

1. Legal Ad

Documents: [PB LGL AD 5-27-14.PDF](#)

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3. 709 Congress Street

3.I. PB Memo

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3.II. Staff Comments

Documents: [CONGRESS ST. - 709 \(STAFF COMMENTS\).PDF](#)

3.III. Applicants Submittal

Documents: [CONGRESS STREET - 709 \(APPLICANTS SUBMITTAL\).PDF](#)

3.IV. Plans

Documents: [CONGRESS ST. - 709 \(PLANS\).PDF](#)

4. 97 Cumberland Street

4.I. PB Memo

Documents: [CUMBERLAND AVE. - 97 \(PB MEMO\).PDF](#)

4.II. Staff Comments

Documents: [CUMBERLAND AVE. - 97 \(STAFF COMMENTS\).PDF](#)

4.III. Applicants Submittal

Documents: [CUMBERLAND AVE. - 97 \(APPLICANTS SUBMITTAL\).PDF](#)

4.IV. Public Comments

Documents: [CUMBERLAND AVE. - 97 \(PUBLIC COMMENTS\).PDF](#)

4.V. Plans

Documents: [CUMBERLAND AVE. - 97 \(PLANS\).PDF](#)

5. Waiver Of Joint Meeting

5.I. PB Report

Documents: [WAIVER OF JOINT MEETING \(PB MEMO AND ATTACH.\).PDF](#)

6. 421 Warren Avenue

6.I. PB Report

Documents: [WARREN AVE. - 421 \(PB REPORT\).PDF](#)

6.II. Staff Comments

Documents: [WARREN AVE. - 421 \(STAFF COMMENTS\).PDF](#)

6.III. Applicants Submittal

Documents: [WARREN AVE. - 421 \(APPLICANTS SUBMITTAL\).PDF](#)

6.IV. Public Comment

Documents: [WARREN AVE. - 421 \(PUBLIC COMMENT\).PDF](#)

6.V. Plans

Documents: [WARREN AVE. - 421 \(PLANS\).PDF](#)

**LEGAL ADVERTISEMENT
PORTLAND PLANNING BOARD MEETING**

The Portland Planning Board will hold a meeting on May 27, 2014, Room 209, 2nd Floor, City Hall, 389 Congress Street. **Public comments will be taken at both the workshop and public hearing.**
The agenda includes the following items:

Workshop – 4:30 p.m.

- i. Conditional Use Review of Drive-through in B-2b Zone; 709 Congress Street; Skowhegan Plaza Limited Partnership, Applicant. The Board will consider an application to add a pharmacy drive-through to the pending site plan proposal for reconstruction of the Rite Aid Pharmacy at 709 Congress Street.
- ii. Level III Site Plan and Subdivision Review; 97 Cumberland Avenue; Peter Dugas and Anastasia Antonacos, JTS., Applicant. The Board will consider a proposal for the new construction of a 5 unit multi-family building on a lot with 5,050 square feet in the R-6 zone.

Public Hearing – 7:30 p.m.

- i. Waiver of Joint Meeting with South Portland Planning Board on the Amended Johnson Road Subdivision, Transport Leasing Corp., Applicant. The Planning Board will consider a motion to waive a joint meeting on the amended Johnson Road Subdivision for the conveyance of a 0.33 acre parcel and a 0.20 parcel to Lot 6 and Lot 5, respectively.
- ii. Level III Site Plan Review : 421 Warren Ave.; 6 unit Commercial Complex – PH Warren Avenue, LLC, Applicant. The Board will consider a proposal to construct a 25,050 sq. ft. single level building to create 6 commercial units. Vehicle access would share the existing access for 429 Warren Ave.

STUART O'BRIEN, CHAIR - PORTLAND PLANNING BOARD

CITY OF PORTLAND, MAINE
PLANNING BOARD

Stuart G. O'Brien, Chair
Timothy Dean, Vice Chair
Elizabeth Boepple
Sean Dundon
Bill Hall
Carol Morrisette
Jack Soley

AGENDA
PORTLAND PLANNING BOARD

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PUBLIC HEARING – 7:30 p.m.

1. **ROLL CALL AND DECLARATION OF QUORUM**
2. **COMMUNICATIONS AND REPORTS**
3. **REPORT OF ATTENDANCE AT THE MEETING HELD ON MAY 13, 2014:**
Workshop: All members were present.
Public Hearing: All members were present. Stuart arrived at 6:20 p.m.
4. **REPORT OF DECISIONS AT THE MEETING HELD ON MAY 13, 2014:**
 - i. Westgate Shopping Center; 1412 Congress Street; Conditional Use and Site Plan Application, Charter Westgate LLC. Applicant. Tim Dean moved and Elizabeth Boepple seconded a motion to approve the traffic movement permit with 1 condition of approval: vote: 5-0 (Dundon and Morrisette absent). Tim Dean moved and Elizabeth Boepple seconded a motion to grant conditional use approval with 1 condition of approval: vote: 5-0 (Dundon and Morrisette absent). Tim Dean moved and Elizabeth Boepple seconded a motion to approve site plan application with 2 conditions of approval: vote: 5-0 (Dundon and Morrisette absent).

- ii. Shucks Lobster, 6-44 Commercial Street; Conditional Use and Site Plan Application, Shucks Maine Lobster, LLC Applicant. Tim Dean moved and Elizabeth Boepple seconded a motion to grant conditional use approval with 6 conditions of approval. Vote: 5-0 (Dundon and Morrisette absent). Tim Dean moved and Elizabeth Boepple seconded a motion to approve site plan application with 3 conditions of approval. Vote: 5-0 (Dundon and Morrisette absent).
- iii. Eastern Waterfront Port Zone Amendment for Street Vendors, City of Portland, Applicant Tim Dean moved and Elizabeth Boepple seconded a motion to recommend the proposed text amendment to the City Council for adoption. Vote: 5-0 (Dundon and Morrisette absent).

5. NEW BUSINESS

- i. Waiver of Joint Meeting with South Portland Planning Board on the Amended Johnson Road Subdivision, Transport Leasing Corp., Applicant. The Planning Board will consider a motion to waive a joint meeting on the amended Johnson Road Subdivision for the conveyance of a 0.33 acre parcel and a 0.20 parcel to Lot 6 and Lot 5, respectively.
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STUART O'BRIEN, CHAIR - PORTLAND PLANNING BOARD



Memorandum

Department of Planning and Urban Development

Planning Division

TO: Stuart O'Brien, Chair and Members of the Portland Planning Board

FROM: Jean Fraser, Planner

DATE: May 23rd, 2014

RE: **Conditional Use Review of Drive Through added to Proposed Reconstruction of Rite Aid Pharmacy**
709-713 Congress Street
Skowhegan Plaza Limited Partnership, Applicant
Project #: #2014-054 (Conditional Use) and #2013-248 (Site Plan)
CBL 047-C019-001

MEETING DATE: May 27th, 2014

I. Introduction

The applicant, Robert Connor of Skowhegan Plaza Limited Partnership, has submitted a Conditional Use application for proposed drive through for the proposed reconstructed pharmacy currently under review as a Level III Site Plan. The Site Plan was reviewed by the Planning Board on February 11th, 2014.

The Site Plan proposal is for demolition of the existing store (7050 sq. ft.) and construction of a new store with 11,768 sq. ft. floor area near Congress Street where parking is currently located.

Since the Workshop, the applicant has decided to add a drive-through window at the rear of the building, with little change to the proposed site plan.

The 35,412 sq. ft. site is within the B2b zone which allows drive-throughs as a conditional use where it is accessory to the main use. Under Section 14-383 the Planning board is the reviewing authority for the Conditional Use Review.



Notice has been sent to 296 property owners and interested citizens in the vicinity of the project and was published in the May 19th and 20th, 2014 editions of the *Portland Press Herald*. A neighborhood meeting on the Site plan was held on February 13th, 2014 and an informal meeting with neighbors was held on May 8, 2014 regarding the Conditional Use Application for the drive-through (see notes in E and G). No public comments have been received.

Required reviews: The proposal is being reviewed by the Planning Board under the Land Use Code provision 14-383 (B2b Conditional Use, which includes 14-474). The overall project requires and has received Historic Preservation approval and also is subject to Site Plan review which was the focus of the February Planning Board Workshop and not addressed in detail in this Memorandum.

II. PROJECT DATA (from Site Plan February Workshop Memo)

DATA	Phase II Proposed new building
Total Site Acreage	35,421 sq ft (on submitted data sheet); 35 532 q ft (survey);
Existing Zoning	B2b
Existing Use	Rite Aid Pharmacy (retail)
Proposed Uses	Rite Aid Pharmacy (retail)
Proposed structure height	One story
Total Disturbed Area	30,300 sq ft
Existing impervious areas	4108 sq ft
Proposed impervious areas	5120 sq ft
New Impervious surface	1012 sq ft
Existing building footprint	7,050 sq ft
Proposed building footprint	11,168 sq ft
Existing floorspace	7,050 sq ft
Proposed floorspace	11,168 sq ft
Existing parking	48 spaces
Proposed parking spaces (total)	38 spaces
Proposed handicapped parking spaces	2 spaces
Proposed number of new bicycle parking spaces	5
Estimated Cost of Project:	\$1.2 million
Uses in Vicinity:	Commercial; residential

III. EXISTING CONDITIONS

The existing pharmacy was constructed in 1941 and is located between two three-story buildings on Congress Street and is opposite the Seven Eleven at the corner of Dow Street.



The site backs onto and is higher than the residential (R-6) properties along Deering Street. Currently the site has no landscaping and the service elements are not screened.

Deering Lane separates the site from a three-story 4-unit residential building to the east and the large parking area to the rear which also serves local commercial uses.



IV. PROPOSED DEVELOPMENT

The applicant has revised the layout slightly to address the Workshop comments and add the drive through window and stacking lane- it is shown in Plans P4 and P5. The drive through window is located on the rear elevation of the proposed building, and vehicles accessing the window will wait in what is also the loading bay area for trucks using the loading dock.

V. Staff Review

a. Zoning:

Marge Schmuckal, Zoning Administrator, has previously confirmed that the proposals meet the requirements of the B2b zone, including the parking (Attachment 1). The drive-through does not alter any of the zoning characteristics of the project, but it also must meet the conditional use standards as below.

b. Conditional Use Standards (Section 14-183):

The applicant has submitted a narrative addressing all of the conditional use standards (Attachment C).

Sec. 14-183 - *Conditional Uses* identifies drive-throughs in the B-2 or B-2b zones that are adjacent to any residential use or zone as being a permitted conditional business use if they meet specific requirements.

“The Planning Board shall be substituted for the Board of Appeals as the reviewing authority over conditional business uses”. The property is adjacent to an R-6 residential zone at the rear of the site.

The ordinance specifies that *“Drive-throughs, where permitted, shall also specifically comply with the following conditions:”*

1. **Location of Drive-throughs:** *Features, such as windows, vacuum cleaners and menu/order boards, stacking lanes, must be placed, where practicable, to the side and rear of the principal building except where such placement will be detrimental to an adjacent residential zone or use, and shall be located no nearer than forty (40) feet from any residential zone. This distance shall be measured from the outermost edge of the outside drive-through feature to any property line. In addition, drive-through features shall not extend nearer than twenty-five (25) feet to the street line. The site must have adequate stacking capacity for vehicles waiting to use these service features without impeding vehicular circulation or creating hazards to vehicular circulation on adjoining streets.*

Staff comments: The Drive Thru Plan in Plan P5 includes dimensions related to the drive-through features. The stacking lane is the nearest feature to the residential zone and is suggested in the Traffic Memo (Attachment D) to be 5 vehicles. The applicant has indicated that substantiating information for this will be available at the Workshop (Attachment G).

Assuming a 5-vehicle stacking lane, the plan suggests it is over 50 feet from the rear property boundary/R-6 zone line and therefore meets the standard. The City's Traffic Engineer, Tom Errico, has confirmed that the stacking lane would be of this order in his experience and anticipates this would not be an issue (Att. 1).

The location of the drive through and the associated stacking lane within the loading area for the Rite Aid building has raised some concerns about how the servicing of the Rite Aid will be accomplished with the drive-through added. These relate to the wider Site Plan review and are discussed below in Section VI.

2. **Noise:** *Any speakers, intercom systems, or other audible means of communication shall not play prerecorded messages. Any speakers, intercom systems, audible signals, computer prompts, or other noises generated by the drive-through services or fixtures shall not exceed 55 dB or shall be undetectable above the ambient noise level as measured by a noise meter at the property line, whichever is greater.*

Staff comments: Details of any speaker system would need to be provided and reviewed as part of the final submission.

3. **Lighting:** *Drive-through facilities shall be designed so that site and vehicular light sources shall not unreasonably spill over or be directed onto adjacent residential properties and shall otherwise conform to the lighting standards set forth in 14-526.*

Staff comments: The layout of the rear parking area and the location of the drive-through window and stacking lane work together to minimize potential headlight glare into residential properties. Vehicles in the stacking lane will either be facing the Rite Aid rear wall or facing the fence along the western boundary of the site (within the B2b zone and where there is no residence at that location along the boundary) (Plan P5).

The proposed drive through window is not shown on the submitted elevations and staff have not seen details of lighting. These would need to be included in the final submissions and address this standard.

4. **Screening and Enclosure:** *Where automobiles may queue, waiting for drive-through services, their impacts must be substantially mitigated to protect adjacent residential properties from headlight glare, exhaust fumes, noise, etc. As deemed necessary by the reviewing authority, mitigation measures shall consist of installation of solid fencing with landscaping along any residential property line which is exposed to the drive-through or the enclosure of the drive-through fixtures and lanes so as to buffer abutting residential properties and to further contain all associated impacts;*

Staff comments: The proposal includes a new 6 foot high cedar fence along the western property boundary and there are existing wood fences along the rear property line and together these provide buffering of potential glare (see Plan P4). Staff do not anticipate any additional noise or exhaust fumes above those normally generated by a parking lot.

5. **Pedestrian access:** *Drive-through lanes shall be designed and placed to minimize crossing principal pedestrian access-ways or otherwise impeding pedestrian access.*

Staff comments: The location of the drive-through window within the rear elevation creates the potential conflict with pedestrians walking along the side of the building to reach vehicles parked in the rear part of the parking lot. Plan P5 shows a stop line and the applicant has offered to install mirrors so that the drivers and pedestrian can see each other around the corner of the building (Attachment G).

Tom Errico, Traffic Reviewer, anticipates that some minor changes to the design of this area to address pedestrian safety may be required but does not view this as a critical issue (Att. 1).

6. **Hours of Operation:** *The Board, as part of its review, may take into consideration the impact hours of operation may have on adjoining uses.*

Staff comments: The applicants submission includes two different suggestions for the drive-through hours (Attachments C and G). It appears that the earliest it would open is 8am and the latest would be 8pm, and it would be open every day but with reduced hours on Saturday and Sunday. The applicant should confirm the hours of opening and the final approval would include a limit on the hours of opening for the drive-through. Other recent approvals for pharmacy drive-throughs in Portland located near off-peninsula residential areas have had limits of 7am to 11pm every day.

B. Conditional Use Requirements (Section 14-474):

The Conditional Use standards in this section also apply and state:

Upon a showing that a proposed use is a conditional use under this article, a conditional use permit shall be granted unless the board determines that:

- 1) *There are unique or distinctive characteristics or effects associated with the proposed conditional use;*
- 2) *There will be an adverse impact upon the health, safety, or welfare of the public or the surrounding area;*
- 3) *Such impact differs substantially from the impact which would normally occur from such a use in that zone.*

The Planning Board may impose reasonable conditions upon the premises benefited by a conditional use as may be necessary to prevent or minimize adverse effects therefrom upon other property in the neighborhood. Such conditions shall be expressly set forth in the resolution authorizing the conditional use permit and in the permit. Violation of such conditions shall be a violation of this article.

Staff comments: The proposed pharmacy with a drive-thru window does not create any of these effects or impacts.

VI. IMPLICATIONS FOR SITE PLAN

- a. Servicing: During the Site Plan review the question of how delivery trucks would access and maneuver was raised. The applicant submitted the attached delivery vehicle turning template (Plan P7) which shows that the largest trucks could only access the site when there is no parking and no activity in the drive-through. The drive-through proposal raised questions about trash collection (since the stacking lane is in front of the dumpsters) and other deliveries. The applicant has explained how Rite Aid would anticipate the various servicing operations to mesh with parking for the store and access to the drive-through window (Att.G).

Staff consider that the servicing and access appears feasible without causing vehicles to back out onto or wait in Congress Street, but that this would depend on careful management because the access time “windows” are relatively short. In addition, the noise associated with trash collection and maneuvering tractor trailers near residences should not be early in the morning or late at night. As envisaged by the applicant, tractor trailer deliveries could be as early as 7am and the Board may wish to comment on this.

Tom Errico has commented (Attachment 1):

The applicant will have to provide a site traffic management plan that notes how delivery trucks will access the site such that parked vehicles and drive-through vehicles do not impede circulation. The plan must ensure that backing maneuvers into Congress Street are avoided.

- b. Fencing: It is noted that at the recent informal meeting with Deering Street neighbors (Attachments E and G) suggestions were made to revise the fencing in the rear parking lot, so that there is a continuous fence to completely enclose the site. The neighbors suggested a high chain link fence along the rear boundary and wood or other fencing along the boundary with Deering Lane. The idea of fencing in the side along Deering Lane is contrary to the Site Plan review recommendations that there be visual surveillance and pedestrian connections along this boundary to meet Site Plan objectives and standards. Staff suggest that consideration be given to other options to address neighbors’ concerns.
- c. Construction Program: In response to previous Planning Board comments the applicant has submitted a more detailed Construction Program (Attachment F). This has not been reviewed in detail for this Memorandum which focusses on the drive-through issues, but is helpful in understanding likely impacts during construction.

VII. NEXT STEPS

Suggested next steps include:

- Submit data to back up stacking lane location
- Provide details of the speaker system, and design/location and lighting of the drive-through window, and details to address potential pedestrian/vehicle conflicts
- Submit site traffic management plan as part of final submission for both site plan and conditional use review
- Clarify hours of operation of the drive-through
- Develop options to address neighbor concerns for security in the rear parking lot area to address site plan standards
- Address any Planning Board comments
- Planning Board to schedule Public Hearing for combined Site Plan and Conditional Use review.

ATTACHMENTS (Conditonal use Applicaton Only)

Staff Review comments

1. Traffic Engineering Review comments 5.23.2014
2. Zoning Administrator comments 1.28.2014 (as for Site Plan Review- no new comments)

Public comments

(none received)

Applicants submittal

- A. Cover letter
- B. Conditional Use Application
- C. Conditional Use Stds Analysis
- D. Updated Traffic Memo
- E. Notes of Meeting with neighbors
- F. Construction Schedule/Plan
- G. Additional Info re drive thru/servicing

Plans (several from February Site Plan submissions included for context info)

- P1. Topo Survey Plan
- P2. Site Aerial Photo
- P3. Context Photos
- P4. Concept Site plan (C-CP1)
- P5. Drive Thru Plan (L-5)
- P6. Elevations
- P7. Delivery Vehicle Turning Template

From: Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <JF@portlandmaine.gov>
CC: David Margolis-Pineo <DMP@portlandmaine.gov>, Katherine Earley <KAS@port...>
Date: 5/23/2014 9:07 AM
Subject: 709 Congress Street -- Rite Aid

Jean - I have reviewed the project proposal for a drive-through window and from a traffic perspective I believe it to be generally acceptable. I would note that there are a few items that I need to consider before issuing final approval as noted below:

* The applicant will be providing information on anticipated vehicle stacking length at the drive-through window for review and evaluation. My experience with similar types of projects is that vehicle queuing is minimal and therefore I don't expect problems.

* The applicant will have to provide a site traffic management plan that notes how delivery trucks will access the site such that parked vehicles and drive-through vehicles do not impede circulation. The plan must ensure that backing maneuvers into Congress Street are avoided.

* I will continue to review the drive-through vehicle/pedestrian interaction situation and provide feedback on whether I believe it to be acceptable in the future. I don't view this as a critical issue, but minor changes may be suggested to enhance pedestrian safety.

If you have any question, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
[T.Y. Lin International] T.Y. Lin International
12 Northbrook Drive
Falmouth, ME 04105
207.781.4721 (main)
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"One Vision, One Company"

Please consider the environment before printing.

MEMORANDUM

To: FILE
From: Jean Fraser
Subject: Application ID: 2013-248
Date: 1/29/2014

Comments Submitted by: Marge Schmuckal/Zoning on 1/28/2014

This is a rebuild of the current Rite Aid building which is located in a B-2b zone. It is my understanding that the Historic Board has already approved the design of the building.

The dimensional standards for setbacks, height, street frontage and impervious surface are meeting the B-2b zone requirements. I have reviewed the parking. No parking is within the required front yard. I used A1.0 floor plans to determine parking for this retail use. I discounted the front "display" area which is not available to the public. I also discounted the pharmacy and receiving area from the overall square footage. Then I took off the 2,000 sf that is allowed under the regs. The required number of parking spaces turned out to be 35.18 or 35 parking spaces. The plans show exactly 35 spaces. There would be no need for an appeal of required spaces.

I did not see plans detailing the temporary trailers or a time frame that they would be located in the rear during construction. I would need to see that detail.

Separate permits are required for the new signage which also need to be reviewed thru Historic. All new HVAC systems will need separate permits and must show compliance with the B-2b maximum sound requirements. All submittals for HVAC shall have full information on decibels emitted.

Marge Schmuckal
Zoning Administrator

April 10, 2014

Jean Fraser
City of Portland, Planning Division
389 Congress Street
Portland ME 04101



Cover Letter
Conditional Use Permit Review

RE: Rite Aid Pharmacy
Conditional Use Permit
713 Congress Street
Portland ME 04101

Dear Jean and members of the Planning Board,

On behalf of Rite Aid Pharmacy (Rite Aid) and Robert Connor of Skowhegan Plaza Limited Partnership (applicant), we respectfully request that the Planning Board consider a conditional use Drive Through to be nestled into the rear parking lot, tight to the back of the building. Stacking is for 2 cars but up to 5 cars can be accommodated without impacting the use of the parking lot. Hours are from 9am until 7pm M-F & Saturday.

The existing Rite Aid does not have a Drive Through. Initially, when we presented to the Historic Preservation and Planning Boards, Rite Aid corporate did not plan for a Drive through, however they asked us to investigate the possibility. With the help of staff, we were able to craft a Drive Through design that minimizes impact to the site and neighborhood.

We look forward to presenting this conditional use application to the Planning Board at your earliest convenience,

Sincerely,
ALPHAarchitects



Mark Sengelmann NCARB
Maine Licensed Architect

cc. J. Robert Connor

PROJECT NAME: RITE AID PHARMACY

Att. B

PROPOSED DEVELOPMENT ADDRESS:

713 CONGRESS STREET PORTLAND ME 04101

CHART/BLOCK/LOT: 047 0019 001

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: <u>ROBERT CONNOR</u> Business Name, if applicable: <u>SKOWHEGAN PLAZA LIMITED PARTNERSHIP</u> Address: <u>12 BROOK ST</u> City/State: <u>WELLESLEY MA</u> Zip Code: <u>02482</u>	Applicant Contact Information Work # <u>781-431-7060</u> Home# Cell # <u>781-953-8202</u> Fax# <u>781-431-7063</u> e-mail: <u>jrconnor@verizon.net</u>
Owner – (if different from Applicant) Name: Address: <u>same</u> City/State: Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Billing Information Name: Address: <u>same</u> City/State: Zip Code:	Billing Information Work # Cell # Fax# e-mail:

RIGHT, TITLE OR INTEREST:

Previously submitted

(Please identify the status provide documentary evidence, attached to this application, of the applicant's right, title, or interest in the subject property (ex: deed, option or contract to purchase or lease the property.)

VICINITY MAP: (Please attach a map showing the subject parcel and abutting parcels, labeled as to ownership and/or current use.)

EXISTING USE: Describe the existing use of the subject property.

RECONSTRUCTION OF EXISTING 17050SF RITEAID TO A NEW 11,168SF
RITEAID PHARMACY INCLUDING DEMOLITION OF EXISTING STORE.

TYPE OF CONDITIONAL USE PROPOSED:

DRIVE THROUGH ACCESSORY USE TO PHARMACY

SITE PLAN: Provide a site plan of the property, showing existing and proposed improvements, which meets the submission requirements of the applicable level of site plan review.

CONDITIONAL USE AUTHORIZED BY: SECTION 14- 103 a. 4

Address any specific conditional use standards for the specific use contained in the zoning code in the written submission.

APPLICATION FEES:

(Payment may be made by Cash or Check payable to the City of Portland.)

___ Conditional Use Review (\$100.00) (Please submit a separate application for the applicable site plan review. Fees and charges are listed within the application)	The City invoices separately for the following: • Notices (\$.75 each) • Legal Ad (% of total Ad) • Planning Review (\$40.00 hour) • Legal Review (\$75.00 hour) Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.
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APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or DVD with each plan submitted as separate files, with individual file names (see submittal requirements document attached).
2. In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Planning Division Office to start the review process.

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. Evidence of right, title and interest.
 - d. Written Submittals that address the conditional use standards of Sec. 14-474 and any applicable standards of review contained in the zoning code for the specific use.
 - e. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet and containing the information required for the applicable level of site plan review.
 - f. See Section 14-527 for plan and submission requirements. Refer to the application checklist for a detailed list as well.
 - g. One (1) set of plans reduced to 11 x 17.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site <http://www.portlandmaine.gov/citycode/chapter014.pdf>

APPLICANT SIGNATURE:

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 Conditional Use 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: <i>G. Robert Landon</i>	Date: <i>4/2/14,</i>
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April 10, 2014

Jean Fraser
City of Portland, Planning Division
389 Congress Street
Portland ME 04101



Architect's Memo
Conditional Use Permit Review

RE: Rite Aid Pharmacy
Conditional Use Permit
713 Congress Street
Portland ME 04101

Dear Jean and members of the Planning Board,

On behalf of Rite Aid Pharmacy (Rite Aid) and Robert Connor of Skowhegan Plaza Limited Partnership (applicant), ALPHAarchitects is pleased to submit one original paper copy and one CD copy for the referenced project.

This submission contains the following information:

- Conditional Use Development Review Application
- L-5, Site Plan with Drive Through
- A2.0 Building Elevations
- Updated Traffic Impact Letter April 4, 2014
- CP-1 REEC CONCEPT PLAN
- CP-2 TRUCK TURNING CONCEPT PLAN



Low Aerial Model View

Zoning Analysis

The project is in the B-2b Community Business Zone. The existing use and proposed uses are retail which are permitted within the Zone. This application is for a Conditional Use Permit to allow a Drive Through Pharmacy at the rear of the site. This conditional use is authorized by Section 14-183.a.4.

P:\Commercial-Retail\12146-RITE_AID-713_Congress_St\Docs\PBd Architect's Memo #3- Cond. Use Permit.doc

ALPHAarchitects

17 Chestnut Street, Suite 201, Portland ME 04101 • 207.761-9500 • Fax 207.761.9595 • mark@ALPHAarchitects.com

The proposed Drive Through additionally is required to meet Section 14-183.a.6.a, b, c, d, e & f.

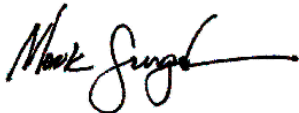
- a. Location: The Drive Through window is carefully located at the rear of the site 120' away from the rear property line of the residential (40' Minimum required) and over 145' from the street line (25' minimum required).
- b. Noise: The speakers for the Drive Through feature will not play a prerecorded messages and the volume will not exceed 55Db at the property line.
- c. Lighting: The Drive Through is designed to prevent headlight pollution from vehicles in the Drive Through lane from shining on residences. Headlights will point at the rear of the Pharmacy and toward a 6' cedar solid wood fence on the western edge of the property. The building will screen and prevent any lights from shining on the neighboring residential use.
- d. Screening and Enclosure: The Drive Through is designed to prevent headlight pollution from vehicles in the Drive Through lane from shining on residences. Headlights will point at the rear of the Pharmacy and toward a 6' cedar solid wood fence on the western edge of the property. The building will screen and prevent any lights from shining on the neighboring residences. The dumpster fence and building wall further enclose the Drive Through from the surrounding residential uses.
- e. Pedestrian access: the Drive Through lane has been designed to minimize crossing of pedestrian ways. A stop bar will be painted just past the Drive Through window and a concave mirror will be installed to allow pedestrians and vehicles visual access to each other at the rear corner of the building.
- f. Hours of Operation: the Drive Through will be open from 9am until 7pm M-F & Saturday. Trash collection will be from 8am until 9am once a week. Deliveries will be from 6am until 8am M-F.

Finally, a review of Section 14-474c(2) shows that

- a. there are no unique or distinctive characteristics or effects associated with the proposed conditional Drive Through use,
- b. there will be no adverse impact on the health, safety or welfare of the public or the surrounding area,
- c. there is no substantial impact created by the Drive Through beyond the activity associated with a rear parking lot.

Sincerely,

ALPHAarchitects



Mark Sengemann NCARB
Maine Licensed Architect

cc. J. Robert Connor

P:\Commercial-Retail\12146-RITE_AID-713_Congress_St\Docs\PBd Architect's Memo #3- Cond. Use Permit.doc

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William J. Bray, P.E.
 235 Bancroft Street
 Portland, Maine 04102
 Phone (207) 774-3603
trafficsolutions@maine.rr.com

April 4, 2014

Robert Connor
 12 Brook Street
 Wellesley, MA 02482

RE: Portland 713 Congress Street Rite Aid Pharmacy – Proposed Drive-Through Traffic Impact

Dear Bob:

Based upon our correspondence it is my understanding that you are currently proposing the addition of drive-through window service on the project and Portland's Planning Staff have asked that we quantify the "net" increase in trip generation for the project. The prior Traffic Assessment completed in November 2013 for the proposed expanded Rite Aid Pharmacy was prepared based upon a proposed 11,180 square foot pharmacy building without drive-through window service, which replaces an existing 7,058 square foot pharmacy store. Trip generation, for both the existing and proposed pharmacy as defined in the prior report, was determined based upon trip tables presented in the Transportation Engineers (ITE) "TRIP GENERATION" manual. A similar process has been applied in determining trip generation for the current site proposal with utilization of **Land Use Code #881: Pharmacy/Drugstore with Drive-Through Window** from the ITE publication. Table 1 from the prior November 2013 report has been expanded adding two additional cells (highlighted in blue) that present the change in trip generation for the proposed pharmacy project.

Table 1
Trip Generation Summary

<u>Peak Hour Time Period</u>	<u>Trip Rate</u>	<u>Existing 7,058sf Pharmacy</u>	<u>Proposed 11,180sf Pharmacy w/o window service</u>	<u>Trip Rate Pharmacy with Drive-Through Window Service</u>	<u>Proposed 11,180sf Pharmacy with Drive-Through Window Service</u>
Street Peak AM	3.20 trips/ 1,000sf	23	36	2.66 trips/1000sf	30
Street Peak PM	8.42 trips/ 1,000sf	60	94	10.35 trips/1000sf	116
Peak Generator AM	7.64 trips/ 1,000sf	54	85	7.87 trips/1000sf	88
Peak Generator PM	11.07 trips/ 1,000sf	78	124	9.21 trips/1000sf	103

The addition of drive-through window service to the proposed 11,180 square foot pharmacy store project results in a very insignificant change in peak hour trip generation. The volume of vehicle trips is projected to increase, albeit very modestly, in the Street PM Peak Hour time period (increase of 22 trips) and during the AM Peak Hour of the Generator (3 trips) and a decrease in trip generation will occur during the Street AM Peak Hour (6 trips) and in the PM Peak Hour of the Generator time period (21 trips). The conclusions stated in the November 2013 report remain valid, including the statement that the "net" increase in site trips remains well below MaineDOT's threshold value of 100 vehicle trips, whereby issuance of a Traffic Movement Permit is required.

The proposed site plan, modified to accommodate the proposed drive-through window service, provides internal "stacking" for a minimum of 5-plus vehicles without interruption of internal parking aisles and spaces. It would be my professional opinion that this proposal is more than sufficient to accommodate the projected drive-through window service needs of the proposed pharmacy site.

Very truly yours,

William J. Bray, PE

From: "Sophi Swaim" <sophi@alphaarchitects.com>
To: "'Mark Sengelmann'" <mark.alpha@yahoo.com>, "'Jean Fraser'" <JF@portlandmaine.gov>
Date: 5/19/2014 9:14 AM
Subject: RE: Rite Aid at 713 Congress Street, Portland

Hi Jean,

Below you will see the list of attendees from the 5/8/14 neighborhood meeting. Mark is going to send a list of minutes when he has a chance. These can be included in your memo. Thank you!

Attendees:

Maple Razsa – 50 Deering Street
Benamina Razsa – 50 Deering Street
Andrea Zimble – 46 Deering Street
Keri Lord – 58 Deering Street
Todd Lackey – 66 Deering Street
Henry Shanoski – 64 Deering Street

Sincerely,
Sophi Swaim

From: "Sophi Swaim" <sophi@alphaarchitects.com>
To: "'Jean Fraser'" <JF@portlandmaine.gov>
Date: 5/20/2014 10:34 AM
Subject: RE: Rite Aid at 713 Congress Street, Portland (Out of office)

Hi Jean,

Below are Mark's notes from the neighborhood meeting:

On the 8 day of May Bob Connor and I met with several concerned abutters at the home of Keri Lord of 58 Deering Street to discuss the revisions to the rear parking lot for the proposed Rite Aid Pharmacy reconstruction at 713 Congress St in Portland. Our goal was to get feedback from the direct abutters about the new Drive Through and its impact on the neighborhood. We reached out to several of the most vocal neighbors from our past neighborhood meeting and public hearings. Keri Lord and Andrea Zimble contacted several neighbors listed below and the meeting was set. Issues discussed were:

Drive Thru circulation
Drive Thru Screening
Drive Thru noise
Additional 8' chain link fence for rear security
vagrant drinking, etc.
Additional fencing beyond the dumpsters

Thank you,
Sophi Swaim

ALPHAarchitects
17 Chestnut Street
Portland, ME
T: (207) 761-9500
F: (207) 761-9595

From: Robert Connor <jrconnor1@verizon.net>
To: Jean Fraser <JF@portlandmaine.gov>
CC: John Gendron <johngendron@me.com>, John Schiavi <jschiavi@megalink.net>,...
Date: 5/16/2014 3:33 PM
Subject: Rite Aid at 713 Congress Street, Portland
Attachments: RA Construction Schedule 5-16-14.docx; Critical Path RA Congress St. 5-7-14.pdf

Jean:

After the last workshop session with the Planning Board, the request was made that we prepare a summary of how construction of the new Rite Aid building would impact adjoining properties during construction. In order to do this, our contractor developed a critical path schedule with a construction start date of 3/2/15 and we have then used this schedule to think through the construction process.

Using this construction schedule, I have put together a short memorandum of key activities which would impact adjoining properties, particularly Deering Lane. As you can see from the memo, at the conclusion of construction, we plan to re-grade and pave Deering Lane since it will undoubtedly be damaged during construction. We are also making arrangements with the owner of the adjoining property to lease about 10 parking spaces during construction for use by contractor vehicles.

I am attaching a copy of the memo which I have prepared as well as the critical path schedule. I would like to emphasize that the CPM schedule is a planning tool and that the dates will change as construction progresses. We also hope to speed up the overall schedule, especially the time that it takes for Rite Aid to move from the existing store into the partially completed new store. If you wish to print out the critical path schedule and do not have the facilities to do so, I will arrange for a large copy to be mailed to you.

After you have reviewed this information please call me at 781-431-7060 if you have any questions.

Bob Connor

Construction Schedule for New Rite Aid Building at
713 Congress Street, Portland 5/16/14

Set forth below is a proposed schedule for construction of a new Rite Aid building at 713 Congress Street with the primary emphasis being on how it will affect neighboring properties and access by vehicles and pedestrians. The schedule has been prepared based on a critical path analysis of the process of building part of a new store, demolishing the existing store, and completing the new store. Routine construction activities which do not affect traffic or neighboring properties have been omitted. The dates provided are for planning purposes and are likely to change depending upon weather and other factors.

The primary impact on adjoin properties will be work along Deering Lane while the foundation is being installed, structural steel is erected, and the masonry wall is built. These activities are scheduled to occur between the middle of March 2015 and early May. After that, the impact of construction will be minimal except for traffic using Deering Lane to access the rear parking lot. While there will be fencing between construction activities in the rear parking lot, and the customer parking area, a total of 18 parking spaces will be available at all times for use by customers. Good access will also be available at all times for fire equipment.

Date: 3/2/15 – 3/6/15

Activity: Close front parking lot, construct new entrance to rear parking area off Deering Lane, and create 4 foot wide lighted pedestrian walkway from rear parking area to existing store entrance.

Impact: Minimal except that snow will possibly need to be removed from Deering Lane.

Date: 3/9/15 – 3-10/15

Activity: Close off Congress Street entrance and erect jersey barriers with 8 foot encroachment into Deering Lane.

Impact: Customers to store will start to use Deering Lane and the walkway.

Date: 3/11/15 – 3/21/15

Activity: Excavate for foundation along Deering Lane on first day, pour footings on second day, strip footings and install formwork on fourth day, pour foundation wall on fifth day, and backfill on eighth and ninth day. Move jersey barriers back to foundation line after backfilling.

Impact: One way traffic on Deering Lane will be controlled by flagger if and as necessary.

Date: 3/30/15 – 4/3/15

Activity: Move jersey barriers 8 feet into Deering Lane and erect structural steel. Steel will be stored on trailer set between the new building and the existing building. Crane will work inside building footprint and will erect steel starting at the rear of the site and working towards Congress Street.. Jersey barriers will be moved back to foundation line after steel erection.

Impact: One way traffic on Deering Lane will be controlled by flagger if and as necessary.

Date: 4/27/15 – 5/15/15

Activity: Move jersey barriers 8 feet into Deering Lane, erect scaffolding, and construct brick wall along Deering Lane. After wall has been completed, scaffolding will be removed and jersey barriers will be placed adjacent to brick wall..

Impact: One way traffic on Deering Lane will be controlled by flagger if and as necessary.

Date: 9/10/15 -9/16/15

Activity: Demolish existing Rite Aid building

Impact: Close part of sidewalk on Congress Street with movable fence while demolishing close to Congress Street occurs.

