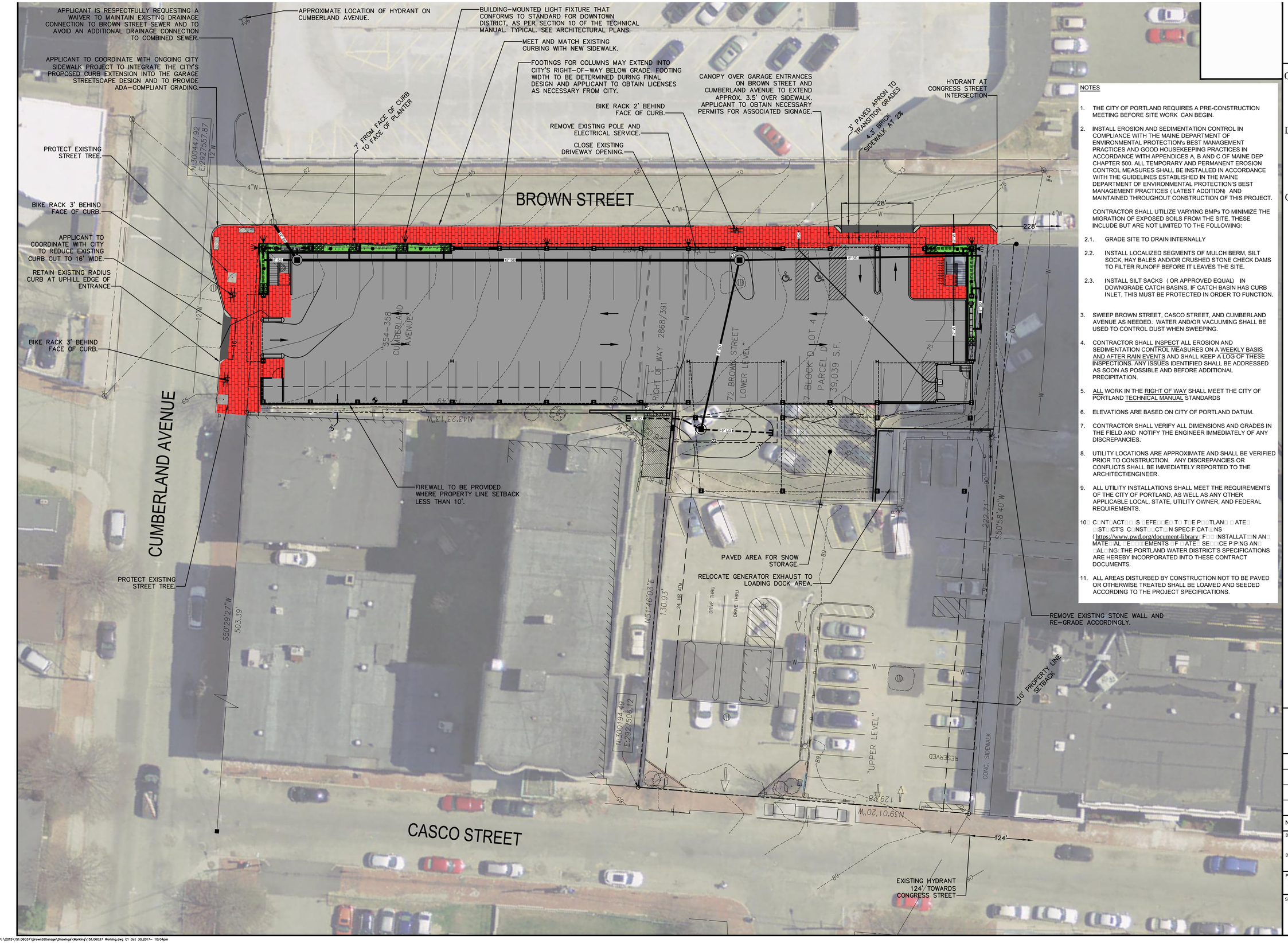
MADE FOR

ANEW DEVELOPMENT

17 CHESTNUT STREET, PORTLAND, MAINE 04101

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424

Drawn By TKM	Date JAN. 14, 2016	Job No. 2015-253P
Trace By JLW		
Check By RRL	Scale 1" = 20'	Drwg. No. 1
Book No. FILE		



NOTES

1. THE CITY OF PORTLAND REQUIRES A PRE-CONSTRUCTION MEETING BEFORE SITE WORK CAN BEGIN.
2. INSTALL EROSION AND SEDIMENTATION CONTROL IN COMPLIANCE WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION's BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING PRACTICES IN ACCORDANCE WITH APPENDICES A, B AND C OF MAINE DEP CHAPTER 500. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE GUIDELINES ESTABLISHED IN THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES (LATEST ADDITION) AND MAINTAINED THROUGHOUT CONSTRUCTION OF THIS PROJECT.

   CONTRACTOR SHALL UTILIZE VARYING BMPs TO MINIMIZE THE MIGRATION OF EXPOSED SOILS FROM THE SITE. THESE INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

   2.1. GRADE SITE TO DRAIN INTERNALLY

   2.2. INSTALL LOCALIZED SEGMENTS OF MULCH BERM, SILT SOCK, HAY BALES AND/OR CRUSHED STONE CHECK DAMS TO FILTER RUNOFF BEFORE IT LEAVES THE SITE.

   2.3. INSTALL SILT SACKS (OR APPROVED EQUAL) IN DOWNGRADE CATCH BASINS. IF CATCH BASIN HAS CURB INLET, THIS MUST BE PROTECTED IN ORDER TO FUNCTION.
3. SWEEP BROWN STREET, CASCO STREET, AND CUMBERLAND AVENUE AS NEEDED. WATER AND/OR VACUUMING SHALL BE USED TO CONTROL DUST WHEN SWEEPING.
4. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER RAIN EVENTS AND SHALL KEEP A LOG OF THESE INSPECTIONS. ANY ISSUES IDENTIFIED SHALL BE ADDRESSED AS SOON AS POSSIBLE AND BEFORE ADDITIONAL PRECIPITATION.
5. ALL WORK IN THE RIGHT OF WAY SHALL MEET THE CITY OF PORTLAND TECHNICAL MANUAL STANDARDS
6. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM.
7. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
8. UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ANY DISCREPANCIES OR CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER.
9. ALL UTILITY INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND, AS WELL AS ANY OTHER APPLICABLE LOCAL, STATE, UTILITY OWNER, AND FEDERAL REQUIREMENTS.
10. CONTRACTS SHALL BE EFFECTIVE TO THE PORTLAND STATE CONSTRUCTION SPECIFICATIONS (https://www.pwd.org/document-library. FOR INSTALLATION AND MATERIAL REQUIREMENTS OF WATER SERVICE INSTALLING AND TESTING THE PORTLAND WATER DISTRICT'S SPECIFICATIONS ARE HEREBY INCORPORATED INTO THESE CONTRACT DOCUMENTS.
11. ALL AREAS DISTURBED BY CONSTRUCTION NOT TO BE PAVED OR OTHERWISE TREATED SHALL BE LOAMED AND SEEDED ACCORDING TO THE PROJECT SPECIFICATIONS.

0 8 16 32
SCALE in FEET
1"=16'

BROWN STREET GARAGE

CUMBERLAND & BROWN STREET
PORTLAND, MAINE

Owner:
Ocean Gate, LLC
151 Newbury Street
Portland, Maine 04101

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

RANSOM
Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

SITE PLAN

No.	Revision/Issue	Date
C	RESPONSE TO COMMENTS	10-24-17
B	SITE PLAN SUBMISSION	6-20-17
A	PRELIMINARY REVIEW	4-21-17

Design by: JIM	Checked by: SJB
Drawn by: TGN	Approved by: SJB
Project: 151.06037	10-24-2017

Sheet No: C1

P:\2015\151.06037\BrownStGarage\Drawings\Working\151.06037 Working.dwg C1 Oct 30,2017- 10:04pm

CURB EXTENSION AT CUMBERLAND AND BROWN STREET BY OTHERS AS PART OF CITY SIDEWALK PROJECT.

APPLICANT TO COORDINATE WITH CITY ON CONFIGURATION IE ALLOWED TO CONNECT TO CITY'S STORMDRAIN SYSTEM AT THIS LOCATION.

MEET AND MATCH EXISTING CURBING WITH NEW SIDEWALK.

UNDERGROUND ELECTRIC AND COMMUNICATIONS UTILITIES TO DROP FROM EXISTING UTILITY POLE

NEW 2" WATER SERVICE TAPPED FROM EXISTING 4" WATER MAIN IN BROWN STREET PER PWD STANDARDS.

2" CURB STOP 1' FROM BACK OF CURB, OUT OF PEDESTRIAN TRAVELWAY.

18" OVERFLOW WITH BEEHIVE GRATE. SEE DETAILS.

WEIR CAST INTO PLANTER. ELEVATIONS TO BE DETERMINED DURING FINAL DESIGN. TYPICAL. SEE DETAILS.

NATURAL ROUNDED ROCK (RIVER STONE) FOR ENERGY DISSIPATION WHERE DOWNSPOUTS DISCHARGE TO PLANTERS AND WHERE GRADES TRANSITION BETWEEN PLANTERS. TYPICAL .SEE DETAILS.

REMOVE PAVEMENT AND RE-GRADE THIS AREA TO ACCOMMODATE RELOCATED CATCH BASIN AND TO PROVIDE ADA-COMPLIANT GRADING FOR ACCESSIBLE AISLE.

8" BEEHIVE CATCH BASIN OVERFLOW IN EACH PLANTER, TYPICAL

BROWN STREET

NEW 4'ø CATCH BASIN WITH 2' SUMP. ADD "SNOUT" TO CATCH OIL AND FLOATABLES, PER CITY STANDARDS.
RIM: 63.4
8" INV. IN (2): 59.7
12" INV. IN:59.4
12" INV. OUT: 58.3

REMOVE EXISTING CB.

THIS WATERLINE IS UNDERSTOOD TO BE ABANDONED PER DISCUSSIONS WITH PORTLAND WATER DISTRICT. REMOVE WHERE ENCOUNTERED, AND CRIMP ENDS.

12" HDPE
L = 66'
S = 0.017

12" HDPE
L = 169'
S = 0.044

8" HDPE
L = 85'
S = 0.05±

PAVEMENT RECONSTRUCTION AREA. SEE DETAIL.

CUT AND REMOVE EXISTING RETAINING WALL AND RAMP

NEW 4'ø CATCH BASIN. ADD "SNOUT" TO CATCH OIL AND FLOATABLES, PER CITY STANDARDS.
RIM: 70.8±
8" INV. IN (2): 67.1
12" INV. OUT: 66.8

18" OVERFLOW WITH BEEHIVE GRATE. SEE DETAILS.

2" WATER SERVICE TO 1" METER

RECESSED METER PER ARCHITECTURAL DETAIL

TOP OF WALL: 80.0

2' WIDE SPILLWAY 79.0

6" CRUSHED STONE BETWEEN GARAGE AND EXISTING BUILDING.

MAINTAIN EXISTING PAVEMENT GRADES WITH 1" OVERLAY.

COORDINATE WITH CITY SIDEWALK PROJECT TO PROVIDE ACCESSIBLE GRADING ALONG SIDEWALK AND INTO GARAGE. PROPOSED GRADES MAY NEED TO BE ADJUSTED.

INSTALL NEW CONCRETE RETAINING WALL AS SHOWN. REMOVE CHAINLINK FENCE AS NECESSARY AND INSTALL RAILING AND/OR FENCE????? ELEVATION OF TOP OF NEW WALL: 80

INSTALL GUARDRAIL AT END OF DRIVEWAY.

TRUNCATE AND RECONSTRUCT DRIVEWAY AS SHOWN TO ELIMINATE STEEP SLOPE AT END. APPLICANT TO COLLABORATE WITH ABUTTER AND PROVIDE DOCUMENTATION OF PERMISSION TO WORK ON THIS PROPERTY.

MEET AND MATCH EXISTING PAVEMENT.

TOP OF PROPOSED WALL: 80.0
EOP: 79.6

NEW 4'ø CATCH BASIN WITH 2' SUMP
RIM: 71.9
6" INV. IN (2):69.2
8" INV. OUT: 68.2

TOP OF EXISTING WALL: 80.72
EOP: 80.4

PAVED AREA FOR SNOW STORAGE.

UNDERDRAINED SAND FILTER SHOWN AS DASHED LINE. SEE DETAIL.

AREA OUTSIDE OF DASHED LINE AND BOUNDED BY GARAGE, RETAINING WALLS AND PAVED SNOW STORAGE AREA TO BE BACKFILLED WITH 12" 1½" CRUSHED STONE.