Date: 9/17/15 -9/21/15

Activity: Create new construction entrance off Congress Street and move Jersey barriers 5 feet into Deering Lane to create 4 foot wide pedestrian walkway.

Impact: Deering Lane will no longer be used by construction vehicles, but will be used by pedestrian to access rear parking lot..

Date: 9/22/15 – 9/23/15

Activity: Re-grade Deering Lane and install new asphalt surface

Impact: Partial closure of Deering Lane while grading and paving is taking place.

Date: 10/13/15 – 10/22/15

Activity: Erect structural steel for balance of new building,

Impact: Temporarily close off part of walkway adjoining Congress Street while steel is being erected for tower.

Date: 11/2/15 – 11/3/15

Activity: Base coat newly constructed side parking lot

Impact: None

Date: 11/30/12

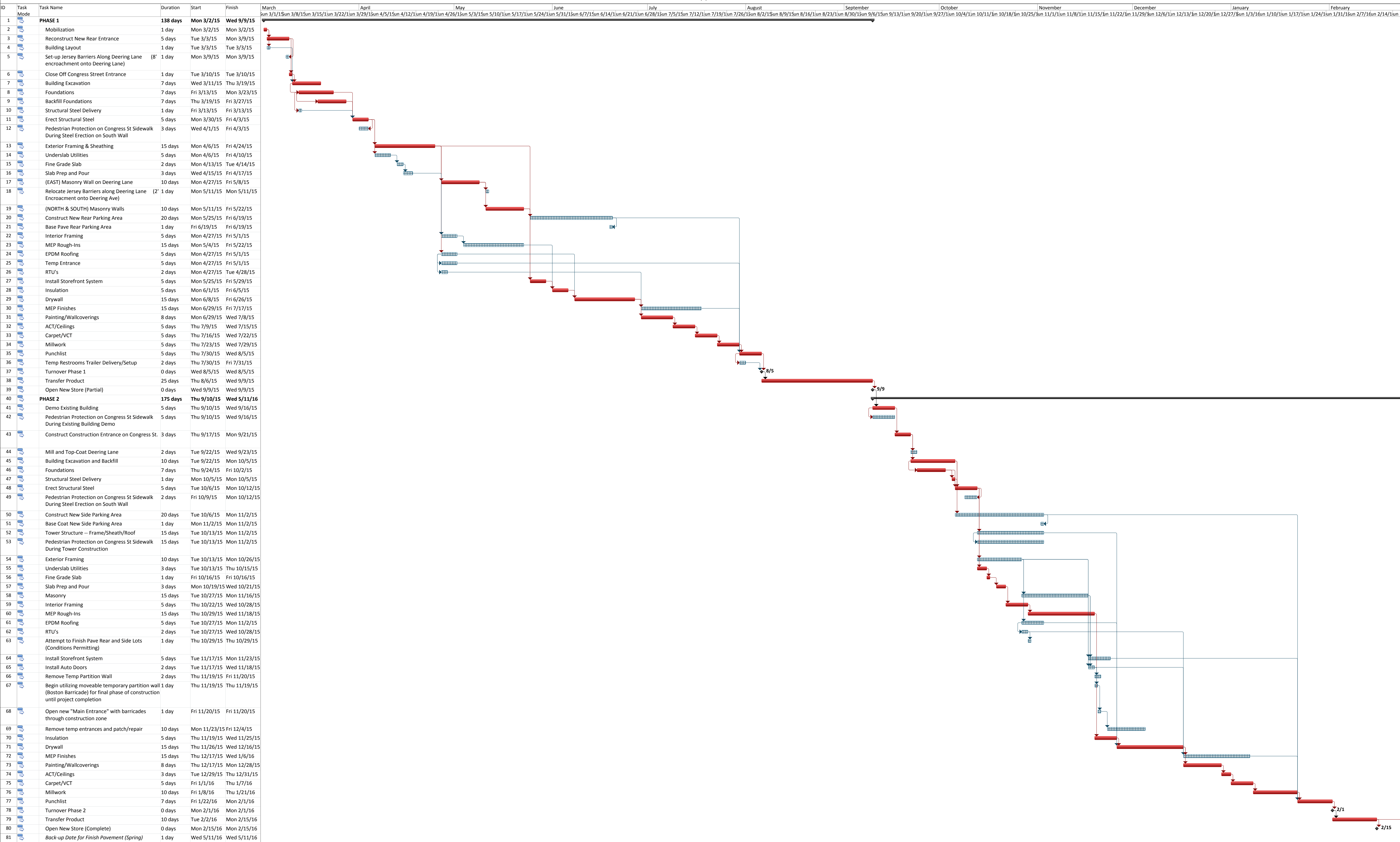
Activity: Allow all vehicles and pedestrians to access site off Congress Street and use side parking lot. Move Jersey carriers close to building.

Impact: Pedestrians will no longer use Deering Lane

Date: 2/15/16

Activity: Open new Rite Aid store

Impact: Celebrate!



ADDITIONAL INFORMATION ON DRIVE THROUGH AND SERVICING FOR RITE AID Att. G

From: Robert Connor <jrconnor1@verizon.net>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/22/2014 12:08 PM
Subject: 709-713 Congress- Drive through/Cond Use Review

Jean:

I spoke this morning to the manager of the existing Rite Aid store at 713 Congress Street. He told me that he receives one delivery per week from Rite Aid and that small, front end, vendors also deliver once per week. He said that tail gate level trucks unload at the rear, 4 ft high, loading dock while smaller trucks park in a parking space and bring merchandise in through the front door. No one ever parks on Congress Street, primarily because it is easier to park on site. The small, local vendors, do not use large trucks.

Bob

> >>> Robert Connor <jrconnor1@verizon.net> 5/20/2014 4:53 PM >>>

Jean:

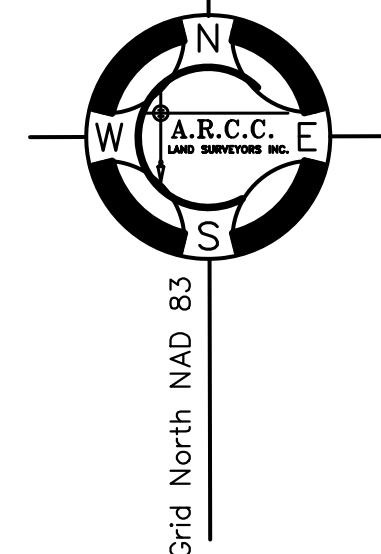
I am writing as a follow up to our telephone conversation and to address some issues that have arisen in connection with the proposed new Rite Aid store at 709-713 Congress Street in Portland, as follows:

- 1) Mark Sengelman and I met last week with some neighbors on Deering Street to explain our revised layout of the site which minimizes the possibility of headlights shining towards bedroom windows of houses on Deering Street and will not involve the use of Deering Lane except during construction. It appeared that the major concern of the neighbors was to try to prevent persons from hanging out at the rear of our site and prevent persons from climbing the existing rear fence and jumping down over the stone wall onto private property. To this end, the consensus appeared to be that a chain link fence of 8 feet in height along the rear property line would help to minimize the problem. Since the rear property line is 2 - 3 feet below the parking lot, the top of this fence would read as being about 5 feet high above the parking lot. A wooden fence along Deering Lane was also recommended so that persons could not readily escape onto the adjoining Koutsivitsis property.
- 2) While it is believed that traffic volume at any drive through lane is likely to be low, we currently do not have any good numbers. In order to rectify this, traffic counters are being placed in the drive through lanes at two Rite Aid pharmacy properties in Portland in order to determine accurate numbers on drive through activity. We anticipate that these numbers will be available prior to the Planning Board workshop meeting on May 27.
- 3) The major concern of neighbors over noise was that resulting from the emptying of dumpsters, especially very early in the morning. In order to avoid this problem, we agree that trash removal should occur between 8.00 am and 8.00 pm.
- 4) Rite Aid would like for any drive through hours to coincide with the hours that the pharmacy is open, namely 8.00 am to 8.00 pm on Monday through Friday, and 9.00 am to 6.00 pm on Saturday and Sunday.
- 5) Deliveries to the property by tractor trailer normally occur once per week. Since a delivery is a much quieter business than emptying a dumpster, we would like to propose that truck delivery occur between the hours of 7.00 am and 8.00 pm. If the truck can make a delivery between 7.00 and 8.00 am, there will be no conflict with the proposed drive through. If the Planning Board does not want for deliveries to be made before 8.00 am, Rite Aid will adjust its drive through hours so that there is no conflict between deliveries and use of the drive through.
- 6) We propose that there be two convex mirrors, one for pedestrians above the walkway and one for cars in front of the drive through, so that pedestrians and the drivers of automobiles at the drive through can readily see each other.

Bob Connor

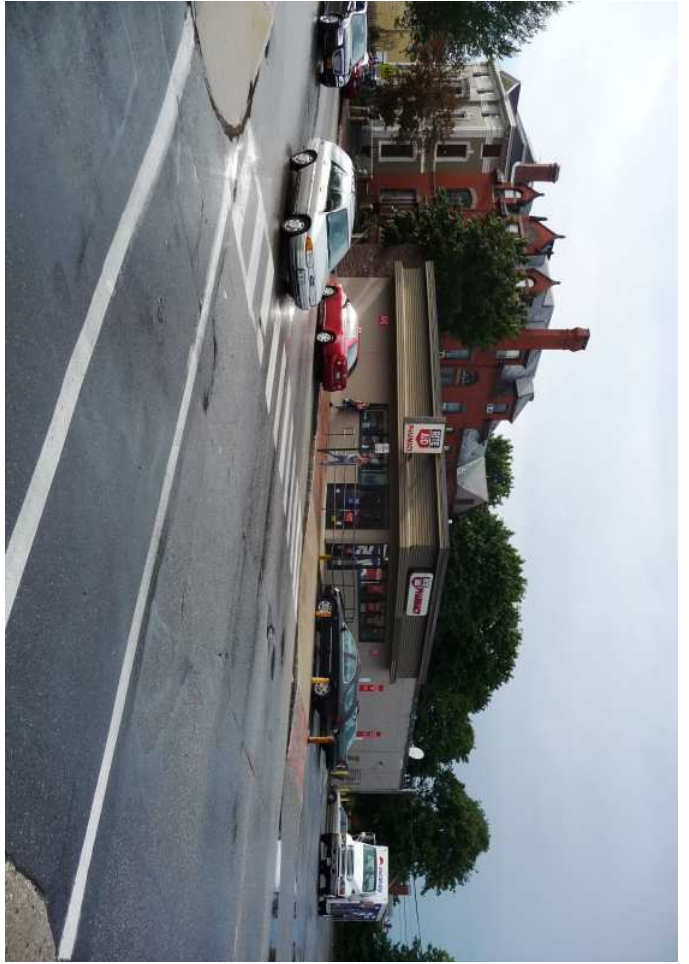
map/lot	owners name	date	book/page
47/C-29	Seven OH Seven LLC	May 15, 2009	26895/288
47/C-21	Parthenon Properties, LLC	June 25, 2010	27874/185
47/C-40	Parthenon Properties, LLC	June 25, 2010	27874/185
47/C-9	The Arlene G. McIntosh Trust U/A	September 18, 2002	29950/51
47/C-8	Keri D. Lord, Milton S. Lord & Gertrude Lord	December 21, 1981	4901/6
47/C-7	James G. Boulos	June 4, 1981	4793/116
47/C-6	Henry Ives Shanoski	August 27, 2010	28040/167
47/C-5	Henry T. Lackey	November 22, 1996	12833/249
47/C-4	Laurel Andrew	September 10, 2007	25493/321
47/C-18	Salt Point Holdings, LLC	May 27, 2011	28724/86
47/C-24	Timothy Harkins, III & Eileen M. Anderson-Harkins	October 28, 1999	15140/72
47/C-26	C&C Builders, Inc	August 14, 2002	17990/145

— Location Map —
not to scale



maximum impervious	90%
--------------------	-----

Date _____











ZONING INFORMATION

LOCATION: CITY OF PORTLAND, MAINE				
ZONE: COMMUNITY BUSINESS ZONE (B2-B) / HISTORIC OVERLAY DISTRICT				
USE: RETAIL STORE				
ITEM #	ITEM	CURRENT REQUIREMENTS	PROPOSED	VARIANCE (FROM ZBA)
1	MINIMUM LOT AREA	NONE	35,531 SF	NO
2	MINIMUM LOT FRONTAGE	50 FEET	148.11 FEET	NO
3	MINIMUM LOT DEPTH	NONE SPECIFIED	N/A	NO
4	MINIMUM FRONT SETBACK	NONE	N/A	NO
5	MAXIMUM FRONT SETBACK	10 FEET	1 FEET	NO
6	MINIMUM SIDE SETBACK	NONE	8"	NO
7	MINIMUM REAR SETBACK	20 FEET (WIDE REAR YARD ABUTS RESIDENCE ZONE)	118 FEET	NO
8	MAXIMUM BUILDING HEIGHT	50 FEET	TBD	NO
9	MAXIMUM BUILDING COVERAGE	NONE SPECIFIED	N/A	NO
10	MINIMUM OPEN SPACE	10%	4,054 SF (11.4%)	NO
11	MINIMUM ACCESSORY STRUCTURE SETBACK	5' SIDE 5' REAR	N/A	NO

PARKING INFORMATION

ITEM #	ITEM	CURRENT REQUIREMENTS	PROPOSED	VARIANCE (FROM ZBA)
1	BUILDING SIZE	NONE REQUIRED	11,715 SF	NO
2	PARKING REQUIRED BY MUNICIPALITY	1 PARKING SPACE PER 200 SF OF FLOOR AREA OVER 2000 SF DEVOTED TO CUSTOMER SERVICE (8,760 - 2,000)/200 SF = 34 SPACES REQUIRED	* 35 SPACES	NO
3	MINIMUM PARKING DIMENSIONS	9 FEET x 18 FEET	(3) STANDARD: 9'x18' (7) SEMI-COMPACT: 9'x15' (5) COMPACT: 8'x15'	NO
4	MINIMUM AISLE WIDTH	24 FEET	24 FEET	NO
5	MINIMUM FRONT SETBACK	NOT ALLOWED	N/A	NO
6	MINIMUM SIDE SETBACK	NONE SPECIFIED	2.2 FEET	NO
7	MINIMUM REAR SETBACK	NONE SPECIFIED	12.5 FEET	NO
8	PARKING AREA PAVEMENT AREA	NONE SPECIFIED	15,526 SF	NO
9	MINIMUM INTERIOR LANDSCAPING	NONE SPECIFIED	N/A	NO
10	LOADING AREA	12 FEET x 25 FEET	12 FEET x 60 FEET	NO
11	MAXIMUM DRIVEWAY WIDTH	24 FEET	24 FEET	NO

* PLANNING BOARD MAY ALLOW A REDUCTION IN PARKING BASED ON A ONE TIME FEE AS DETERMINED BY THE PLANNING DEPARTMENT.

PUBLIC UTILITIES

UTILITIES	AVAILABLE
(SEWER) PORTLAND WATER DISTRICT, GORDON JOHNSON, 207-774-5961, EXT. 3091	YES
(WATER) PORTLAND WATER DISTRICT, GORDON JOHNSON, 207-774-5961, EXT. 3091	YES
(GAS) UNILIT MAINE GAS OPERATIONS, KELLY FOWLER, 207-541-2505	YES
(ELECTRIC) CENTRAL MAINE POWER, PAUL DUPERE, 1-800-565-3181	YES
(TELEPHONE) FAIRPOINT COMMUNICATIONS, JOHN CAPARIO, 207-878-7140	YES

SIGN INFORMATION

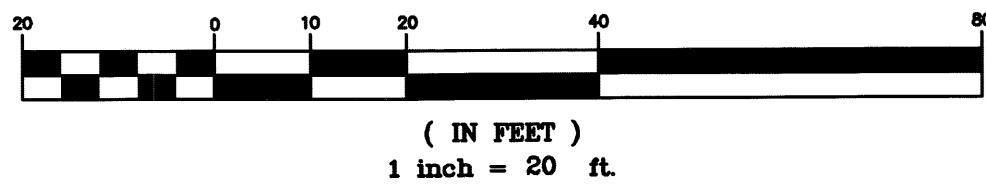
ITEM #	ITEM	CURRENT REQUIREMENTS	PROPOSED	VARIANCE
1	NUMBER OF SIGNS ALLOWED	* 1 FREESTANDING AND 1 PER BUILDING FACADE FACING AN ABUTTING STREET + 1 ADDITIONAL	TBD	NO
2	MAXIMUM CUMULATIVE AREA OF ALL BUILDING SIGNS	150 SF OR 2 SF PER LINEAR FOOT OF BUILDING FACADE ON WHICH SIGN WILL BE PLACED	TBD	NO
3	MAX. FREESTANDING SIGN AREA	* 65 SF	TBD	TBD
4	MAXIMUM SIGN HEIGHT	* 18 FEET FROM GRADE	TBD	TBD
5	FREE STANDING SIGN SETBACK	* 5 FEET FROM PROPERTY LINE	TBD	NO

* POTENTIAL FREESTANDING SIGN TO BE REVIEWED & APPROVED BY PORTLAND HISTORIC COMMITTEE. THE ELECTRONIC MESSAGE CENTER (EMC) IS NOT ALLOWED.

LEGEND

○ IRON PIN FOUND	⊕ UTILITY POLE
□ CONCRETE BOUND FOUND	⊗ DRAIN MANHOLE
△ RAILROAD SPIKE FOUND	⊙ SEWER MANHOLE
○ DRILL HOLE FOUND	⊖ TELEPHONE MANHOLE
— OVERHEAD SERVICE WIRES	□ CATCH BASIN
— DOUBLE SOLID YELLOW LINE	— WATER LINE
— SINGLE SOLID WHITE LINE	— WATER VALVE
— SIGN	— FIRE HYDRANT
— OBSERVATION WELL	— GAS VALVE
— TEST PIT	— GAS LINE
— PERCOLATION TEST	— UNDERGROUND TELEPHONE LINE
— TREELINE	— UNDERGROUND ELECTRIC
— SPOT ELEVATION	— WETLAND LINE
— CONTOUR ELEVATION	

GRAPHIC SCALE



FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

CP-1

Sheet No.

REEC
CONCEPT
PLAN

Project No. 340013
Date: 11/27/13

Approved

Checked

Drawn

No. 1. 2. 3.

Date 3/17/14 4/4/14 4/10/14

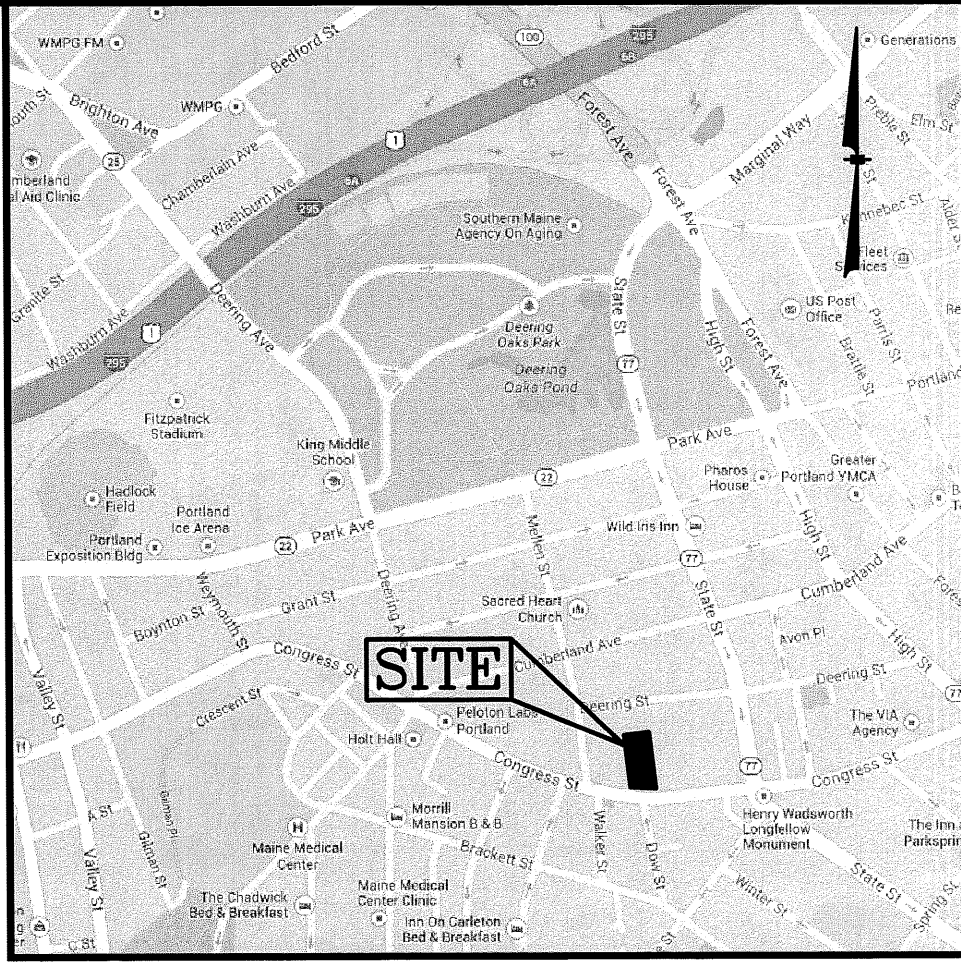
Revisions

Desc. REVISIONS PER CITY
1. ADD DRIVE THRU & RECONFIGURE PARKING
2. REVISE DRIVE THRU & MISC. REVS PER ARCHITECT
3.



RITE AID (STORE #03298)
709 Congress Street
CUMBERLAND COUNTY, PORTLAND, MAINE

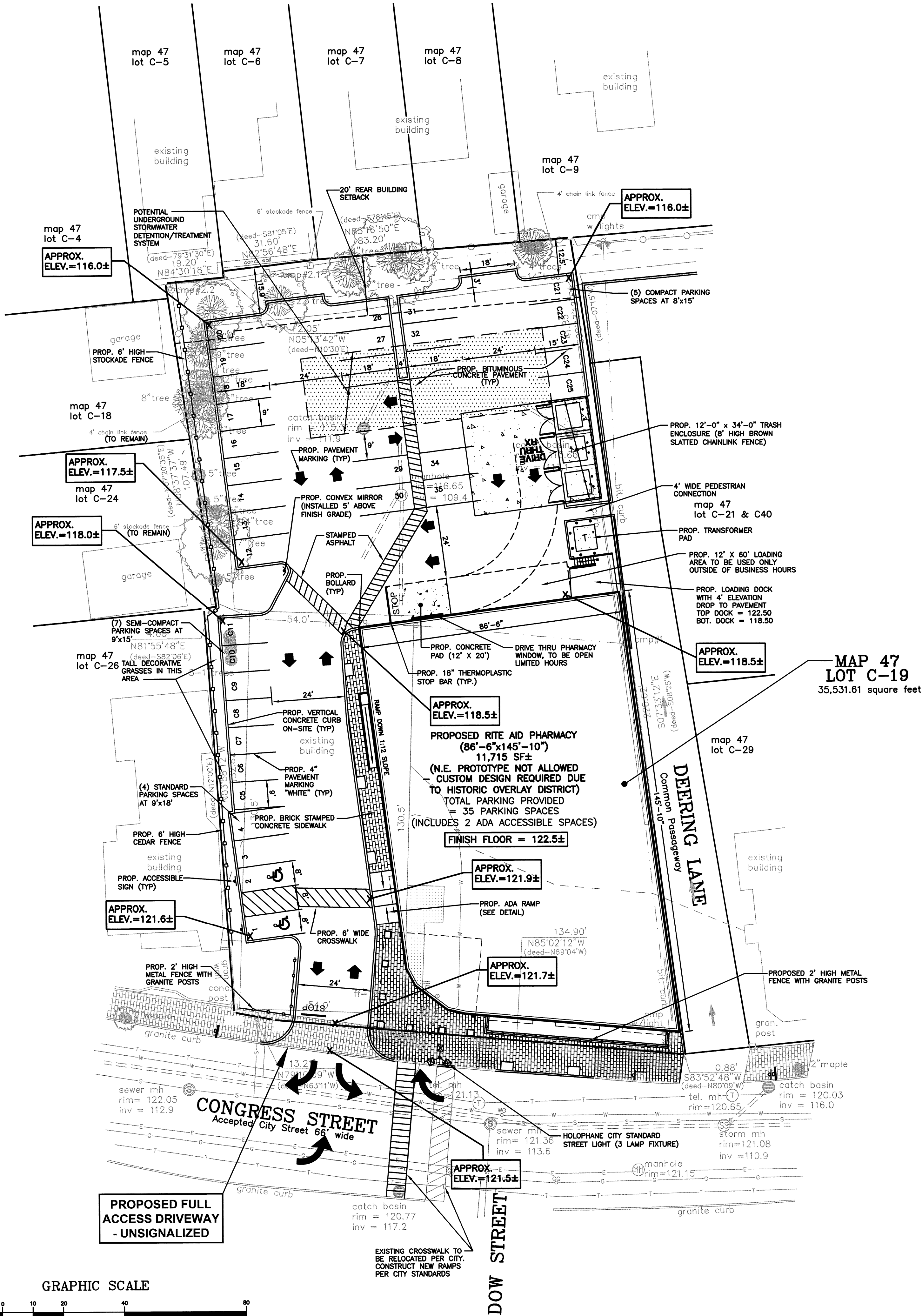
MHF Design Consultants, Inc.
44 Sillies Road, Suite One
Salem, New Hampshire 03079
(603) 893-0720 www.mhfdesign.com
ENGINEERS • PLANNERS • SURVEYORS

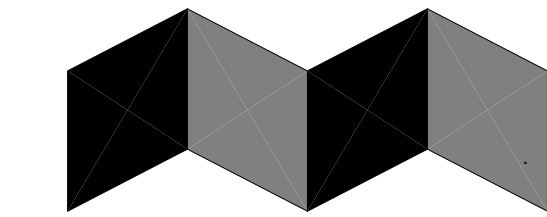


LOCATION MAP
(NOT TO SCALE)

GENERAL NOTES:

- 1) THIS PLAN WAS BASED ON AN ALTA/ACSM LAND TITLE SURVEY AS PREPARED BY A.R.C.C. LAND SURVEYORS INC., DATED SEPTEMBER 24, 2013.
- 2) PROPOSED RITE AID PARCEL = 35,532 SF±
- 3) TOTAL PAVEMENT AREA ON SITE = 17,271 SF±
- 4) SITE LIGHTING TO BE NON-PROTOTYPICAL DUE TO HISTORIC OVERLAY DISTRICT. ARCHITECTURAL FIXTURES REQUIRED FOR WALL PACKS AND SITE LIGHTING. SEE SITE SPECIFIC LIGHTING PLAN WHICH IS SUBJECT TO REVIEW BY THE PORTLAND HISTORIC COMMITTEE.

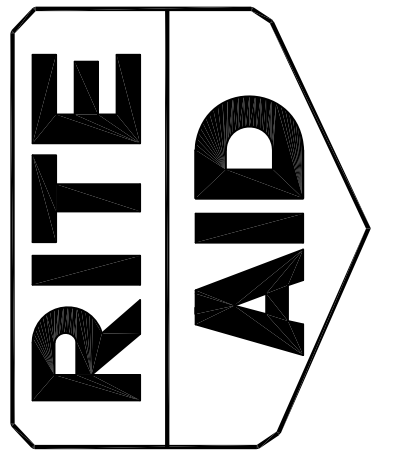




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Pharmacy
713 Congress Street
Portland ME 04102



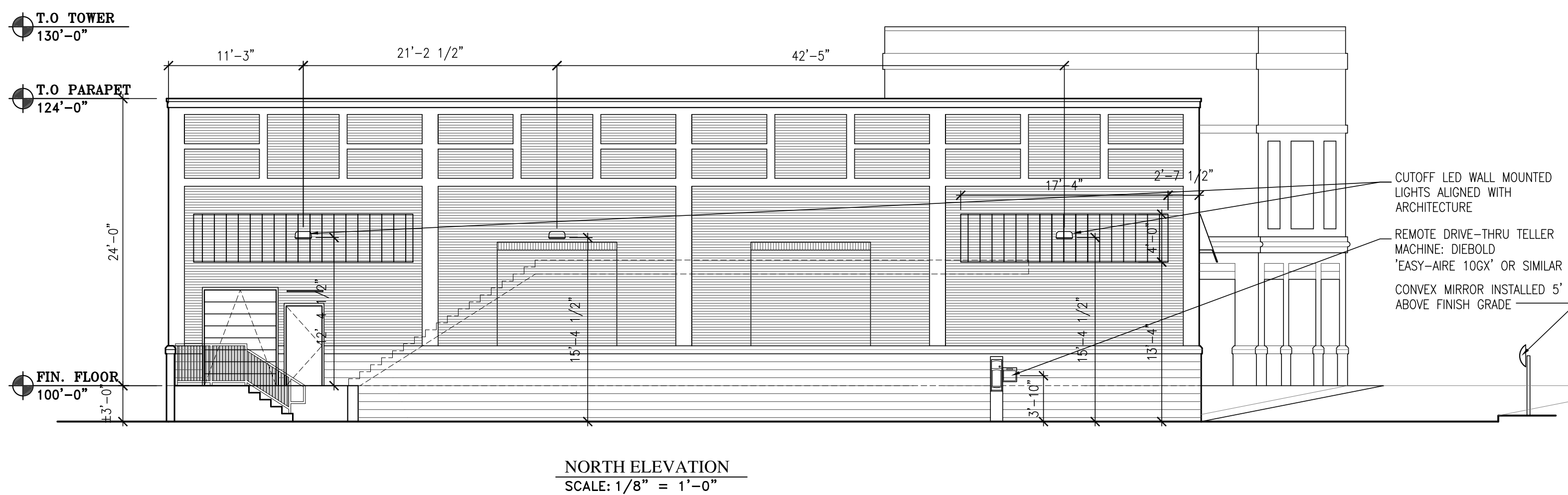
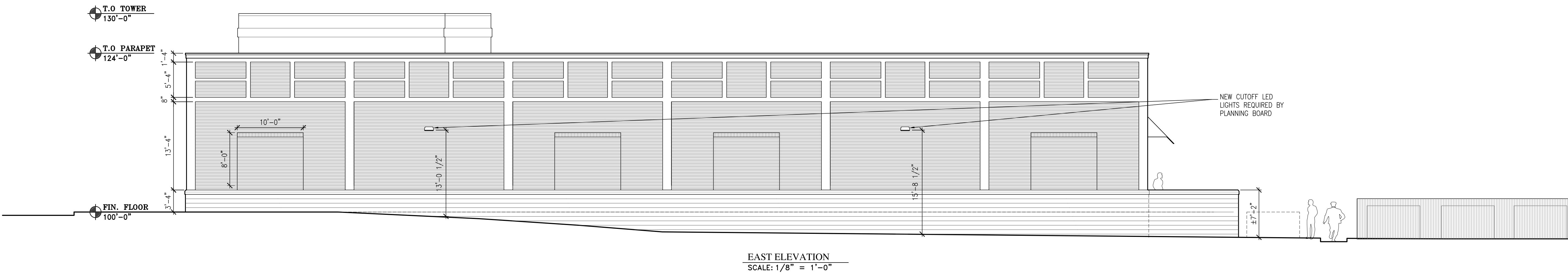
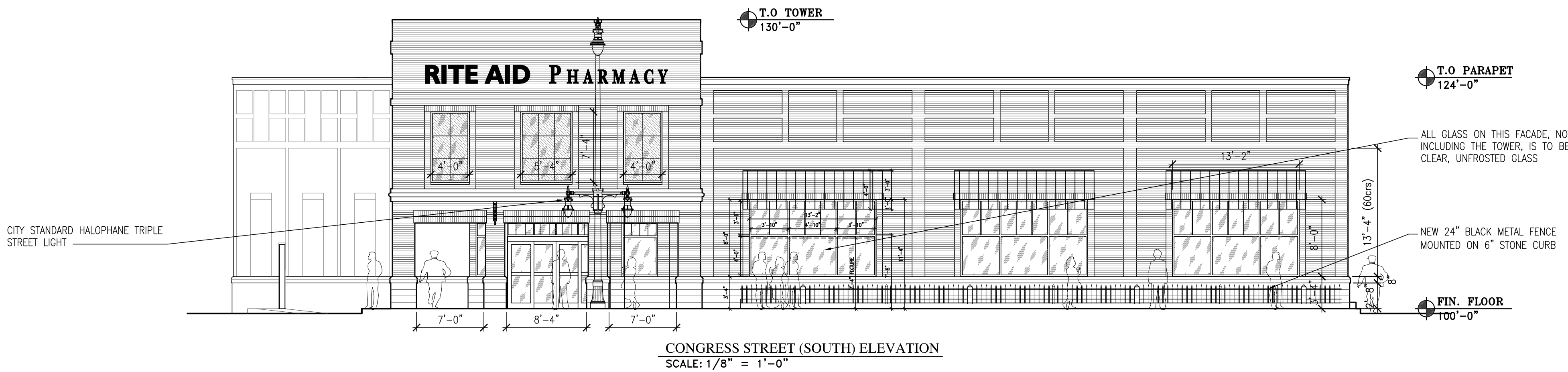
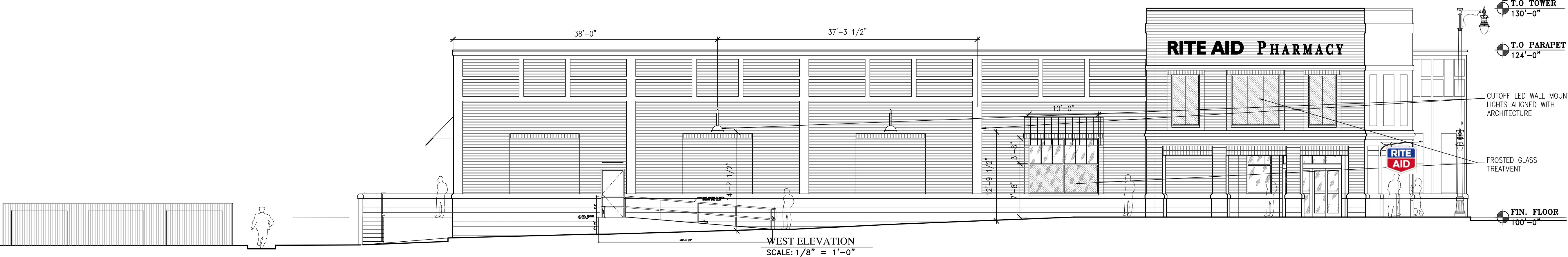
JOB: 12146

ISSUE DATE	
PRELIM	08-17-12
P BOARD	02-18-14
SFMO	-
CD's	-
REV. 1	-
PRINT	04-14-14

EXTERIOR
ELEVATIONS

A2.0

Rite Aid - Congress St.