BROWN STREET GARAGE

C□M□E□LAN□ A□EN□E AT □□□□N ST□EET
P□□TLAN□, MA□NE

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

RANSOM
Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

0 5 10 20
SCALE in FEET
1"=10'

STATE OF MAINE
John
I.
Mahoney
#12340
LICENSED
PROFESSIONAL ENGINEER

S□TE PLAN
- F□□ST LE□EL -

No.	Revision/Issue	Date
D		
C		
B	RESPONSE TO COMMENTS 10-24-17	
A	SITE PLAN SUBMISSION 06-20-17	

Design by: JIM | Checked by: JIM
Drawn by: TGN | Approved by: JIM
Project: 151.06037

C2

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AMBASSADOR LLC
33121/297

FFE= 80.98

CORNER FALLS ON RETAINING WALL

N:300194.49
E:2927506.12

IRTBS

N51°46'03"E 130.93'

CONC. RET. WALL w/CHAIN LINK FENCE

PARKING SIGNS

BRICK SIDEWALK

WOOD TIES

22.4'

24 HR ATM

ROOF OVER

40.9'

DRIVE THRU

DRIVE THRU

ATM
200 S.F.±
18' TALL

10.2'

19.7'

CONC. RET. WALL w/CHAIN LINK FENCE

GATE

CASCO STREET

BROWN STREET

SLOT FOR DUMPING SNOW TO LOWER LEVEL.

CONSTRUCT NEW CONCRETE WALL ON TOP OF EXISTING CONCRETE SHELF TO SUPPORT RAMPS TO SECOND LEVEL FROM EXISTING UPPER LOT.

VERTICAL CURB. CONSTRUCT SIDEWALK WITH GRADE BREAK IF NECESSARY TO PROVIDE ACCESSIBLE PATH TO GARAGE WITHOUT EXCEEDING CURB REVEAL OF 7" OUTSIDE GARAGE. CURB TO HAVE 4" REVEAL INSIDE GARAGE.

PARKING SIGNS (TYP.)

20.5'

"UPPER LEVEL"
23 REGULAR SPACES
4 HANDICAP SPACES
1 RESERVED SPACE

PAVED PARKING LOT

N39°01'20"W 129.28'

22.7'

DARKER SHADING ON PARKING DECK; LIGHTER SHADING ON GRAVEL RETAINED BY NEW AND EXISTING RETAINING WALLS.

27.0'

13'

11'

TWO NEW HC SPACES.

4.6' CLEAR

CONVERT HC SPACE TO STANDARD PARKING.

20.1'

RESERVED

PARKING SIGNS

BRICK SIDEWALK

WOOD TIES

IRTBS

RAMP

ED'S PARKING SPACE

2%

5% MAX

2%

GRASS

3'-4' TALL STONE WALL

CONC. SIDEWALK

202.71'

S50°58'40"W

REMOVE HC SIGNAGE AND STRIPING.

NEW BRICK SIDEWALK TO CONNECT EXISTING WALKWAY TO BUILDING TO GARAGE ENTRANCE. TRANSITION TO CONCRETE SIDEWALK IN GARAGE.

ADD 42" BLACK CHAIN LINK FENCE TO TOP OF WALL AS SHOWN.

5' CLEAR

ADA-COMPLIANT RAMP.

JOINT AT WHICH GARAGE DECK MEETS EXISTING LOT.

APPROXIMATE LOCATION OF EXISTING ACCESSIBLE WALKWAY TO BUILDING

TM 37 BLOCK D LOT 2
N/F
OCEAN GATE LLC
31452/305

TO CONGRESS ST.

PARKING SIGN (TYP.)

ONE WAY & DO NOT ENTER SIGN

0.11'
5/8"IRF

0.42'

234'± TO CONGRESS ST.

#4

BROWN STREET GARAGE

C□M□E□LAN□ A□EN□E AT □□□□N ST□EET
P□□TLAN□, MA□NE

Developer:
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30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

RANSOM
Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

0 5 10 20
SCALE in FEET
1"=10'

SITE PLAN
- SEC□N□ LE□EL -

No.	Revision/Issue	Date
C	RESPONSE TO COMMENTS	10-24-17
B	SITE PLAN SUBMISSION	6-20-17
A	PRELIMINARY REVIEW	4-21-17

Design by: TGN
Checked by: SJB
Drawn by: TGN
Approved by: SJB
Project: 151.06037
10-24-2017

Sheet No:
C3

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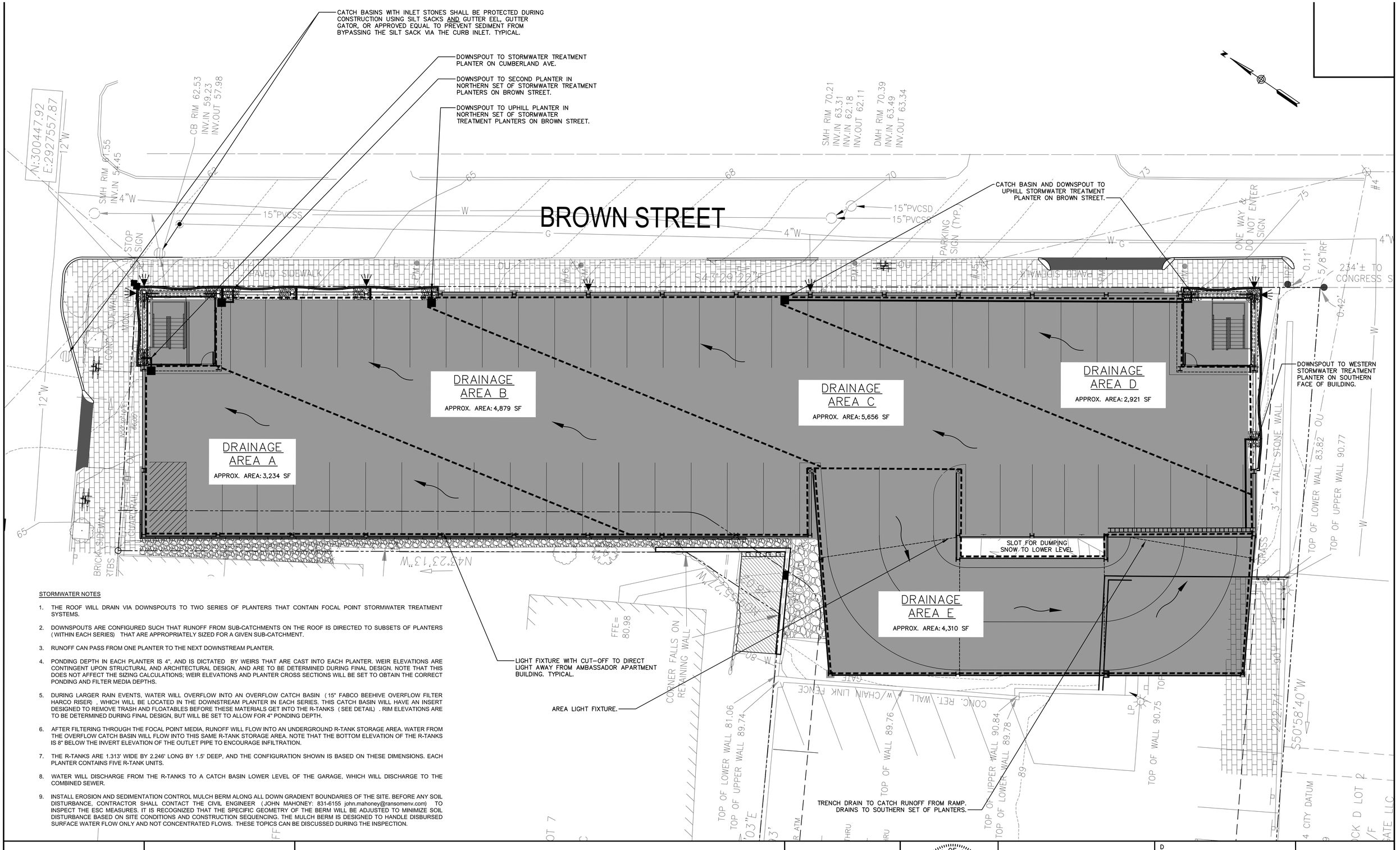

STORMWATER NOTES

1. THE ROOF WILL DRAIN VIA DOWNSPOUTS TO TWO SERIES OF PLANTERS THAT CONTAIN FOCAL POINT STORMWATER TREATMENT SYSTEMS.
2. DOWNSPOUTS ARE CONFIGURED SUCH THAT RUNOFF FROM SUB-CATCHMENTS ON THE ROOF IS DIRECTED TO SUBSETS OF PLANTERS (WITHIN EACH SERIES) THAT ARE APPROPRIATELY SIZED FOR A GIVEN SUB-CATCHMENT.
3. RUNOFF CAN PASS FROM ONE PLANTER TO THE NEXT DOWNSTREAM PLANTER.
4. PONDING DEPTH IN EACH PLANTER IS 4", AND IS DICTATED BY WEIRS THAT ARE CAST INTO EACH PLANTER. WEIR ELEVATIONS ARE CONTINGENT UPON STRUCTURAL AND ARCHITECTURAL DESIGN, AND ARE TO BE DETERMINED DURING FINAL DESIGN. NOTE THAT THIS DOES NOT AFFECT THE SIZING CALCULATIONS; WEIR ELEVATIONS AND PLANTER CROSS SECTIONS WILL BE SET TO OBTAIN THE CORRECT PONDING AND FILTER MEDIA DEPTHS.
5. DURING LARGER RAIN EVENTS, WATER WILL OVERFLOW INTO AN OVERFLOW CATCH BASIN (15" FABCO BEEHIVE OVERFLOW FILTER HARCO RISER) . WHICH WILL BE LOCATED IN THE DOWNSTREAM PLANTER IN EACH SERIES. THIS CATCH BASIN WILL HAVE AN INSERT DESIGNED TO REMOVE TRASH AND FLOATABLES BEFORE THESE MATERIALS GET INTO THE R-TANKS (SEE DETAIL) . RIM ELEVATIONS ARE TO BE DETERMINED DURING FINAL DESIGN, BUT WILL BE SET TO ALLOW FOR 4" PONDING DEPTH.
6. AFTER FILTERING THROUGH THE FOCAL POINT MEDIA, RUNOFF WILL FLOW INTO AN UNDERGROUND R-TANK STORAGE AREA. WATER FROM THE OVERFLOW CATCH BASIN WILL FLOW INTO THIS SAME R-TANK STORAGE AREA. NOTE THAT THE BOTTOM ELEVATION OF THE R-TANKS IS 8" BELOW THE INVERT ELEVATION OF THE OUTLET PIPE TO ENCOURAGE INFILTRATION.
7. THE R-TANKS ARE 1.313' WIDE BY 2.246' LONG BY 1.5' DEEP, AND THE CONFIGURATION SHOWN IS BASED ON THESE DIMENSIONS. EACH PLANTER CONTAINS FIVE R-TANK UNITS.
8. WATER WILL DISCHARGE FROM THE R-TANKS TO A CATCH BASIN LOWER LEVEL OF THE GARAGE, WHICH WILL DISCHARGE TO THE COMBINED SEWER.
9. INSTALL EROSION AND SEDIMENTATION CONTROL MULCH BERM ALONG ALL DOWN GRADIENT BOUNDARIES OF THE SITE. BEFORE ANY SOIL DISTURBANCE. CONTRACTOR SHALL CONTACT THE CIVIL ENGINEER (JOHN MAHONEY: 831-6155 john.mahoney@ransomenv.com) TO INSPECT THE ESC MEASURES. IT IS RECOGNIZED THAT THE SPECIFIC GEOMETRY OF THE BERM WILL BE ADJUSTED TO MINIMIZE SOIL DISTURBANCE BASED ON SITE CONDITIONS AND CONSTRUCTION SEQUENCING. THE MULCH BERM IS DESIGNED TO HANDLE DISBURSED SURFACE WATER FLOW ONLY AND NOT CONCENTRATED FLOWS. THESE TOPICS CAN BE DISCUSSED DURING THE INSPECTION.

BROWN STREET GARAGE

C□M□E□LAN□,A□EN□E AT □□□□N ST□EET
P□□TLAN□, MA□NE

Developer:
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30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:
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Civil Engineer
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207-772-2891

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

0 5 10 20
SCALE in FEET
1"=10'

STATE OF MAINE
John I. Mahoney #12340
LICENSED PROFESSIONAL ENGINEER

S□TE PLAN
- □□□F LE□EL -

No.	Revision/Issue	Date
D		
C		
B	RESPONSE TO COMMENTS 10-24-17	
A	SITE PLAN SUBMISSION	06-20-17

Design by: JIM Checked by: JIM
Drawn by: TGN Approved by: JIM
Project: 151.06037

C4

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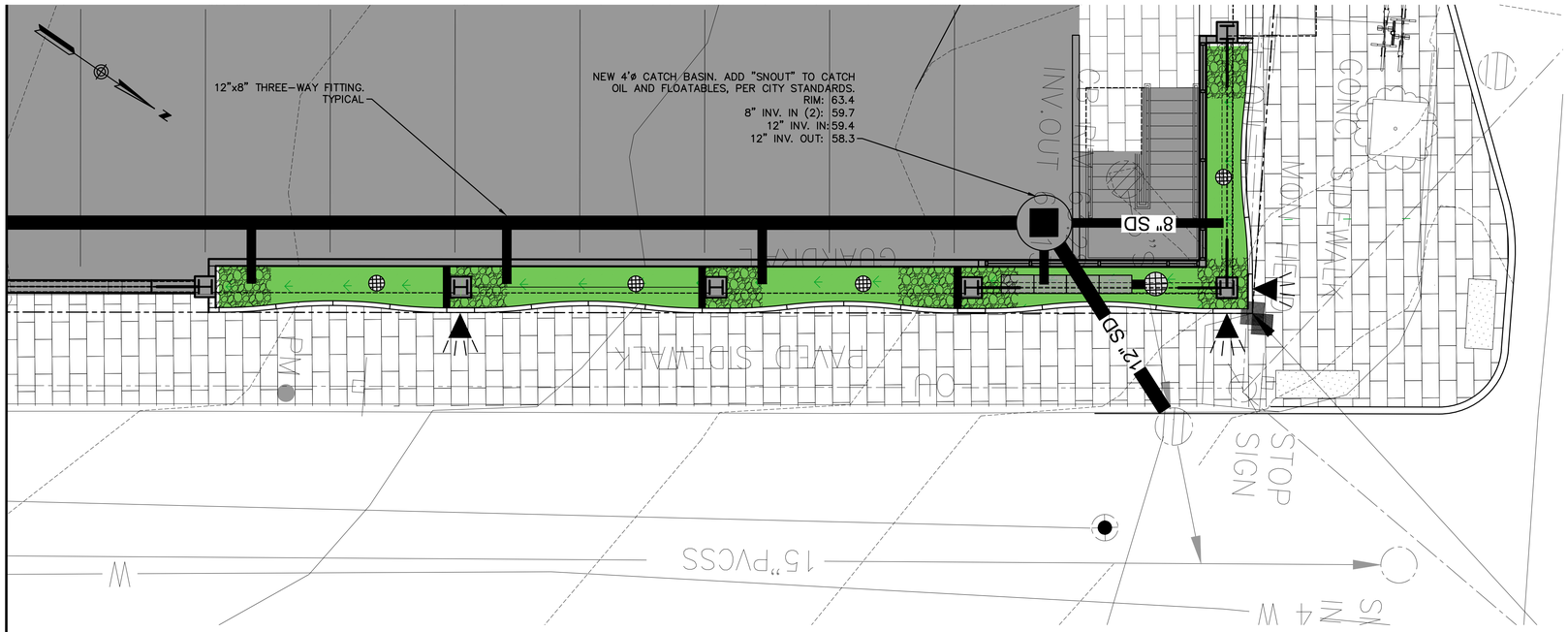
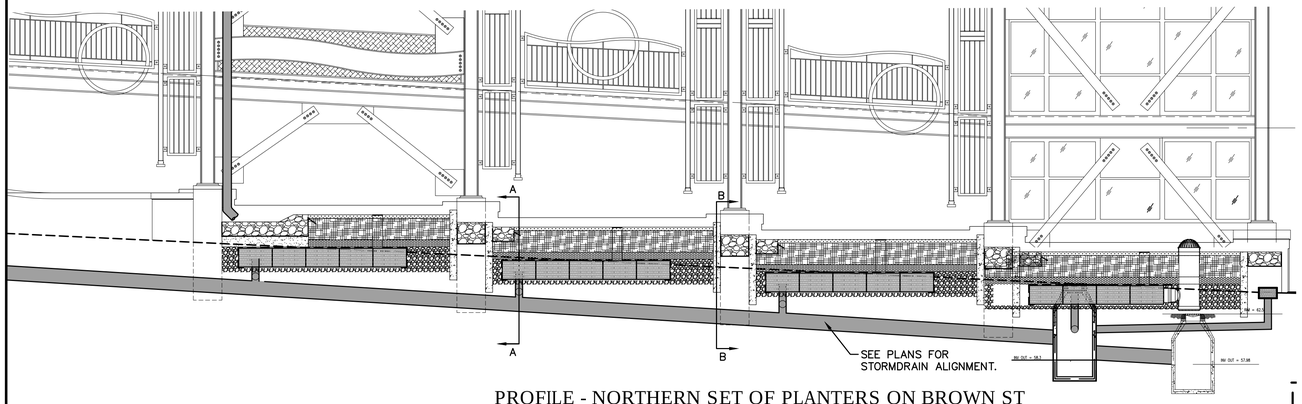


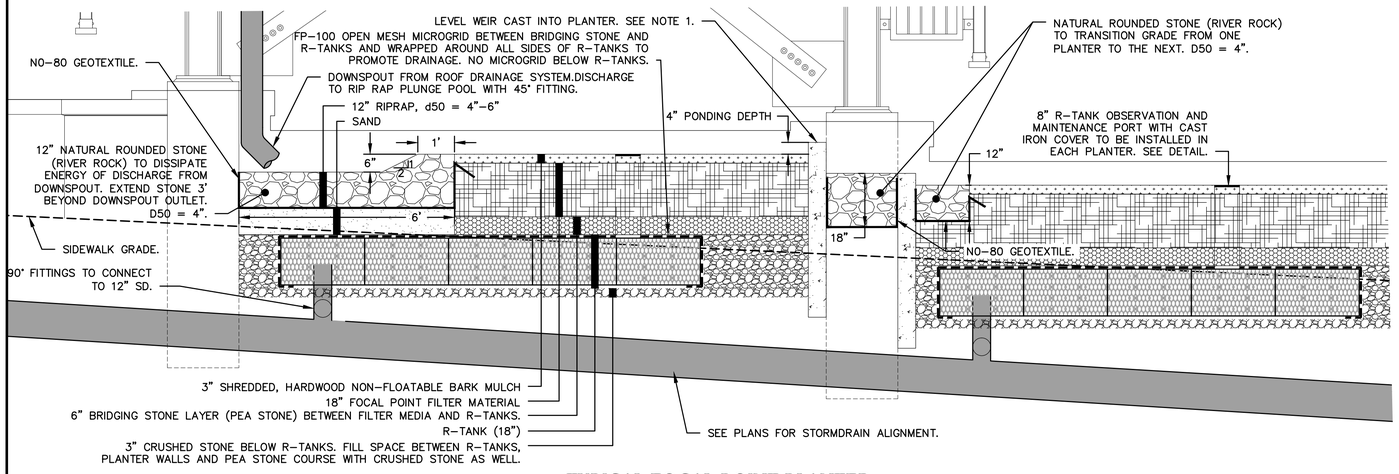
PLAN - NORTHERN SET OF PLANTERS ON BROWN ST

1" = 5'



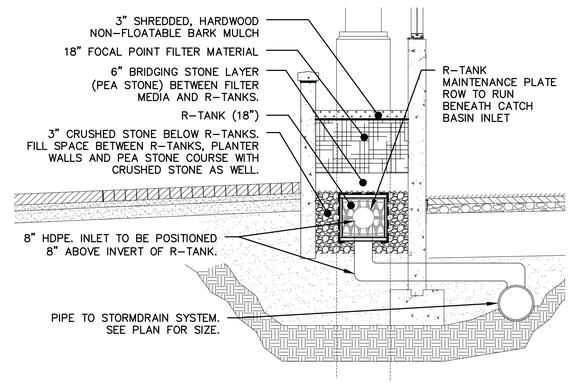
PROFILE - NORTHERN SET OF PLANTERS ON BROWN ST

1" = 5'



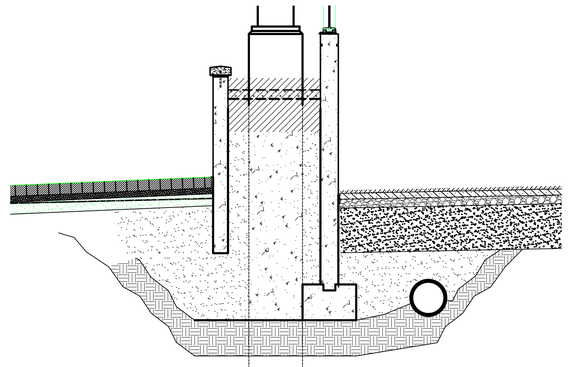
TYPICAL FOCAL POINT PLANTER

1" = 2'



SECTION A-A

NOT TO SCALE



SECTION B-B

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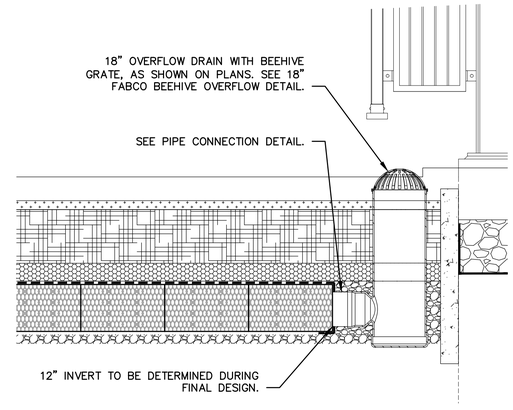

18" FABCO BEEHIVE OVERFLOW INSTALLATION

NOT TO SCALE

BROWN STREET GARAGE

C□M□E□LAN□ A□EN□E AT □□□□N ST□EET
P□□TLAN□, MAINE

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

RANSOM
Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

F□CAL P□□NT PLANTE□S

No.	Revision/Issue	Date
B	RESPONSE TO COMMENTS	10-24-17
A	SITE PLAN SUBMISSION	6-20-17

Design by: TGN
Checked by: SJB
Drawn by: TGN
Approved by: SJB
Project: 151.06037
10-24-2017
Sheet No:

C5

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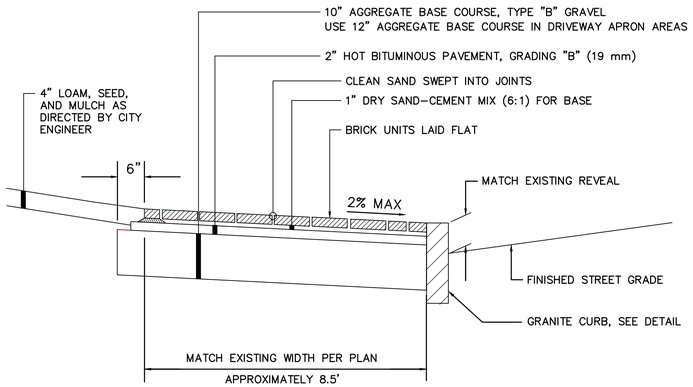
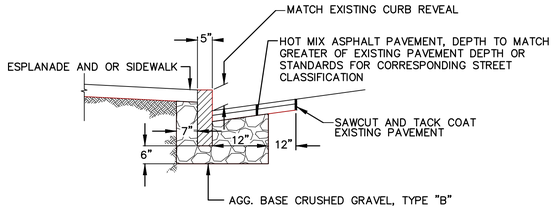
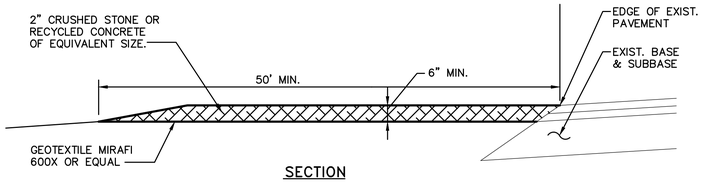
BRICKS SHALL BE:
Bricks shall be of standard size (2–1/4" x 4" x 8"). Bricks shall be Pine Hall Pathway Paver Brick as manufactured by Pine Hall Brick Co., Madison, North Carolina. Specification number: 4"X8"; LaChance item # 193623, Pine Hall Pathway Paver Brick. Prior to ordering the brick, samples shall be submitted in whole straps to show color range. All base courses and joints shall conform to the applicable subsections of Division 700 of the Standard Specifications



BRICK SIDEWALK WITH BITUMINOUS BASE
NOT TO SCALE



VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREETS
NOT TO SCALE



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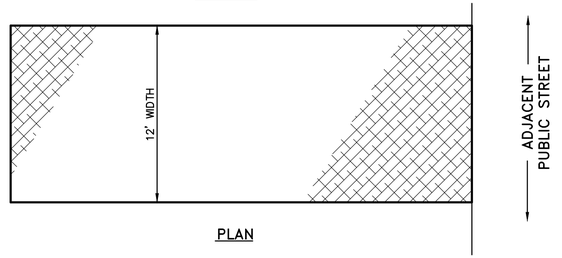
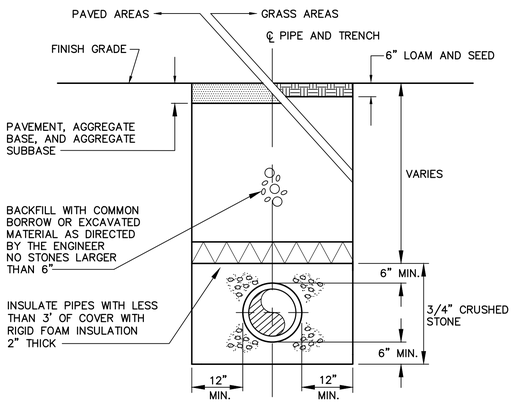


PLAN

NOTES:
1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH PAVEMENT.

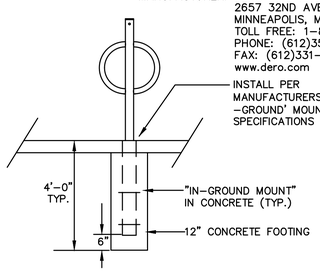
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



TYPICAL TRENCH REPAIR DETAIL
NOT TO SCALE

DERO BIKE RACK – BIKE HITCH MODEL (OR EQUAL) SHALL BE HOT DIPPED GALVANIZED AND PAINTED BLACK IN COLOR.