04-14-14

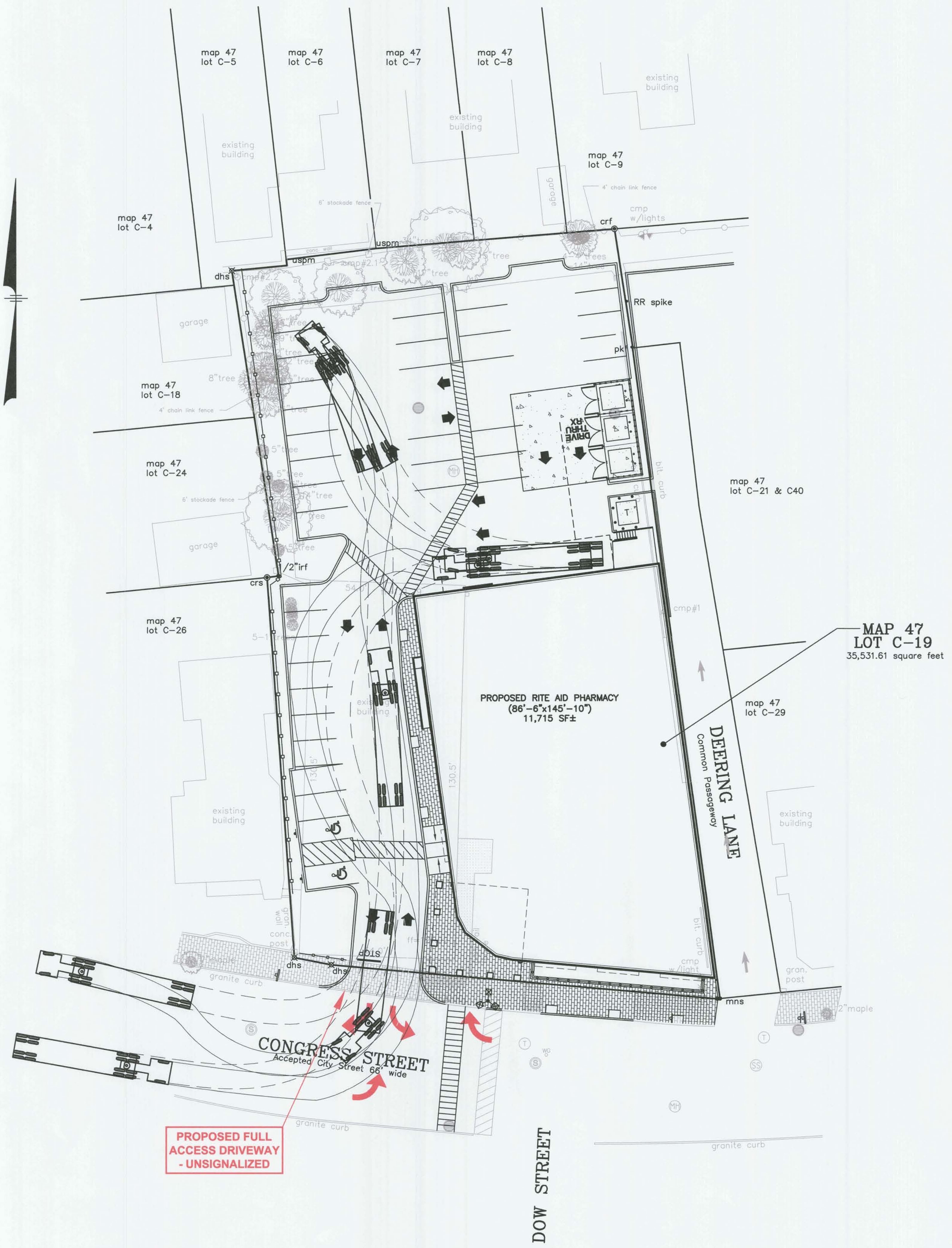
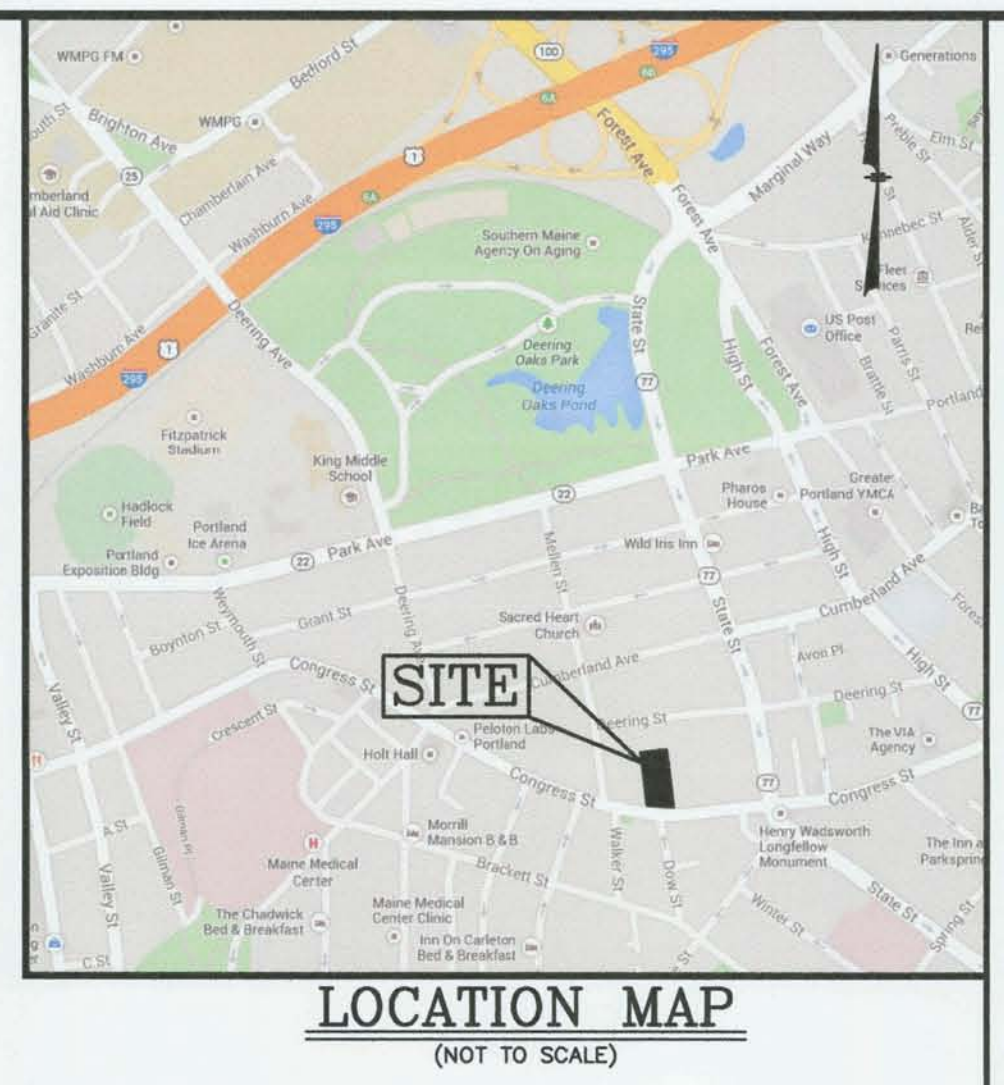


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Salem, New Hampshire 03079
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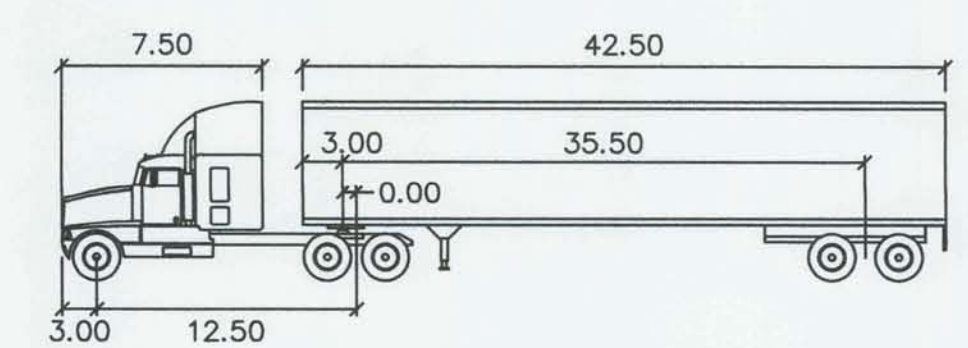
RITE AID (STORE #03298)
709 Congress Street
CUMBERLAND COUNTY, PORTLAND, MAINE



REVISIONS		Desc.	REVISIONS PER CITY
No.	Date		PER CP-1 REVISIONS
1.	3/17/14		
2.	4/4/14		
Drawn		DS	
Checked		CT	
Approved		FCM	
Project No.		340013	
Date:		11/27/13	
Title		TRUCK TURNING CONCEPT PLAN	
Sheet No.		CP-2	

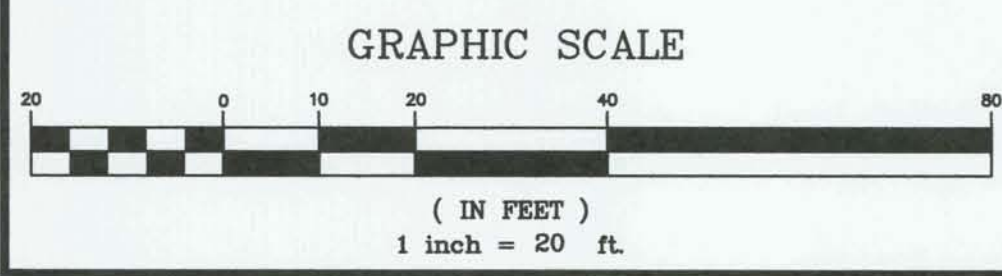


NOTE: THE MAXIMUM SIZE DELIVERY TRUCK FOR THIS SITE IS A WB-50 AS SHOWN



WB-50		feet	
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 17.7
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

**FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION**





Memorandum

Planning and Urban Development Department

Planning Division

To: Stuart O'Brien, Chair and Members of the Portland Planning Board

From: Jean Fraser, Planner

Date: May 23rd, 2014

Re: **May 27th, 2014 Planning Board Workshop**
Level III Site Plan and Subdivision Review
5-unit multi-family building
97 Cumberland Avenue
Peter Dugas, Applicant

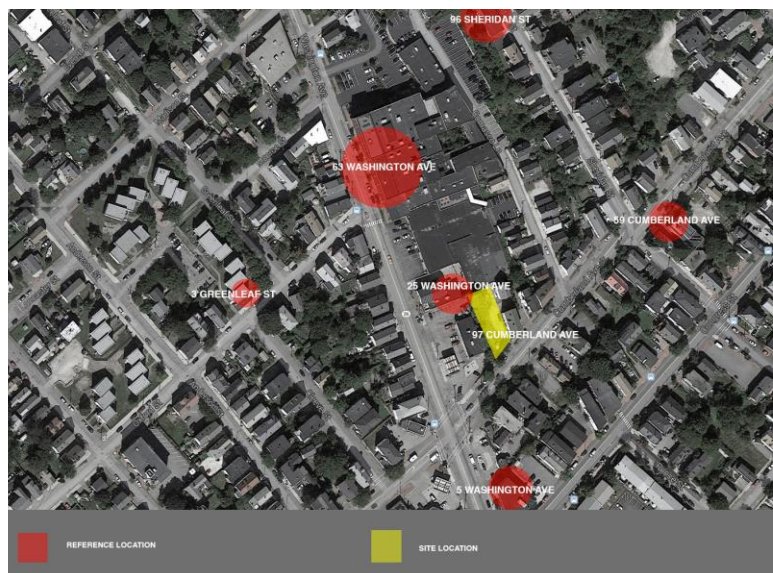
I. INTRODUCTION

Timothy Lock of GOLogic, on behalf Peter Dugas, has submitted a Level III Site Plan and Subdivision application for the construction of a 3 story building with 5 residential units and basement parking on a 5550 sq ft “urban infill” site at 97 Cumberland Avenue. The site is currently vacant; a vacant single unit residential building (located towards the rear of the site) was recently demolished.

The site is located immediately uphill from the *Seven-Eleven* at the corner of Washington Avenue and Cumberland Avenue. The *Seven Eleven* is in the B2b zone and the subject site is within the R6 residential zone.

The parcel is part of a 3 lot subdivision (plat can be found in [Attachment B](#)) and accessed via a shared ROW over a gravel drive owned by the abutter at 93 (front) Cumberland Avenue.

The applicant held a Neighborhood Meeting on April 14, 2014 but it was not noticed in accordance with the ordinance requirements and another Neighborhood Meeting is required.



Aerial as submitted by the applicant

This Workshop was noticed to 220 neighbors and interested parties, and the public notice appeared in the *Portland Press-Herald* on May 19th and 20th, 2014.

Required reviews:

Applicant's Proposal	Applicable Standards
New structure of 5 dwelling units	Subdivision Review
Multifamily building of 6990 square feet	Level III Site Plan Review and R-6 Design Review

Waivers: None requested, but Tom Errico, Traffic Reviewer, has identified the need for a waiver request in respect of the parking aisle.

II. PROJECT DATA

SUBJECT	DATA
Existing Zoning	R-6
Existing Use	Vacant and unused
Proposed Use	5-unit new building
Parcel Size	5550 sq ft
Impervious Surface Area	
--Existing	0 sq ft
--Proposed	2914 sq ft
--Net Change	2914 sq ft
Total Disturbed Area	Approx 2914 sq ft
Building Footprint	
--Existing	0 sq ft
--Proposed	1790 sq ft
--Net Change	1790 sq ft
Building Floor Area	
--Existing	0 sq ft
--Proposed	6990 sq ft
Residential Units	
-Existing	Previously 1, demolished
-Proposed	5
Bedroom Mix (proposed)	
- Efficiency Units	0
- One bedroom units	4
- Two bedroom units	0
- Three bedom units	1
Parking Spaces	5, 3 located at basement level
Bicycle parking Spaces	Not confirmed
Estimated cost of the project	\$900,000

III. EXISTING CONDITIONS

The proposal site is located on the north side of Cumberland Avenue, one lot away from Washington Avenue.

To the north and west are large scale, more industrial/commercial, buildings along Washington Avenue. To the east is a row of 2-3 story older residential buildings as shown in the photograph to the right.

Across the street is a mix of residential buildings, some with flat roofs but traditional in design.



Photograph submitted by applicant - see Att. C; looking up Cumberland with site to L

The site is currently mostly grassed with one tree on the site near the front.

IV. PROPOSED DEVELOPMENT

The proposals, including floor plans and elevations, are shown in the Plan set. The proposed building has 3 levels in the front part and 4 levels in the rear section, with parking on the lowest level. The overall building height is approximately 40 feet as shown in the elevations (Plans P10).

The entrance for 4 of the 5 units is a central entrance on the uphill side of the building, which is accessed from a path under a cantilevered awning that connects with the public sidewalk. The entrance to the ground floor front one bedroom unit is via a separate recessed front door on the left side of the front elevation. Above the front one bedroom unit is a 2-story three bedroom unit with a balcony facing Cumberland Avenue and access via the side central entrance. A roof top deck is located over the rear section of the building.

The design is explained in detail in Attachment C and the applicant seeks to achieve high thermal efficiency through thick insulation, limited fenestration and solar panels on the top of the front section of the building facing south. These require a somewhat flat roof which is angled in two places to achieve the necessary orientation. The external cladding comprises a metal panel that intentionally rusts to achieve a reddish color- details of this and the “green wall” (see rendering right) are in Attachments I and J.

The proposed vehicle access is over the right-of-way granted in the deed over the abutting lot. It is within the ownership of the house immediately next door, but shared between three lots as shown on the plat (last page of Attachment B). The subject lot is identified as Lot #3.



Renderings are in Attachment C and Plan P12.

The engineering proposals (Plan P7) indicate modifications to the drive access that include a retaining wall, regrading and paving plus some minor modifications to the neighboring house at 93 Cumberland Avenue.

V. STAFF REVIEW

A. RIGHT, TITLE AND INTEREST

The applicant has submitted evidence of Right, Title and Interest in Attachment B, which has been reviewed by the City’s Associate Corporation Counsel because the proposal relies on the shared access drive and proposed alterations to the driveway. The drive is shared with 2 other lots and up to 5 other units.

Jennifer Thompson, Associate Corporation Counsel, has commented and the full text is in Att. 3. She finds:

“...no language in the these deeds that purports to limit the scope of the right-of-way or condition it on the presence of only a single family home. Rather, the plain language of the deed from Edwards to Dugas is that the Lot 3 is benefited by "a right of way over, along and upon said lot numbered one (1) . . . easterly of and adjacent to the premises."

The possibility of “overburdening” the easement is acknowledged as a possibility and therefore she has also advised:

“....including as a condition of approval a letter from an attorney or some other form of title opinion that opines that the right of way will not be overburdened.”

The owner of the abutting property at 93 Cumberland Avenue (Carol Pike) has submitted (PC2) a detailed comment that she and her attorney do not consider that the applicant has rights to undertake the proposals as presented.

The question of whether the proposal constitutes any “overburden” on the right of way is not a Planning Board issue. The Associate Corporation Counsel will advise, at the time of any hearing, as to whether the Board should include conditions related to the question of Right, Title and Interest on any potential approval.

B. ZONING ASSESSMENT

The proposed subdivision is within the R-6 Residential Zone. The applicant has provided a Zoning Assessment in Attachment A.

Marge Schmuckal, Zoning Administrator, has provided the following comments (Attachment 2):

I have reviewed this project for a new 5 unit residential 3-story structure. My major concern after this review is the required 10' side setback for the building. Both sides are not meeting the required minimum 10' setback. I am uncertain why the applicant is showing that there is less than the required 10' side yard setback when the document acknowledges the 10' required. All other R-6 dimensional requirements are being met.

It is understood that the discrepancy is not great, but the applicant will need to revise the proposals to fully meet the zoning requirements.

B. SUBDIVISION STANDARDS

14-496. Subdivision Plat Requirements

A final subdivision plat will need to be stamped by a professional surveyor and address the Ordinance requirements as part of the final submissions.

14-497. General Requirements (a) Review Criteria - Key Review issues

Water, Air Pollution and Soil Erosion

Erosion Control Plans have been submitted (Plan P7 and P8) and are generally acceptable to Dave Senus, the consultant reviewing engineer, with some minor revisions (Attachment 1).

Traffic

The proposed access utilizes the existing driveway that serves the three lots. Its effective width is proposed to be narrowed to 12 feet (see Plan P2) which is considered acceptable in terms of a driveway but may preclude parking in the driveway by users who have rights to that area.

Tom Errico, the traffic reviewer, has identified several other details where further information is needed and a waiver request would need to be made (with supporting documentation) for the parking aisle width (Attachment 2)

Storm water

The applicant has provided a stormwater report in Attachment G. The proposals manage stormwater impacts by including an infiltration basin at the rear of the site. While the principle is acceptable, Dave Senus, engineering reviewer, has raised concerns regarding the likely overflow being directed onto neighboring property (Attachment 1). The applicant was advised of this concern and provided an additional memo (Attachment H) which argues the proposal continues an historical pattern. Mr Senus does not agree with this assessment and suggests that the applicant would need to get an agreement from the abutter in order to move forward with this approach to stormwater management (Attachment 9).

Street Trees

The subdivision requirement would be one tree per unit, or 5 street trees, in or near the ROW. The proposals include one new tree on site near the ROW, and there is an existing street tree, so the standard is not yet addressed in full. If three additional street trees are not feasible at this location, the City Arborist may recommend the applicant make an equivalent contribution to the City's Street Tree fund. The City Arborist comments were not received in time to include in this Memorandum.

C. SITE PLAN STANDARDS14-526 Requirements for approval***Traffic - as discussed above under Subdivision Review******Bicycle Parking***

The submission indicates that bicycle parking spaces will be provided in accordance with the City standards. The final submission should show the number and location of the bicycle parking.

Snow Storage

The Site Plan shows snow storage within the abutters lot (rear part of 93 Cumberland Avenue) and as noted by Tom Errico ([Attachment 2](#)) this may also interfere with other users of the Right of Way drive access. The applicant is requested to confirm that he has rights to place snow at this location.

Site Landscaping and Screening

The applicant has submitted a Landscape Plan ([Plan P3](#)). This has not been reviewed in detail and the comments of the City Arborist were not available to include in this Memorandum.

Water quality, Stormwater Management and Erosion Control

As discussed above under *Subdivision Review*.

Public Utilities

The proposal is a subdivision and this would require that all utilities be located underground.

Dave Senus, the engineering reviewer, has noted ([Attachment 1](#)):

The existing site includes a utility pole that provides overhead service (presumably both electrical and telecommunications) to buildings on three adjacent properties. The plan calls for eliminating this pole and the associated existing overhead services; however, it does not address how new services will be provided to all adjacent properties, specifically the 7-Eleven store.

Capacity letters have not been submitted and would need to be included in the final submissions.

Site Design Standards***Massing, Ventilation and Wind Impact***

The applicable site plan standard is (14-526 (d) (1) b):

The bulk, location or height of proposed buildings and structure 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.

The neighbor Carol Pike at 93 Cumberland (front) has submitted comments (PC2) that suggest possible diminution in the value and utility of her property immediately next door, which includes ownership of the shared access drive.

D. DESIGN STANDARDS IN THE SITE PLAN ORDINANCE

R-6 Infill Development Design Principles and Standards

The applicant has submitted a narrative outlining how the proposed design addresses the R-6 design standard (Attachment C). The applicant has requested an alternative review.

Staff reviewed the submitted narrative and the project and the detailed staff design review comments are included in Attachment 4. The comments conclude that generally the design is appropriate for this location and meets the design standards.

Multi-family and Other Housing Types Design Standard

This design standard also applies to this proposal is outlined in sections below with associated staff review comments:

(i) TWO-FAMILY, SPECIAL NEEDS INDEPENDENT LIVING UNITS, MULTIPLE-FAMILY, LODGING HOUSES, BED AND BREAKFASTS, AND EMERGENCY SHELTERS:

(1) STANDARDS. Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts, and emergency shelters shall meet the following standards:

a. Proposed structures and related site improvements shall meet the following standards:

1. The exterior design of the proposed structures, including architectural style, facade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and facade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;

Staff comment: The neighborhood is characterized by a variety of architectural styles and the proposed modern style is acceptable in principle.

2. The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;

Staff comment: The proposal generally is similar in form, massing and relationship to the street and associated elements.

3. Open space on the site for all two-family, special needs independent living unit, bed and breakfast and multiple-family development shall be integrated into the development site. Such open space in a special needs independent living unit or a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;

Staff comment: The plans suggest that the rear roof deck is accessible to all units and the upper unit at the front has a balcony.

4. The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas;

Staff comment: This standard appears to be met.

5. The scale and surface area of parking, driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets;

Staff comment: The parking is located underneath the units and at the rear. Details of screening and associated landscaping have not been closely reviewed.

VI NEXT STEPS

The applicant needs to hold another Neighborhood Meeting, to be noticed in accordance with the ordinance requirements. The final submission will need to include:

- Draft Subdivision Plat
- Attorney or title opinion regarding the use and modifications to the shared access drive
- Revisions to address all review comments, including zoning and the design review
- Revisions to address Planning Board comments

ATTACHMENTS:

Attachments to Memorandum

1. Engineering Review comments 5.5.2014
2. Traffic Engineering Review comments 5.9.2014
3. Associate Corporation Counsel comments 5.20.2014
4. Alternative Design Review (R6 Infill) comments 5.22.2014
5. Zoning Administrator comments 5.23.2014
6. DPS (David Margolis-Pineo) comments (not received at time memo was completed)
7. Fire Department comments (not received at time memo was completed)
8. City Arborist comments (not received at time memo was completed)
9. Additional Engineering Review comment Dave Senus 5.23.14

Public comments

- PC1 Carol Pike 93 Cumberland Avenue 4.14.14
PC2 Carol Pike 93 Cumberland Avenue 5.21.2014

Applicant's Submittal

- A. Preliminary Site Plan Application April 2014
- B. Right, title and Interest
- C. Description and Narrative re Design Principals and Standards
- D. Additional Information re Design (email 5.14.2014)
- E. Wastewater Capacity application
- F. Traffic Study
- G. Stormwater Management Report March 2014
- H. Further information re Stormwater
- I. Technical Information re cladding
- J. Technical information re green wall

Plans

- P1. Boundary Survey
- P2. Preliminary Site Plan
- P3. Landscape Plan
- P4. Fire Department Site Plan
- P5. Engineer Cover Sheet
- P6. Engineer Site Plan
- P7. Erosion Control Plan
- P8. Erosion Control Details
- P9. Site Details
- P10. Elevations (3 plans)
- P11. Floor Plans (3 plans)
- P12. Front Elevation Rendering

MEMORANDUM



TO: Jean Fraser, Planner
FROM: David Senus, P.E.
DATE: May 5, 2014
RE: 97 Cumberland Ave Multi-family, Level III Site Plan Application

Woodard & Curran has reviewed the Preliminary Level III Site Plan Application for the proposed multi-family building located at 97 Cumberland Ave in Portland, Maine. The project consists of creating a "high-performance" 5 unit multi-family building on an infill redevelopment lot along Cumberland Ave in Portland.

Documents Reviewed by W&C

- Level III Preliminary Site Plan Application and attachments submitted to the City Planning Office in April 2014, prepared by GO Logic Architecture and Construction on behalf of Peter Dugas.
- Engineering Plans, Sheets 1-5, dated March 28th and April 1st, 2014, prepared by Sebago Technics on behalf of Peter Dugas.

Comments

- 1) The application is preliminary. As such, we anticipate that additional documents will be submitted with the final application, including confirmation of capacity to serve the development from utilities and a Construction Management Plan. Woodard & Curran will perform a review of the Final Application upon receipt of those documents.
- 2) The Applicant should clarify whether the project will result in an increase of approximately 2,900 square feet of impervious area, as stated in the application form and the text of the stormwater management plan, or approximately 2,300 square feet as noted in the treatment calculations.
- 3) 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 Standards: 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 general accordance with Appendix A, B, & C of MaineDEP Chapter 500. In addition to the notes and details provided in the application, the plan should include a location for the stabilized construction entrance and a note stating that the street Right-of-Way shall be kept clean from dust, tracked soil/mud, and construction debris and swept as necessary or as requested by the City of Portland to minimize dust and sediment originating from the site.
 - b) General Standards: The project will result in an increase in impervious area of approximately 2,300 square feet (Applicant to confirm). As such, the project is required to include stormwater management features for stormwater quality control. The Applicant has proposed to treat stormwater runoff via an infiltration basin at the rear of the property. The proposed approach provides an acceptable means of meeting the General Standards, pending response to the remaining comments contained herein.
 - c) Flooding Standards: The project will result in an increase in impervious area of approximately 2,300 square feet (Applicant to confirm). As such, the project is required to include stormwater management features to control the rate of stormwater runoff from the site. The Applicant has proposed to manage the rate of stormwater runoff via an infiltration basin at the rear of the property. The proposed approach provides an acceptable means of meeting the Flooding Standard, pending response to the remaining comments contained herein.
- 4) The stormwater inspection and maintenance plan for the proposed stormwater management system should reference the annual inspection and reporting requirements contained in Chapter 32 of the City



of Portland Code of Ordinances, and should include an inspection checklist developed for the stormwater system(s) including a maintenance schedule and inspection criteria.

- 5) The proposed infiltration basin is located partially within the footprint of the former house structure. Has the building foundation been fully demolished and removed. What are the drainage characteristics of the fill materials that have or will be utilized in this area? Has the Applicant performed a test pit or boring to evaluate the soil characteristics or infiltration capacity? How deep is bedrock at this location?
- 6) The Applicant proposes a rip-rap spillway to manage overflow from the proposed infiltration basin. Overflow from this spillway will drain west, below a stockade fence, across a fenced dumpster area on the 7-Eleven property, and across the 7-Eleven parking lot to the Washington Avenue drainage collection system. The applicant notes that this route is similar to the pre-development drainage pattern (existing condition); however, a review of the HydroCAD model indicates that more area will be directed to this location in the post-development condition, and although the infiltration basin will provide minor detention, the model predicts an increase in runoff rate at this location (from the spillway) in the post-development 10- and 25-year storm events. The drainage design should be revisited to eliminate directing overflow onto the neighboring property, unless the Applicant obtains drainage easements from N/F Ginn Portland LLC and modifies the adjacent fence and dumpster/parking area to accommodate drainage from the site. The Applicant should propose an alternative means of managing overflows from the infiltration basin.
- 7) How will roof drainage be managed from the proposed building?
- 8) The existing site includes a utility pole that provides overhead service (presumably both electrical and telecommunications) to buildings on three adjacent properties. The plan calls for eliminating this pole and the associated existing overhead services; however, it does not address how new services will be provided to all adjacent properties, specifically the 7-Eleven store.
- 9) The Grading and Utility Plan (Sheet 3 of 5) proposes grading well onto the lot that is N/F Kristine McCarthy (93-95 Cumberland); however, no finish surface is specified and it is unclear if the Applicant has rights to perform this work.

From: Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <JF@portlandmaine.gov>
CC: David Margolis-Pineo <DMP@portlandmaine.gov>, Katherine Earley <KAS@port...>
Date: 5/9/2014 3:59 PM
Subject: 97 Cumberland Avenue

Jean - The following represents my preliminary traffic comments for the project.

* A traffic assessment was conducted for the project and I concur that the project is not expected to have a significant impact on traffic safety and operations.

* The proposed driveway is 12-feet wide and meets City standards for a development that has less than 10 parking spaces. Because this determination is based on all traffic using the driveway, and that the driveway appears to have a shared use function, all shared use parking spaces should be included in these determination of width adequacy. Based upon my review, the total number of parking spaces using the driveway is less than 10 and therefore the project is compliant from a width perspective. The applicant should confirm this.

* The aisle width for the garage parking spaces do not meet City standards. The applicant should formally request a waiver from the City's technical standards and provide documentation in support of the waiver request.

* The driveway apron is proposed to be brick. This does not meet City standards for non-historic districts on the peninsula. DPS will be reviewing this issue.

* The applicant should confirm that the proposed snow storage area will not interfere with vehicle circulation movements.

* Sight distance measurements from the site drive should be provided.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
[T.Y. Lin International]T.Y. Lin International
12 Northbrook Drive
Falmouth, ME 04105
207.781.4721 (main)
207.347.4354 (direct)
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Twitter | Facebook | LinkedIn | YouTube

"One Vision, One Company"

Please consider the environment before printing.

From: Jennifer Thompson
To: Jean Fraser
Date: 5/20/2014 9:50 AM
Subject: Re: 97 Cumberland Ave - RTI/Access Easments

In thinking further about this - I think I'd advise including as a condition of approval a letter from an attorney or some other form of title opinion that opines that the right of way will not be overburdened. I'd hate to have this pursued privately in a civil case and have a judge determine that it was not reasonably foreseeable at the time that a multifamily unit would be built and benefit from the right of way. A legal opinion on which the Board could rely would make me more comfortable in that regard.

>>> Jennifer Thompson 5/18/2014 5:26 PM >>>

Hi Jean - I find no language in the these deeds that purports to limit the scope of the right-of-way or condition it on the presence of only a single family home. Rather, the plain language of the deed from Edwards to Dugas is that the Lot 3 is benefited by "a right of way over, along and upon said lot numbered one (1) . . . easterly of and adjacent to the premises."

Although the law recognizes that a right of way or easement can be overburdened ("Overburdening may occur when the present use of the easement changes from past practices and the change manifests itself in some greater independent burden on the servient estate that unreasonably or unforeseeably interferes with the landowner's enjoyment"), that would be an issue for these property owners to resolve privately.

As for the question about shared access, the right of way granted here benefits lot 3 and burdens lot 1. It looks to me like it would stop at Lot 2. If the house at the rear is on lot 3, then yes. The occupants of that house would presumably be entitled to use the right of way.

Alternative Design Review**97 Cumberland Avenue****Design Review by Caitlin Cameron, Jean Fraser, and Alex Jaegerman****5/22/14**

The applicant requested an Alternative Design Review under the R-6 Infill Development Design Principles & Standards for the 5-unit residential project at 97 Cumberland Avenue. Under the Alternative Design Review the following must be met:

1) The proposed design is consistent with all of the Principle Statements.

- a. Overall Context: The building contributes to and is compatible with the industrial and commercial character of Washington Avenue and the residential character of Cumberland Avenue by employing a scale and form that mediates. See #3 below.
- b. Massing: The massing on Cumberland Avenue reflects and reinforces the width and height of the surrounding residential buildings found in a two-block radius.
- c. Orientation to the Street: A sense of the public realm of the sidewalk is maintained through unimpeded visual connection between the building and the street and an emphasized front and side entry. Privacy for the building's residents is maintained through a front yard setback and a raised ground floor creating a transition space.
- d. Proportion and Scale: The project maintains the proportions and scale found in the surrounding buildings with a three-story façade. Front and side entries are covered and provide human-scale elements. The front façade is further broken up into two forms, the projecting form nearest the street is one-story tall.
- e. Balance: The façade composition is balanced employing local symmetries with an appropriate and pleasing proportion of window openings to solid façade.
- f. Articulation: The building design is successful in creating a visually interesting and well-composed façade on Cumberland Avenue as well as towards Washington Avenue with the use of covered porches, window types, emphasized entries, and detailing such as green screen and window reveals.
- g. Materials: Although the project uses a material unique to the context, the design reviewers found the material to be harmonious in color, texture, and authenticity with the neighborhood material palette which tends towards red brick industrial/commercial buildings and brick-based and clapboard-sided residential. The red finish of the metal compliments the depth, texture, and color of brick while the use of planks provides a rhythm on the façade similar to clapboards.

2) The majority of the Standards within each Principle are met.

- The majority of Standards within each Principle are met.
- On the topic of massing, the roof form of the proposal is unique to the neighborhood and deviates from two standards to do with roof forms and roof pitch. However, four of the six standards within that principle were met and therefore the deviation in roof

forms is allowed by the Alternative Design Review. In this case, the roof forms proposed are integral to the function of the solar array.

- On the topic of articulation, this project does not use the same type of detailing found in the context (pronounced cornices, railings, eaves and rakes), however, the design does meet the intent of the standards according to its own aesthetic language incorporating articulation with window reveals, cohesive window types, porches/decks, and an emphasized main entry; the result maintains a visual cohesion.
- On the topic of materials, the proposed exterior material is a metal panel cladding in a rust-red finish. While the material is unique to this neighborhood, the reviewers felt the color, texture, and use of the proposed material is harmonious with the surrounding material palette. The standards call for the materials to be harmonious, not identical, and to be used in an authentic way.

3) *The guiding principle for new construction under the alternative design review is to be compatible with the surrounding buildings in a two-block radius in terms of size, scale, materials, and siting, as well as the general character of the established neighborhood, thus Standards A-1 through A-3 shall be met.*

- a. Scale and Form: The project must mediate between the scale and form of the residential buildings (mostly two and three-story single family with gable roofs and triple-decker with flat roofs) as well as the industrial and commercial scale and forms of Washington Avenue. The Cumberland Avenue façade maintains the width and height of the surrounding residential buildings. The façade visible from Washington Avenue is broader and in keeping with the larger scale of that corridor.
- b. Composition of Principal Facades: The principle façade on Cumberland Avenue keeps the local symmetry of the main entry similar to the houses surrounding it with a covered porch. Where this project differs from its neighbors is the further setback of the full height of the building.
- c. Relationship to the Street: The rhythm, spacing, and orientation of the Cumberland Avenue façade is derived from its context and meets the standard. The building sits facing the street with a small front yard setback and a building width consistent with the neighboring residential buildings. On the North side of Cumberland Avenue the neighboring houses sit square to the street while the houses across the street are parallel to the street. The project reflects both of these relationships to the street by creating a ground floor façade parallel to the street while the rest of the building mass set back and is square with the neighboring houses.

4) *The design plan is prepared by an architect registered in the State of Maine.*

- This requirement has been met.

MEMORANDUM

To: FILE
From: Jean Fraser
Subject: Application ID: 2014-051
Date: 5/23/2014

Comments Submitted by: Marge Schmuckal/Zoning on 5/23/2014

I have reviewed this project for a new 5 unit residential 3-story structure. My major concern after this review is the required 10' side setback for the building. Both sides are not meeting the required minimum 10' setback. I am uncertain why the applicant is showing that there is less than the required 10' side yard setback when the document acknowledge the 10' required. All other R-6 dimensional requirements are being met.

Marge Schmuckal
Zoning Administrator

From: David Senus <dsenus@woodardcurran.com>
To: Jean Fraser <JF@portlandmaine.gov>
CC: "Barbara Barhydt (bab@portlandmaine.gov)" <bab@portlandmaine.gov>, "DMP@...
Date: 5/23/2014 9:50 AM
Subject: RE: 97 Cumberland Ave. - Stormwater/Traffic Memo

RE: Proposed Multi---family building located at 97 Cumberland Ave
Hi Jean:

Based on the May 19, 2014 Response to Comments letter prepared by Sebago Technics, the majority of the comments contained in our memo dated May 5, 2014 will be addressed by the Applicant as part of future submittals; however, a significant comment that remains to be resolved is Comment #6:

6) The Applicant proposes a rip-rap spillway to manage overflow from the proposed infiltration basin. Overflow from this spillway will drain west, below a stockade fence, across a fenced dumpster area on the 7-Eleven property, and across the 7-Eleven parking lot to the Washington Avenue drainage collection system. The applicant notes that this route is similar to the pre-development drainage pattern (existing condition); however, a review of the HydroCAD model indicates that more area will be directed to this location in the post-development condition, and although the infiltration basin will provide minor detention, the model predicts an increase in runoff rate at this location (from the spillway) in the postdevelopment 10- and 25-year storm events. The drainage design should be revisited to eliminate directing overflow onto the neighboring property, unless the Applicant obtains drainage easements from N/F Ginn Portland LLC and modifies the adjacent fence and dumpster/parking area to accommodate drainage from the site. The Applicant should propose an alternative means of managing overflows from the infiltration basin. The Applicant has responded by stating that the increase in flow is not substantial (0.01 CFS), that there are no viable storm drain connection options in the area, and that it is "(their) belief that the developer of 7-Eleven took into account the offsite drainage at that time" (when the 7-Eleven site was developed). Although we would agree that the increase in the modeled flow rate is insignificant, the plan indicates that all of the flow will be directed to a specific, and different location (from the existing condition) on the neighboring property. This requires approval and accommodations from the neighboring property per 14-526 (b) 3. Water Quality, Stormwater Management and Erosion Control, and per the Flooding Standard contained in Section 5 of the Technical Standards. The Applicant needs to demonstrate that appropriate measures are in place on the neighboring property to accommodate stormwater flow across this property, and that they have approval in the form of an easement from the 7-Eleven property owner to convey drainage onto and across their property at this specific location.

Thanks

Dave

David Senus, PE (Maine), Project Manager
Woodard & Curran, Inc.
41 Hutchins Drive
Portland, ME 04102
Phone: (800) 426-4262 x3241
Cell: (207) 210-7035
Fax: (207) 774-6635

Woodard & Curran
www.woodardcurran.com<<http://www.woodardcurran.com>>
Commitment & Integrity Drive Results

From: Jean Fraser [mailto:JF@portlandmaine.gov]
Sent: Tuesday, May 20, 2014 10:50 AM
To: David Senus
Subject: Fwd: 97 Cumberland Ave. - Stormwater/Traffic Memo

Dave

If you have time to consider this and add to/revise your comments (in next couple of days), that would be appreciated.

Thank you

Jean

>>> Timothy Lock <tim@gologic.us<mailto:tim@gologic.us>> 5/19/2014 2:48 PM >>>

Jean,

Please see attached comments from our civil engineer to the comments from your storm water and traffic review.

Thanks!

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.



**Level III - Preliminary Site Plan Development Review
Application**

97 Cumberland Avenue
Portland, Maine



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Preliminary Site Plan Application



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 II: 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).

The Land Use Code (including Article V), the Technical Manual, and the Design Manual are available on the City's web site at <http://www.portlandmaine.gov/planning/default.asp>

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8721 or 874-8719

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

PROJECT NAME: 97 Cumberland

PROPOSED DEVELOPMENT ADDRESS:

97 Cumberland Ave, Portland, ME 04101

PROJECT DESCRIPTION:

See attached description

CHART/BLOCK/LOT: 13/C/25

PRELIMINARY PLAN _____ (date)

FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Peter Dugas Business Name, if applicable: Address: 243 State St. City/State : Portland, ME Zip Code: 04101	Applicant Contact Information Work # Home# 207-899-2409 Cell # Fax# e-mail: dugas3@gmail.com
Owner – (if different from Applicant) Name: Same as Applicant Address: City/State : Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Timothy Lock (GO Logic) Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	Agent/Representative Contact information Work # 338-1566 x250 Cell # e-mail: tim@gologic.us
Billing Information Name: Timothy Lock (GO Logic) Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	Billing Information Work # 338-1566 x250 Cell # Fax# e-mail: tim@gologic.us

Engineer Albert Putnam Structural Engineer Name: Albert Putnam Address: 183 Park Row City/State : Brunswick, ME Zip Code: 04011	Engineer Contact Information Work # 729-6230 Cell # Fax# e-mail: albert.putnam@gmail.com
Surveyor Owen Haskell Inc. Name: John Swan Address: 3900 Route One City/State : Falmouth, ME Zip Code: 04015	Surveyor Contact Information Work # 774-0424 Cell # Fax# e-mail: jswan@owenhaskell.com
Architect GO Logic Name: Timothy Lock Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	Architect Contact Information Work # 338-1566 x250 Cell # Fax# e-mail: tim@gologic.us
Attorney Name: Address: City/State : Zip Code:	Attorney Contact Information Work # Cell # Fax# e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews) ☒ Less than 50,000 sq. ft. (\$500.00) ☐ 50,000 - 100,000 sq. ft. (\$1,000) ☐ 100,000 – 200,000 sq. ft. (\$2,000) ☐ 200,000 – 300,000 sq. ft. (\$3,000) ☐ over \$300,00 sq. ft. (\$5,000) ☐ Parking lots over 11 spaces (\$1,000) ☐ After-the-fact Review (\$1,000.00 plus applicable application fee) Plan Amendments (check applicable reviews) ☐ Planning Staff Review (\$250) ☐ Planning Board Review (\$500) The City invoices separately for the following: • Notices (\$.75 each) • Legal Ad (% of total Ad) • Planning Review (\$40.00 hour) • Legal Review (\$75.00 hour) Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.	Other Reviews (check applicable reviews) ☐ Traffic Movement (\$1,000) ☐ Stormwater Quality (\$250) ☒ Subdivisions (\$500 + \$25/lot) # of Lots <u>5</u> x \$25/lot = <u>125</u> ☐ Site Location (\$3,000, except for residential projects which shall be \$200/lot) # of Lots <u> </u> x \$200/lot = <u> </u> ☐ Other <u> </u> ☐ Change of Use ☐ Flood Plain ☐ Shoreland ☐ Design Review ☐ Housing Replacement ☐ Historic Preservation
--	---

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or DVD with each plan submitted as separate files, with individual file names (see submittal requirements document attached).
2. In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Planning Division Office to start the review process.