MANUFACTURER: DERO BIKE RACK CO.
2657 32ND AVE. SOUTH
MINNEAPOLIS, MN 55406
TOLL FREE: 1–888–337–6729
PHONE: (612)359–0689
FAX: (612)331–2731
www.dero.com



BIKE RACK DETAIL
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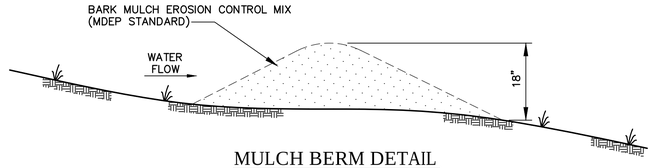

MULCH BERM DETAIL
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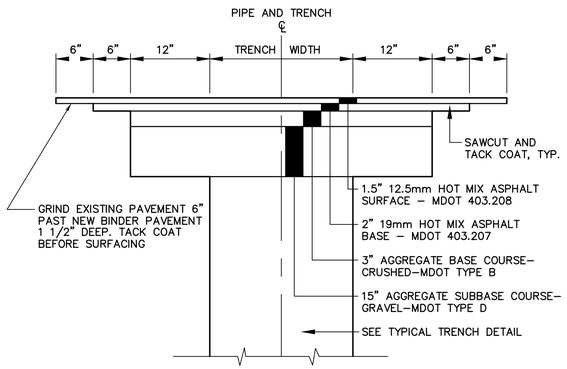

TYPICAL TRENCH PAVING DETAIL
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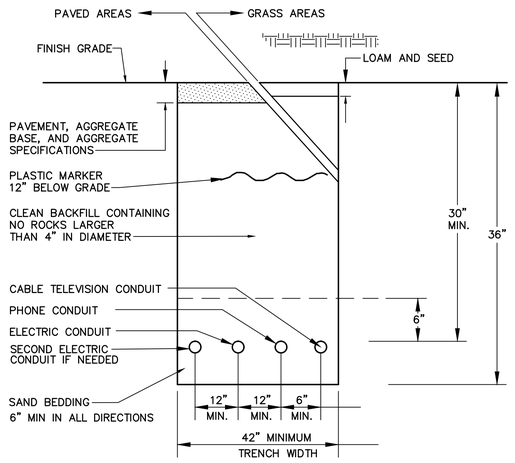
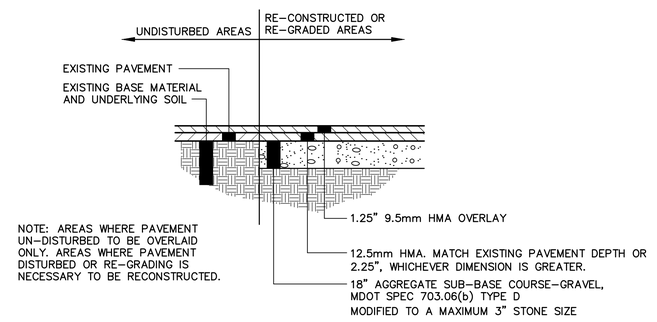


SEE ELECTRICAL PLANS FOR CONDUIT SIZES

UNDERGROUND UTILITY TRENCH DETAIL
NOT TO SCALE



NOTE: AREAS WHERE PAVEMENT UN–DISTURBED TO BE OVERLAID ONLY. AREAS WHERE PAVEMENT DISTURBED OR RE–GRADING IS NECESSARY TO BE RECONSTRUCTED.

TYPICAL PAVEMENT TREATMENTS FOR FIRST LEVEL OF GARAGE
NOT TO SCALE

BROWN STREET GARAGE

C[illegible]M[illegible]E[illegible]LAN[illegible] A[illegible]EN[illegible]E AT [illegible]N ST[illegible]EET
P[illegible]TLAN[illegible], MA NE

Developer:
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DETAILS

No.	Revision/Issue	Date
B	COMMENT RESPONSE	10–24–17
A	PRELIMINARY REVIEW	6–13–17

Design by:	Checked by:
TGN	SJB
Drawn by:	Approved by:
TGN	SJB
Project: 151.06037	10–24–2017

Sheet No: C6

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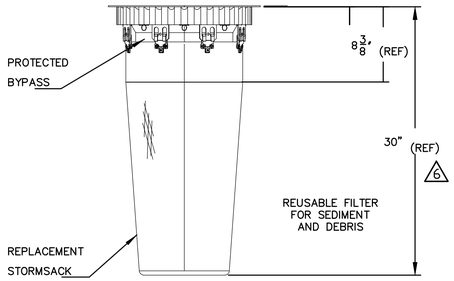
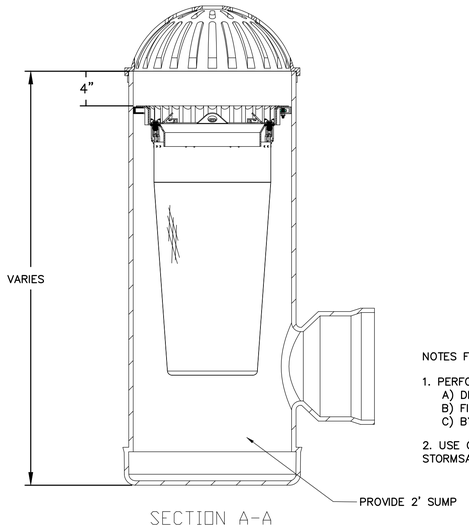




SECTION A-A

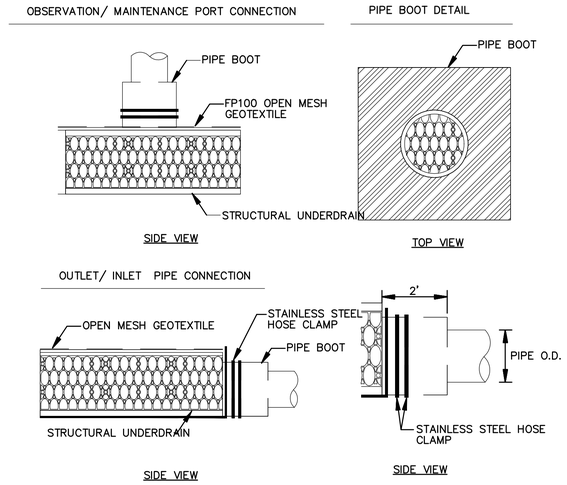
NOTES FOR 9780-1-000 18" CATCH-IT:

1. PERFORMANCE CHARACTERISTICS (TYP):
   A) DEBRIS CAPACITY: 1.65 CU-FT
   B) FILTERED FLOW RATE: 1440 GPM (2.5 CFS)
   C) BYPASS FLOW RATE: 445 GPM (1.0 CFS)

2. USE ONLY WITH FABCO REPLACEABLE STORMSACK, P/N: 9780-1-200

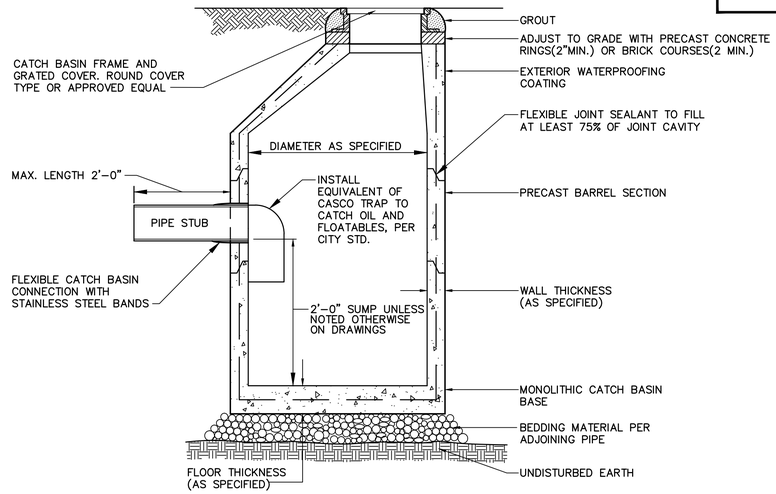
18" FABCO BEEHIVE OVERFLOW FILTER HARCO RISER

NOT TO SCALE



R-TANK PIPE AND OBSERVATION PORT CONNECTIONS

NOT TO SCALE

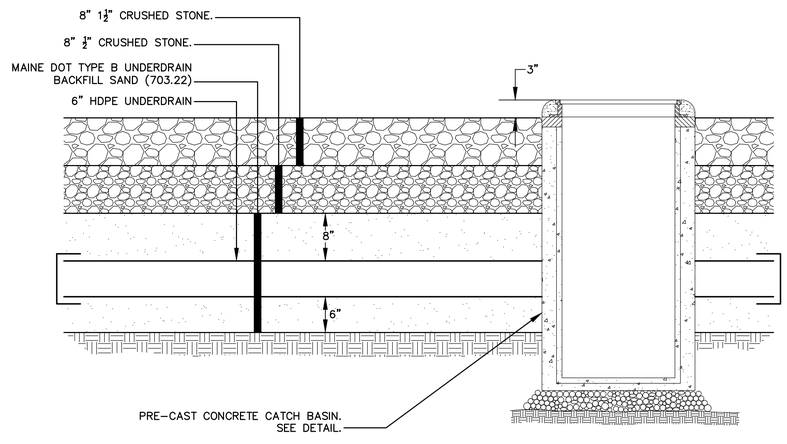


ALL MANHOLE PENETRATIONS SHALL HAVE ELASTOMERIC BOOT WITH DOUBLE STAINLESS STEEL PIPE BANDS, KOR-N-SEAL OR APPROVED EQUAL.

I.D.	WALL WIDTH	FLOOR THICKNESS
4'-0"	5"	6"
5'-0"	6"	6"
6'-0"	7"	6"

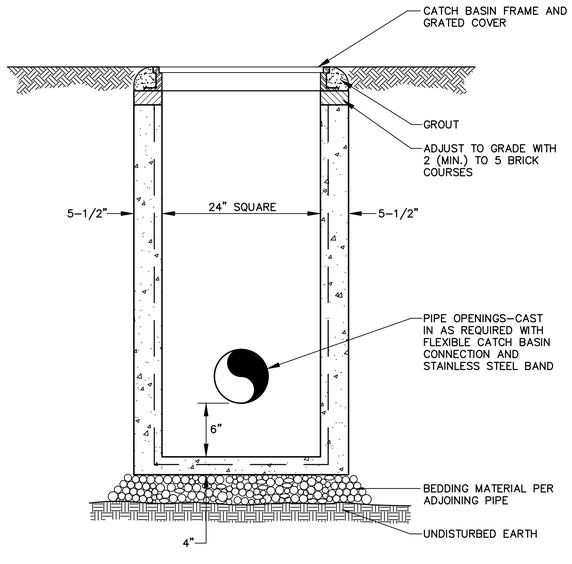
PRECAST CONCRETE CATCH BASIN/MANHOLE

NOT TO SCALE



UNDERDRAINED SAND FILTER

NOT TO SCALE



PRECAST CONCRETE CATCH BASIN-TYPE "F"

NOT TO SCALE

BROWN STREET GARAGE

CUMBERLAND AVENUE AT BROWN STREET
PORTLAND, MAINE

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

Architect
Travis Nadeau, Architect
Two Great Falls Plaza
Auburn, Maine 04210
207.784-2941

RANSOM Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

DETAILS

No.	Revision/Issue	Date
B	COMMENT RESPONSE	10-24-17
A	PRELIMINARY REVIEW	6-13-17

Design by: TGN
Drawn by: TGN
Checked by: SJB
Approved by: SJB
Project: 151.06037
10-24-2017

Sheet No: C7

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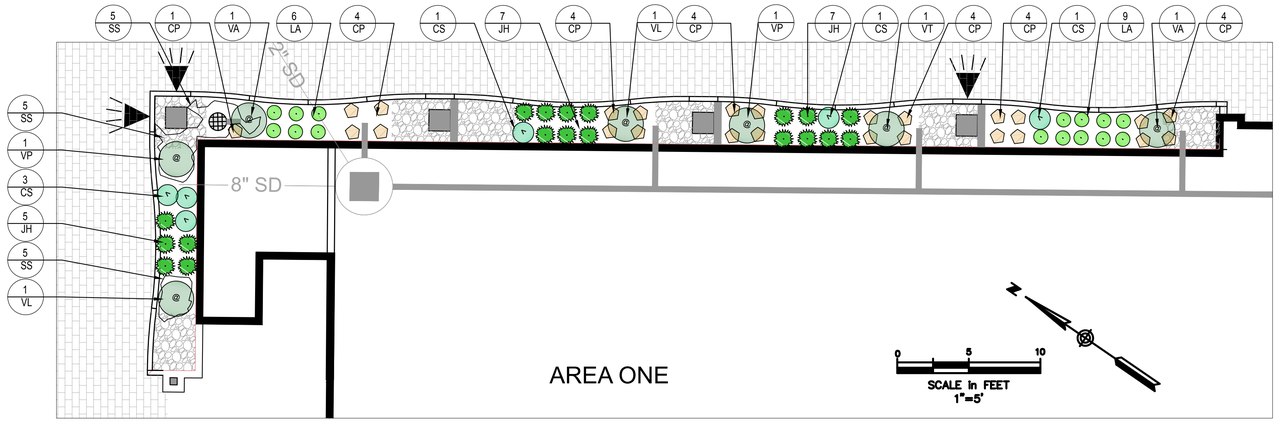

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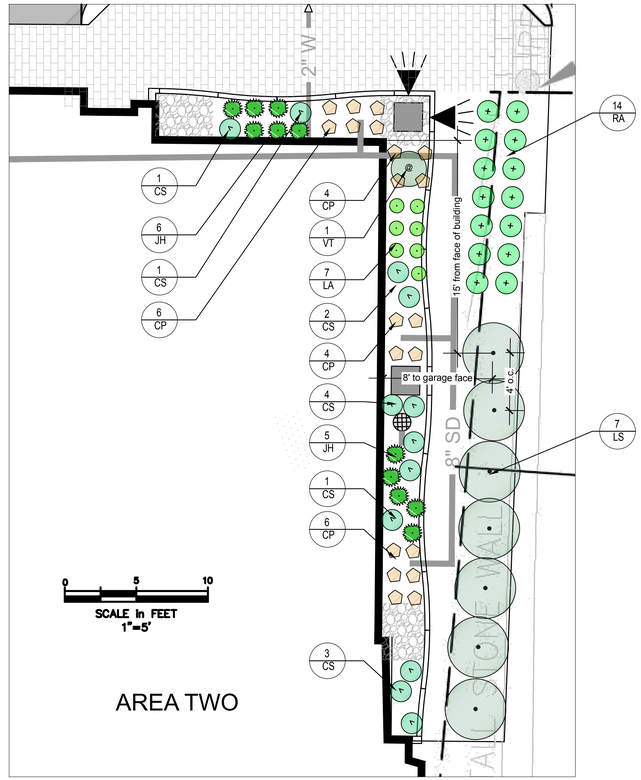

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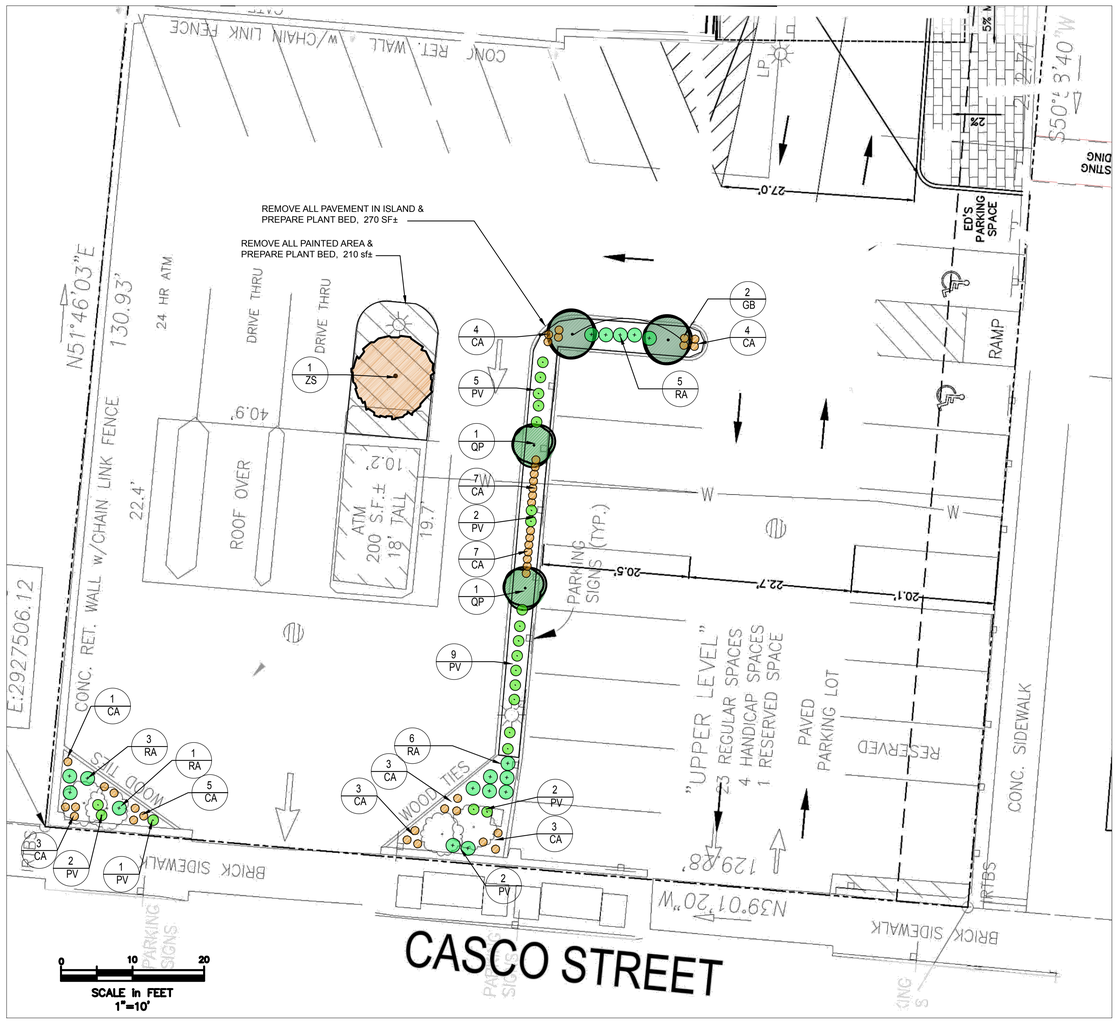

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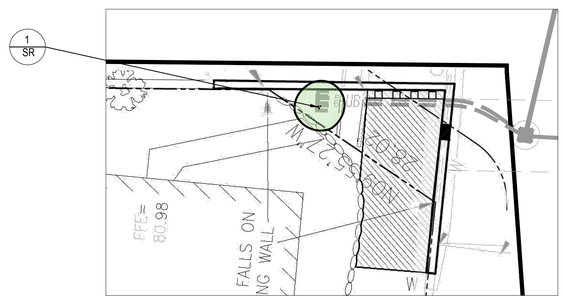

AREA THREE

0 10 20
SCALE in FEET
1"=10'

OCEAN GATE GARAGE

CUMBERLAND AVENUE AT BROWN STREET
PORTLAND, MAINE

Owner:
Ocean Gate, LLC
151 Newbury Street
Portland, Maine 04101

Developer:
Anew Development, LLC
30 Danforth Street, Suite 213
Portland, Maine 04101
207-272-8550

Consultants:

PLATZ ASSOCIATES

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Travis Nadeau, Architect
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400 Commercial Street, Suite 404
Portland, Maine 04101
207-772-2891

pbla
peter burke landscape architecture

Peter Burke
Landscape Architecture
peter@peterburkedesign.com

STATE OF MAINE
Peter A. Burke #3386
LICENSED LANDSCAPE ARCHITECT

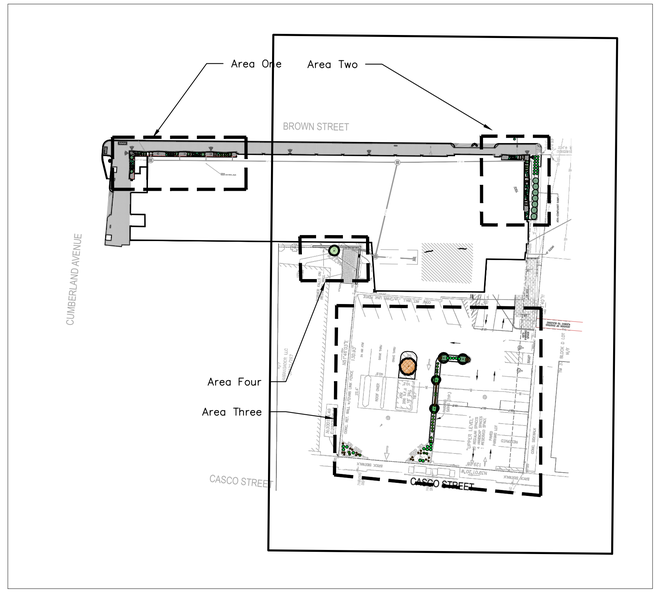
PLANTING PLAN

No.	Revision/Issue	Date
B	ADD UPPER LOT AREAS	10/23/17
A	PRELIMINARY REVIEW	6-22-17

Design by: PAB	Checked by:
Drawn by: PAB	Approved by:
Project:	06-20-2017

Sheet No:

L-1



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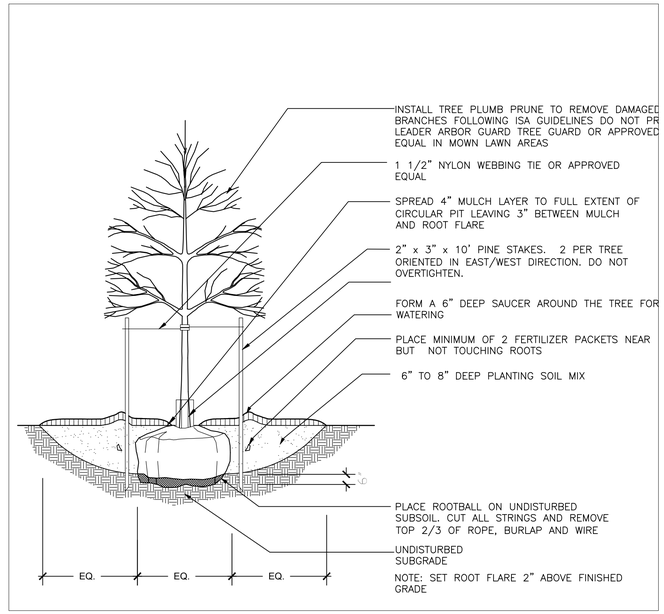

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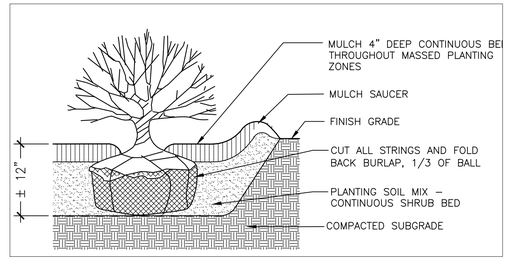

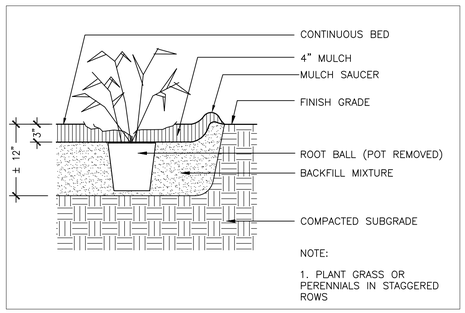

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	#	NOTES
LS	Liquidambar styraciflua 'Slender Silhouette'	Columnar Sweetgum	#15	7	
LA	Leymus arenarius 'Blue Dune'	Blue Lyme Grass	#2	22	
CP	Comptonia peregrina	Sweet Fern	#2	45	
JH	Juniperus horizontalis 'Bar Harbor'	Bar Harbor Creeping Juniper	#3	30	
VT	Viburnum trilobum	American Cranberry	#5	2	
VP	Viburnum prunifolium	Blackhaw	#5	2	
VA	Viburnum acerifolium	Maple Leaved Viburnum	#5	2	
VL	Viburnum lentago	Nannyberry	#5	2	
RA	Rhus aromatica 'Gro-Low'	'Gro-Low' Fragrant Sumac	#2	29	
CS	Cornus sericea 'Kelseyi'	Dwarf Red Twigged Dogwood	#2	17	
SS	Sedum	Sedum	#1	15	Random mix of groundhugging spp.
SR	Syringa reticulata	Japanese Tree Lilac	1.75"	1	
GB	Ginkgo biloba 'Magyar'	Ginkgo	2"	2	
ZS	Zelkova serrata 'Green Vase'	Zelkova	2"	1	
CA	Calamagrostis acutifolia 'Karl Foerster'	Feather Reed Grass	#2	61	
PV	Panicum virgatum 'NorthWind'	Switchgrass	#2	23	
QP	Quercus palustris 'Green Pillar'	Fastigiate Oak	2"	2	

SPECIFICATIONS

1.0 DESCRIPTION
A. WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT AND ACCESSORIES NECESSARY TO FURNISH AND INSTALL PLANT MATERIAL IN COMPLETE ACCORDANCE WITH THESE SPECIFICATIONS AND APPLICABLE DRAWINGS.

1.1 QUALITY ASSURANCE
A. INSTALLER'S PERSONNEL QUALIFICATIONS: REPUTABLE LANDSCAPE CONTRACTOR WITH A MIN. 5 YEARS EXPERIENCE IN LANDSCAPE CONSTRUCTION AND LICENSED TO PERFORM WORK AS DESCRIBED IN THIS SECTION.
B. COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS GOVERNING LANDSCAPE MATERIALS AND WORK.

1.2 WARRANTY
A. ALL PLANTS SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.
B. ALL REPLACEMENT STOCK SHALL BE SUBJECT TO THE SAME WARRANTY REQUIREMENTS AS THE ORIGINAL STOCK.