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist for a detailed list of submission requirements.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site <http://www.portlandmaine.gov/citycode/chapter014.pdf>

APPLICANT SIGNATURE:

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 II 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:
--------------------------------	--------------

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	5550	sq. ft.
Proposed Total Disturbed Area of the Site	2914	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)	N/A	sq. ft.
Impervious Area (Total Proposed)	2914	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	N/A	sq. ft.
Building Footprint (Total Proposed)	1790	sq. ft.
Building Floor Area (Total Existing)	N/A	sq. ft.
Building Floor Area (Total Proposed)	6990	sq. ft.
Zoning		
Existing		
Proposed, if applicable		
Land Use		
Existing	Residential	
Proposed	Residential	
Residential, If applicable		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)	5	
# of Lots (Total Proposed)	1	
# of Affordable Housing Units (Total Proposed)		
Proposed Bedroom Mix		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)	4	
# of Two-Bedroom Units (Total Proposed)	1	
# of Three-Bedroom Units (Total Proposed)	N/A	
Parking Spaces		
# of Parking Spaces (Total Existing)	N/A	
# of Parking Spaces (Total Proposed)	5	
# of Handicapped Spaces (Total Proposed)	N/A	
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	N/A	
# of Bicycle Spaces (Total Proposed)	Per technical manual requirements	
Estimated Cost of Project		
	\$900,000	

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.



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Att. B

Evidence of Right, Title and Interest

Return to:

Peter C. Dugas and Anastasia Antonacos
97 Cumberland Avenue
Portland, ME 04101

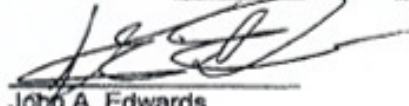
WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS: That I, **John A. Edwards**, of 97 Cumberland Avenue, Portland, Maine for consideration paid, grant to **Peter C. Dugas and Anastasia Antonacos**, of 243 State Street, Portland, ME 04101, as joint tenants with rights of survivorship with WARRANTY COVENANTS:

SEE ATTACHED EXHIBIT A.

MEANING and INTENDING to describe and convey all and the same of the premises conveyed to the grantor herein by deed of Robert A. Arnold and Thuong Arnold dated 5/5/2006 recorded at Book 23929, Page 301 in the Cumberland County Registry of Deeds.

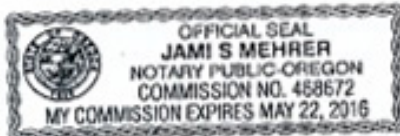
Executed this 12 day of MARCH, 2013

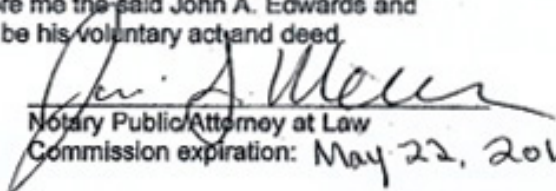

John A. Edwards

State of Oregon
County of Clackamas

03 / 12 / 2013

Then personally appeared before me the said John A. Edwards and acknowledged the foregoing to be his voluntary act and deed.




Notary Public/Attorney at Law

Commission expiration: May 22, 2016



EXHIBIT A

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

Beginning at an iron pin set in the ground at the southwesterly corner of lot numbered three (3) as shown on a certain plot plan of property of Walter A. Gerry at 93 and 97 Cumberland Avenue, Portland, Maine as drawn by Varney Engineering Company, North Windham, Maine, October 8, 1946, a copy of which plot plan is recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, and reference to which plot plan is hereby made; thence northeasterly by Cumberland Avenue forty-three (43) feet to another iron pin set in the ground at the point where lot numbered three (3) and lot numbered one (1) meet; thence northwesterly by the line of lot numbered one (1) one hundred twenty-five and six tenths (125.6) feet to land formerly of Homan; thence westerly by said Homan land forty-two and seventy-five hundredths (42.75) feet to a stake; thence southeasterly one hundred forty-two and five tenths (142.5) feet to Cumberland Avenue at the point of beginning;

Being lot numbered three (3) as shown on said plan.

Together with a right of way over, along and upon said lot numbered one (1) as shown on said plot plan, easterly of and adjacent to the premises herein described.

CD AA



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Existing and Proposed Easements, Covenants and Rights-of-way

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, THAT I, **CAROL S. PIKE**, of Portland, County of Cumberland and State of Maine, FOR CONSIDERATION PAID, grant to **CAROL S. PIKE AND JAMES F. PIKE**, both of Portland, County of Cumberland and State of Maine, as joint tenants with WARRANTY COVENANTS, the following described real property located in the City of Portland, County of Cumberland and State of Maine:

A certain lot of parcel of land together with the buildings thereon, situated in Portland, County of Cumberland and State of Maine, and being Lot #1 as delineated on the plan recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, being a Portland of the premises conveyed by deed recorded in said Registry of Deeds in Book 1831, Page 423, and more particularly bounded and described as follows:

Beginning on the Northwesterly sideline of Cumberland Avenue in said Portland at the Southeasterly corner of the premises conveyed by Walter A. Gerry et al to Robert E. McInnis by deed dated October 16, 1946 and recorded in said Registry of Deeds in Book 1848, Page 165; thence Northeasterly by Cumberland Avenue forty seven (47) feet to a point; thence Northerly forty eight and eight tenths (48.8) feet to a point thence Westerly forty one and seven tenths (41.7) feet to a point; thence Southerly seventy one and five tenths (71.5) feet to the point of beginning.

This conveyance is made subject to a right of way over the Westerly portion of the above described premises.

Being the same premises as described in a deed from Citicorp Mortgage, inc. to Carol S. Pike dated June 10, 1996 and recorded in the Cumberland County Registry of Deeds in Book 12557, Page 204.

The premises are conveyed together with and subject to any and all easements or appurtenances of record, insofar as the same are in force and applicable.

WITNESS my hand(s) and seal(s) this 31st day of July, 2009.

Received
Recorded Register of Deeds
Aug 04, 2009 11:02:36A
Cumberland County
Pamela E. Lovley

Witness

Carol S. Pike

STATE OF MAINE
COUNTY OF Cumberland, ss.

July 31st, 2009

Personally appeared the above-named Carol S. Pike, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Notary Public/Attorney-at-Law

JENNIFER J. JIPSON
NOTARY PUBLIC, STATE OF MAINE
MY COMMISSION EXPIRES
JULY 13, 2014

EXHIBIT A
97 Cumberland Avenue, Portland, Maine

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

Beginning at an iron pin set in the ground at the southwesterly corner of lot numbered three (3) as shown on a certain plot plan of property of Walter A. Gerry at 93 and 97 Cumberland Avenue, Portland, Maine as drawn by Varney Engineering Company, North Windham, Maine, October 8, 1946, a copy of which plot plan is recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, and reference to which plot plan is hereby made for more particular description of the premises hereby conveyed: thence northeasterly by Cumberland Avenue forty-three (43) feet to another iron pin set in the ground at the point where lot numbered three (3) and lot numbered one (1) meet; thence northwesterly by the line of lot numbered one (1) one hundred twenty-five and six tenths (125.6) feet to land formerly of Homan; thence westerly by said Homan land forty-two and seventy-five hundredths (42.75) feet to a stake; thence southeasterly one hundred forty-seven and five tenths (147.5) feet to Cumberland Avenue at the point of beginning; being lot numbered three (3) as shown on said plan.

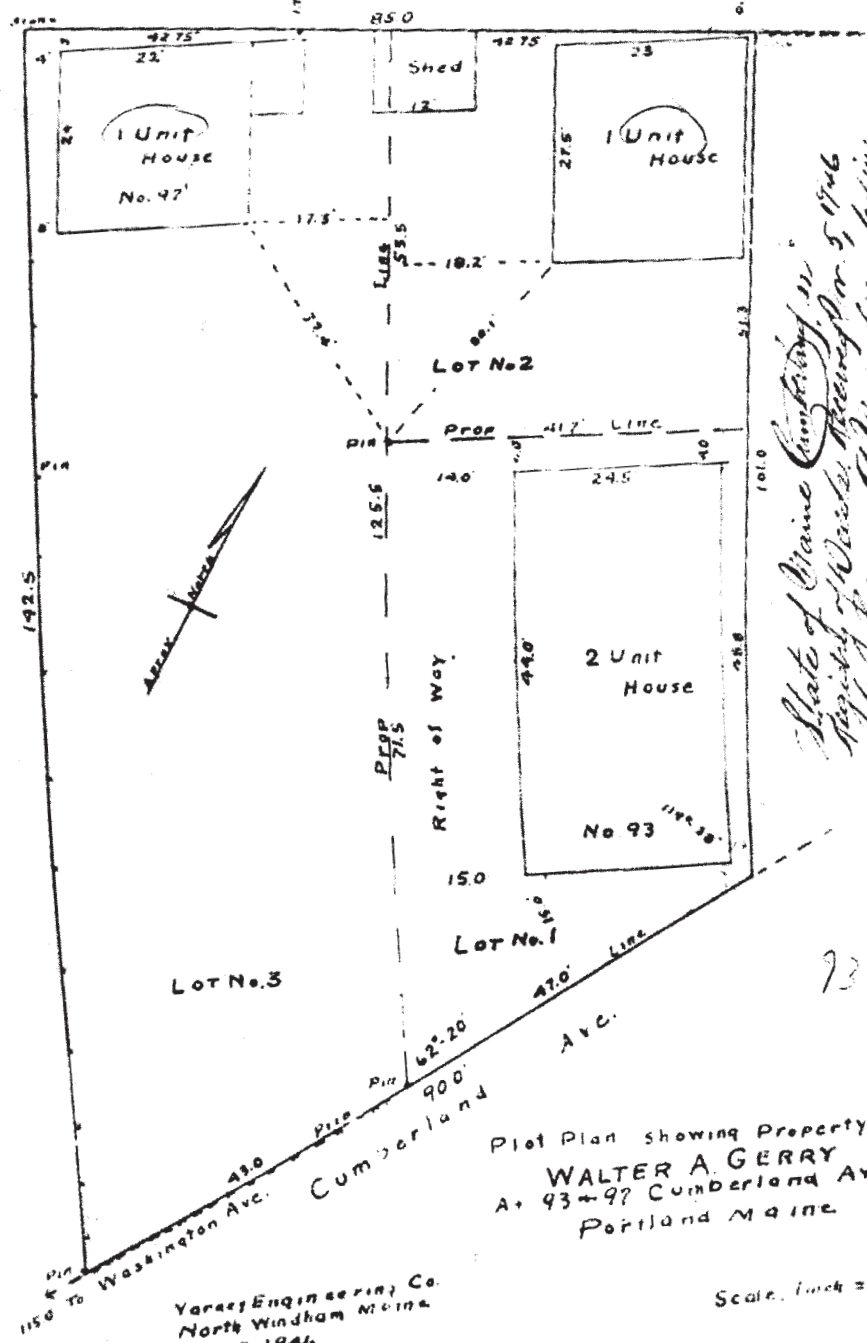
Together with a right of way over, along and upon said lot numbered one (1) as shown on said plot plan, easterly of and adjacent to the premises herein conveyed.

Being the same premises conveyed by warranty deed from Edna L. Granholm to Robert A. Arnold and Thuong Arnold dated March 31, 1976 and recorded in the Cumberland County Registry of Deeds in Book 3827, Page 149.

Received
Recorded Register of Deeds
May 05, 2006 02:38:13P
Cumberland County
John B O'Brien

225

Range 31



228

23

Introduction + Project Team



Introduction

The proposed new multi-family building at 97 Cumberland Ave. requires planning board approval given the subdivision of more than two units. The property owner is electing to proceed with a Preliminary Level III Site plan review as suggested by the Planning Department. In addition to the standard requirements of a Level III Site Plan the owner requests that the proposed design be assessed under the Alternate Design Review provision of the R-6 zoning district Design Manual. GO Logic LLC, an Architecture and Construction firm (ME Licensed Architect, Lic #3810), has been hired by the property owner to provide design services to develop the planning for the house and the garage, and has prepared this application on their behalf.

A schematic design and siting of the building have been determined. The bulk and height of the proposed building are in compliance with the R-6 zoning district limitations. In addition, all setbacks have been met along with total lot coverage limitations.

Project Description

The property is a 5050 square foot parcel (.12 acre) located at 97 Cumberland Ave. The nearest major intersection is with Washington Ave. The existing use of the property is single-family residential; a vacant single-family house has been demolished by the property owner.

The property shares an access easement with the neighboring properties of 93 Cumberland Ave. and 93 Rear Cumberland Ave. The easement is disclosed in the deed to the property and survey included with this submittal. The property owner intends to maintain and improve this access.

No accessory structures are currently planned on the property.

Project Team

Property Owner – Peter & Annie Dugas

Architect – GOL Logic, LLC; Timothy Lock, Project Architect

Surveyor – Owen Haskell

Civil Engineer – Sebago Technics

Structural Engineer – Albert Putnam, PE

Mechanical Engineer – Andrew McPartland, PE



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Code + Zoning Assessment



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Lot Information

Address: 97 Cumberland St.

Block: 013

Summary Of Zoning and Code Regulations

Zoning Restrictions – Based On Portland Zoning Ordinance

Zoning District – R6

Minimum Setback Requirements

Principal Structure

Front:	10 feet (or even with neighboring buildings)
Side:	3 stories – 10 feet
Rear:	20 feet

Lot Restrictions

<u>Gross Area</u>	4500 SF
Minimum Street Frontage:	40 feet
Lot Coverage:	50% maximum up to 20 dwelling units – 2945 SF
Open Space Requirement:	20% of lot area – 1180 SF

Lot Compliance

Gross Area:	5050 SF
Street Frontage:	43 feet
Lot Coverage (Building):	1790 SF
Total Impervious Surface:	2914 SF

Building Bulk

Principle Structure

Floor Area Ratio (FAR):	N/A
Building Height Limit:	45 ft. (above average finished grade at fronting street)
Number of Stories:	3 plus Basement
Overall Building Size:	6990 SF
Total Number of Dwelling Units:	5

Use Restrictions and Requirements

Principle Structure

Proposed use: Multi-family housing

Permitted uses:

- Multi-family housing
- Single-family house
- Temporary lodging (hotel, etc.)

- Conditional uses:

- Professional offices and similar business use types

Parking

Required Off-street Parking: 1 space per dwelling unit – 5 spaces provided



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Project Description

97 Cumberland Ave.

Occupying a thin, infill property on the edge of the R-6 district in Munjoy Hill near the intersection of Cumberland Ave. and Washington Avenue, 97 Cumberland Avenue is a proposed small, five-unit multi-family development setting. The property owner is a Portland resident looking to construct a high-performance multi-family building. GO Logic is a Belfast based architecture and construction firm specializing in thermally efficient buildings based on the German Passive House standard. With all of our projects we believe there is an inherent synergy between designing for human comfort and long-term sustainability. If the building's design is based on specific and local climactic conditions well integrated with the building's function, the comfort of occupant and interaction with the site and surrounding buildings will be optimized. When the building envelope is designed and executed well the building will require almost no supplemental heating energy and will provide a stable and comfortable interior environment. The relationship between thermal performance and human comfort results in an inherently compelling architectural response, as climate, form and function work in unison.

Technically, we set a goal for all of our projects to have the energy demand for space heating and cooling reduced to almost zero, allowing for the installation of renewable energy systems to create more energy than is consumed. Our design approach starts with a highly-insulated building shell that makes use of passive solar gain to lower space heating demands, allowing the cost and complexity of the mechanical systems to be minimized. Our target level of energy performance for the building as a whole is the German Passive House standard for space heating and air infiltration, which represents a 90% improvement on the buildings' space heating loads from typical code-complaint construction. These improvements over conventional construction, in conjunction with heat recovery ventilation, result in a building with an extremely small energy demand. Furthermore, due to the minimized heat load, a solar electric system can cover the building's space and domestic water heating demands in most climate regions, resulting in a cost-effective, grid-tied, Energy-Plus building as measured on an annual basis. While all of our projects are designed and built to these standards, we have had officially certified three single-family residences in Maine, Connecticut, and Michigan and one dormitory for Unity College in Unity, Maine. In addition, we have certification pending on the first certified Passive House laboratory in North America for the University of Chicago and a fourth single family residence in Western Massachusetts. We are bringing this design approach to a multi-family building, for the first time, at 97 Cumberland Avenue. It is on track to be the first certified multi-family Passive House in the state of Maine.

The constrained site and solar orientation of 97 Cumberland poses thermal performance challenges. While we would typically take advantage of the sunny Maine winter to provide additional passive solar heating, we have taken different approach here, resulting a more compact building, in keeping with the mass of the surrounding buildings and scale of typical fenestration in the neighborhood. In order to increase the thermal performance for the larger building, the building is divided into two parts by an enclosed common stair allowing each structure to minimize the ratio of exterior wall to enclosed volume. Four one-bedroom apartments and one two-story three-bedroom are spread between the two structures effectively reducing the perceived scale of building as a whole. The site slopes down to the rear of the property allowing covered parking under the back building and reducing the building height along the street front. The roof of the front building is pitched on an angle towards solar south to accommodate a photovoltaic array while the rear building offers a common roof deck surrounded by a screen wall supporting climbing vines continuing down the common stair. We are proposing an exterior finish in keeping with the neighboring industrial buildings along Washington Avenue. We are applying for an Alternative Design Review on this project.



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Design Principals + Standards

Overall Context

The neighborhood surrounding 97 Cumberland Avenue is unique in that it is a hinge-point between the large-scale, masonry industrial aesthetic of the buildings lining the north side of Washington Avenue and the two and three story clap-board-sided residential buildings of Cumberland Avenue.

While the property is accessed only from Cumberland Avenue, the surrounding topography and grade of Cumberland Avenue allows the West side façade to be fully visible from Washington Street above a gas station and convenient store at 21 Washington Ave.



The proposed design attempts to negotiate this divide by establishing an industrial-scale west façade facing Washington Avenue. The South façade, facing Cumberland Avenue, takes advantage of the rise in grade toward Cumberland Ave. effectively reducing the height of the building along this more residential street to three stories keeping it consistent with other multi-family buildings to the east.

Additionally, the proposed fenestration coordinates the scale of masonry openings along Washington Avenue with smaller, residential scale openings while maintaining a proportion of un-fenestrated wall consistent with surrounding buildings. We have included several examples of buildings with similar features to those describing our proposal below in the surrounding neighborhood.



Site viewed from Washington Ave - Existing



Site viewed from Washington Ave - Proposed



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63 Washington Ave



5 Washington Ave



129 Washington Ave



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97 Cumberland Ave: Rendering



96 Sheridan St



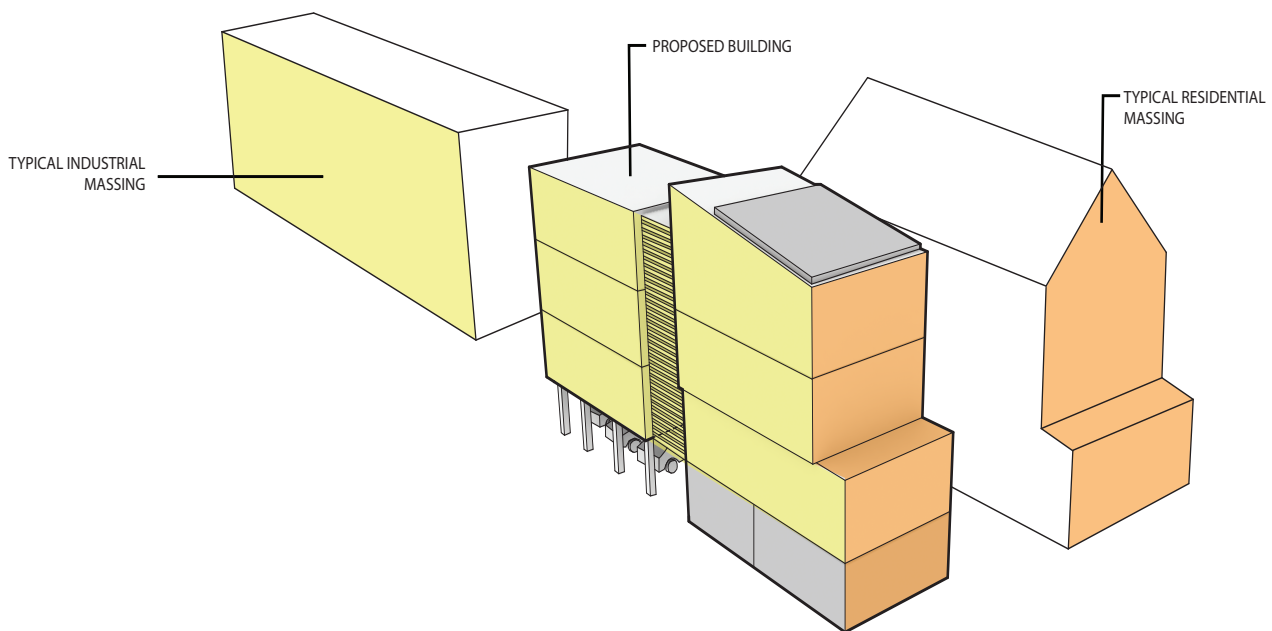
59 Cumberland Ave



97 Cumberland Ave

Massing

The intent of the proposed massing of the new building at 97 Cumberland Ave. is, as noted above, to maintain the size and scale of the residential buildings along Cumberland Ave. when viewed from the Northeast while responding to the form and of industrial masonry buildings when viewed from the West along Washington Avenue.



By dividing the building into two structures with a common stair the impression of the overall mass is reduced. The separation between the structures is mitigated by a planted wall of climbing vines, providing shade to the enclosed common stair and a further break in the overall building mass. Further breaking down the mass of the building as viewed along Cumberland Ave., the ground floor dwelling unit extends to the front yard set back providing a recessed and covered ground floor entry and a balcony for the 2nd floor dwelling unit. This serves to further breakdown the mass at the street and reduce the impact of the three-story height by reflecting the mass of traditional porch structures and extended bay windows in the surrounding neighborhood.

(front rendering with everything but entry porch desaturated)

While the north structure utilizes a flat roof similar to the surrounding masonry buildings, the south building at Cumberland Avenue has a single pitched shed roof oriented specifically to solar south generating a roof form designed to maximize electricity production. The resulting roof area is sufficient to power the heating and cooling systems for both structures. Several instances of single pitched shed roofs are present in the surrounding neighborhood.



97 Cumberland Ave. - Proposed

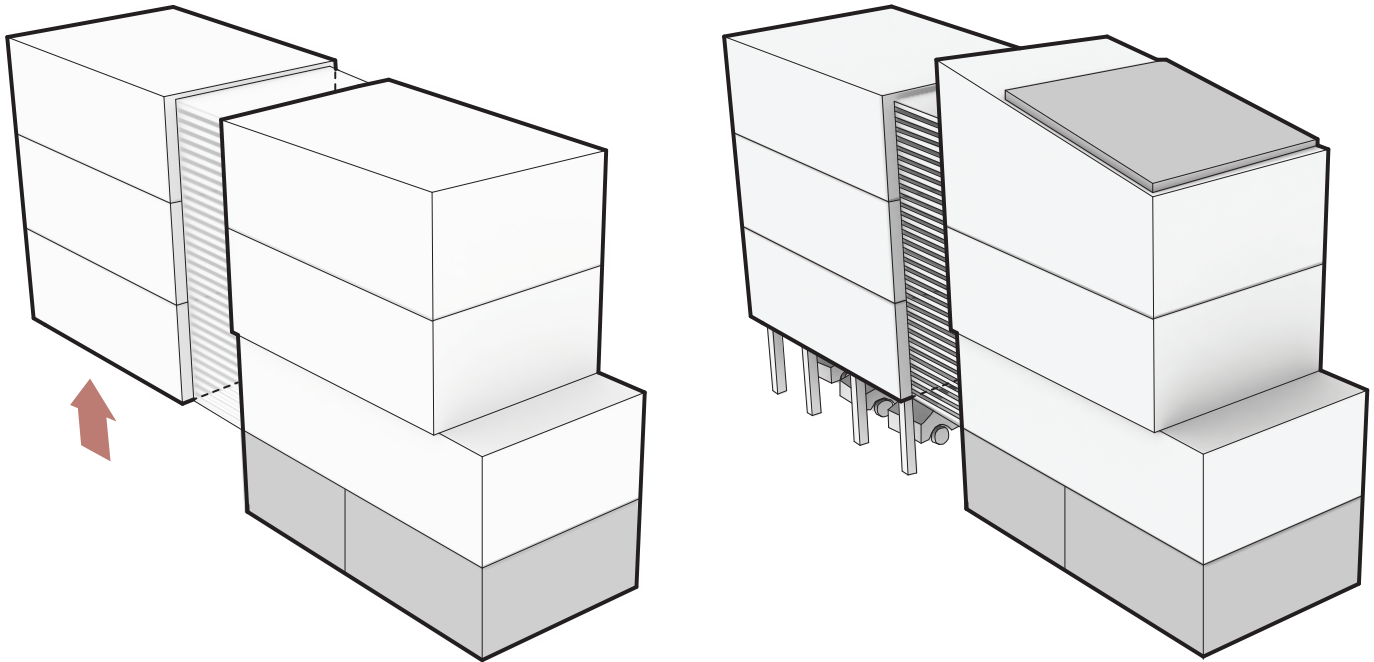


96 Sheridan St.



3 Greenleaf St.

Again, utilizing the natural grade of the site, we have situated an accessory garage under the north structure providing discrete parking concealed from view from the street.



Parking Diagram

Orientation To Street

We have situated the building to provide clear entry from the street frontage along Cumberland Avenue. The first floor dwelling has direct access to the front yard through a covered and recessed entry deck providing privacy from the street. The finished floor elevation of the street level unit is two feet above the highest portion of public sidewalk, further shielding it from the street. The main access to the common enclosed stair follows an elevated walkway deck effectively separating the common entry from the street level dwelling unit at the street. The walkway is clearly delineated from the site access point along the east edge of the property.

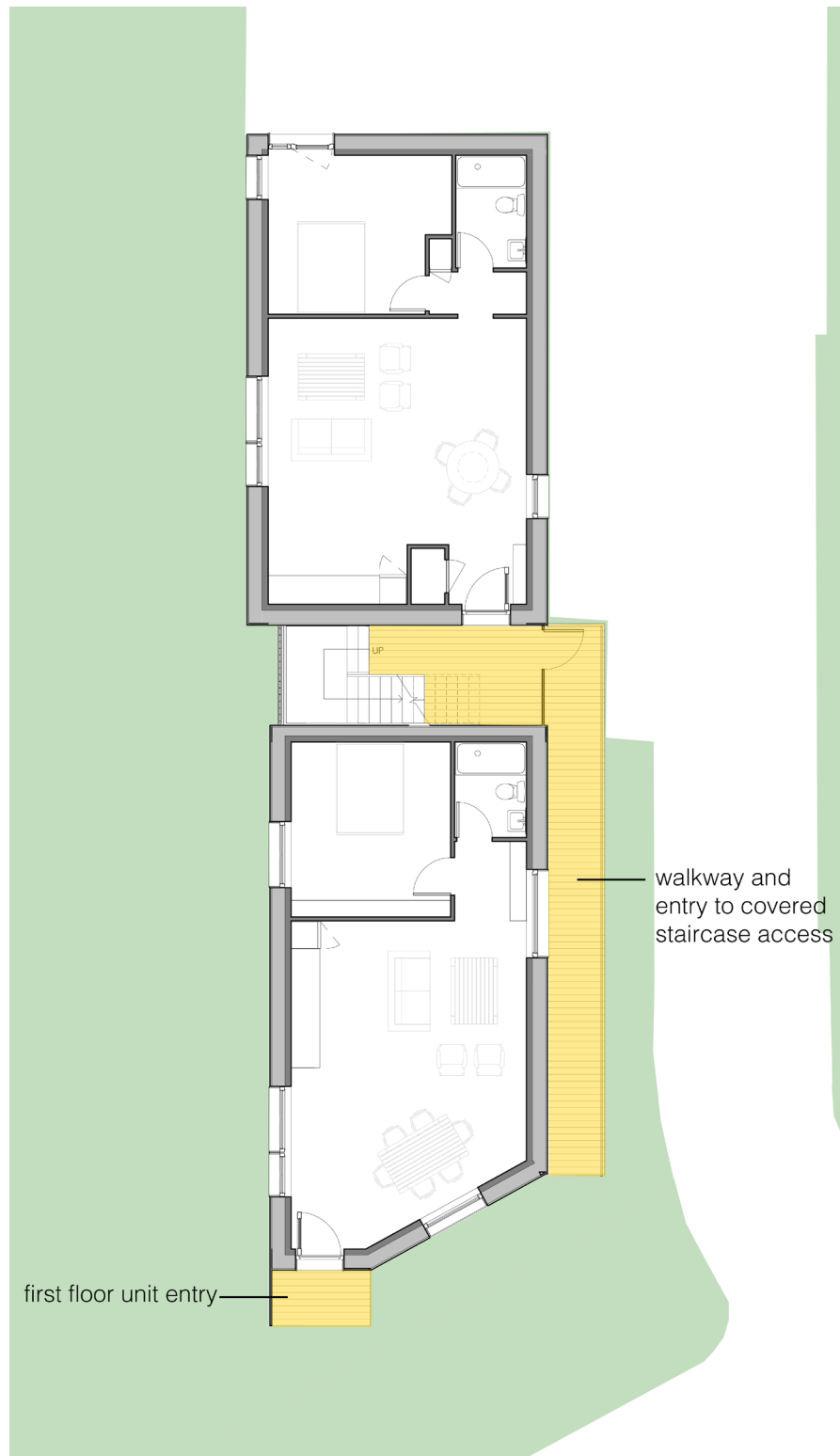


97 Cumberland Ave. - Propsoed Front Entry



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97 Cumberland Ave. - Plan Diagram at Entry

Proportions and Scale

The proposed building attempts to replicate the proportions and scale of the surrounding residential buildings in height and width. We have paired this compact building scale with fenestration along the façade reflecting the proportions and scale of the glazed openings of the industrial buildings along Washington Avenue.

The surrounding residential buildings lining Cumberland Avenue are, in general, three stories in height and approximately twenty to twenty five feet wide. We have maintained these proportions on the façade facing Cumberland Avenue.

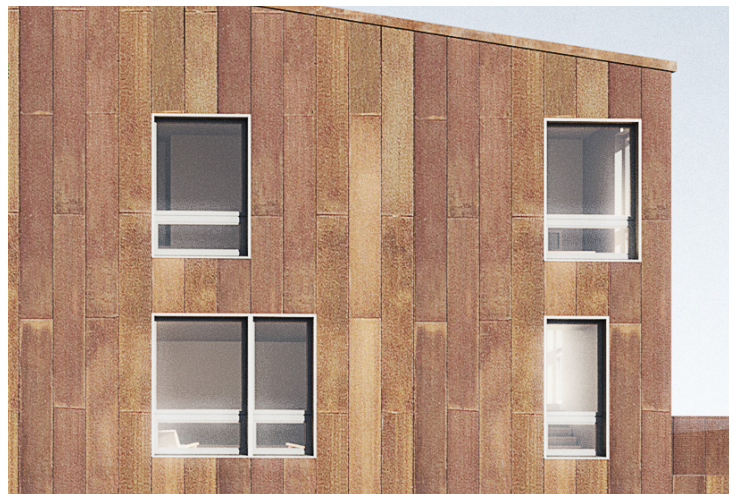
Balance and Articulation

The proposed design strives to maintain a consistency of fenestration throughout within a contemporary architectural language. The openings consist of a repetition of two window sizes. The window heights are consistent on each façade. Further, all window openings are aligned along horizontal datum lines delineating floors.

One tall, vertical window outlines an interior stair of a two-story dwelling unit on the Cumberland Avenue façade. To reduce total building heat loss, the windows on the North and East facades are smaller, but consistent in size.



63 Washington Ave. - Fenestration



97 Cumberland Ave. - Proposed Fenestration



59 Cumberland Ave. - Fenestration



97 Cumberland Ave. - Proposed Fenestration

While the building is contemporary in architectural language, we have included modern versions of classic building articulations. All windows are trimmed to the exterior finish in a contrasting finish to the building cladding. The roof fascia provides delineation to the roof line, yet is matched in material to the façade. We have been careful to limit the material palette to the cladding and contrasting trim throughout. Porches (both the entry porch to the first floor dwelling unit along Cumberland Avenue and the main entry porch to the common stair are carefully fit within the overall building volume.

Materials





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Given the position of the property within the existing local urban context, we feel it is important to establish a visual and material relationship with the industrial buildings along Washington Avenue. We have chosen a metal panel exterior cladding in a rust-red finish to reflect the color and texture of the surrounding masonry buildings.



63 Washington Ave. - Red Brick Material Finish



97 Cumberland Ave. - Proposed Rust-Red Metal Panel Finish



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From: Timothy Lock <tim@gologic.us>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/14/2014 2:59 PM
Subject: Re: 97 Cumberland Avenue - level III Site Plan and Subdivision Review

Jean,

Thanks for the email. I would like to follow up with a call, but please see my initial response to your questions below (in red).

As far as coming down to meet with you, i would be happy to, but my schedule is kind of crazy next week as i will be out of town at another project for the second half of the week. We will work to get you what you need as soon as possible.

Thanks!

Timothy Lock, RA
Project Architect · GO Logic LLC
Belfast, Maine · 207.338.1566 x250
gologic.us

On May 14, 2014, at 2:21 PM, Jean Fraser <JF@portlandmaine.gov> wrote:

>
> Tim
>
> Together with my colleagues (Urban Designer Caitlin Cameron and Director of Planning Alex Jaegerman) I coordinated a formal design review based on the R6 infil alternative review standards.
>
> Although you have provided a helpful narrative and photos/renderings, there were aspects that we didn't understand and therefore could not complete the review. I am hoping that you will be able to send additional information fairly quickly so we can determine whether we need to meet with you (in time to complete the review memo to the PB next week).
>
> In the interest of time I have not linked these requests to the Principal/standard that led to the discussion/question but I would be happy to clarify further by 'phone.
>
> We would appreciate seeing the following so we can finalize the design review:
>
> 1. Floor plans for all buildings and floors;
We will send plans, yes. Floor plans were not indicated as a requirement for Preliminary submittal on the checklist.
> 2. An aerial plan showing the 2 block radius of the proposal site and the buildings within the 2 blocks that provide some precedent for design features of your proposal;
An aerial photo indicating all referenced properties was included in our submission - we can resend if necessary
> 3. More detailed plans/elevation of front yard area and how a person gets from the sidewalk into the property- its not clear whether the door in the front elevation is an entrance or a deck, for example- so it needs to tie into the site plan to show walkways/paths etc; also the elevations show some side steps near the front door that are not shown in the rendering;
We can provide this
> 4. Please clarify re the roof- it appears to be angled in two directions- is that the case and can you clarify the design. Also please explain how the array of solar panels might look.
The roof is pitched in two directions to face solar south. We typically use a prefabricated engineered truss

to achieve compound pitches; we can draw the solar panels on the roof plan and resubmit

> 5. How far are the upper stories set back on front elevation- could that be indicated on a plan that also shows the location of the abutting house?

We can provide this

> 6. Some renderings show the fence and others don't. We do not consider the fence meets the standards in that it appears an interruption rather than a transition. We would like to see the details of the area between the building and the sidewalk in order to see how it relates to the street and how the entrances are handled (this could be on same plan as 3 above).

We can provide this, but am i correct in assuming you would rather not have a fence at all? if so, we would also prefer to not have a fence - it was my understanding that fences were encouraged.

> 7. Are there any balconies or covered porches?

The second floor unit on the FF has a balcony over the first floor unit on the FF, the first floor unit has a covered entry porch in the same location.

> 8. Could you please provide a calculation of the area of the fenestration on the front facade (ie to confirm it is at least 12% of the total facade area);

> 703SF of facade versus 171SF of window = 24% glazed.

> 9. Could we see a spec/detail for the side awning?

We can provide this, yes.

> 10. What is the height of the FF elevation above the sidewalk grade? What is the height of the sill of the front ground floor window above the sidewalk grade?

The FF elevation is 3' above the highest point of the sidewalk (95' versus 93') - the sidewalk pitches down towards washington, though

> 11. We have some questions re the proposed material:

> What is the final color over a longer period of time? The material will not change beyond the bottom sample in the before and after image i forwarded

> Does the rust "run" (In the rain/snow) and so discolor other features? This is possible during initial oxidation, but it is very stable once oxidized

> Could we see details of the edging/trim at corners and at the roofline and does the metal fascia go around all the roof edges (ie is there any edging to the front single story projection)? We can provide details, yes. The fascia would run consistently around the upper roofs - on the lower balcony it extends up to become the railing - overflow from this roof would be through a scupper.