1.3 MATERIALS
A. ALL PLANT STOCK SHALL BE NURSERY GROWN AND COMPLY WITH ANSI Z60.1 (AMERICAN STANDARD FOR NURSERY STOCK).
B. ALL DECIDUOUS TREES SHALL BE BALLED AND BURLAPPED.
C. DAMAGED PLANTS AND PLANTS THAT DO NOT MEET REQUIREMENTS WILL BE REJECTED.
D. TOPSOIL/PLANTING SOILS: TOPSOIL OR MANUFACTURED TOPSOIL SHALL CONSIST OF 3 PARTS LOAM AMENDED WITH 1 PART PEAT HUMUS. PROVIDE FRIABLE NATURAL TOPSOIL FREE OF ROCKS, STONES, BRUSH, CLAY, LUMPS, TWIGS, LITTER, EXTRANEOUS MATERIAL, NOXIOUS WEEDS AND SEEDS.
E. FERTILIZER: SLOW RELEASE PACKETS OR TABLETS CONTAINING THE FOLLOWING COMPOSITION: NITROGEN 16%, PHOSPHORIC ACID 8%, AND POTASH 16%.
F. MULCH: NUTRI-MULCH FROM NEW ENGLAND ORGANICS (WWW.EARTHLIFEGROWS.COM) OR APPROVED EQUAL.

1.4 INSTALLATION
A. SITE PREPARATION: THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS PRIOR TO INSTALLATION TO COORDINATE INSTALLATION AND LOCATION OF PLANT MATERIAL.
SEASONS FOR PLANTING, UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE, SHALL BE WITHIN (SPRING) 4/1 TO 7/15, AND (FALL) 8/15 TO 11/15
B. SOIL AMENDMENTS: IN LOCATIONS OF HIGH CLAY CONTENT APPLY GYPSUM ADDITIVES TO BREAK DOWN THE CLAY.
C. PLANTING: ALL PLANTING SHALL BE DONE IN STRICT ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES.
D. PRUNING: ALL DEAD OR DAMAGED BRANCHES SHALL BE REMOVED FROM PLANTS. PRUNE AN ADDITIONAL 1/4 OF REMAINING BRANCHES TO ENCOURAGE ROOT GROWTH.
E. CLEAN-UP: THE CONTRACTOR SHALL REMOVE ALL DEBRIS, CONSTRUCTION EQUIPMENT, EXCESS FILL, ROCKS, AND OTHER EXCESS MATERIAL CAUSED BY THIS WORK, FROM THE SITE UPON COMPLETION OF WORK.

OCEAN GATE GARAGE

CUMBERLAND AVENUE AT BROWN STREET
PORTLAND, MAINE

Owner:
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151 Newbury Street
Portland, Maine 04101

Developer:
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pbla
peter burke landscape architecture
Peter Burke
Landscape Architecture
peter@peterburkedesign.com

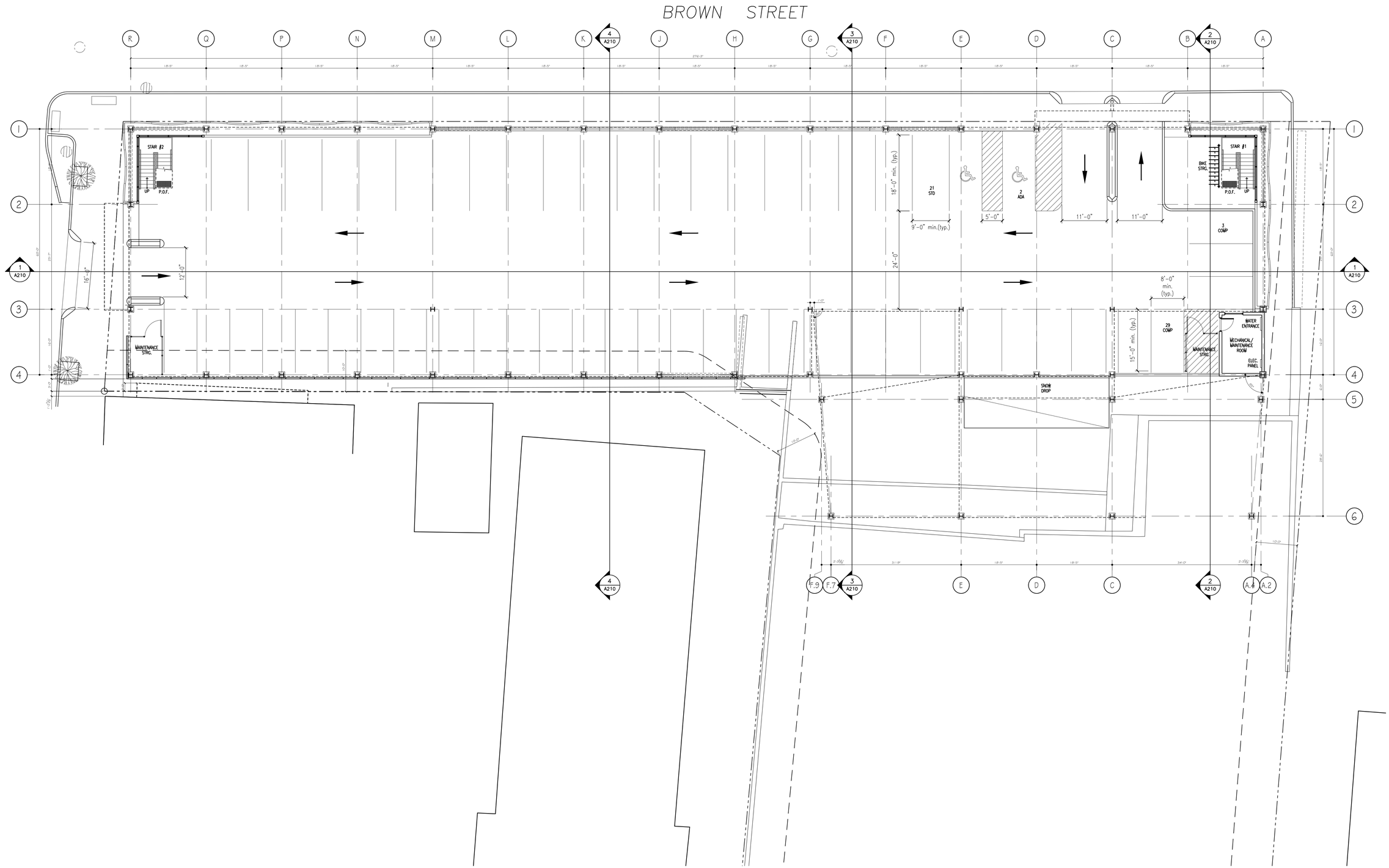
STATE OF MAINE
Peter A. Burke #3386
LICENSED LANDSCAPE ARCHITECT

PLANTING PLAN

No.	Revision/Issue	Date
B	ADD UPPER LOT AREAS	10/23/17
A	PRELIMINARY REVIEW	6-22-17

Design by: PAB
Drawn by: PAB
Checked by:
Approved by:
Project:
06-20-2017
Sheet No.

L-2



1 **FIRST LEVEL FLOOR PLAN**

SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

OCEAN GATE GARAGE
48 - 72 Brown Street
Portland, Maine

SEAL

REVIEW COPY

DRAWING STATUS

- ☐ OFFICE REVIEW
- ☐ CLIENT REVIEW
- ☐ PERMIT REVIEW
- ☐ BID SET
- ☐ CONTRACT DRAWING
- ☐ CONSTRUCTION

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SHEET TITLE
FIRST LEVEL FLOOR PLAN

JOB NO.
201601

DRAWN BY: **TRN**
CHECKED BY:

SCALE
AS NOTED

ORIGINAL DATE
06-13-17

REVISION DATE
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SHEET
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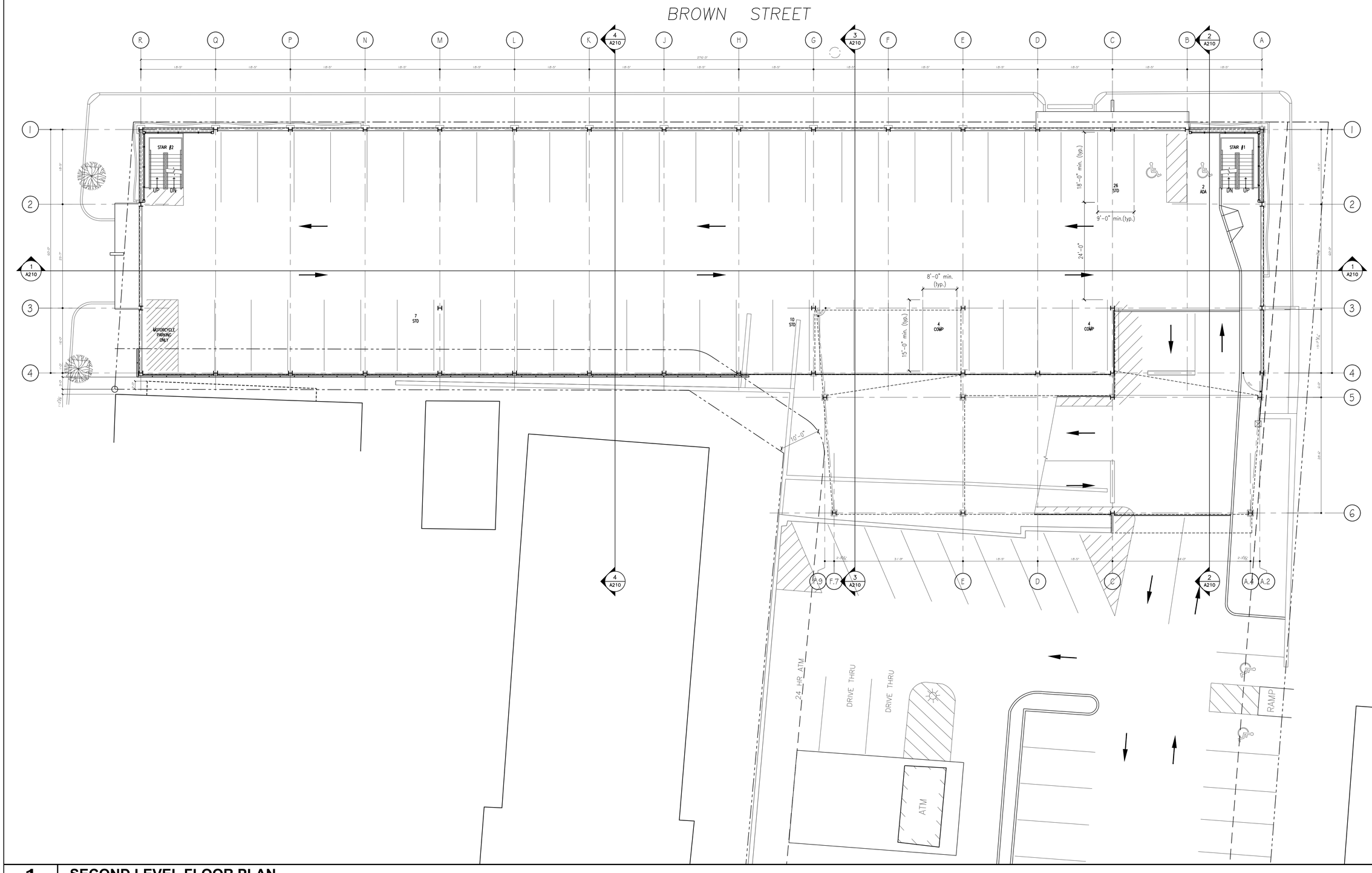

1 SECOND LEVEL FLOOR PLAN

SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

OCEAN GATE GARAGE
48 - 72 Brown Street
Portland, Maine

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SECOND LEVEL FLOOR PLAN

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201601

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ORIGINAL DATE
06-13-17

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A102

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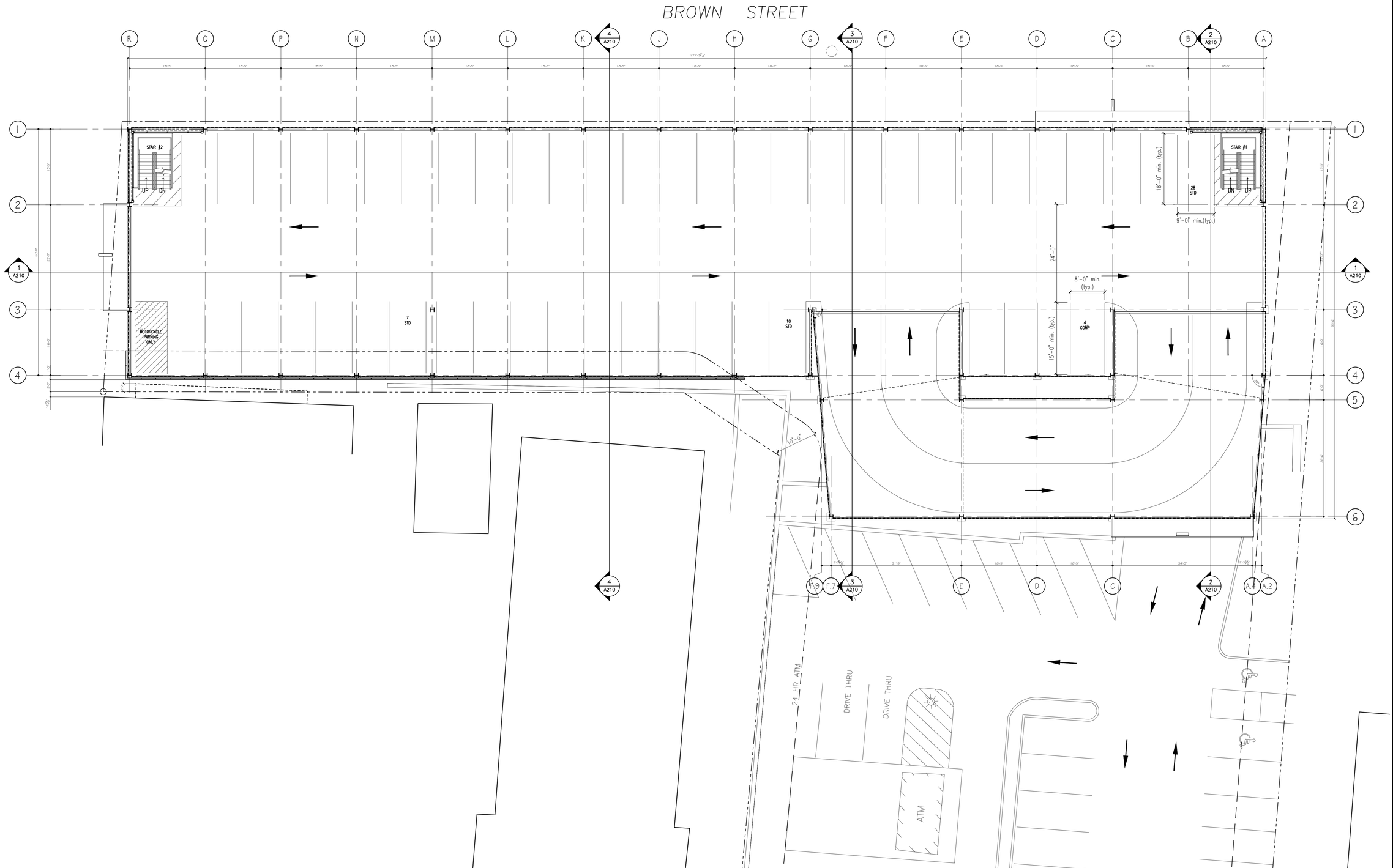