> Thank you

> Jean

>

>

>

>

> Jean Fraser, Planner

> City of Portland

> 874 8728

>

> 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. --



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Att. E

Waste Water Capacity Application

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

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



Date: 3/17/14

Mr. Frank J. Brancely,
Senior Engineering Technician
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-
mail: fjb@portlandmaine.gov

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

Site Address: 97 Cumberland Ave

(Regarding addressing, please contact Leslie Kaynor, either at 756-8346, or at LMK@portlandmaine.gov)

Chart Block Lot Number: _____

Proposed Use: 5-Unit Residential Building

Previous Use: Single Family -7 bedroom

Existing Sanitary Flows: 270 to 360 gpd

Existing Process Flows: None

Description and location of City sewer, at
proposed building sewer lateral connection:

See previously attached plans

Site Category	Commercial	_____
	Industrial <i>(complete part 4 below)</i>	_____
	Governmental	_____
	Residential	<u>X</u>
	Other <i>(specify)</i>	_____

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

2. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 5-units with total 7 bedrooms 630 GPD

Peaking Factor/ Peak Times: Peaking Factor 7 assume 6-8:30am and 5-9:00pm

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.

3. Please, Submit Contact Information.

Owner/Developer Name: Mr. Peter Dugas

Owner/Developer Address: 243 State Street

Phone: 207-899-2409

Fax: _____ E-mail: dugas3@gmail.com

Engineering Consultant Name: Sebago Technics, Inc.

Engineering Consultant Address: Suite 1A 75 John Roberts Rd. South Portland

Phone: 200-2064

Fax: 856-2206

E-mail: _____

City Planner's Name: Barbara Barhydt

Phone: 207 874 8699

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

4. 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 the locations, where the building's sanitary, and process water sewer laterals, exit the facility, where they enter the city's sewer, the location of any control manholes, wet wells, or other access points, and the locations of any filters, strainers, or grease traps.

Notes, Comments, or Calculations:

Daily Flow Rate:

$$90\text{gpd} \times 7 \text{ bedroom} = 630\text{gpd}$$

Peak Flow Rate:

$$630/(24\text{hrs} \times 60\text{m}) = 0.44\text{gpm} \times 7(\text{peaking factor}) = 3.1\text{gpm}$$

Memorandum

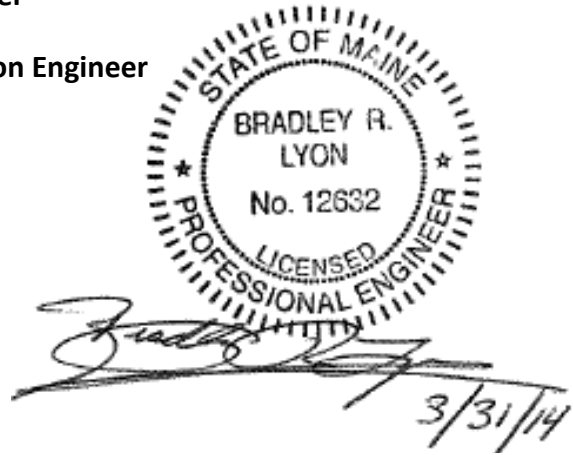
To: Steven A. Groves, CPSWQ, Sr. Design Engineer

From: Bradley R. Lyon, P.E., PTOE, Sr. Transportation Engineer

Date: March 31st, 2014

Project #: 14073

Subject: 97 Cumberland Avenue, Portland, Maine



The proposed development of 97 Cumberland Avenue in Portland, Maine is located between Washington Avenue and Romasco Lane. It is our understanding that this development is proposed to be a 3 story, 5 unit apartment building. Per your request, we have reviewed the proposed trip generation as well as existing crash data provided to us by MaineDOT near the vicinity of the site.

Trip Generation

Proposed trip generation has been calculated utilizing the 7th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual for Land Use Code (LUC) 223, Mid-Rise Apartment. Table 1, below, summarizes the calculations.

Table 1
Proposed Trip Generation
Land Use Code 223, Mid-Rise Apartment

By Units	Units	Rate (Trips / Dwelling Unit)	Total Trips
Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM	5	0.30	2
Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM	5	0.39	2
Weekday AM Peak Hour of Generator	5	0.35	2
Weekday PM Peak Hour of Generator	5	0.44	2

Overall, the proposed development will produce a very low volume of trips and therefore will not meet the minimum threshold of 100 peak hour trips and thus will not require a Traffic Movement Permit from the MaineDOT.

Crash Data

Crash data between 2010-2012 from the MaineDOT was reviewed in the project vicinity with no High Crash Locations (HCL's) being identified. HCL's are defined by MaineDOT as locations having a minimum of eight accidents in a three-year period and a critical rate factor greater than one. The crash summary reports as provided by MaineDOT have been attached at the end of this memorandum.

Conclusions

Based on our traffic assessment, we offer the following conclusions:

- The proposed development of 97 Cumberland Avenue in Portland, Maine will generate a very low volume of traffic, with 2 trips in the AM and PM peak hours and therefore will not require a Traffic Movement Permit from the MaineDOT.
- The immediate project vicinity was reviewed and found to not be a High Crash Location using the latest three year period as provided by the MaineDOT (2010-2012).

Enclosures

1. MaineDOT Crash Summary Reports

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I - Single Node ☐ Section Detail ☒ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Romasco Ln. @ Cumberland Ave.

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0560428	Start Node: 18873	Start Offset: 0	☐ Exclude First Node
	End Node: 18873	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	A	B	C	PD	Injury	Percent Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18873	0560428 - 0	Int of CUMBERLAND AV ROMASCO ST	2	0	0	0	0	0	0	0	1.392	0.00	0.49	0.00
												Statewide Crash Rate: 0.14		
Study Years: 3.00				NODE TOTALS:										
				0	0	0	0	0	0	0	1.392	0.00	0.49	0.00

Crash Summary II - Characteristics

Crashes by Day and Hour

Day Of Week	Hour of Day												PM												Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	0	23-Bicyclist	0
2-(Sport) Utility Vehicle	0	24-Witness	0
3-Passenger Van	0	25-Other	0
4-Cargo Van (10K lbs or Less)	0	Total	0
5-Pickup	0		
6-Motor Home	0		
7-School Bus	0		
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	0		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	0	0	0	0	0	0	0
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	0	0	0	0	0	0	0
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-39	0	0	0	0	0	0
40-49	0	0	0	0	0	0
50-59	0	0	0	0	0	0
60-69	0	0	0	0	0	0
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Total	0	0	0	0	0	0

Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	0
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	0		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0	Traffic Control Devices	
17-Other Non-Fixed Object	0	Traffic Control Device	Total
18-Impact Attenuator / Crash Cushion	0	1-Traffic Signals (Stop & Go)	0
19-Bridge Overhead Structure	0	2-Traffic Signals (Flashing)	0
20-Bridge Pier or Support	0	3-Advisory/Warning Sign	0
21-Bridge Rail	0	4-Stop Signs - All Approaches	0
22-Cable Barrier	0	5-Stop Signs - Other	0
23-Culvert	0	6-Yield Sign	0
24-Curb	0	7-Curve Warning Sign	0
25-Ditch	0	8-Officer, Flagman, School Patrol	0
26-Embankment	0	9-School Bus Stop Arm	0
27-Guardrail Face	0	10-School Zone Sign	0
28-Guardrail End	0	11-R.R. Crossing Device	0
29-Concrete Traffic Barrier	0	12-No Passing Zone	0
30-Other Traffic Barrier	0	13-None	0
31-Tree (Standing)	0	14-Other	0
32-Utility Pole / Light Support	0	Total	0
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data			
Severity Code	Injury Crashes	Number Of Injuries	
K	0		
A	0		
B	0		
C	0		
PD	0	0	
Total	0	0	

Road Character	
Road Grade	Total
1-Level	0
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	0

Light	
Light Condition	Total
1-Daylight	0
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	0
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	0

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	0	0	0
Total	0	0	0	0

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL												
	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I -
Single Node

☐ Section Detail

☒ Crash Summary II

☐ 1320 Public

☐ 1320 Private

☐ 1320 Summary

REPORT DESCRIPTION

Cumberland Ave. @ Washington Ave

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0026X

Start Node: 19042

End Node: 19042

Start Offset: 0

End Offset: 0

☐ Exclude First Node

☐ Exclude Last Node

Crash Summary I

Nodes															
Node	Route - MP	Node Description	U/R	Total Crashes	K	A	B	C	PD	Injury	Percent Annual M Ent-Veh	Crash Rate	Critical Rate	CRF	
19042	0026X - 0	Int of CUMBERLAND AV WASHINGTON AV	9	12	0	0	1	3	8	33.3	4.890	0.82	1.14	0.00	
												Statewide Crash Rate: 0.64			
Study Years: 3.00			NODE TOTALS:		12	0	0	1	3	8	33.3	4.890	0.82	1.14	0.71

Crash Summary II - Characteristics

Crashes by Day and Hour

Day Of Week	Hour of Day												PM												Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
SUNDAY	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3
MONDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
FRIDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	0	1	0	0	0	0	0	1	1	1	0	0	0	2	1	0	0	1	2	0	0	0	1	1	0	12

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	15	23-Bicyclist	1
2-(Sport) Utility Vehicle	3	24-Witness	5
3-Passenger Van	2	25-Other	0
4-Cargo Van (10K lbs or Less)	0	Total	28
5-Pickup	1		
6-Motor Home	0		
7-School Bus	0		
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	1		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash							Crashes by Apparent Physical Condition And Driver								
Driver Action at Time of Crash							Apparent Physical Condition								
	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Total		Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total	
No Contributing Action	2	4	0	0	0	6	Apparently Normal	11	10	0	0	0	1	22	
Ran Off Roadway	0	0	0	0	0	0	Physically Impaired or Handicapped	0	0	0	0	0	0	0	
Failed to Yield Right-of-Way	0	2	0	0	0	2	Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0	
Ran Red Light	0	0	0	0	0	0	Ill (Sick)	0	0	0	0	0	0	0	
Ran Stop Sign	0	0	0	0	0	0	Asleep or Fatigued	0	0	0	0	0	0	0	
Disregarded Other Traffic Sign	0	0	0	0	0	0	Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0	
Disregarded Other Road Markings	0	0	0	0	0	0	Other	0	0	0	0	0	0	0	
Exceeded Posted Speed Limit	1	0	0	0	0	1	Total	11	10	0	0	0	1	22	
Drove Too Fast For Conditions	2	0	0	0	0	2	Driver Age by Unit Type								
Improper Turn	0	0	0	0	0	0	Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total		
Improper Backing	0	0	0	0	0	0									
Improper Passing	1	0	0	0	0	1	09-Under	0	0	0	0	0	0	0	
Wrong Way	0	0	0	0	0	0	10-14	0	0	0	0	0	0	0	
Followed Too Closely	0	1	0	0	0	1	15-19	1	0	0	0	0	0	1	
Failed to Keep in Proper Lane	0	0	0	0	0	0	20-24	2	0	0	0	0	0	2	
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	25-29	5	0	0	0	0	0	5	
							30-39	6	0	0	0	0	0	6	
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	40-49	3	0	0	0	0	0	3	
							50-59	3	0	0	0	0	0	3	
Over-Correcting/Over-Steering	0	0	0	0	0	0	60-69	0	0	0	0	0	0	0	
							70-79	1	0	0	0	0	0	1	
Other Contributing Action	0	0	0	0	0	0	80-Over	0	0	0	0	0	0	0	
Unknown	0	0	0	0	0	0	Unknown	1	1	0	0	0	0	2	
Total	6	7	0	0	0	13	Total	22	1	0	0	0	0	23	

Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	10
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	1		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	9		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data			
Severity Code	Injury Crashes	Number Of Injuries	
K	0	0	
A	0	0	
B	1	1	
C	3	3	
PD	8	0	
Total	12	4	

Road Character		Total
Road Grade		
1-Level		9
2-On Grade		2
3-Top of Hill		0
4-Bottom of Hill		1
5-Other		0
Total		12

Light		Total
Light Condition		
1-Daylight		6
2-Dawn		0
3-Dusk		0
4-Dark - Lighted		6
5-Dark - Not Lighted		0
6-Dark - Unknown Lighting		0
7-Unknown		0
Total		12

Traffic Control Devices		Total
Traffic Control Device		
1-Traffic Signals (Stop & Go)		10
2-Traffic Signals (Flashing)		2
3-Advisory/Warning Sign		0
4-Stop Signs - All Approaches		0
5-Stop Signs - Other		0
6-Yield Sign		0
7-Curve Warning Sign		0
8-Officer, Flagman, School Patrol		0
9-School Bus Stop Arm		0
10-School Zone Sign		0
11-R.R. Crossing Device		0
12-No Passing Zone		0
13-None		0
14-Other		0
Total		12

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	1	0	1
FEBRUARY	2	0	1	3
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	2	2
JULY	1	0	0	1
AUGUST	0	0	1	1
SEPTEMBER	0	0	0	0
OCTOBER	1	1	0	2
NOVEMBER	0	0	0	0
DECEMBER	1	0	1	2
Total	5	2	5	12

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location														
Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	1	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	2	0	0	0	0	0	0	0	0	0	0	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	0	5
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	2	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	1	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	0	0	0	0	0	0	1	0	0	0	12

Report Selections and Input Parameters

REPORT SELECTIONS

- ☒ Crash Summary I - Single Element
- ☐ Section Detail
- ☒ Crash Summary II
- ☐ 1320 Public
- ☐ 1320 Private
- ☐ 1320 Summary

[REPORT DESCRIPTION](#)
link

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0561238

Start Node: 19042

End Node: 18873

Start Offset: 0

End Offset: 0

☒ Exclude First Node

☒ Exclude Last Node

Crash Summary I

Sections													
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	Section U/R	Total Crashes	K	A	B	C	PD	Percent Injury
													Annual HMVM
													Crash Rate
													Critical Rate
													CRF
18873	19042	194519	0 - 0.07	0561238 - 1.04	0.07	2	1	0	0	0	0	1	0.0
Int of CUMBERLAND AV		ROMASCO ST		RD INV 05 61238									0.00096
													347.53
													1043.65
													Statewide Crash Rate: 336.50
Study Years:		3.00		Section Totals:	0.07		1	0	0	0	0	1	0.0
													0.00096
													347.53
													1043.64
													0.33

Crash Summary

Section Details														
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
18873	19042	194519	0 - 0.07	0561238 - 1.04	1	0	0	0	0	1	2012-45905	12/02/2012	1.05	PD
Totals:					1	0	0	0	0	1				

Crash Summary II - Characteristics

Crashes by Day and Hour

Day Of Week	Hour of Day												PM												Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
SUNDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Vehicle Counts by Type

Unit Type	Total		Unit Type	Total
	1	23-Bicyclist		
1-Passenger Car	1		23-Bicyclist	0
2-(Sport) Utility Vehicle	0		24-Witness	0
3-Passenger Van	0		25-Other	0
4-Cargo Van (10K lbs or Less)	0		Total	1
5-Pickup	0			
6-Motor Home	0			
7-School Bus	0			
8-Transit Bus	0			
9-Motor Coach	0			
10-Other Bus	0			
11-Motorcycle	0			
12-Moped	0			
13-Low Speed Vehicle	0			
14-Autocycle	0			
15-Experimental	0			
16-Other Light Trucks (10,000 lbs or Less)	0			
17-Medium/Heavy Trucks (More than 10,000 lbs)	0			
18-ATV - (4 wheel)	0			
20-ATV - (2 wheel)	0			
21-Snowmobile	0			
22-Pedestrian	0			

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash								Crashes by Apparent Physical Condition And Driver							
Driver Action at Time of Crash								Apparent Physical Condition							
	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total		Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	0	0	0	0	0	1	Apparently Normal	1	0	0	0	0	0	1
Ran Off Roadway	0	0	0	0	0	0	0	Physically Impaired or Handicapped	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0	Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0	Ill (Sick)	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0	Asleep or Fatigued	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0	Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0	Other	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0	Total	1	0	0	0	0	0	1
Drove Too Fast For Conditions	0	0	0	0	0	0	0	Driver Age by Unit Type							
Improper Turn	0	0	0	0	0	0	0	Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total	
Improper Backing	0	0	0	0	0	0	0	09-Under	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0	10-14	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0	15-19	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0	20-24	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0	25-29	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0	30-39	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0	40-49	1	0	0	0	0	0	1
Over-Correcting/Over-Steering	0	0	0	0	0	0	0	50-59	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0	60-69	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	70-79	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1	80-Over	0	0	0	0	0	0	0
								Unknown	0	0	0	0	0	0	0
								Total	1	0	0	0	0	0	1

Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	1
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	0		
14-Parked Motor Vehicle	1		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
Traffic Control Devices			
16-Work Zone / Maintenance Equipment	0	Traffic Control Device	Total
17-Other Non-Fixed Object	0	1-Traffic Signals (Stop & Go)	0
18-Impact Attenuator / Crash Cushion	0	2-Traffic Signals (Flashing)	0
19-Bridge Overhead Structure	0	3-Advisory/Warning Sign	0
20-Bridge Pier or Support	0	4-Stop Signs - All Approaches	0
21-Bridge Rail	0	5-Stop Signs - Other	0
22-Cable Barrier	0	6-Yield Sign	0
23-Culvert	0	7-Curve Warning Sign	0
24-Curb	0	8-Officer, Flagman, School Patrol	0
25-Ditch	0	9-School Bus Stop Arm	0
26-Embankment	0	10-School Zone Sign	0
27-Guardrail Face	0	11-R.R. Crossing Device	0
28-Guardrail End	0	12-No Passing Zone	0
29-Concrete Traffic Barrier	0	13-None	1
30-Other Traffic Barrier	0	14-Other	0
31-Tree (Standing)	0	Total	1
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data			
Severity Code	Injury Crashes	Number Of Injuries	
K	0	0	
A	0	0	
B	0	0	
C	0	0	
PD	1	0	
Total	1	0	

Road Character		Total
Road Grade		
1-Level		1
2-On Grade		0
3-Top of Hill		0
4-Bottom of Hill		0
5-Other		0
Total		1

Light		Total
Light Condition		
1-Daylight		0
2-Dawn		0
3-Dusk		0
4-Dark - Lighted		0
5-Dark - Not Lighted		0
6-Dark - Unknown Lighting		1
7-Unknown		0
Total		1

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	0	1	1
Total	0	0	1	1

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	0	0	0	0	0	1

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	1	0	0	0	0	0	0	0	0	0	1
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	0	0	0	0	0	0	0	1



G.OLOGIC
architecture • construction

Att. G

Storm Water Management Plan



STORMWATER MANAGEMENT PLAN

for

**97 Cumberland Avenue
Portland, Maine**

prepared for

Peter Dugas
243 State Street
Portland, ME 04101

March 2014

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- I. Introduction
- II. Existing Conditions
 - A. Surface Water Features
 - B. Soils
 - C. Historic Flooding
- III. Proposed Development
 - A. Alterations to Land Cover
- IV. Regulatory Requirements
 - A. City of Portland, Maine
- V. Stormwater Management BMPs
 - A. Filtration Basin
- VII. Water Quality Analysis
- VIII. Peak Flow Analysis
- IX. Conclusions

Attachments

- A. HydroCad Calculations
- B. Inspection and Maintenance
- C. Treatment Calculations
- D. Soil Map

STORMWATER MANAGEMENT PLAN

97 Cumberland Avenue
Portland, Maine

I. Introduction

This Stormwater Management Plan has been prepared to address the potential impacts associated with this project due to the proposed modification in stormwater runoff characteristics. The stormwater management controls that are outlined in this plan have been designed based on commonly accepted engineering methods and to comply with applicable regulatory requirements.

II. Existing Conditions

The site is located at 97 Cumberland Avenue and behind the 7-Eleven Convenience Store on Washington Ave. The lot has been occupied as a residential house for many years until it was recently demolished due to the declining condition of the structure. The pre-existing home was located in the far northwest corner of the lot. The home was accessed from an existing gravel driveway which is also shared by 93-95 Cumberland Ave. The land cover is mostly lawn and driveway. The topography slopes steeply from east to west towards 7-Eleven. The only other vegetation is evasive plants growing along the fence & retaining wall separating parcel from the 7-Eleven.

A. Surface Water Features

There is no surface water features.

B. Site Topography

The topography slopes steeply at 20% to 30% from east to west at the southerly end and moderately at 3% to 6% central portion of the site. The existing driveway slopes 12% away from Cumberland Ave.

C. Soils

Soil characteristics were obtained from the Soil Conservation Service (SCS) Medium Intensity Soil Survey of Cumberland County. Soils identified on the site are identified below in Table 1. These soil boundaries have been identified on the attached Watershed Maps.

Table 1 – Proximity Soil Types and Characteristics		
Soil Type	Symbol	HSG
Hinckley gravelly Sandy Loam		A

The hydrologic soil group (HSG) designation is based on a rating of the relative permeability of a soil, with Group “A” being extremely permeable such as coarse sand, to Group “D” having low permeability such as clay.

D. Historic Flooding

There are no apparent flooding problems associated with this site. Additionally, the Federal Emergency Management Agency (FEMA) has not identified a flood hazard area on the project site.

III. Proposed Development

The applicant plans to construct a new 5-Unit residential building. Associated work will include a new paved access drive, concrete block retaining wall and an Infiltration Basin.

A. Alterations to Land Cover

The proposed development will include a new three story residential building with five living units. The proposed development includes an approximately 2,900 sf of new impervious area footprint including 1,790 for the building footprint and 1,110 sf of driveway.

V. Regulatory Requirements

A. City of Portland, Maine

This project is required to meet Chapter 500 standards to the regulations of Maine DEP Chapter 500 Stormwater Management Rules, including Basic, General and Flooding standards:

The Stormwater standards will require treatment for runoff from the new impervious area less the existing impervious (prior to November 2005). The net treatment area is approximately 2,280 sf.

VI. Stormwater Management Best Management Practices (BMPs)

Stormwater runoff from the project site will receive water quality treatment and attenuation of peak runoff management through the construction of stormwater BMPs consisting of an Infiltration Basin.

A. Infiltration Basin

The Infiltration Basin will receive stormwater runoff from the access driveway and off-site residential block area up to Romasco Lane (see enclosed watershed map). Stormwater runoff that is collected in Infiltration Basin will pond-up temporarily and filter through the soil media. In larger storms once the surface runoff exceeds basin capacity, runoff will discharge over a rip rap spillway. Overflow Stormwater runoff from the infiltration basin eventually will drain west across the adjacent to the parking lot to Washington Avenue storm drain system. This is similar to the pre-development drainage pattern.

VII. Water Quality Analysis

In accordance with City of Portland Technical Design Manual and Maine DEP Chapter 500 we have provided stormwater quality treatment. We have provided stormwater quality treatment for approximately 2,280 s.f. of impervious surfaces (See Attachment C for Calculations).

VIII. Peak Flow Analysis

In order to evaluate drainage characteristics as a result of the proposed development activities, a quantitative analysis was performed to determine peak rates of runoff for the 2, 10 and 25-year storms in the pre and post-development conditions. The evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was used to perform the calculations.

The results of the stormwater runoff calculations for the pre-development and post-development conditions are summarized in the tables below.

Pre-development vs. Post-development Peak Flow Summary at Sub-area 1 & Pond 1			
Reach 2	2-year Peak Flow (cfs)	10-year Peak Flow (cfs)	25-year Peak Flow (cfs)
Pre-development	0.45	1.03	1.33
Post-development	0.24	1.04	1.34
Change	-0.21	0.01	0.01

In order to mitigate peak flows and treat this expected increase, infiltration basin will be constructed. The infiltration basin will collect stormwater runoff and limit peak discharge rates to pre-development rates. There is a small decrease in the 2 year event where the majority of the storm events occur.

IX. Conclusions

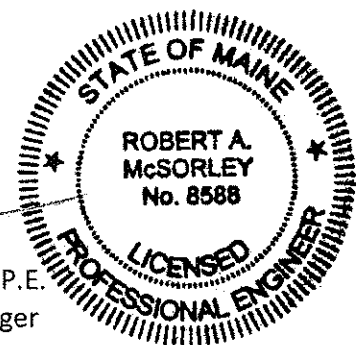
This Stormwater Management Plan has been designed with erosion and sedimentation controls, inspection and maintenance procedures and general housekeeping requirements to prevent unreasonable impacts to the surrounding environment and to provide a long-term plan for management of stormwater runoff from the site. Stormwater runoff should be adequately managed for the project if carried out in accordance with the design plans.

Prepared by,

SEBAGO TECHNICS, INC.


Steven A. Groves, CPSWQ
Project Engineer


Robert A. McSorley, P.E.
Senior Project Manager



4/1/14

SAG:sag/jsf

March 26, 2014



SCALE: 1" = 80'	WATERSHED MAP OF 97 CUMBERLAND AVENUE		FOR: PETER DUGAS	LOCATION: 97 CUMBERLAND AVENUE PORTLAND, MAINE	SEBAGO TECHNICAL City Engineering - Surveying - Landmark Architectural WWW.SEBAGOTECHNICALS.COM 75 John Roberts Rd. - Suite 1A South Portland, ME 04106 Tel. 207-202-2100
DATE: 03/18/14			INFORMATION: IMAGERY ACQUIRED SPRING 2012 GIS DATA FROM THE CITY OF PORTLAND AND MAINE GIS		



SCALE: 1" = 80'
DATE: 03/18/14

INFORMATION:
IMAGERY ACQUIRED SPRING 2012
GIS DATA FROM THE CITY OF PORTLAND
AND MAINE GIS

FOR: PETER DUGAS

WATERSHED MAP
OF 97 CUMBERLAND AVENUE

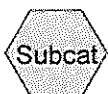
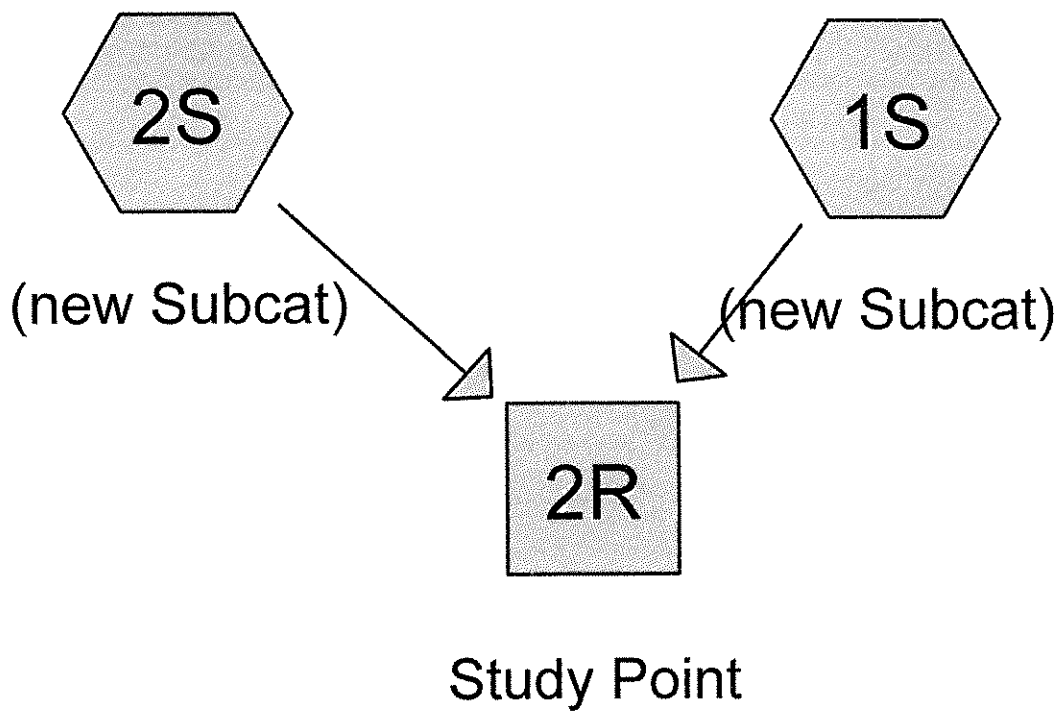
LOCATION:
97 CUMBERLAND AVENUE
PORTLAND, MAINE

SEBAGO
T E C H N I C S

WWW.SEBOGOTECHNICS.COM
250 Goddard Rd. - Suite B
South Portland, ME 04106
Tel. 207-200-2100

Attachment A

Hydrocad Output Pre- and Post-Development Tr-20 Model



14073-Pre-Development Watershed

Type III 24-hr 2yr Rainfall=3.00"

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Subcatchment 1S: (new Subcat)

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.016 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		Pervious Area
5,577		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: (new Subcat)

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		Pervious Area
4,934		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Reach 2R: Study Point

Inflow Area = 0.371 ac, Inflow Depth > 0.98" for 2yr event

Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.030 af

Outflow = 0.45 cfs @ 12.09 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

14073-Pre-Development Watershed

Type III 24-hr 10yr Rainfall=4.70"

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Subcatchment 1S: (new Subcat)

Runoff = 0.55 cfs @ 12.08 hrs, Volume= 0.036 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 10yr Rainfall=4.70"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		Pervious Area
5,577		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: (new Subcat)

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 10yr Rainfall=4.70"

Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		Pervious Area
4,934		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Reach 2R: Study Point

Inflow Area = 0.371 ac, Inflow Depth > 2.21" for 10yr event

Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.068 af

Outflow = 1.03 cfs @ 12.08 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

14073-Pre-Development Watershed

Type III 24-hr 25yr Rainfall=5.50"

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Subcatchment 1S: (new Subcat)

Runoff = 0.70 cfs @ 12.08 hrs, Volume= 0.047 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 25yr Rainfall=5.50"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		Pervious Area
5,577		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: (new Subcat)

Runoff = 0.62 cfs @ 12.08 hrs, Volume= 0.041 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 25yr Rainfall=5.50"

Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		Pervious Area
4,934		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

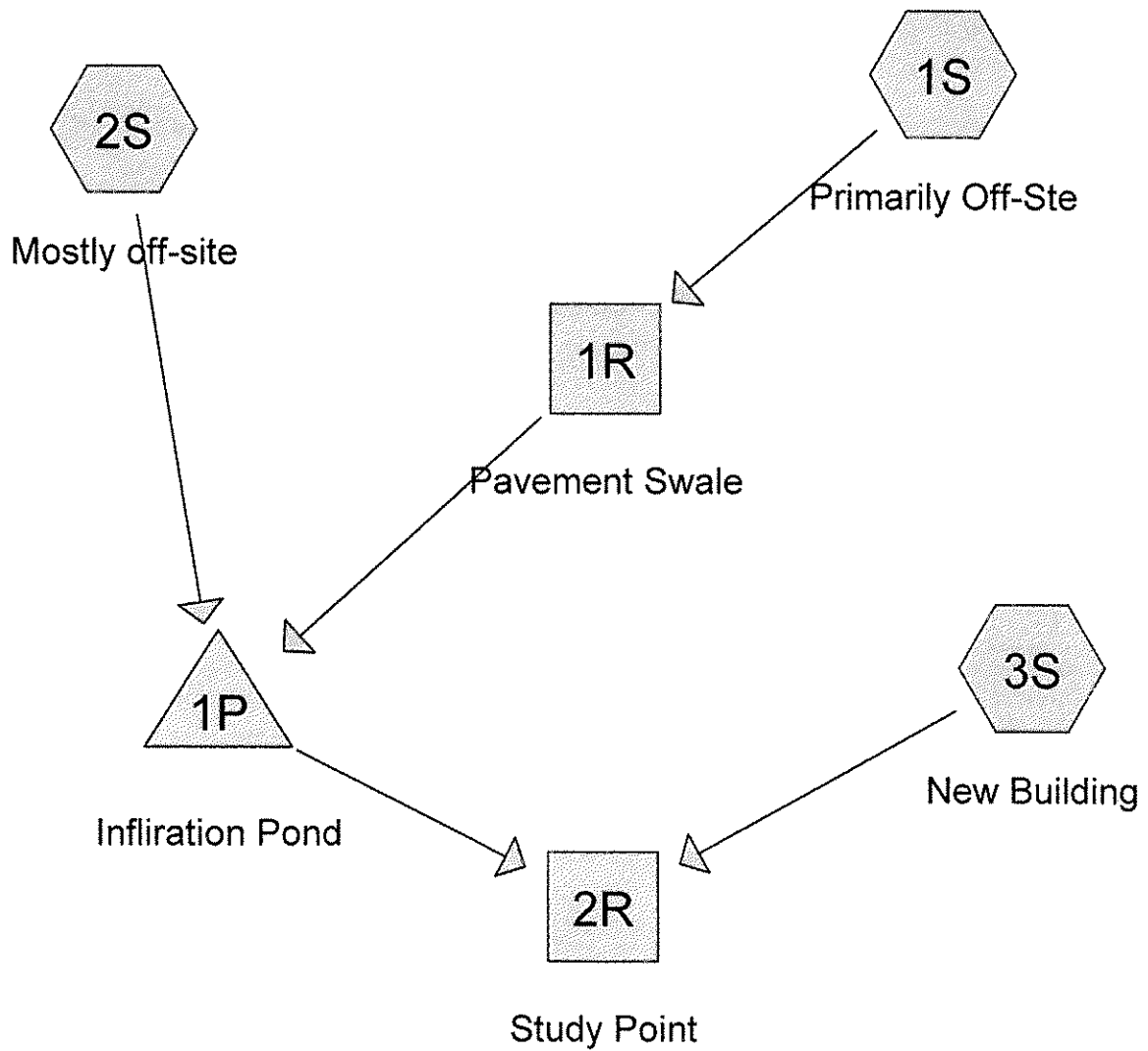
Reach 2R: Study Point

Inflow Area = 0.371 ac, Inflow Depth > 2.84" for 25yr event

Inflow = 1.33 cfs @ 12.08 hrs, Volume= 0.088 af

Outflow = 1.33 cfs @ 12.08 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

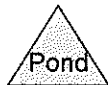
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat



Reach



Pond



Link

Drainage Diagram for 14073-Post-Development Watershed
Prepared by {enter your company name here} 4/1/2014
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14073-Post-Development Watershed

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Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
0.022	39	>75% Grass cover, Good, HSG A (3S)
0.282	77	1/8 acre lots, 65% imp, HSG A (1S,2S)
0.067	98	Paved parking & roofs (3S)
0.371		

14073-Post-Development Watershed

Type III 24-hr 2yr Rainfall=3.00"

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Subcatchment 1S: Primarily Off-Ste

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.013 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		Pervious Area
4,358		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Mostly off-site

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.010 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
5,590	77	1/8 acre lots, 65% imp, HSG A
1,957		Pervious Area
3,634		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: New Building

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af, Depth> 1.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
2,900	98	Paved parking & roofs
945	39	>75% Grass cover, Good, HSG A
3,845	83	Weighted Average
945		Pervious Area
2,900		Impervious Area

14073-Post-Development Watershed

Type III 24-hr 2yr Rainfall=3.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

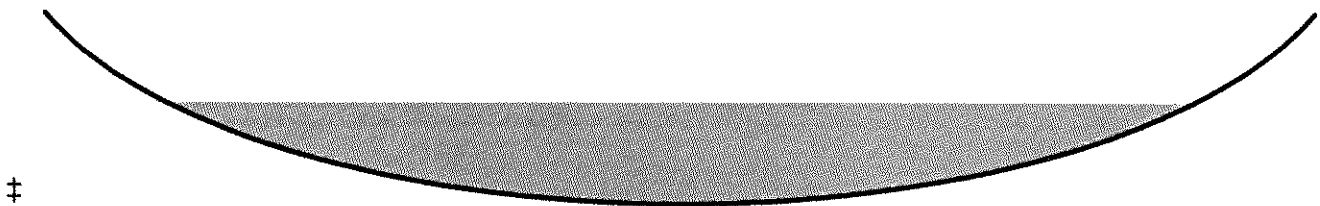
Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, Inflow Depth > 0.98" for 2yr event
 Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.013 af
 Outflow = 0.19 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 3%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.23 fps, Min. Travel Time= 0.9 min
 Avg. Velocity= 0.50 fps, Avg. Travel Time= 2.2 min

Peak Storage= 10 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.05'
 Bank-Full Depth= 0.10', Capacity at Bank-Full= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
 Length= 65.0' Slope= 0.0100 '/
 Inlet Invert= 0.00', Outlet Invert= -0.65'

**Reach 2R: Study Point**

Inflow Area = 0.371 ac, Inflow Depth > 0.55" for 2yr event
 Inflow = 0.24 cfs @ 12.24 hrs, Volume= 0.017 af
 Outflow = 0.24 cfs @ 12.24 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Pond 1P: Infiltration Pond

Inflow Area = 0.282 ac, Inflow Depth > 0.98" for 2yr event
 Inflow = 0.34 cfs @ 12.10 hrs, Volume= 0.023 af
 Outflow = 0.19 cfs @ 12.25 hrs, Volume= 0.019 af, Atten= 46%, Lag= 9.4 min
 Discarded = 0.02 cfs @ 12.25 hrs, Volume= 0.012 af
 Primary = 0.17 cfs @ 12.25 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs / 4
 Peak Elev= 84.57' @ 12.25 hrs Surf.Area= 325 sf Storage= 295 cf

Plug-Flow detention time= 114.1 min calculated for 0.019 af (81% of inflow)
 Center-of-Mass det. time= 62.2 min (876.2 - 814.0)

14073-Post-Development Watershed

Type III 24-hr 2yr Rainfall=3.00"

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Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	453 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	60	0	0
84.00	220	140	140
85.00	405	313	453

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	2.400 in/hr Exfiltration over Surface area
#2	Primary	84.50'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 12.25 hrs HW=84.57' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.17 cfs @ 12.25 hrs HW=84.57' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 0.17 cfs @ 0.62 fps)

14073-Post-Development Watershed

Type III 24-hr 10yr Rainfall=4.70"

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Subcatchment 1S: Primarily Off-Ste

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.028 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.70"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		Pervious Area
4,358		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Mostly off-site

Runoff = 0.37 cfs @ 12.08 hrs, Volume= 0.024 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.70"

Area (sf)	CN	Description
5,590	77	1/8 acre lots, 65% imp, HSG A
1,957		Pervious Area
3,634		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: New Building

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.70"

Area (sf)	CN	Description
2,900	98	Paved parking & roofs
945	39	>75% Grass cover, Good, HSG A
3,845	83	Weighted Average
945		Pervious Area
2,900		Impervious Area