1	**THIRD LEVEL FLOOR PLAN**
	SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

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OCEAN GATE GARAGE
48 - 72 Brown Street
Portland, Maine

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THIRD LEVEL FLOOR PLAN

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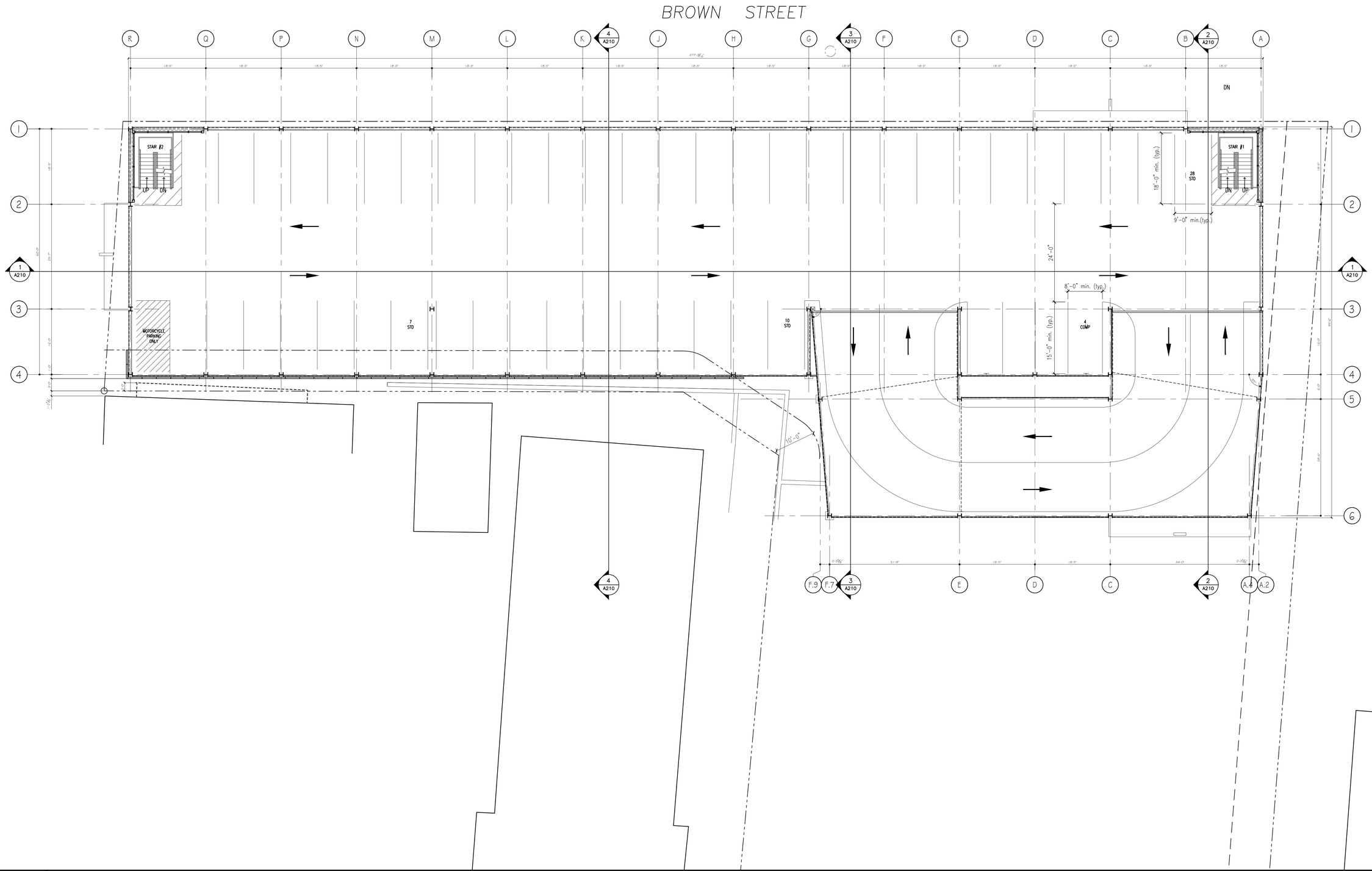

1 **FOURTH LEVEL FLOOR PLAN**

SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

OCEAN GATE GARAGE
48 - 72 Brown Street
Portland, Maine

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FOURTH LEVEL FLOOR PLAN

JOB NO.
201601

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SCALE
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ORIGINAL DATE
06-13-17

REVISION DATE
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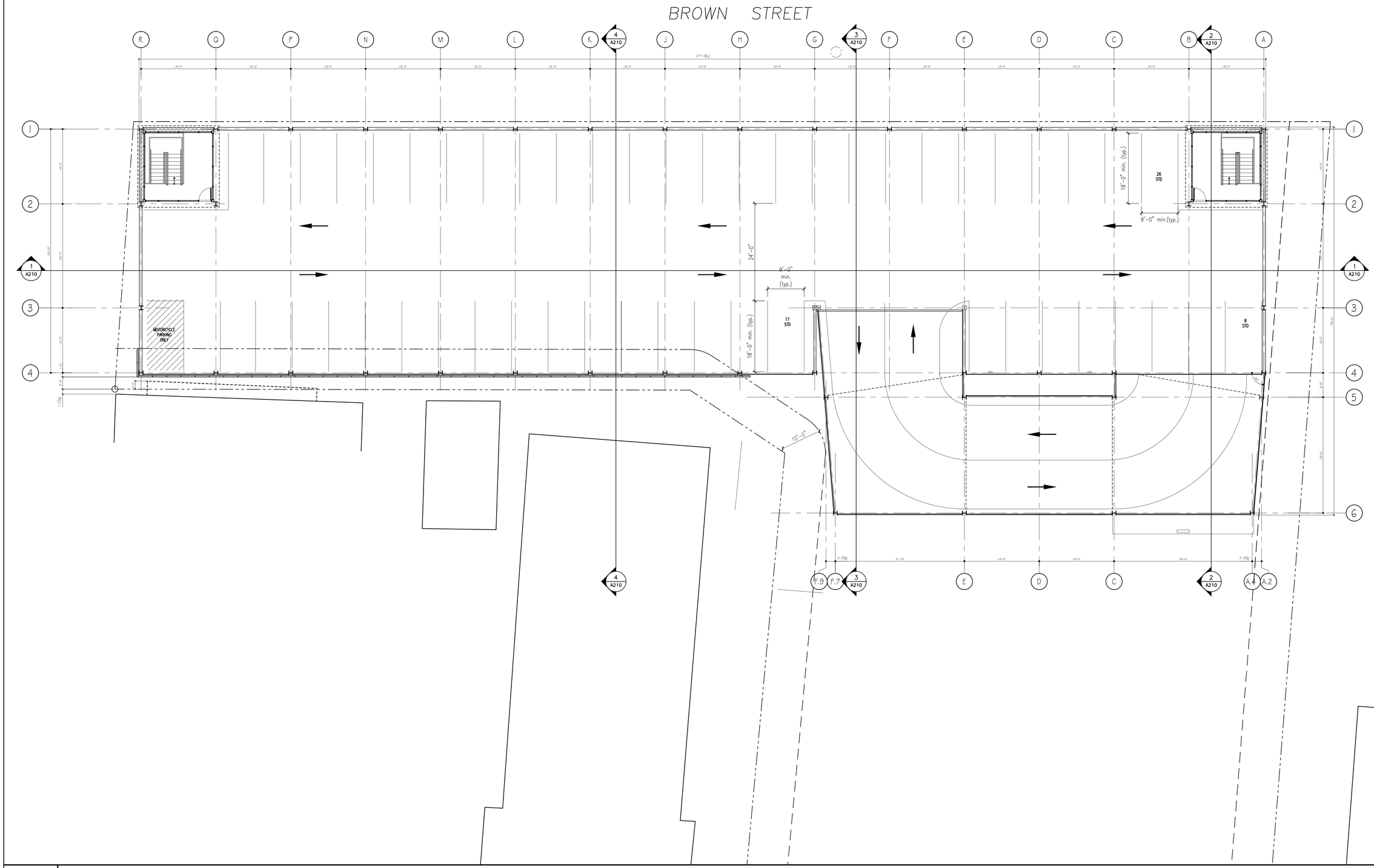

1 **FIFTH LEVEL FLOOR PLAN**

SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

OCEAN GATE GARAGE
48 - 72 Brown Street
Portland, Maine

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- ☐ CLIENT REVIEW
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FIFTH LEVEL FLOOR PLAN

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201601

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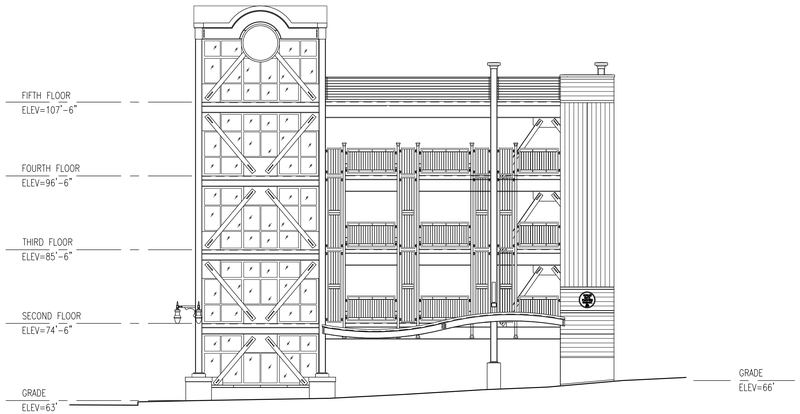
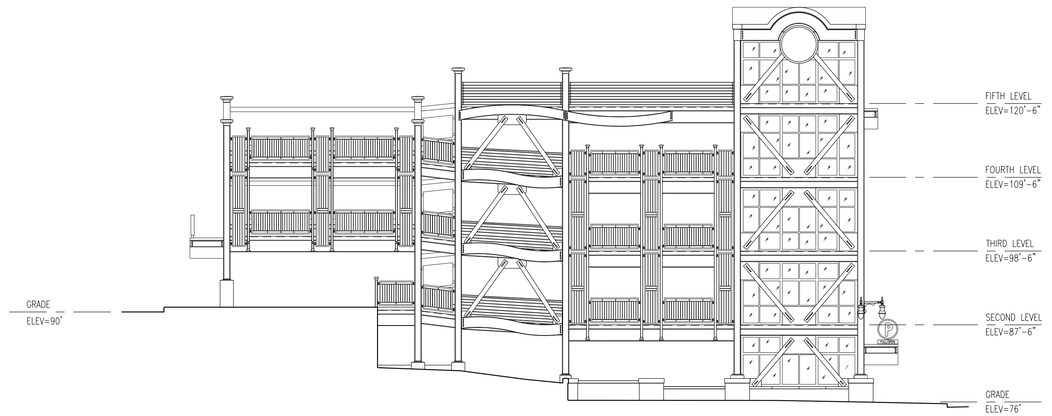