14073-Post-Development Watershed

Type III 24-hr 10yr Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

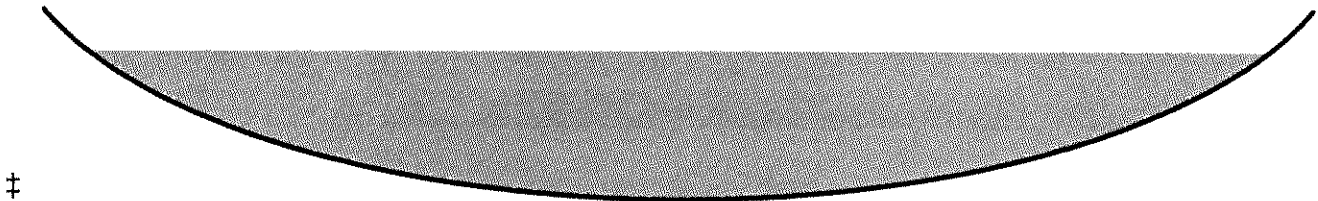
Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, Inflow Depth > 2.21" for 10yr event
 Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.028 af
 Outflow = 0.43 cfs @ 12.10 hrs, Volume= 0.028 af, Atten= 3%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.59 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 0.59 fps, Avg. Travel Time= 1.8 min

Peak Storage= 18 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.08'
 Bank-Full Depth= 0.10', Capacity at Bank-Full= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
 Length= 65.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.65'

**Reach 2R: Study Point**

Inflow Area = 0.371 ac, Inflow Depth > 1.70" for 10yr event
 Inflow = 1.04 cfs @ 12.10 hrs, Volume= 0.052 af
 Outflow = 1.04 cfs @ 12.10 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Pond 1P: Infiltration Pond

Inflow Area = 0.282 ac, Inflow Depth > 2.20" for 10yr event
 Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.052 af
 Outflow = 0.77 cfs @ 12.11 hrs, Volume= 0.046 af, Atten= 3%, Lag= 1.0 min
 Discarded = 0.02 cfs @ 12.11 hrs, Volume= 0.013 af
 Primary = 0.75 cfs @ 12.11 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs / 4
 Peak Elev= 84.68' @ 12.11 hrs Surf.Area= 346 sf Storage= 334 cf

Plug-Flow detention time= 55.0 min calculated for 0.046 af (88% of inflow)
 Center-of-Mass det. time= 18.6 min (814.3 - 795.7)

14073-Post-Development Watershed

Type III 24-hr 10yr Rainfall=4.70"

Prepared by {enter your company name here}

Page 8

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4/1/2014

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	453 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	60	0	0
84.00	220	140	140
85.00	405	313	453

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	2.400 in/hr Exfiltration over Surface area
#2	Primary	84.50'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 12.11 hrs HW=84.68' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.74 cfs @ 12.11 hrs HW=84.68' (Free Discharge)↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.74 cfs @ 1.02 fps)

14073-Post-Development Watershed

Type III 24-hr 25yr Rainfall=5.50"

Prepared by {enter your company name here}

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4/1/2014

Subcatchment 1S: Primarily Off-Ste

Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.036 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.50"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		Pervious Area
4,358		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Mostly off-site

Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.50"

Area (sf)	CN	Description
5,590	77	1/8 acre lots, 65% imp, HSG A
1,957		Pervious Area
3,634		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: New Building

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 0.025 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.50"

Area (sf)	CN	Description
2,900	98	Paved parking & roofs
945	39	>75% Grass cover, Good, HSG A
3,845	83	Weighted Average
945		Pervious Area
2,900		Impervious Area

14073-Post-Development Watershed

Type III 24-hr 25yr Rainfall=5.50"

Prepared by {enter your company name here}

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4/1/2014

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

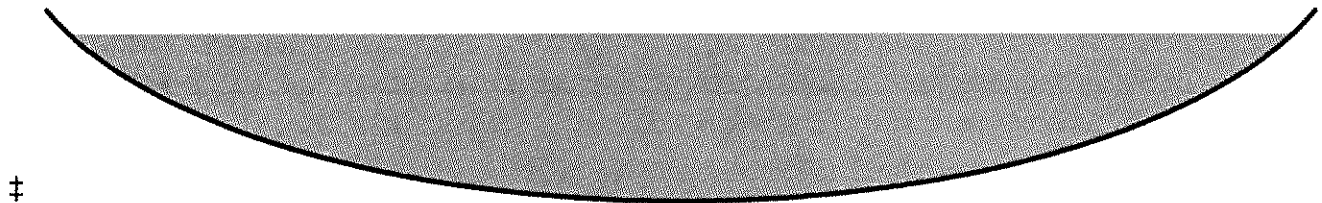
Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, Inflow Depth > 2.84" for 25yr event
 Inflow = 0.57 cfs @ 12.08 hrs, Volume= 0.036 af
 Outflow = 0.55 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.72 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 0.62 fps, Avg. Travel Time= 1.7 min

Peak Storage= 21 cf @ 12.08 hrs, Average Depth at Peak Storage= 0.09'
 Bank-Full Depth= 0.10', Capacity at Bank-Full= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
 Length= 65.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.65'

**Reach 2R: Study Point**

Inflow Area = 0.371 ac, Inflow Depth > 2.32" for 25yr event
 Inflow = 1.34 cfs @ 12.09 hrs, Volume= 0.072 af
 Outflow = 1.34 cfs @ 12.09 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Pond 1P: Infiltration Pond

Inflow Area = 0.282 ac, Inflow Depth > 2.84" for 25yr event
 Inflow = 1.02 cfs @ 12.09 hrs, Volume= 0.067 af
 Outflow = 0.99 cfs @ 12.10 hrs, Volume= 0.061 af, Atten= 3%, Lag= 0.9 min
 Discarded = 0.02 cfs @ 12.10 hrs, Volume= 0.014 af
 Primary = 0.97 cfs @ 12.10 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs / 4
 Peak Elev= 84.72' @ 12.10 hrs Surf.Area= 353 sf Storage= 345 cf

Plug-Flow detention time= 45.2 min calculated for 0.060 af (90% of inflow)
 Center-of-Mass det. time= 14.6 min (804.5 - 789.9)

14073-Post-Development Watershed

Type III 24-hr 25yr Rainfall=5.50"

Prepared by {enter your company name here}

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4/1/2014

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	453 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	60	0	0
84.00	220	140	140
85.00	405	313	453

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	2.400 in/hr Exfiltration over Surface area
#2	Primary	84.50'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir
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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.02 cfs @ 12.10 hrs HW=84.72' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.96 cfs @ 12.10 hrs HW=84.72' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 0.96 cfs @ 1.11 fps)

Attachment B

Inspection and Maintenance

General Maintenance Criteria Infiltration Basin

Preventive maintenance is vital for the long-term effectiveness of an infiltration system.

1. Fertilization: Fertilization of the area over the infiltration bed should be avoided unless absolutely necessary to establish vegetation.

2. Snow Storage Prohibited: Snow removed from any on-site or off-site areas may not be stored over an infiltration area

3. Mowing: A basin with a turf lining should have its side-slopes and floor mowed at least twice a year to prevent woody growth. Mowing operations may be difficult since the basin floor may remain wet for extended periods. If a low maintenance vegetation is used, basin mowing can be performed in the normally dry months. Clippings should be removed to minimize the amount of organic material accumulating in the basin.

4. Monitoring and Inspections: Inspect the infiltration system several times in the first year of operation and at least annually thereafter. Conduct the inspections after large storms to check for surface ponding at the inlet that may indicate clogging. Water levels in the observation well should be recorded over several days after the storm to ensure that the system drains within 72 hours after filling.

4. Sediment Removal and Maintenance of System Performance: Sediment must be removed from the system at least annually to prevent deterioration of system performance. The pre-treatment inlets should be checked periodically and cleaned out when accumulated sediment occupies more than 10% of available capacity. The system must be rehabilitated or replaced if its performance is degraded to the point that applicable stormwater standards are not met.

Attachment C

Treatment Calculations

Determination of Water Quality Volume Calculations											
Calculation of Minimum Required Water Quality Volume for Treatment											
Maine DEP Stormwater regulations require the treatment of 95% of impervious area, and 80% developed area.											
so;											
Proposed Impervious 4,110sf											
Existing impervious incl. Demolish Home & gravel drives 1,830sf											
95% treatment of Impervious = $(4,110 \text{ s.f.} - 1,830 \text{ sf}) \times 95\% = 2,166 \text{ s.f.}$											
80% treatment of developed area = 0s.f. No change the site is 100% developed											
Additional areas outside of pavement will revert back to natural conditions and are not considered landscape/developed area											
Based on the calculations above, treatment would be required on 2,166 sf of impervious area. Since											
impervious loading areas and driveways are a more intense use, the treatment portion of the proposed developed will be collected											
from mainly the loading areas /drives. Therefore, calculations have been completed to determine the required water quality											
volume required for treatment.											
Proposed Treatment Volume											
Area to drain to proposed treatment Infiltration Basin = 2,166 s.f. impervious (drives/parking), and 0 landscaped area											
2,166 s.f. x 1" = 180 c.f. water quality volume required											
297c.f. provided Infiltration Basin,											

Attachment D

Soil Map



Memorandum

14073

To: Timothy Lock, RA
From: Steve Groves
Date: May 19, 2014
Subject: Cumberland Ave Peer Review

In response to Woodard & Curran stormwater review comment dated 5-5-14 of the Preliminary Level III Site Plan Application for the proposed multi-family building located at 97 Cumberland Ave, we offer the following responses in the order in which they were received.

Comments;

- 1) The application is preliminary. As such, we anticipate that additional documents will be submitted with the final application, including confirmation of capacity to serve the development from utilities and a Construction Management Plan. Woodard & Curran will perform a review of the Final Application upon receipt of those documents.

We have submitted a service letter from Portland Water District and waiting on the City for the sewer capacity letter.

- 2) The Applicant should clarify whether the project will result in an increase of approximately 2,900 square feet of impervious area, as stated in the application form and the text of the stormwater management plan, or approximately 2,300 square feet as noted in the treatment calculations.

The increase in new impervious surface is 2,300 square feet as noted in the treatment calculations.

- 3) 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 Standards: 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 general accordance with Appendix A, B, & C of MaineDEP Chapter 500. In addition to the notes and details provided in the application, the plan should include a location for the stabilized construction entrance and a note stating that the street Right-of-Way shall be kept clean from dust, tracked soil/mud, and construction debris and swept as necessary or as requested by the City of Portland to minimize dust and sediment originating from the site.
- b) General Standards: The project will result in an increase in impervious area of approximately 2,300 square feet (Applicant to confirm). As such, the project is required to include stormwater management features for stormwater quality control. The Applicant has proposed to treat stormwater runoff via an infiltration basin at the rear of the property. The proposed approach provides an acceptable means of meeting the General Standards, pending response to the remaining comments contained herein.
- c) Flooding Standards: The project will result in an increase in impervious area of approximately 2,300 square feet (Applicant to confirm). As such, the project is required to include stormwater management features to control the rate of stormwater runoff from the site. The Applicant has proposed to manage the rate of stormwater runoff via an infiltration basin at the rear of the property. The proposed approach provides an acceptable means of meeting the Flooding Standard, pending response to the remaining comments contained herein.

We will indicate the location for the stabilized construction entrance and a note stating that the street Right-of-Way shall be kept clean from dust, tracked soil/mud, and construction debris and swept as necessary or as requested by the City of Portland

- 4) The stormwater inspection and maintenance plan for the proposed stormwater management system should reference the annual inspection and reporting requirements contained in Chapter 32 of the City of Portland Code of Ordinances, and should include an inspection checklist developed for the stormwater system(s) including a maintenance schedule and inspection criteria.

We provide a stormwater inspection and maintenance plan with annual inspection and reporting requirements.

- 5) The proposed infiltration basin is located partially within the footprint of the former house structure. Has the building foundation been fully demolished and removed. What are the drainage characteristics of the fill materials that have or will be utilized in this area? Has the Applicant performed a test pit or boring to evaluate the soil characteristics or infiltration capacity? How deep is bedrock at this location?

The Cumberland County Soil Map indicates Hinckley gravelly sandy loam having Hydrologic Group A. At the time of this report the infiltration basin was cover with ice. We now can dig a test pit to confirm the underlying soils.

- 6) The Applicant proposes a rip-rap spillway to manage overflow from the proposed infiltration basin. Overflow from this spillway will drain west, below a stockade fence, across a fenced dumpster area on the 7-Eleven property, and across the 7-Eleven parking lot to the Washington Avenue drainage collection system. The applicant notes that this route is similar to the pre-development drainage pattern (existing condition); however, a review of the HydroCAD model indicates that more area will be directed to this location in the post-development condition, and although the infiltration basin will provide minor detention, the model predicts an increase in runoff rate at this location (from the spillway) in the post- development 10- and 25-year storm events. The drainage design should be revisited to eliminate directing overflow onto the neighboring property, unless the Applicant obtains drainage easements from N/F Ginn Portland LLC and modifies the adjacent fence and dumpster/parking area to accommodate drainage from the site. The Applicant should propose an alternative means of managing overflows from the infiltration basin.

The increase in flow is 0.01cfs which is insignificant and within the accuracy limitations of the model. There is no public storm drain system available adjacent to this site that we can connect into. There are no viable options except overland flow. And furthermore historically this property was developed prior to 7-Eleven, and it is our belief that the developer of 7-Eleven took into account the offsite drainage at that time. It would appear that the old house roof drained directly onto the neighboring property.

- 7) How will roof drainage be managed from the proposed building?

There are no gutters proposed for the main roof. Roof runoff will fall to a stone drip edge around the building. The rear roof scupper will be directed to the infiltration pond.

- 8) The existing site includes a utility pole that provides overhead service (presumably both electrical and telecommunications) to buildings on three adjacent properties. The plan calls for eliminating this pole and the associated existing overhead services; however, it does not address how new services will be provided to all adjacent properties, specifically the 7-Eleven store.

The owner is working with CMP and 7-Eleven for a new service connection

- 9) The Grading and Utility Plan (Sheet 3 of 5) proposes grading well onto the lot that is N/F Kristine McCarthy (93-95 Cumberland); however, no finish surface is specified and it is unclear if the Applicant has rights to perform this work.

We are working with the abutters on temporary grading easements. The adjacent land at 93-95 Cumberland is used for parking and most likely be a crush gravel surface.

From: Timothy Lock <tim@gologic.us>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/12/2014 11:22 AM
Subject: Re: 97 Cumberland Avenue - level III Site Plan and Subdivision Review
Attachments: 14-0512_A606 CorTen_Raw and Oxidized.JPG; 14-0512_Rustwall Panel.JPG

Jean,

Distressing/oxidizing takes approximately 1-2 months in a costal climate. It would certainly be distressed before the project is complete.

The decision to use this finish/material was two-fold. As you know, we use super-insulated walls in all of our projects, so, the challenge is to have a finish light enough to be supported over 12" of rigid insulation on the building exterior. A metal panel works great for this since it is very light and cost effective (we also considered stucco as an option but there are other metal paneled buildings in the neighborhood and zero stucco buildings). Then, we chose the CorTen metal panel because it helped match the color and color variation of the brick buildings along Washington Ave. where this site is prominently visible due to the elevation above the 7-eleven.

This is the product we are proposing:

http://www.cortenroofing.com/rustwall-trade-panel_8_1160_30805.html (the pictures at the bottom have several images of the panels installed).

Also, I've attached a couple of images - the first is two A606-4 "Cor-Ten" Steel samples, one raw, the other fully oxidized. The second image is of a sample the Rust-Wall panel about two weeks into the oxidation process (same material, just pre-formed to the panel profile). After two months it will be fairly consistently the same color as the bottom sample in the first image.

A606-4 "Cor-Ten" steel is very simply a different steel alloy to standard structural carbon steel which promotes the natural development of consistent oxidation (rust) forming a protective, weatherproof film on the metal's surface which resists the corrosive effects of rain, snow, etc. negating the need for highly toxic paints and long term maintenance of said paints.

Thanks - and let me know if you need more info.

Timothy Lock, RA
Project Architect · GO Logic LLC
Belfast, Maine · 207.338.1566 x250
gologic.us

On May 12, 2014, at 10:43 AM, Jean Fraser <JF@portlandmaine.gov> wrote:

> Tim
>
> Sounds good.
>
> How long does it take to get "distressed"?
>
> May be you could explain that choice of cladding as I wouldn't have thought the rusting contributes to its thermal characteristics!!!
>
> thanks
> Jean





Jean Fraser - Re: 97 Cumberland Ave. - Stormwater/Traffic Memo

Att. J

From: Timothy Lock <tim@gologic.us>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/21/2014 1:13 PM
Subject: Re: 97 Cumberland Ave. - Stormwater/Traffic Memo
CC: Gunther Kragler <gunther@gologic.us>

Jean,

This is the screening product: <http://www.greenscreen.com/home.html> It is panelized and would have intermittent steel posts. Please see the attached images of an install i did several years ago on a townhouse in New York City. The first image is from the street, you can see the screen rising above the roof cornice - at this point, the climbing vines had just been planted and were beginning to grow up the screen (about one month after planting at this point). the second image (from the roof) was taken the following autumn, about two months later, and show the vines having climbed higher up the screen.

Thanks!





Timothy Lock, RA
Project Architect □ GO Logic LLC
Belfast, Maine □ 207.338.1566 x250
gologic.us

On May 20, 2014, at 9:54 AM, Jean Fraser <JF@portlandmaine.gov> wrote:

Tim

Thank you for this additional information.

Our urban designer has 2 more questions regarding the design:

- 1) What is the material being used for the screen/rail?
- 2) It appears that a pedestrian enters the site through the drive way, is this the case?

Sorry that in lieu of a meeting there may be a few more questions.

Thank you
Jean

*Jean Fraser, Planner
City of Portland
874 8728*

>>> Timothy Lock <tim@gologic.us> 5/19/2014 2:48 PM >>>

From: <Pikefamily@aol.com>
To: <bab@portlandmaine.gov>
Date: Monday, April 14, 2014 1:39 PM
Subject: 97 Cumberland Avenue

April 14, 2014

City of Portland, Maine
Planning and Urban Development Department
Planning Division, 4th Floor
389 Congress St
Portland, ME. 04101

RE: 97 Cumberland Avenue

Dear Sir / Madam,

I am writing to you today to inform you of a violation of the time frame guidelines outlined in the 4 page City of Portland handbook "A Guide to Holding Neighborhood Meetings". The 10 day rule of mailing of notices has not been honored by the owners of 97 Cumberland Avenue, Portland, ME.

My husband, James Pike, and I are owners of two properties within 500 feet of 97 Cumberland Avenue. We have owned 93 Cumberland Avenue and 4 Romasco Lane for nearly 18 years. The limited notice time given by the owners of 97 Cumberland Avenue have significantly hampered our ability to seek legal counsel in regard to this proposed change in the site use which greatly affects us and our properties.

Page 2 of the handbook clearly states that the "Invitations must be sent no less than 10 days (to include weekends) prior to the neighborhood meeting." I am in receipt of a letter postmarked April 7, 2014 containing an invitation to a meeting scheduled today, April 14, 2014.

It is my understanding that the postmark of April 7, 2014, shall void the applicants signed certification sheet stating that the invitations were mailed "at least 10 days prior to the neighborhood meeting".

I shall deliver this afternoon in person to the City of Portland Planning Division a copy of the invitation stamped April 7, 2014.

Feel free to contact me if I can be of service.

Thank you.

Sincerely,

Carol S. Pike
mailing address: 39 Alba St.
Portland, ME. 04103
home phone (207) 775-0214
cell (207) 233-0238

From: <Pikefamily@aol.com>
To: <jf@portlandmaine.gov>
Date: 5/22/2014 4:34 AM
Subject: Proposed building at 97 Cumberland Ave, Portland

May 21, 2014

Ms. Jean Fraser, Planner
Planning Division
City Hall
Portland, ME.

Dear Ms. Fraser,

Thank you very much for allowing me to look over plans and sketches today for the proposed construction at 97 Cumberland Ave. I have several serious concerns that I would like to bring up in regard to the proposal.

1. The proposed plan involves an extensive expansion of a right of way granted by deed to the subject property over my land at 93 Cumberland Ave. The subject property was granted rights in 1946 to "pass over, along, and upon" the side of my lot to provide easy access a small single family residential home located at the rear of what was then all part of 93 Cumberland Ave. The subdivision plan is recorded in the CCRD in Plan Book 32, Page 28, and includes detailed measurements of both the footprints of the existing buildings as well as the conveyed area of land over which the right to pass is granted. This is the same plan which is referenced in the subject property current deed, as well as my own deed.

In the state of Maine, very specific laws govern the creation and the use of right of ways. The property receiving the right of way over another's land does not own the land, and in fact may not use the land for any purpose other than it's originally deeded intent. The deeded right of way is a mere privilege to cross the land in a very particular manner. The Maine Supreme Court has repeatedly upheld this definition. The original intent of this right of way was to provide an easy pathway to the little single family house at the back of the lot without the necessity of doing any elevation work to the front of the lot on the Cumberland Ave side. The current proposal is to change this deeded privilege to cross my land into a commercial development application of providing sole access for 2 separate buildings (per submitted diagrams) with a total of 5 apartments, with foot traffic from the sidewalk over my land, vehicle traffic for more than 5 cars, an accessory parking garage under the north structure, and additional parking behind the building. The plan as it is drawn does not even allow enough space left on my own land for me to park my vehicle alongside my building or near my basement door, and negates the ability of my tenants to park on my land. Mr. Dugas and Mrs. Antonacos were made aware of this legal problem with their current proposal during our brief meeting together on April 14, 2014. To date, they have made no effort to address this issue with us and they have not responded to a letter from our attorney which underscored the same concern.

2. In addition to this proposed illegal change of use in the right of way, the submitted plans to create elevation changes to the right of way across my land are of very great concern. My building at 93 Cumberland Avenue

was built into the side of the hill over 100 years ago. The right of way runs along the downhill foundation side of my building. The currently proposed changes include the creation of a new retaining wall in the 14' wide right of way approximately 2 feet away from the foundation of my building and running the entire length of my building. The proposed plan is to raise the site elevation so much that it even requires the architect to call on the plan for alterations to be done to my building, including the "adjustment for downspout (on my building) to drain through new wall to pavement", as well as to "reset (the) existing concrete steps (to my basement) to grade".

This proposal appears to leave me with a 2 foot wide ditch along the foundation of my building, which the plan offers to "loam and seed". The proposed paved width is 12', taking up the entire remainder of the right of way. Snow plowed along this newly paved way would quickly fill the ditch along my foundation and pile snow up against my basement windows, most likely flooding my basement. Rain water runoff from the newly created elevated pavement could easily do the same. My building has basement windows which would now be put partially underground in a gully in this proposal. My basement steps have always run in the upward direction, not the downward direction.

3. On a different note, while my husband James and I applaud the energy efficiency and modern technology choices of the proposed structure at 97 Cumberland Ave., we do not applaud the industrial theme of the structural design. It is disappointing to us to see new construction in one of the oldest neighborhoods in Portland being modeled after renovated factory buildings. Additionally, the renderings of the proposed building show a very solid wall with few windows on the north side which faces our building at 93 Cumberland Ave. The lack of windows combined with the untraditional choice of siding leaves an impression that, in our opinion, is unfriendly, at best. Munjoy Hill has many beautiful old homes that recall the proud historical past of Portland. We own three buildings near 97 Cumberland Ave that we intend to keep as historically correct as possible, paying homage to the history of Portland, Maine. We are sorry to see that this proposal does not honor the history of Munjoy Hill as one of the first residential areas of our beautiful city.

In closing, I would like to thank you again, Ms. Fraser, for your time and consideration. My husband and I look forward to seeing you at the workshop on May 27, 2014.

Sincerely,

Carol S. Pike



Please respond to our Bath office

- James A. Hopkinson
- Richard J. Abbondanza
- Caitlin Fullerton DiMillo
- Gerald B. Schofield, Jr.

A TRUE COPY

May 14, 2014

Peter C. Dugas
Anastasia Antonacos
243 State Street
Portland, Maine 04101

VIA MAIL

Re: 97 Cumberland Avenue, Portland, Maine ("Lot 3")

Dear Mr. Dugas and Mrs. Antonacos:

Our office represents James and Carol Pike with respect to their property located at 93 Cumberland Avenue, Portland, Maine. The Pike's own their property by virtue of a deed dated July 31, 2009 and recorded in the Cumberland County Registry of Deeds ("CCRD") in Book 27152, Page 57¹. Their property consists of a three-unit home, and is subject to a right-of-way ("ROW") over the westerly portion of their property.

You own your property located at 97 Cumberland Avenue, Portland, Maine by virtue of a deed dated March 12, 2013 and recorded in the CCRD in Book 30478, Page 113. Your property used to consist of land plus a one-unit home, but, according to my knowledge, is now just land. Additionally, your property was conveyed to you with certain rights over the ROW existing on the Pikes' property. More particularly, your property was conveyed to you (and to your predecessors in title) "[t]ogether with a right of way over, along and upon said lot numbered one (1) as shown on said plot plan², easterly of and adjacent to the premises herein described." The ROW was originally crafted to provide the owners of Lots 2 and 3 access to their properties. At the time of creation, these lots were residential, consisting of one-unit homes. This is clear on the Plan. Your property has its own road frontage on Cumberland Avenue.

It is our understanding that you wish to create a five-unit building ("Building") on your property, and, additionally, plan to provide access to the occupants, guests, and invitees of that Building by virtue of the ROW existing over my client's property. It is unclear to me what other acts or actions you may plan to take with respect to your property, the Building, and the ROW. To the

¹ This property was formerly held only in Carol Pike's name by virtue of a deed dated July 10, 1996 and recorded in the CCRD in Book 12557, Page 204.

² The "plot plan" (hereinafter referred to as the "Plan") is the "Plot Plan Showing Property of Walter A. Gerry at 93 and 97 Cumberland Avenue, Portland, Maine, as drawn by Varney Engineering Company, North Windham, Maine, Dated October 8, 1946" and recorded in the CCRD in Plan Book 32, Page 28. Said Plan refers to the Pikes' lot as Lot 1, your lot as Lot 3, and the third, back lot, as Lot 2 (which also consists of a one-unit home).

extent you plan to provide access to the Building by virtue of your own privately-created driveway off of Cumberland Avenue, kindly advise me of the same.

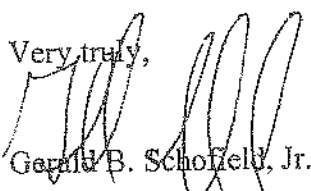
Your ROW over the Pikes' property is not an ownership interest in their land, but, rather, a mere privilege to use their land in a very particular manner. The ROW, by its very nature, involves limited rights to enjoy someone else's property. Your rights in and to the Pikes' property are limited to those rights incidental or necessary to the proper enjoyment of the ROW. The extent and nature of your deeded ROW is determined by the construction of the deeds, and the past use and acts with respect to the ROW. At the time that this ROW was created, Lots 2 and 3 had one-unit homes on them. Your creation of a five-unit Building on your property, to the extent you plan for the inhabitants of the Building to access the Building by virtue of the ROW, will change the very nature of your use of the ROW from residential to commercial. This is use that was not contemplated, nor intended, at the time the ROW was created and deeded.

This letter shall serve as formal notice that the Pikes will consider use of the ROW by the inhabitants, guests, and invitees of the Building to be an overburdening of the ROW, and, as such, a trespass upon their property. If you would like to create a five-unit Building upon your property, that is your prerogative. However, you should arrange for your own driveway access to your property that is not over the ROW. Additionally, you have also told the Pikes' that you are going to pave the ROW. This act will also be considered an overburdening of the ROW, and an unlawful expansion of your rights. To the extent you use the ROW in such an increased capacity, the Pikes' will consider any and all legal and equitable remedies that may be available to them, including, but not limited to, a civil action for trespass and any ensuing damages therefrom. Please refrain from taking any additional action with respect to the ROW until we have had an opportunity to discuss these matters with you and/or your legal counsel.

Finally, the Pike's never received proper notice of the April 14, 2014 neighborhood meeting. The City of Portland Planning and Urban Development Department has been made aware of such failure. It is our hope to resolve this matter amicably now, before any potential issue with respect to the ROW arises after the construction of the proposed Building. Please feel free to contact me at your leisure to let me know your intent with respect to use over and upon the ROW. To the extent that you are represented by counsel, please let me know such that I may contact him or her directly.

Thank you for your anticipated attention and cooperation.

Very truly,


Gerald B. Schofield, Jr., Esq.

Cc: James and Carol Pike

PLAN REFERENCES

1. PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR SHELL OIL COMPANY DATED OCTOBER 2, 1978 BY H.J. & E.C. JORDAN SURVEYORS.
2. PLOT PLAN SHOWING PROPERTY OF WALTER A. GERRY AT 93 & 97 CUMBERLAND AVENUE, PORTLAND, MAINE DATED OCTOBER 8, 1946 BY VARNEY ENGINEERING CO. RECORDED IN C.C.R.D. PLAN BOOK 32 PAGE 28.
3. BOUNDARY AND TOPOGRAPHIC SURVEY ON 43 & 45 CUMBERLAND AVENUE, PORTLAND, MAINE MADE FOR OWNER OF RECORD STEPHANIE DUNN DATED JULY 7, 2009 BY OWEN HASKELL, INC.
4. PLAN AND PROFILE OF WASHINGTON AVE AND CUMBERLAND AVE, PORTLAND MAINE FOR THE CITY OF PORTLAND DATED JULY 2000 BY OWEN HASKELL, INC.
5. CITY OF PORTLAND - CUMBERLAND AVENUE, SHEET NO. 1
6. PLAN OF PROPERTY MADE FOR A & M PARTNERS, LLC REV. 5 06/29#11 TITCOMB ASSOCIATES RECORDED IN PLAN BOOK 211 PAGE 211.
7. CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS, CUMBERLAND AVENUE SEWER WASHINGTON AVE. TO NORTH ST. DATED AUG. 21,1953 CITY FILE NO. 649/13

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 SURVEY 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 THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-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.

LEGEND

- o CAPPED IRON ROD SET
- IRON PIPE OR ROD FOUND
- UTILITY POLE
- ⊙ SIGN
- ⊙ DECIDUOUS TREE
- ⊙ FENCE
- ⊙ CURB
- OHW— OVERHEAD WIRES
- W— WATER LINE
- G— GAS LINE

GRAPHIC SCALE



NOTES

1. OWNERS OF RECORD: PETER C. DUGAS AND ANASTASIA ANTONACOS, 243 STATE STREET, PORTLAND, MAINE, C.C.R.D. BOOK 30478 PAGE 113.
2. PARCEL IS SHOWN AS LOT 25 BLOCK C ON CITY OF PORTLAND'S ASSESSORS MAP 13.
3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES NAD83. CITY CONTROL POINTS T112-29-30 & T112-28-126 USED.
4. ELEVATIONS BASED ON CITY DATUM. BENCHMARK: STREET SIDE BONNET BOLT ON HYDRANT AT THE SOUTHWEST CORNER OF CUMBERLAND AVE AND WASHINGTON AVE ELEVATION 81.26. (SEE PLAN REFERENCE 4)
5. THE MONUMENT AT THE CORNER OF WASHINGTON AND CUMBERLAND AVENUES, AS SHOWN ON PLAN REF. 1 IS GONE. IT'S LOCATION WAS REESTABLISHED BASED ON THE IRON PIPE FOUND AND THE MONUMENT AT OXFORD AND WASHINGTON AS SHOWN ON PLAN REF. 1. THE LINE ALONG THE EASTERLY SIDE OF GINN PORTLAND, LLC WAS HELD AS PER PLAN REF. 1 AS IT MATCHES THE DIMENSIONS IN DEED BOOK 1831 PAGE 423.
6. THE REAR LINE WAS HELD PERPENDICULAR TO WASHINGTON AVENUE, AS THE BACK DEEDS FOR THE LOTS TO THE NORTH CALL FOR THAT.
7. THE REAR LINE DISTANCE AND THE ANGLE OFF CUMBERLAND AVENUE ON THE EAST LINE WERE HELD AS IN THE LOCUS DEED BOOK 1831 PAGE 423.
8. THE 1946 PLAN WHICH DIVIDED THIS LOT AND THE TWO LOTS TO THE EAST IS RIDDLED WITH ERRORS AND APPEARS TO NOT HAVE BEEN BASED ON A FIELD SURVEY OR DEED RESEARCH. THE FRONT AND BACK DIMENSIONS WERE PRORATED.
9. PLAN REFERENCE 4 SHOWS NO MARKERS FOUND OR SET AND CAN NOT BE RE-CREATED.
10. NO STORM DRAIN FOUND IN CUMBERLAND AVE IN VICINITY OF SITE. NEAREST CB FOUND ON NE CORNER OF WASHINGTON AND CUMBERLAND AVE.
11. NO SERVICE CARDS AVAILABLE FOR GAS OR SEWER.
12. THE PROPERTY IS LOCATED IN CITY OF PORTLAND RESIDENTIAL ZONE R6.
MINIMUM LOT SIZE: 4,500 SF
LOT FRONTAGE: 40 FEET
FRONT SETBACK: 10 FEET
SIDE SETBACK: 10 FEET
REAR SETBACK: 20 FEET

CERTIFICATE

OWEN HASKELL, INC. 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.

DATE

JOHN W. SWAN, PLS NO. 1038

REV.1 2/27/14 ADD UTILITY INFORMATION

BOUNDARY & TOPOGRAPHIC SURVEY
AT
97 CUMBERLAND AVENUE, PORTLAND, MAINE
MADE FOR
PETER DUGAS
97 CUMBERLAND AVENUE, PORTLAND, MAINE



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 9, 2013	2013-108P
Check By	JWS	Scale	Drwg. No.
Book No.	FILE	1" = 10'	1

SITE PLAN LEGEND

	EXISTING BUILDING
	CONCRETE WALL
	GRAVEL
	PROPERTY LINE
	SETBACK
	EASEMENT
	SUBSURFACE DRAINAGE
	WATER SUPPLY
	ELECTRICAL SUPPLY
	TEL/DAT (COAXIAL CABLE)
	CABLE TV
	SANITARY SEWER
	FENCE
	NEW SITE CONTOUR
	EXISTING SITE CONTOUR

PROJECT DATA:

TOTAL AREA OF SITE	5,550 SQ. FT.
PROPOSED TOTAL DISTURBED AREA OF THE SITE	2,914 SQ. FT.

IMPERVIOUS SURFACE AREA

IMPERVIOUS AREA (TOTAL EXISTING)	500 SQ. FT.
IMPERVIOUS AREA (TOTAL PROPOSED)	2,914 SQ. FT.

BUILDING GROUND FLOOR AREA AND TOTAL FLOOR AREA

BUILDING FOOTPRINT (TOTAL EXISINTG)	N/A
BUILDING FOOTPRINT (TOTAL PROPOSED)	1,790 SQ. FT.
BUILDING FLOOR AREA (TOTAL EXISINTG)	N/A
BUILDING FLOOR AREA (TOTAL PROPOSED)	6,726 SQ. FT

ZONING

EXISTING R6

LAND USE

EXISTING	PROPOSED	RESIDENTIAL	RESIDENTIAL
----------	----------	-------------	-------------

RESIDENTIAL

# OF RESIDENTIAL UNITS (TOATL EXISTING)	N/A
# OF RESIDENTIAL UNITS (TOTAL PROPOSED)	5
# OF LOTS (TOTAL PROPOSED)	1
# OF AFFORDABLE HOUSING UNITS (TOTAL PROPOSED)	N/A

PROPOSED BEDROOM MIX

# OF EFFICIENCY UNITS (TOTAL PROPOSED)	N/A
# OF ONE-BEDROOM UNITS (TOTAL PROPOSED)	4
# OF TWO-BEDROOM UNITS (TOTAL PROPOSED)	N/A
# OF THREE-BEDROOM UNITS (TOTAL PROPOSED)	1

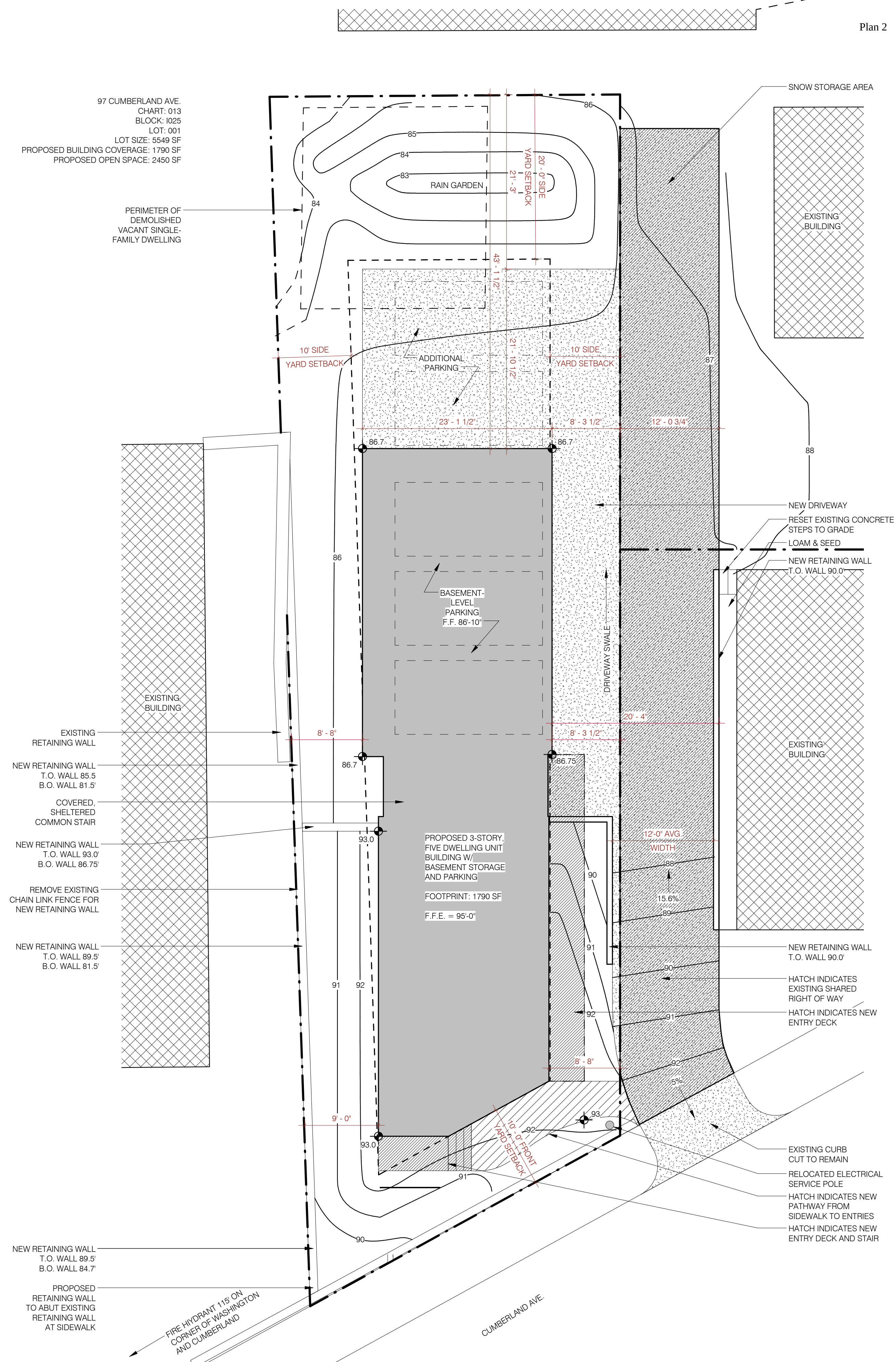
PARKING SPACES

# OF PARKING SPACES (TOTAL EXISTING)	N/A
# OF PARKING SPACES (TOTAL PROPOSED)	5
# OF HANDICAPPED SPACES (TOTAL PROPOSED)	N/A

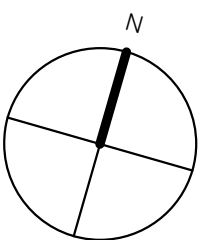
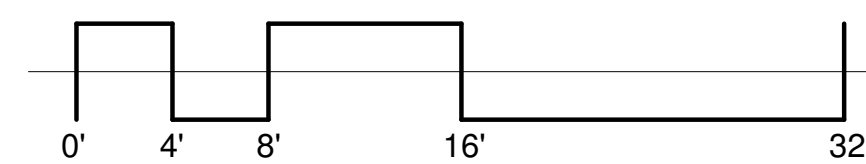
BICYCLE PARKING SPACES

# OF BICYCLE SPACES (TOTAL EXISTING)	N/A
# OF BICYCLE SPACES (TOTAL PROPOSED)	PER TECHNICAL MANUAL REQUIREMENTS

ESTIMATED COST OF PROJECT



1	Site Plan 1/8" = 1'-0"
---	---------------------------



	NEW RETAINING WALL		PROPERTY LINE
	EXISTING RETAINING WALL		FENCE
	TREE		NEW SITE CONTOUR
	WALKWAY & ENTRANCE		EXISTING SITE CONTOUR
	BIKE PARKING		
	PLANTED VEGETATION		
	EXISTING BUILDING		
	RAIN GARDEN		
	SEEDED AREA		
	GRAVEL		
	STONE WALKWAY		

TOTAL AREA OF SITE	5,550 SQ. FT.
PROPOSED TOTAL DISTURBED AREA OF THE SITE	2,914 SQ. FT.

IMPERVIOUS AREA (TOTAL EXISTING)	500 SQ. FT.
IMPERVIOUS AREA (TOTAL PROPOSED)	2,914 SQ. FT.

BUILDING FOOTPRINT (TOTAL EXISTING)	N/A
BUILDING FOOTPRINT (TOTAL PROPOSED)	1,790 SQ. FT.
BUILDING FLOOR AREA (TOTAL EXISTING)	N/A
BUILDING FLOOR AREA (TOTAL PROPOSED)	6,726 SQ. FT.

EXISTING R6

EXISTING	RESIDENTIAL
PROPOSED	RESIDENTIAL

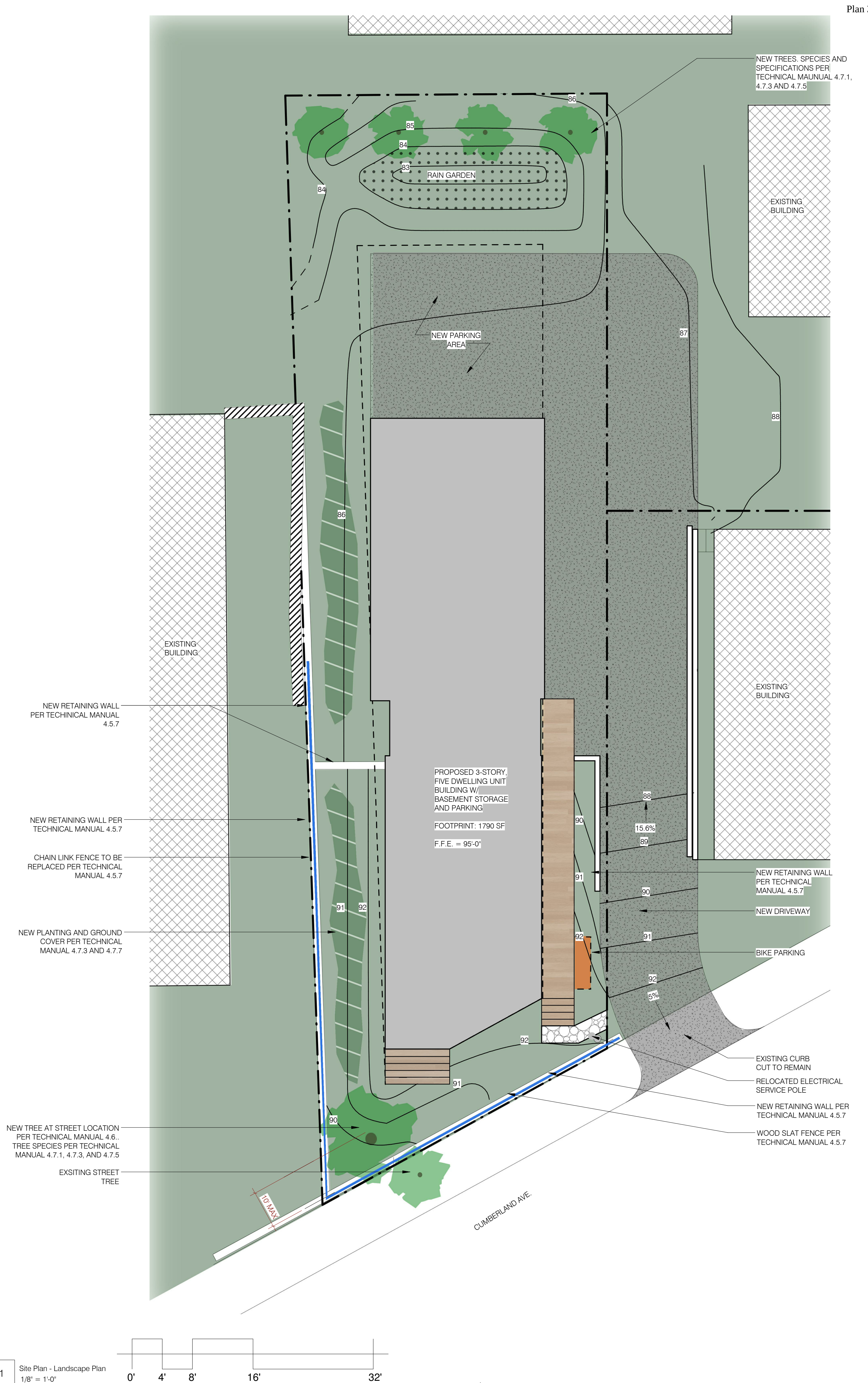
# OF RESIDENTIAL UNITS (TOATL EXISTING)	N/A
# OF RESIDENTIAL UNITS (TOTAL PROPOSED)	5
# OF LOTS (TOTAL PROPOSED)	1
# OF AFFORDABLE HOUSING UNITS (TOTAL PROPOSED)	N/A

# OF EFFICIENCY UNITS (TOTAL PROPOSED)	N/A
# OF ONE-BEDROOM UNITS (TOTAL PROPOSED)	4
# OF TWO-BEDROOM UNITS (TOTAL PROPOSED)	N/A
# OF THREE-BEDROOM UNITS (TOTAL PROPOSED)	1

# OF PARKING SPACES (TOTAL EXISTING)	N/A
# OF PARKING SPACES (TOTAL PROPOSED)	5
# OF HANDICAPPED SPACES (TOTAL PROPOSED)	N/A

# OF BICYCLE SPACES (TOTAL EXISTING)	N/A
# OF BICYCLE SPACES (TOTAL PROPOSED)	PER TECHNICAL MANUAL REQUIREMENTS

1. ALL SLOPES BETWEEN 5%-50% STABILIZED PER TECHNICAL MANUAL 4.5.8
2. ALL BARE SOILS TO BE VEGETATED OR MULCHED PER TECHNICAL MANUAL 4.7.13
3. TREE PLANTING SCHEDULE PER TECHNICAL MANUAL 4.7.11



SITE PLAN LEGEND	
	EXISTING BUILDING
	CONCRETE WALL
	GRAVEL
	PROPERTY LINE
	SETBACK
	EASEMENT
	SUBSURFACE DRAINAGE
	WATER SUPPLY
	ELECTRICAL SUPPLY
	TEL/DAT (COAXIAL CABLE)
	CABLE TV
	SANITARY SEWER
	FENCE
	NEW SITE CONTOUR
	EXISTING SITE CONTOUR

PROJECT DATA:	
TOTAL AREA OF SITE	5,550 SQ. FT.
PROPOSED TOTAL DISTURBED AREA OF THE SITE	2,914 SQ. FT.
IMPERVIOUS SURFACE AREA	
IMPERVIOUS AREA (TOTAL EXISTING)	500 SQ. FT.
IMPERVIOUS AREA (TOTAL PROPOSED)	2,914 SQ. FT.
BUILDING GROUND FLOOR AREA AND TOTAL FLOOR AREA	
BUILDING FOOTPRINT (TOTAL EXISTING)	N/A
BUILDING FOOTPRINT (TOTAL PROPOSED)	1,790 SQ. FT.
BUILDING FLOOR AREA (TOTAL EXISTING)	N/A
BUILDING FLOOR AREA (TOTAL PROPOSED)	6,726 SQ. FT.
ZONING	
EXISTING	R6
LAND USE	
EXISTING	RESIDENTIAL
PROPOSED	RESIDENTIAL
RESIDENTIAL	
# OF RESIDENTIAL UNITS (TOTAL EXISTING)	N/A
# OF RESIDENTIAL UNITS (TOTAL PROPOSED)	5
# OF LOTS (TOTAL PROPOSED)	1
# OF AFFORDABLE HOUSING UNITS (TOTAL PROPOSED)	N/A
PROPOSED BEDROOM MIX	
# OF EFFICIENCY UNITS (TOTAL PROPOSED)	N/A
# OF ONE-BEDROOM UNITS (TOTAL PROPOSED)	4
# OF TWO-BEDROOM UNITS (TOTAL PROPOSED)	N/A
# OF THREE-BEDROOM UNITS (TOTAL PROPOSED)	1
PARKING SPACES	
# OF PARKING SPACES (TOTAL EXISTING)	N/A
# OF PARKING SPACES (TOTAL PROPOSED)	5
# OF HANDICAPPED SPACES (TOTAL PROPOSED)	N/A
BICYCLE PARKING SPACES	
# OF BICYCLE SPACES (TOTAL EXISTING)	N/A
# OF BICYCLE SPACES (TOTAL PROPOSED)	PER TECHNICAL MANUAL REQUIREMENTS
ESTIMATED COST OF PROJECT	
	\$900,000

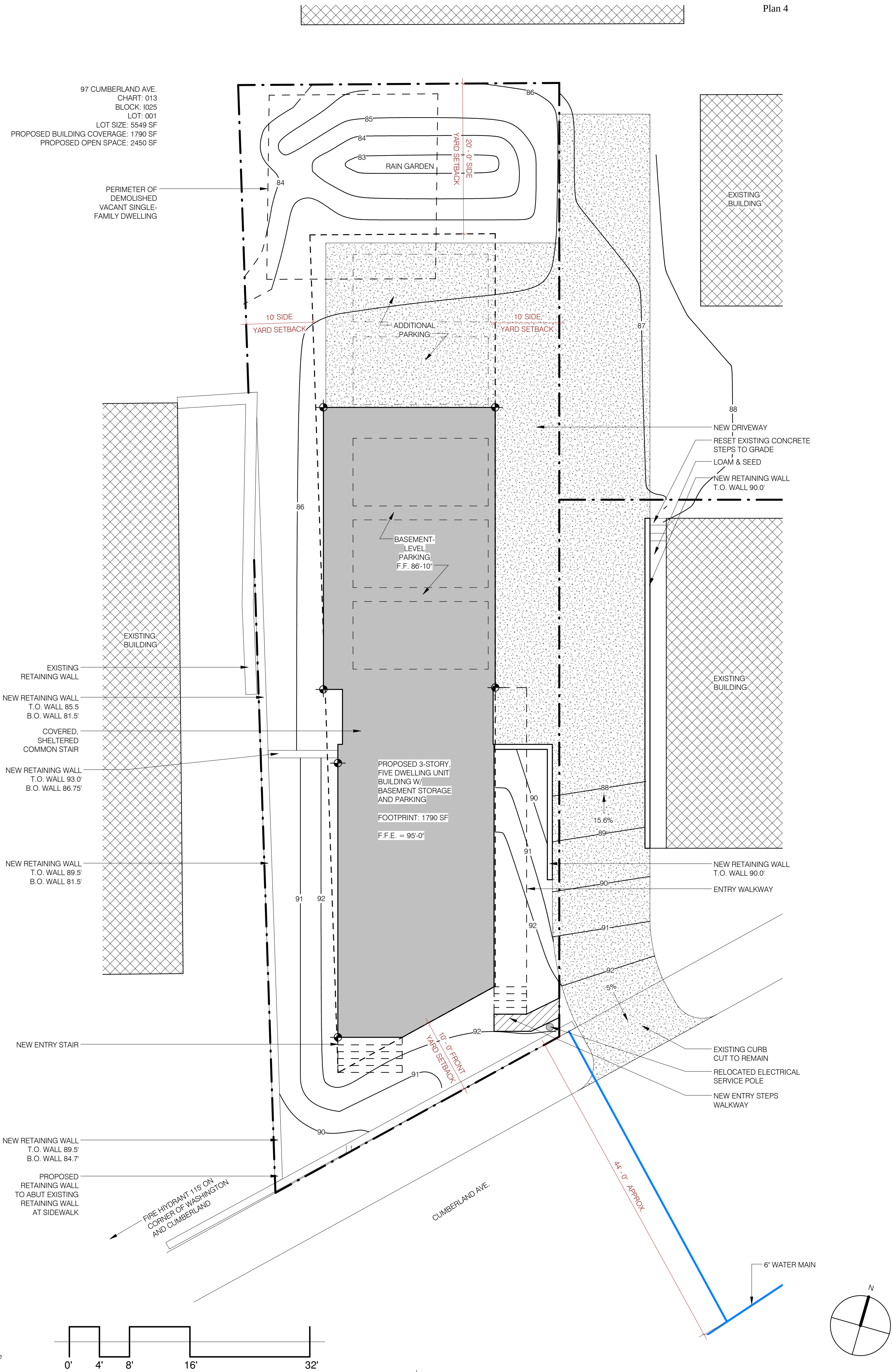
APPLICANT:	
PETER DUGAS	
243 STATE ST.	
PORTLAND, ME 04101	
207-899-2409	
ARCHITECT:	
GO LOGIC	
TIMOTHY LOCK	
137 HIGH ST	
BELFAST, ME 04915	
207.338.1566	

PROPOSED USE OF STRUCTURE: RESIDENTIAL MULTI-FAMILY (R6)

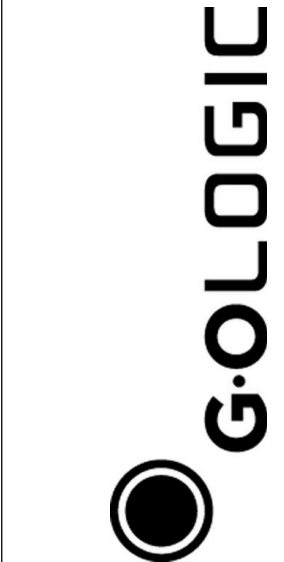
BUILDING AREA:	
BASEMENT:	1553.6 SF
LEVEL 1:	1786.6 SF
LEVEL 2:	1693.0 SF
LEVEL 3:	1693.0 SF
TOTAL BUILDING AREA:	6726.2 SF

PROPOSED FIRE PROTECTION OF ALL BUILDINGS: FULLY SPRINKLERED BUILDING IN COMPLIANCE WITH NFPA 13 D.

CODE SUMMARY:	
Lot Information	
Address:	97 Cumberland St.
Block:	013
Zoning Restrictions – Based On Portland Zoning Ordinance	
Zoning District – R6	
Minimum Setback Requirements	
Principal Structure	
Front:	10 feet (or even with neighboring buildings)
Side:	3 stories – 10 feet
Rear:	20 feet
Lot Restrictions	
Gross Area	4500 SF
Minimum Street Frontage:	40 feet
Lot Coverage:	50% maximum up to 20 dwelling units – 2945 SF
Open Space Requirement:	20% of lot area – 1180 SF
Lot Compliance	
Gross Area:	5050 SF
Street Frontage:	43 feet
Lot Coverage (Building):	1790 SF
Total Impervious Surface:	2914 SF
Building Bulk	
Principle Structure	
Floor Area Ratio (FAR):	N/A
Building Height Limit:	45 ft. (above average finished grade at fronting street)
Number of Stories:	3 plus Basement
Overall Building Size:	
Total Number of Dwelling Units:	5
Use Restrictions and Requirements	
Principle Structure	
Proposed use:	Multi-family housing
Permitted uses:	Multi-family housing Single-family house Temporary lodging (hotel, etc.)
Conditional uses:	Professional offices and similar business use types
Parking	
Required Off-street Parking:	1 space per dwelling unit – 5 spaces provided



1 Site Plan - Fire
1/8" = 1'-0"



97 Cumberland Ave.
Portland, ME 04101
Project Number

Fire Department Site Plan

REVISIONS:	
DATE & DESCRIPTION:	
PAST ISSUES:	
DATE & DESCRIPTION:	
14-0121 For Consultant Review	
14-0129 Pre-Application Review	

CURRENT ISSUE:	
14-0401	Preliminary Site Plan Review

A1.4

97 CUMBERLAND AVENUE 5-UNIT RESIDENTIAL BUILDING

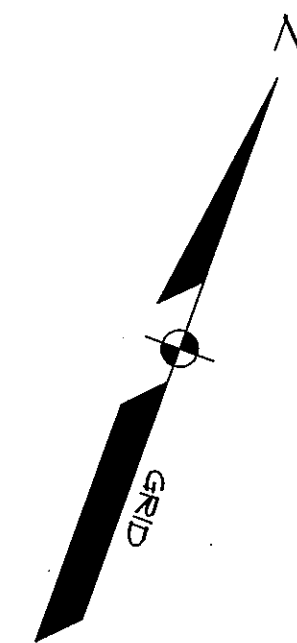
Plan 5

97 CUMBERLAND AVENUE
PORTLAND, MAINE

OWNER:

PETER DUGAS

243 STATE STREET
PORTLAND, MAINE



ENGINEER:

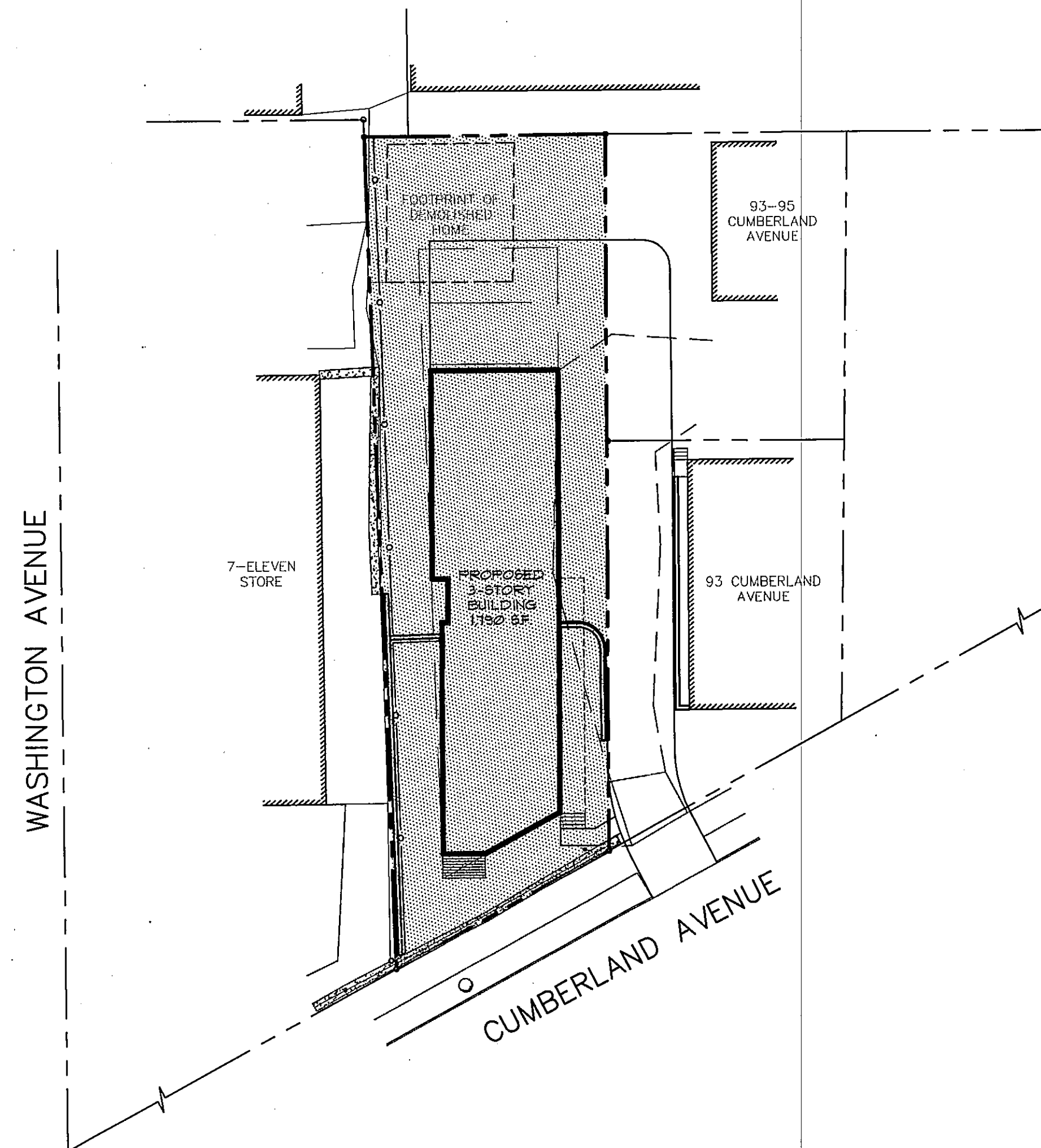
SEBAGO
TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

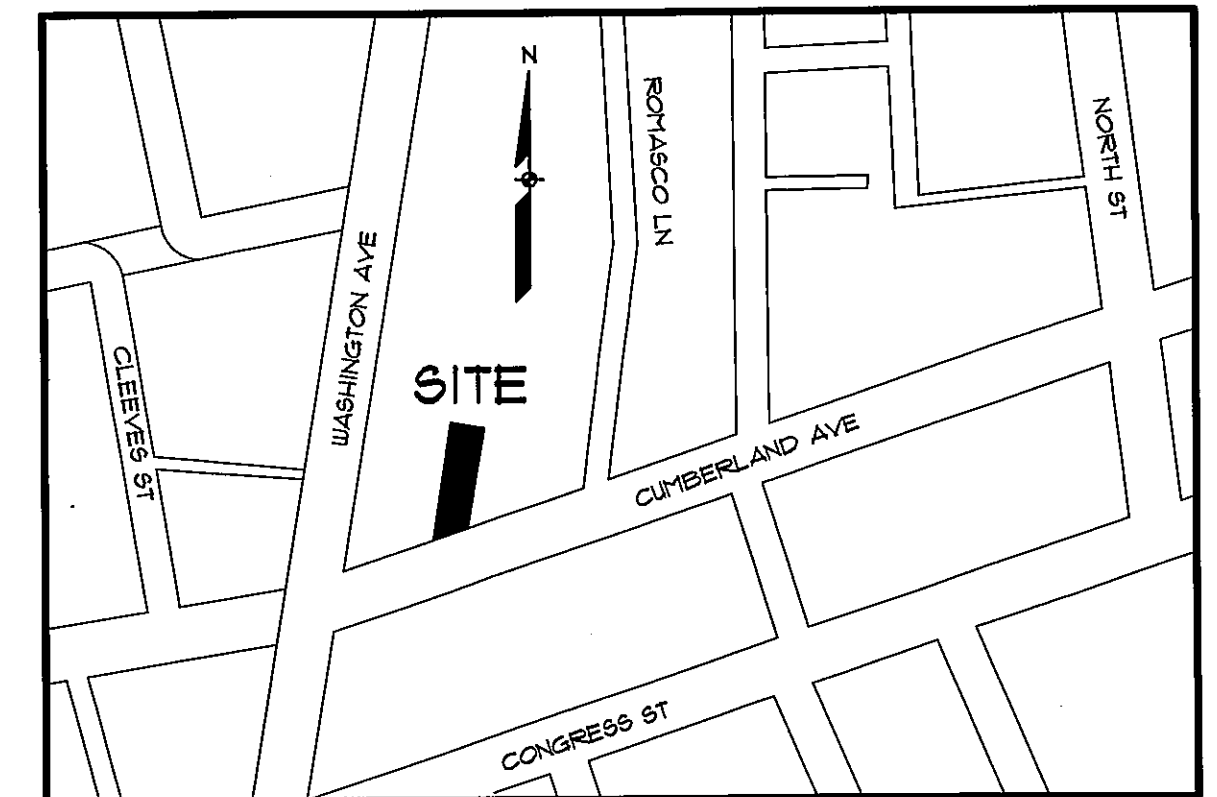
WWW.SEBAGOTECHNICS.COM

75 John Roberts Rd. - Suite 1A
South Portland, ME 04106
Tel. 207-200-2100

250 Goddard Rd. - Suite B
Lewiston, ME 04240
Tel. 207-793-6656



SCALE: 1"=20'

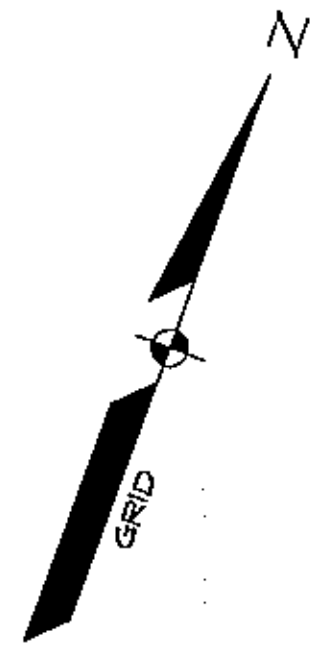


LOCATION MAP

N.T.S.

SHEET INDEX:

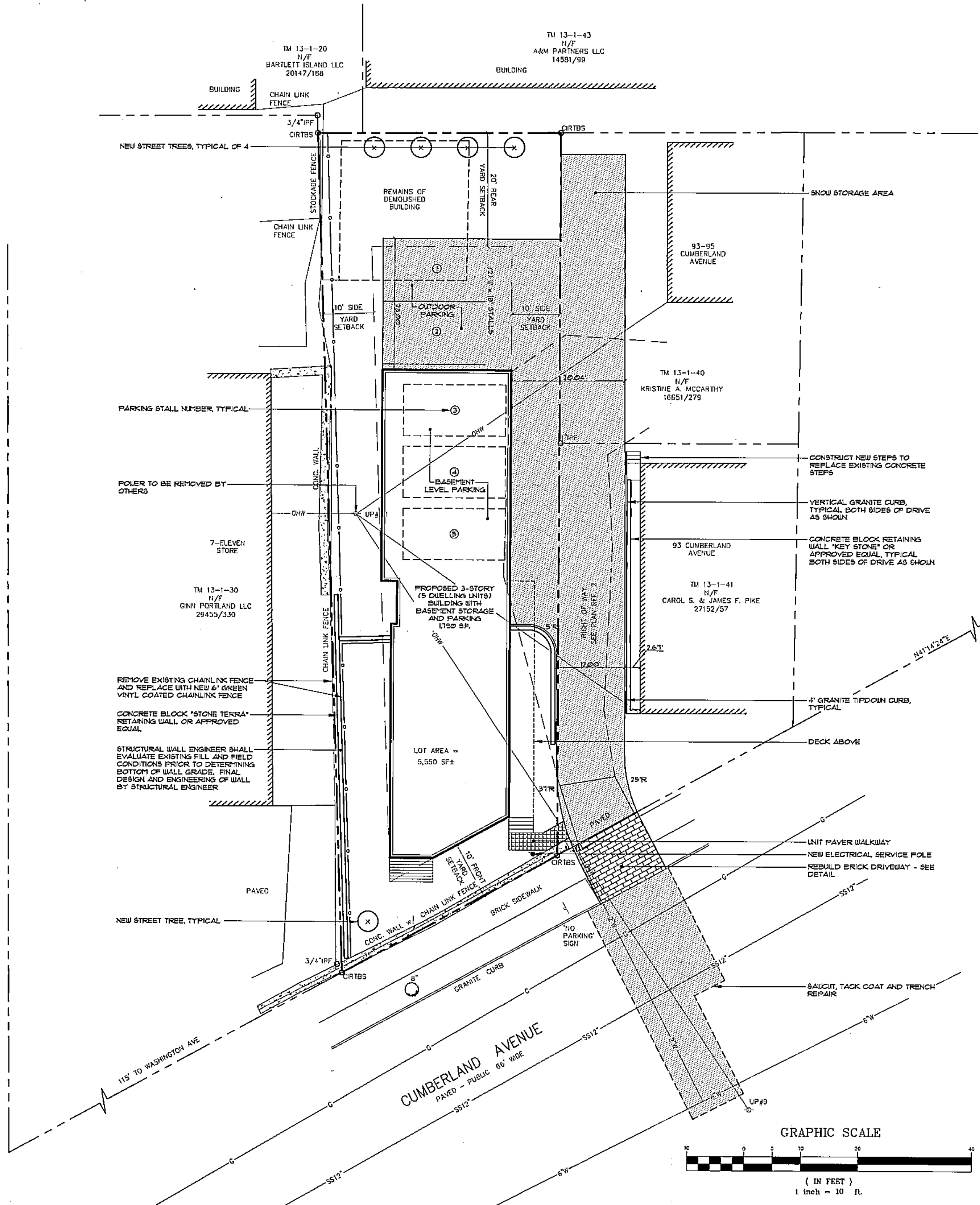
SHEET	DESCRIPTION
1	COVER SHEET
2	SITE PLAN
3	GRADING AND UTILITY PLAN
4	EROSION CONTROL NOTES AND DETAILS
5	DETAILS



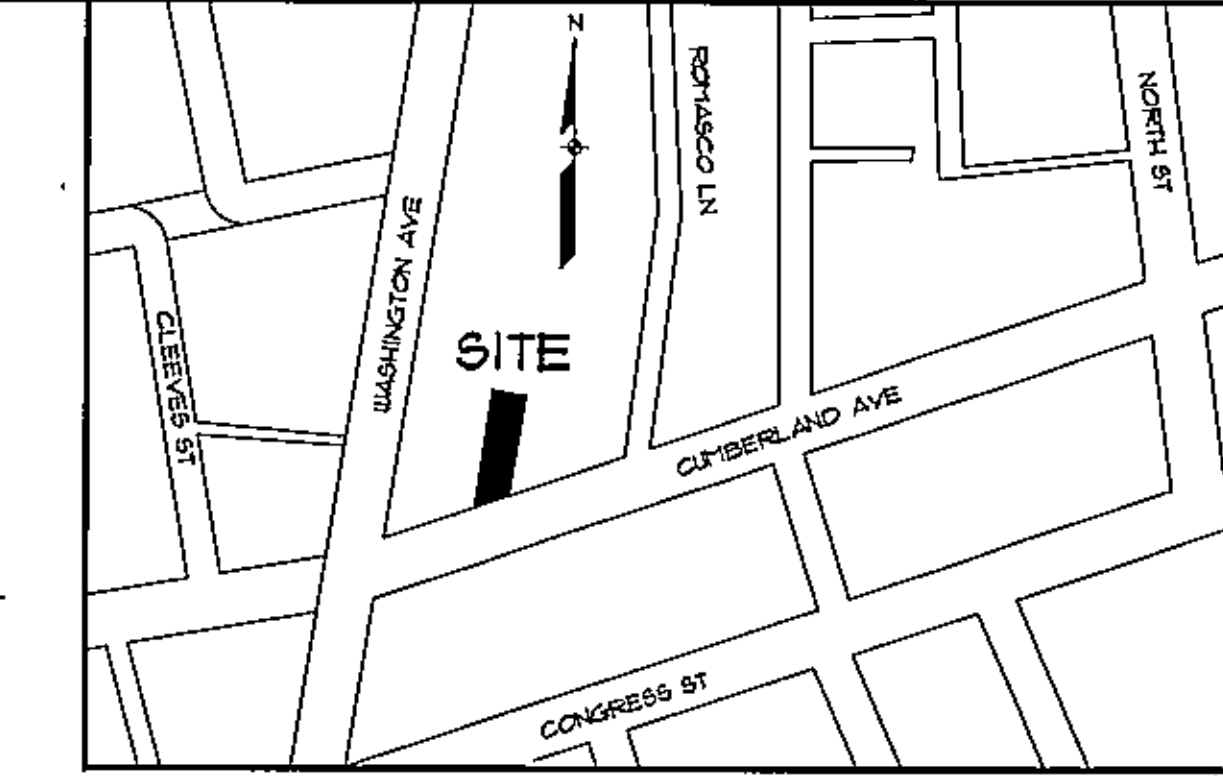
LEGEND

EXISTING	DESCRIPTION	PROPOSED
---	BOUNDARY LINE/ROW	---
---	ABUTTER LINE/ROW	---
---	SETBACK	---
---	EASEMENT	---
---	MONUMENT	---
---	IRON PIPE/ROD	---
---	CURVE/LINE NO.	---
---	BUILDING	---
---	8"GN	---
---	EDGE PAVEMENT	---
---	EDGE CONCRETE	---
---	PAVEMENT PAINT	---
---	GRAVEL ROAD	---
---	CURBLINE	---
---	CONTOURS	---
---	SPOT GRADE	---
---	CHAIN LINK FENCE	---
---	RETAINING WALL	---
---	DECIDUOUS TREE	---
---	GAS	---
---	WATER	---
---	WATER GATE VALVE	---
---	SEWER	---
---	SEWER MH	---
---	OVERHEAD UTILITY	---
---	UTILITY POLE	---

WASHINGTON AVENUE
PAVED - PUBLIC



LOCATION MAP



NOTES:

- OWNERS OF RECORD: PETER C. DUGAS AND ANASTASIA ANTONACOS, 243 STATE STREET, PORTLAND, MAINE, C.C.R.D. BOOK 3047B PAGE 1B.
- PARCEL IS SHOWN AS LOT 2B BLOCK C ON CITY OF PORTLAND'S ASSESSORS MAP 13.
- SPACE AND BULK CRITERIA:
R6 ZONE
MIN. AREA PER DWELLING UNIT: 1000 SF.
MIN. LOT SIZE: 4500 SF.
MIN. STREET FRONTAGE: 40'
MIN. FRONT YARD: 10'
MIN. SIDE YARD (3-STORIES): 10'
MIN. REAR YARD: 20'
MAX. BUILDING HEIGHT: 45'
MAX. BUILDING COVERAGE: 50%
- TOTAL AREA OF PARCEL: 5500 SF.
- BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON A SURVEY BY OWEN HASKELL, INC. AT 91 CUMBERLAND AVENUE, PORTLAND, DATED 8-3-13.
- BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES NAD83. CITY CONTROL POINTS 112-25-50 & 112-28-156 USED.
- ELEVATIONS BASED ON CITY DATUM. BENCHMARK: STREET SIDE BONNET BOLT ON HYDRANT AT THE SOUTHWEST CORNER OF CUMBERLAND AVE AND WASHINGTON AVE ELEVATION 83.6. (SEE PLAN REFERENCE 4).
- THE MONUMENT AT THE CORNER OF WASHINGTON AND CUMBERLAND AVENUES, AS SHOWN ON PLAN REF. 1 IS GONE. ITS LOCATION WAS REESTABLISHED BASED ON THE IRON PIPE FOUND AND THE MONUMENT AT OXFORD AND WASHINGTON AS SHOWN ON PLAN REF. 1. THE LINE ALONG THE EASTERLY SIDE OF GINN PORTLAND, LLC WAS HELD AS PER PLAN REF. 1 AS IT MATCHES THE DIMENSIONS IN DEED BOOK 1831 PAGE 423.
- THE REAR LINE WAS HELD PERPENDICULAR TO WASHINGTON AVENUE, AS THE BACK DEEDS FOR THE LOTS TO THE NORTH CALL FOR THAT.
- THE REAR LINE DISTANCE AND THE ANGLE OFF CUMBERLAND AVENUE ON THE EAST LINE WERE HELD AS IN THE LOCUS DEED BOOK 1831 PAGE 423.
- THE 1946 PLAN WHICH DIVIDED THIS LOT AND THE TWO LOTS TO THE EAST IS RIDDLED WITH ERRORS AND APPEARS TO NOT HAVE BEEN BASED ON A FIELD SURVEY OR DEED RESEARCH. THE FRONT AND BACK DIMENSIONS WERE PROPORTIONED.
- PLAN REFERENCE 4 SHOWS NO MARKERS FOUND OR SET AND CAN NOT BE RE-CREATED.