4 NORTH ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"



3 SOUTH ELEVATION

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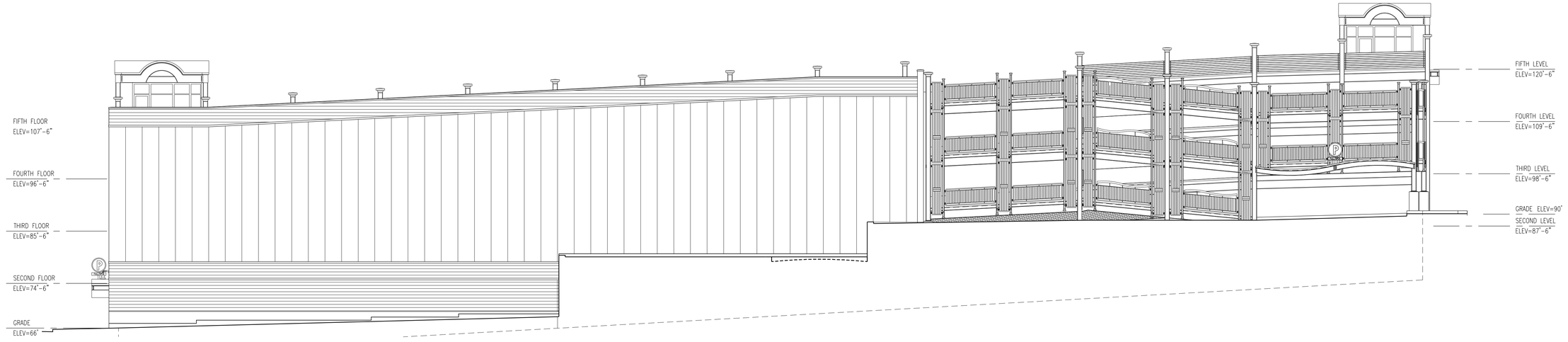
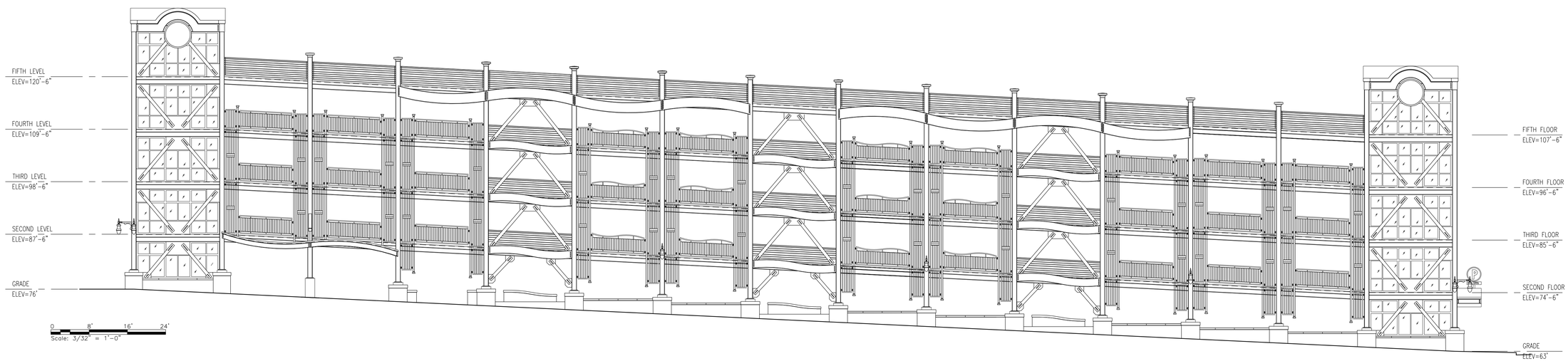


2 WEST ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"



1 EAST ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

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Portland, Maine

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EXTERIOR ELEVATIONS

JOB NO.
201601

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TRN	~

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ORIGINAL DATE
06-13-2017

REVISION DATE
~

SHEET
A200

I:\BROWNSTGARAGE\CONDOCS\ARC\PLANS\FURPLANS.DWG

Notes:

1. Pedestrian traffic to be controlled with barricades, MUTCD signage, and temporary crosswalks and curb ramps at closed sidewalks.
2. Temporary fencing to have safety signage such as "Hard Hat Area," "No Trespassing," etc.
3. Closed parking spaces and sidewalks to be coordinated with Public Works and Public Safety.
4. If traffic flow is will be impacted by construction operations, traffic control will be maintained using flaggers, MUTCD signage, etc.

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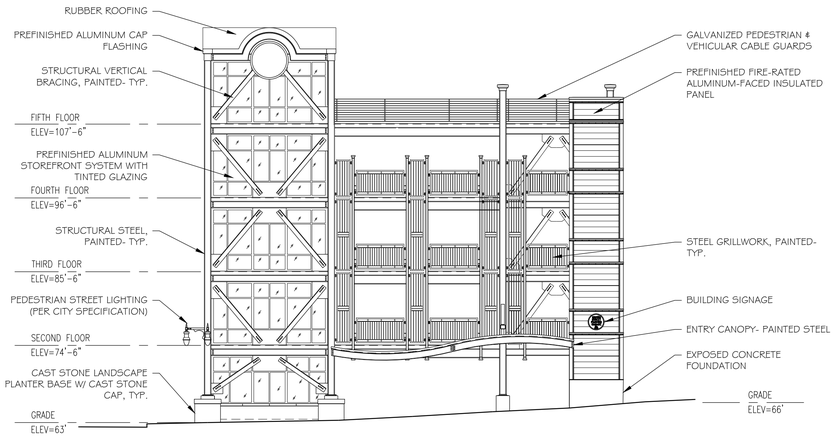
Construction Management Plan

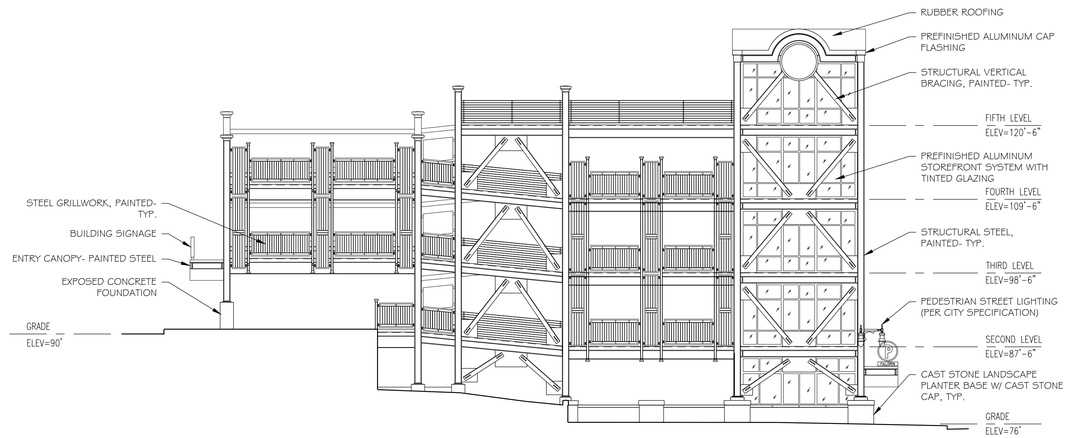
Ocean Gate Parking Garage
Portland, ME

June 2017



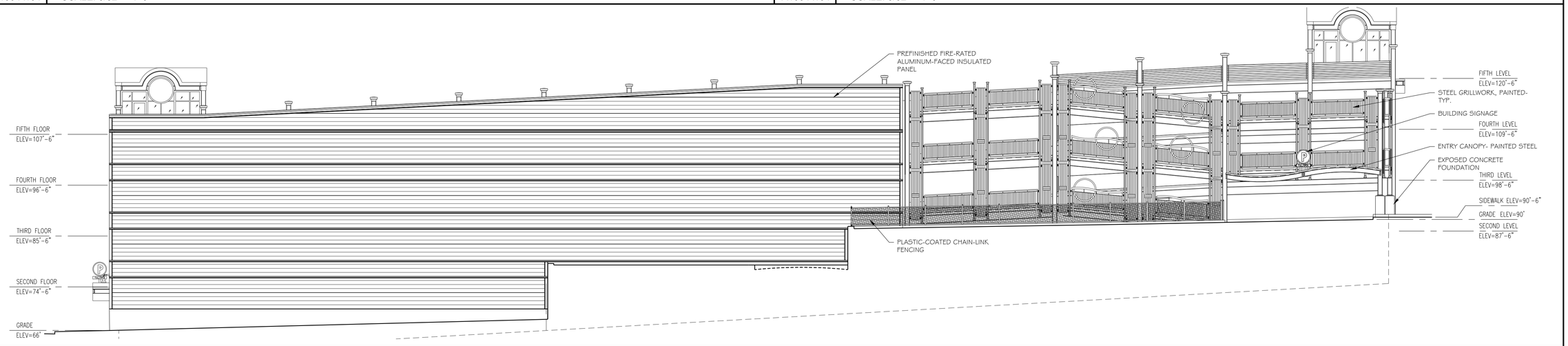
4 NORTH ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"



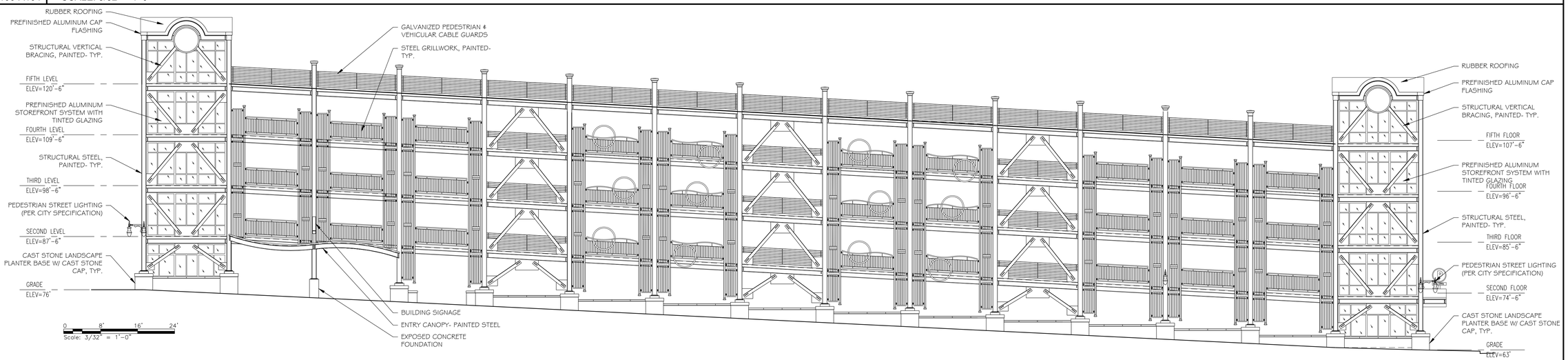
3 SOUTH ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"



2 WEST ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"



1 EAST ELEVATION

A100-A104 SCALE: 3/32" = 1'-0"

PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

Proposed New Construction of:

BROWN STREET PARKING GARAGE

48 - 72 Brown Street
Portland, Maine

SEAL

REVIEW COPY

DRAWING STATUS

- ☐ OFFICE REVIEW
- ☐ CLIENT REVIEW
- ☐ PERMIT REVIEW
- ☐ BID SET
- ☐ CONTRACT DRAWING
- ☐ CONSTRUCTION

No drawing shall be recognized as a construction document unless it bears a blue inked registration seal.

SHEET TITLE
EXTERIOR ELEVATIONS

JOB NO. **201601**

DRAWN BY **TRN** | CHECKED BY **TRN**

SCALE **AS NOTED**

ORIGINAL DATE **06-13-2017**

REVISION DATE **11-20-2017**

SHEET **A200**

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Google Groups

Additional Public Comment Received

Public Comment: 48 Brown Street - Project #: 2017-145

George Rheault <george.rheault@gmail.com> Nov 28, 2017 8:27 AM

Posted in group: **Planning Board**

I remain opposed to the proposed parking garage in its current form as presented in the Planning Board November 28, 2017 meeting materials.

The blank fire wall on the project's western side (elevation looking East) has apparently undergone some design changes since the September 26, 2017 Planning Board workshop.

Those design changes are almost impossible to discern from the materials submitted. It is not clear that the applicant has addressed any of the design concerns raised at the Planning Board workshop and, even if they have made a meaningful effort, they have not provided anything that helps the public or the Planning Board understand their process or solution.

The fire wall design treatment remains a bare-bones utilitarian effect that provides zero visual interest or texture to the neighborhood and since it will be looming over us for a very long time to come (50+ years is a good guess considering the life of the moldering parking garage next door), this is not an insignificant concern.

Additionally, it is disappointing that between the September workshop materials AND the November public meeting materials, there has not been any illustration of the visual impact of the proposed parking garage on the Cumberland Avenue corridor - particularly as one travels from West to East towards the project.

I have attached a picture taken from the northern sidewalk of Cumberland just West of the proposed project. It would be great if the developer would provide a photo simulation of the new building in this context so that the Planning Board and the public can understand better the impact on the existing view corridor/streetscape.

It is also unfortunate that the Planning Department has not seen an opportunity here to get the applicant to address, as part of this project, the dead street wall along Brown Street caused by the existing office building that is meant to be served by the new parking garage (see attached photo).

The original 511 Congress Street architecture created a series of repeating abstract indentations from the Congress/Brown street corner that only serve to create a cold unpleasant blank wall that, while broken up with windows as one makes their way further down Brown Street, remains unhelpful and intimidating for the pedestrian experience. Instead of trying to activate this first floor level (right now it appears to be some sort of storage/mail-room type of occupancy) as a concession related to making the parking garage project more palatable (and safer), this dead zone remains unchanged and un-commented upon which is a disappointment considering what the future holds for the overall Brown Street corridor which will be further deadened with the addition of another large parking structure.

Thank you.

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