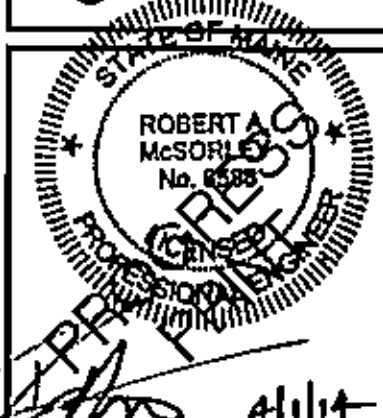
PLAN REFERENCES:

- PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR SHELL OIL COMPANY DATED OCTOBER 2, 1918 BY H.L. & E.C. JORDAN SURVEYORS.
- PLAT PLAN SHOWING PROPERTY OF WALTER A. GERRY AT 93 & 91 CUMBERLAND AVENUE, PORTLAND, MAINE DATED OCTOBER 8, 1946 BY VARNER ENGINEERING CO. RECORDED IN C.C.R.D. PLAN BOOK 32 PAGE 28.
- BOUNDARY AND TOPOGRAPHIC SURVEY ON 43 & 45 CUMBERLAND AVENUE, PORTLAND, MAINE MADE FOR OWNER OF RECORD STEPHANIE DUNN DATED JULY 1, 2009 BY OWEN HASKELL, INC.
- PLAN AND PROFILE OF WASHINGTON AVE AND CUMBERLAND AVE, PORTLAND MAINE FOR THE CITY OF PORTLAND DATED JULY 2000 BY OWEN HASKELL, INC.
- CITY OF PORTLAND - CUMBERLAND AVENUE, SHEET NO. 1
- PLAN OF PROPERTY MADE FOR A & M PARTNERS, LLC REV. 5 06/29/11 TITCOMB ASSOCIATES RECORDED IN PLAN BOOK 211 PAGE 21.

APPROVAL-CITY OF PORTLAND PLANNING BOARD

DATE	SCALE
03/24/14	1" = 10'

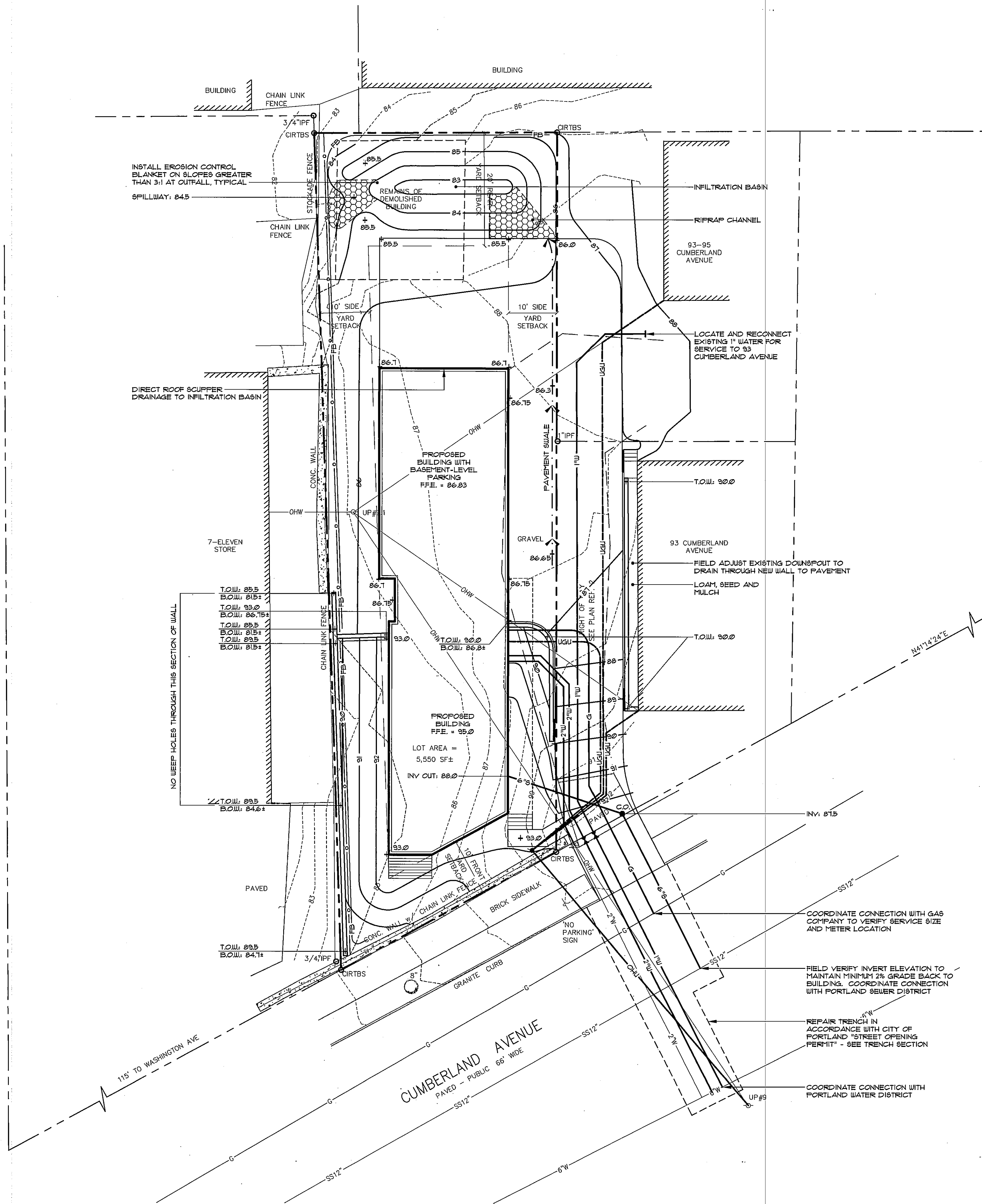
NOT FOR
CONSTRUCTION



REV.	DATE	STATUS	BY
1	3/27/14	DESIGN	JAR
2	3/27/14	CHKD	SAG
3	3/27/14	SGD	JAR
4	3/27/14	DRWN	JAR

SEBAGO
TECHNICAL SERVICES
175 John Roberts Rd. - Suite 1A
South Portland, ME 04086
Tel: 207.262.5000
Fax: 207.262.5001
WWW.SEAGOTECHNICALS.COM

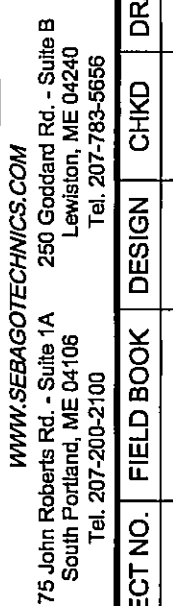
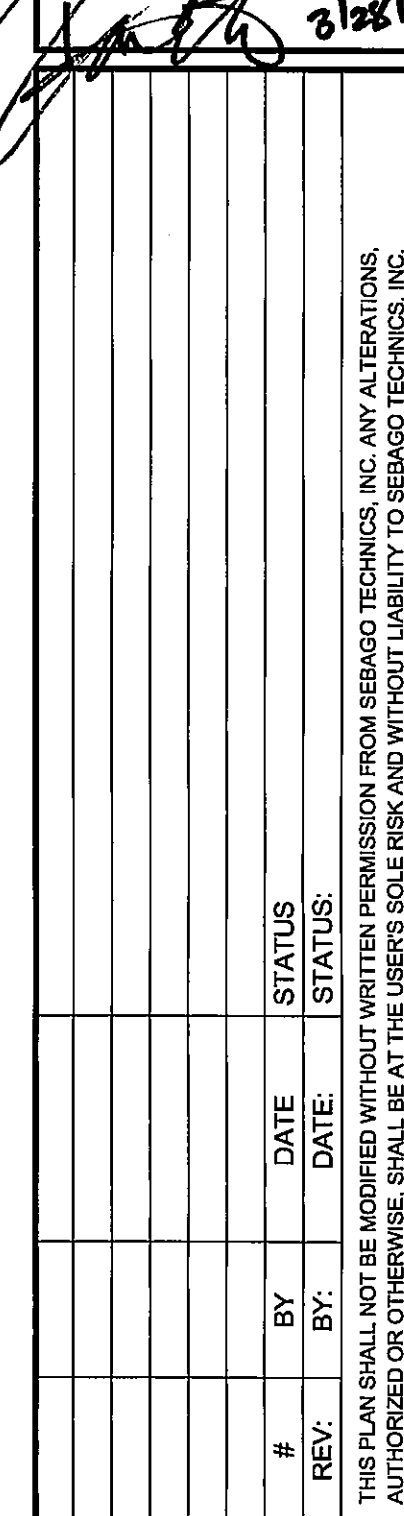
SITE PLAN
OF:
97 CUMBERLAND AVENUE
PORTLAND, MAINE
FOR:
PETER DUGAS
243 STATE STREET
PORTLAND, MAINE



EXISTING	DESCRIPTION	PROPOSED
---	BOUNDARY LINE/ROW	---
---	ABUTTER LINE/ROW	---
---	SETBACK	---
---	EASEMENT	---
□	MONUMENT	□
⊙	IRON PIPE/ROD	⊙
C1/L1	CURVE/LINE NO.	---
	BUILDING	
—	SIGN	—
---	EDGE PAVEMENT	---
---	EDGE CONCRETE	---
---	PAVEMENT PAINT	---
---	GRAVEL ROAD	---
---	CURBLINE	---
-122- -120-	CONTOURS	124
X30.20	SPOT GRADE	+ 30.20
o	CHAIN LINK FENCE	o
---	RETAINING WALL	---
⊙	DECIDUOUS TREE	⊙
G	GAS	G
W	WATER	W
⌵	WATER GATE VALVE	⌵
S	SEWER	S
OHU	OVERHEAD UTILITY	OHU
---	UNDERGROUND UTILITY	UGU
⊙	UTILITY POLE	⊙
---	FILTER BARRIER	FB
---	RIPRAP	⬢ ⬢ ⬢ ⬢ ⬢ ⬢

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL REPORT TO THIS CITY OF PORTLAND. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.
4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ENGINEER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.
7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.
8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.
9. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PUBLISHED BY THE MEMBER COUNTY OF SEASIDE SOIL AND WATER CONSERVATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.
10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG (1-888-626-8474) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
11. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USGS PUBLIC WORKS SYSTEMS.
12. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRS.A 336.0-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITY TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.
13. ALL PAVEMENT JOINTS SHALL BE SAUCED PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
14. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.
15. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A STREET OPENING PERMIT FROM THE CITY AS APPLICABLE.
16. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.
17. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKSMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER. ALL SUCH DIG AND DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.
18. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.
19. WHERE THE TERM "APPROVED EQUAL," "OTHER APPROVED," "EQUAL TO," "ACCEPTABLE," OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF SEBAGO TECHNICS, INC.
20. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.
21. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.
22. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.
23. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.
24. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, RELINQUISH OR REPLENISH PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.
25. ALL SUBSURFACE UTILITY LINES SHOWN HEREON ARE BASED SOLELY ON THE FIELD LOCATION OF VISIBLE STRUCTURES, SH-UTS, CB'S, HYDRANTS, ETC. IN CONJUNCTION WITH DESIGN AND OR AS-BUILT PLANS SUPPLIED TO SEBAGO TECHNICS INC. BY OTHERS. PRIOR TO ANY CONSTRUCTION, EXCAVATION, TEST BORINGS, DRILLING, ETC., THE CONTRACTOR MUST FIRST OBTAIN A FIELD VERIFICATION NUMBER ALONG WITH THE DATE TO DIG DATE OBTAINED. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE LOCATION, DEPTH AND MATERIAL OF ALL SUBSURFACE UTILITY LINES SHOWN HEREON AND ANY AND ALL OTHERS LOCATED ON SITE WITHIN THE CONSTRUCTION AREA.
26. WATER MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF PORTLAND WATER DISTRICT.
27. SEWER MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND SEWER DISTRICT.

NOT FOR
CONSTRUCTION

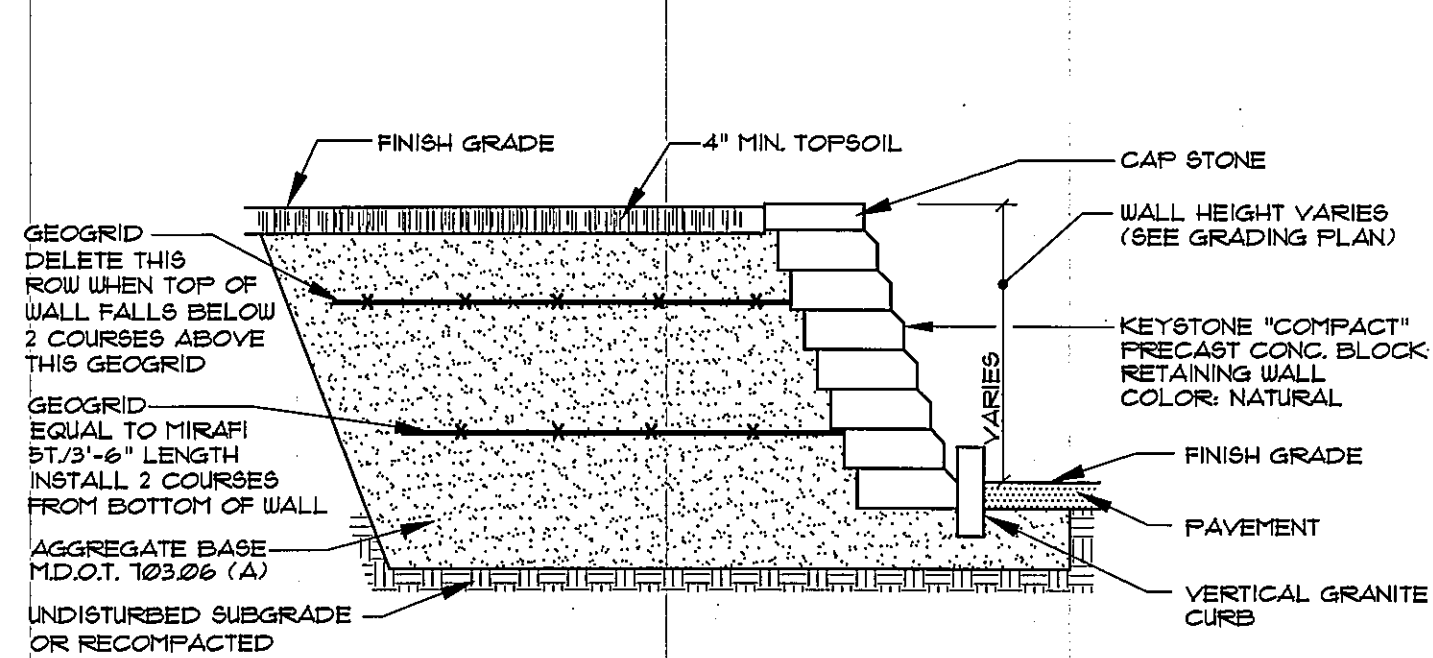


GRADING AND UTILITY PLAN
OF:
97 CUMBERLAND AVENUE
97 CUMBERLAND AVENUE
PORTLAND, MAINE
FOR:
PETER DUGAS
243 STATE STREET
PORTLAND, MAINE

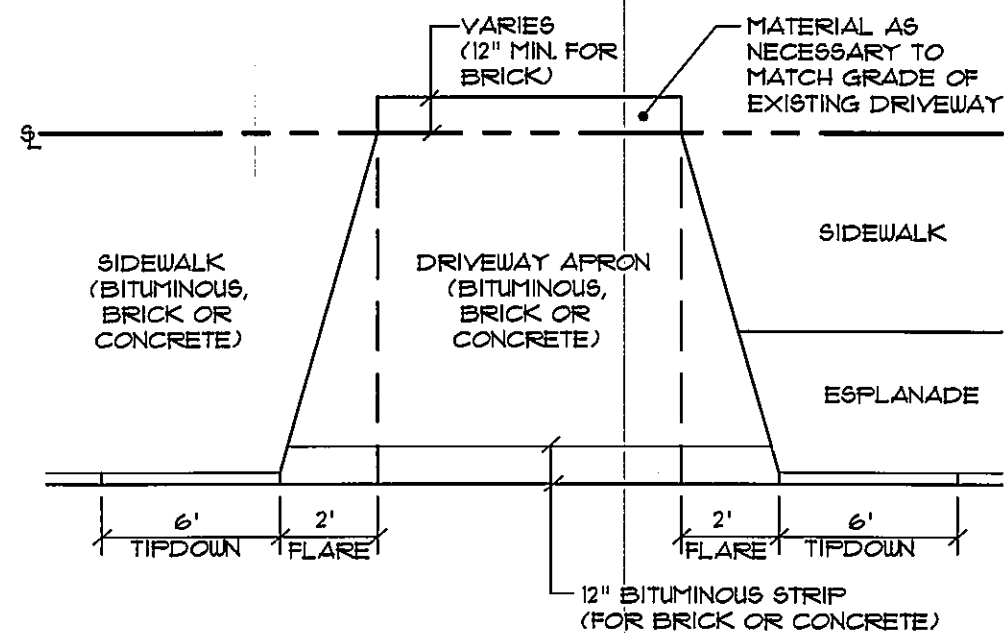
DATE	SCALE
03/24/14	1" = 10'

SHEET 3 OF 5

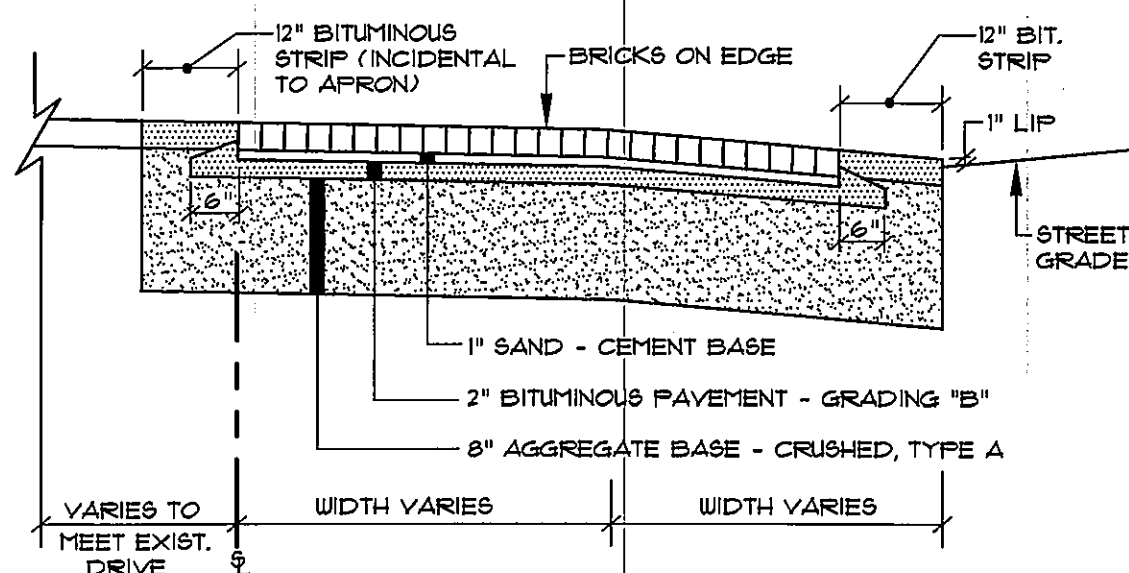
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CONCRETE BLOCK RETAINING WALL
NOT TO SCALE

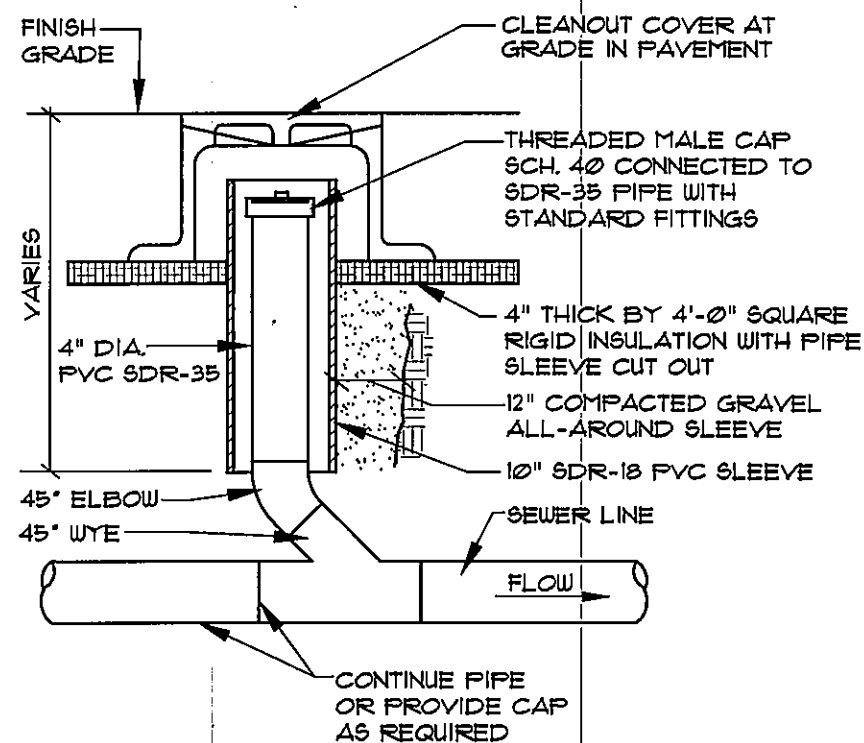


SIDEWALK & DRIVEWAY CONSTRUCTION
NOT TO SCALE

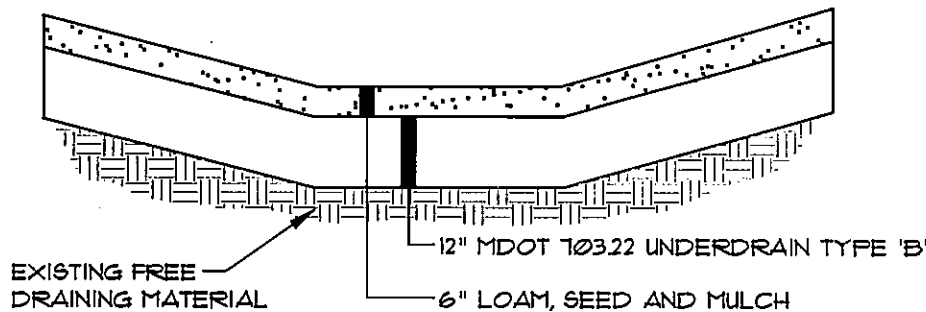


NOTE: BORDER COURSE OF BRICK SHALL BE MORTARED TO CONCRETE BASE.

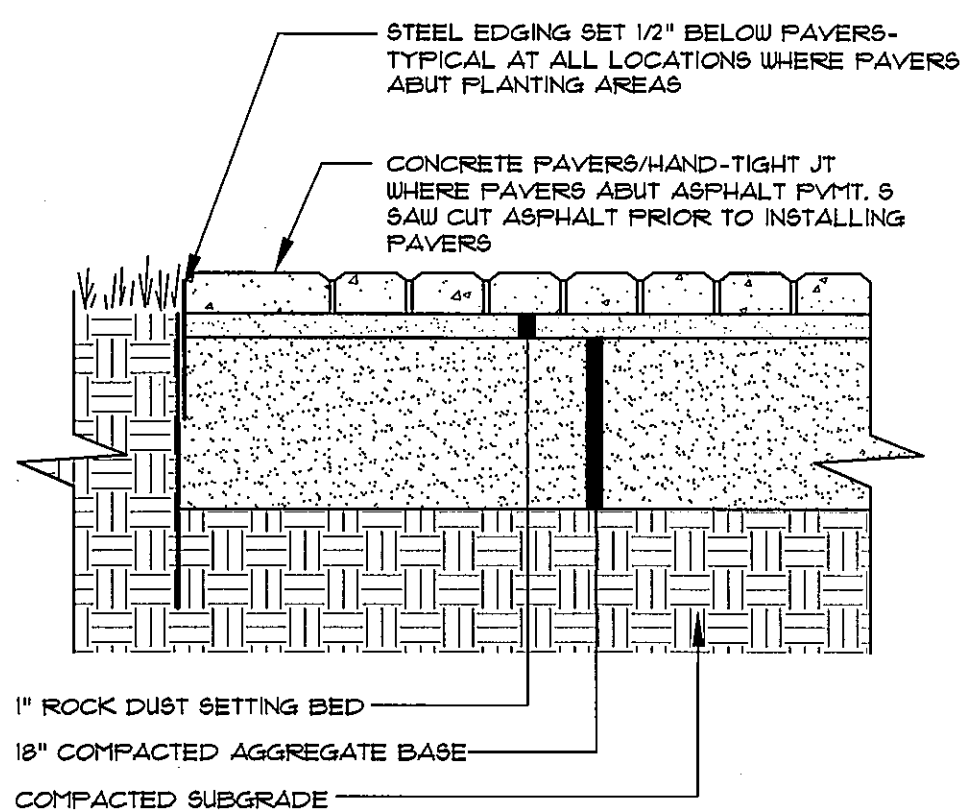
BRICK WITH BITUMINOUS BASE DRIVEWAY CONSTRUCTION
NOT TO SCALE



SEWER CLEANOUT IN PAVEMENT AREAS
NOT TO SCALE

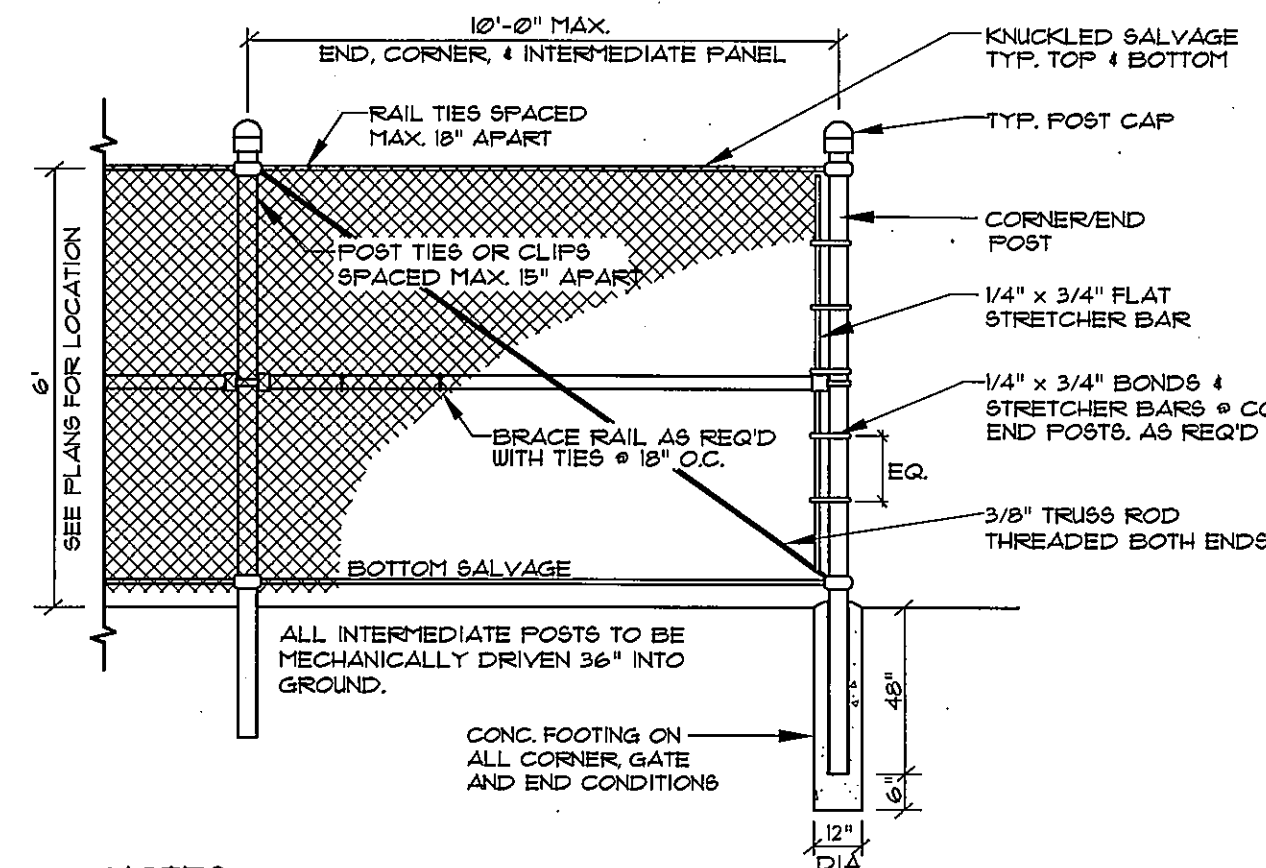


INFILTRATION POND
NOT TO SCALE



NOTE: SEE PLANS & SPECS. FOR PAVEMENT TYPE, COLOR, INSTALLATION PATTERN AND LOCATION

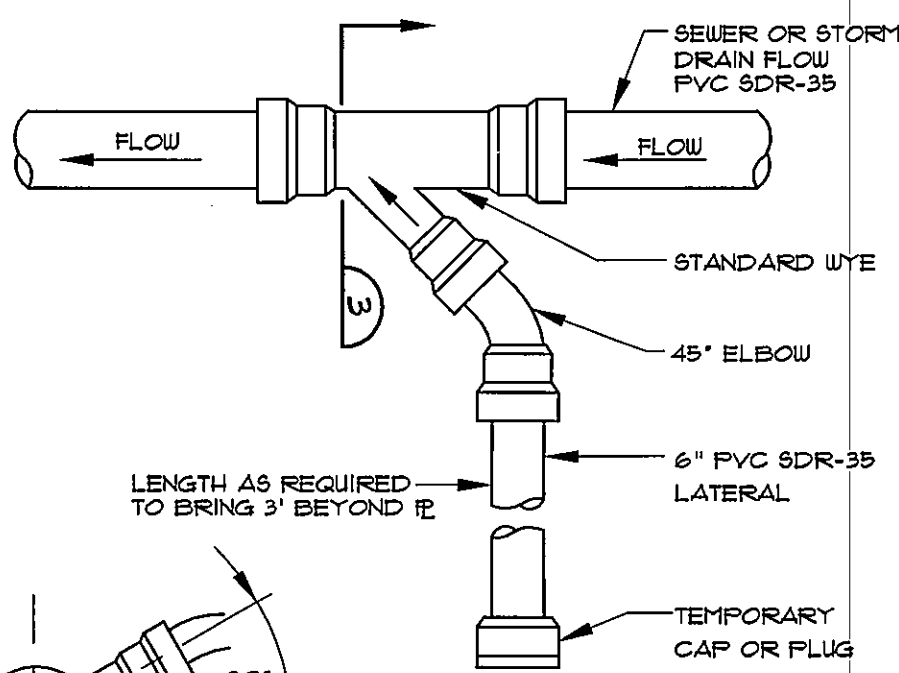
SPECIALTY PAVEMENT AT WALK
NOT TO SCALE



NOTES:

- CORNER OR END POST: NOMINAL 3" O.D. GALVANIZED STEEL PIPE, MIN. 5.75 LB/LF.
- INTERMEDIATE POST: NOMINAL 2-1/2" O.D. GALVANIZED STEEL PIPE, MIN. 3.65 LB/LF.
- BRACES (TOP & BOTTOM): NOMINAL 1-5/8" O.D. GALVANIZED STEEL PIPE, MIN. 2.27 LB/LF.
- THE OUTSIDE OF THE FENCE FABRIC SHALL BE 3" INSIDE THE EDGE OF PAVEMENT.
- BRACE RAIL AND DIAGONAL BRACE ROD SHALL BE INSTALLED AT EACH 10' CORNER SECTION OF ENCLOSURE.
- CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3,000 PSI WITH 6% AIR ENTRAINMENT.
- SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER'S APPROVAL.
- FENCE FABRIC, POST, RAILS AND APPURTENANCES SHALL BE VINYL CLAD; COLOR: GREEN.

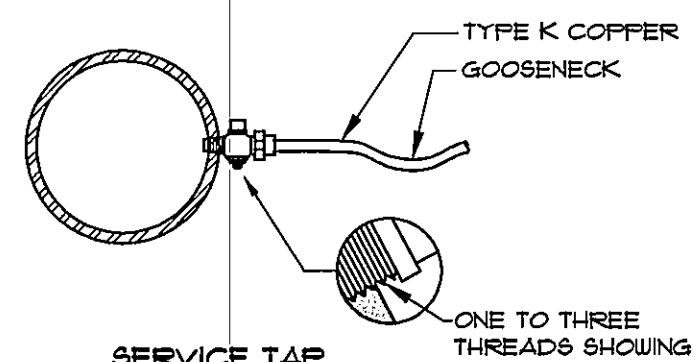
TYPICAL CHAIN LINK FENCE
NOT TO SCALE



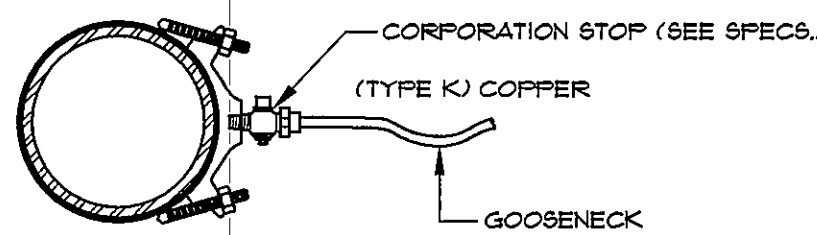
NOTES:

- INSTALL BACKFLOW VALVE WITH RUBBER SEAL IN EACH FOUNDATION DRAIN SERVICE.
- IF SUMP PUMP IS UTILIZED, INSTALL CHECK VALVE AT SUMP PUMP.

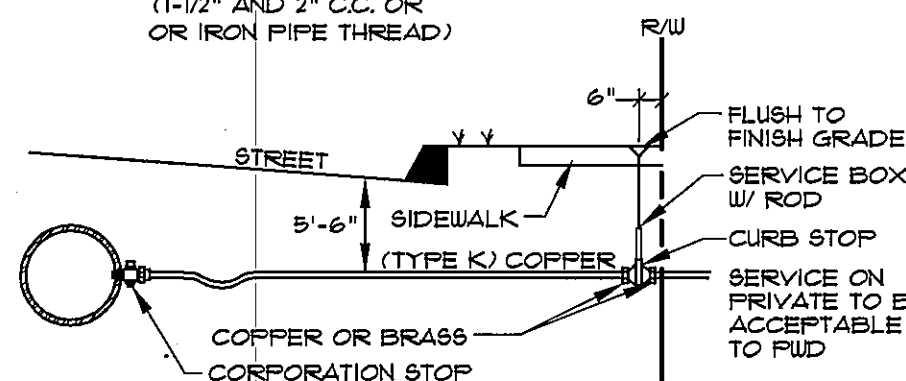
SEWER / FOUNDATION DRAIN SERVICE CONNECTION
NOT TO SCALE



SERVICE TAP
(3/4" AND 1" C.C. THREAD)

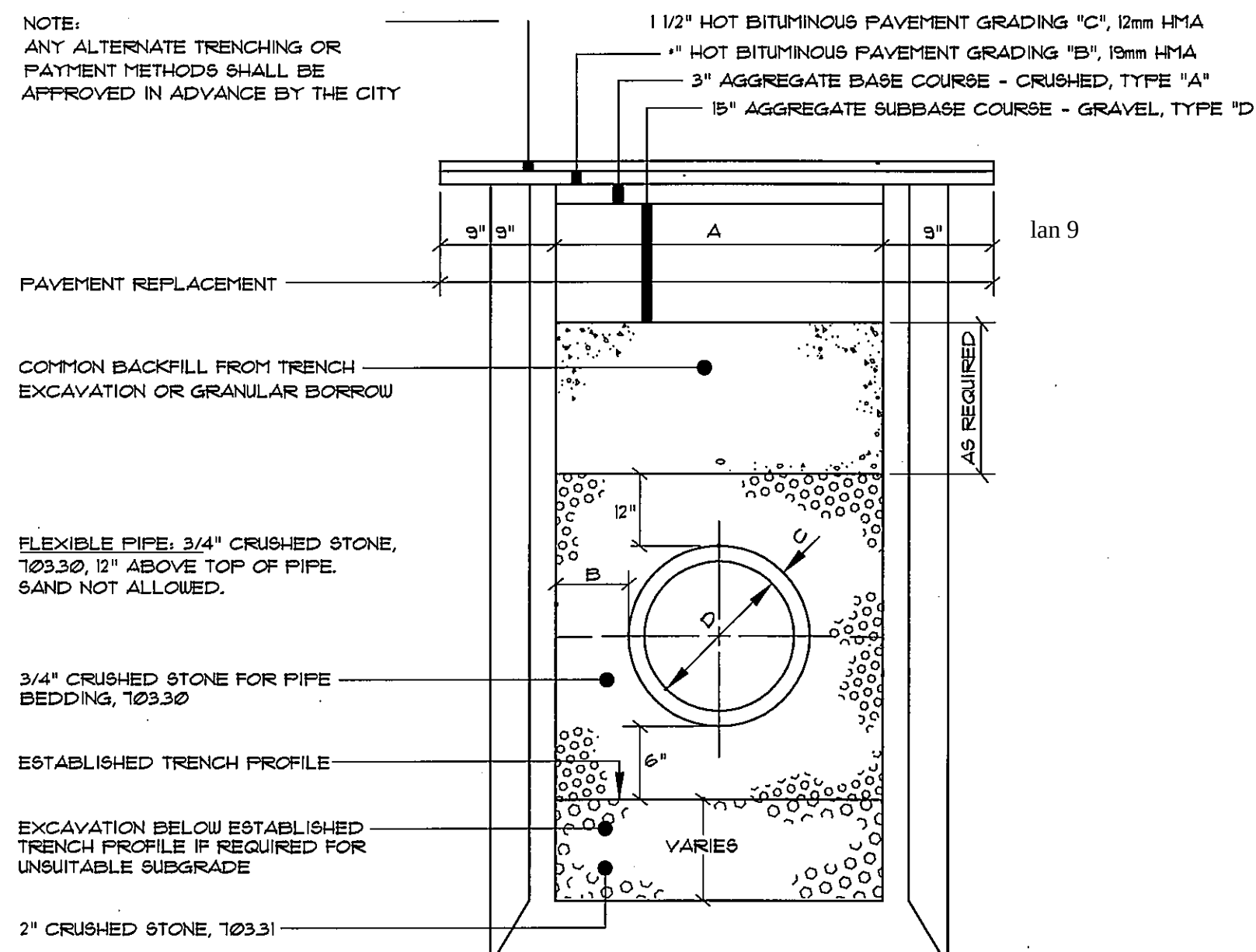


SERVICE SADDLE
(1-1/2" AND 2" C.C. OR OR IRON PIPE THREAD)

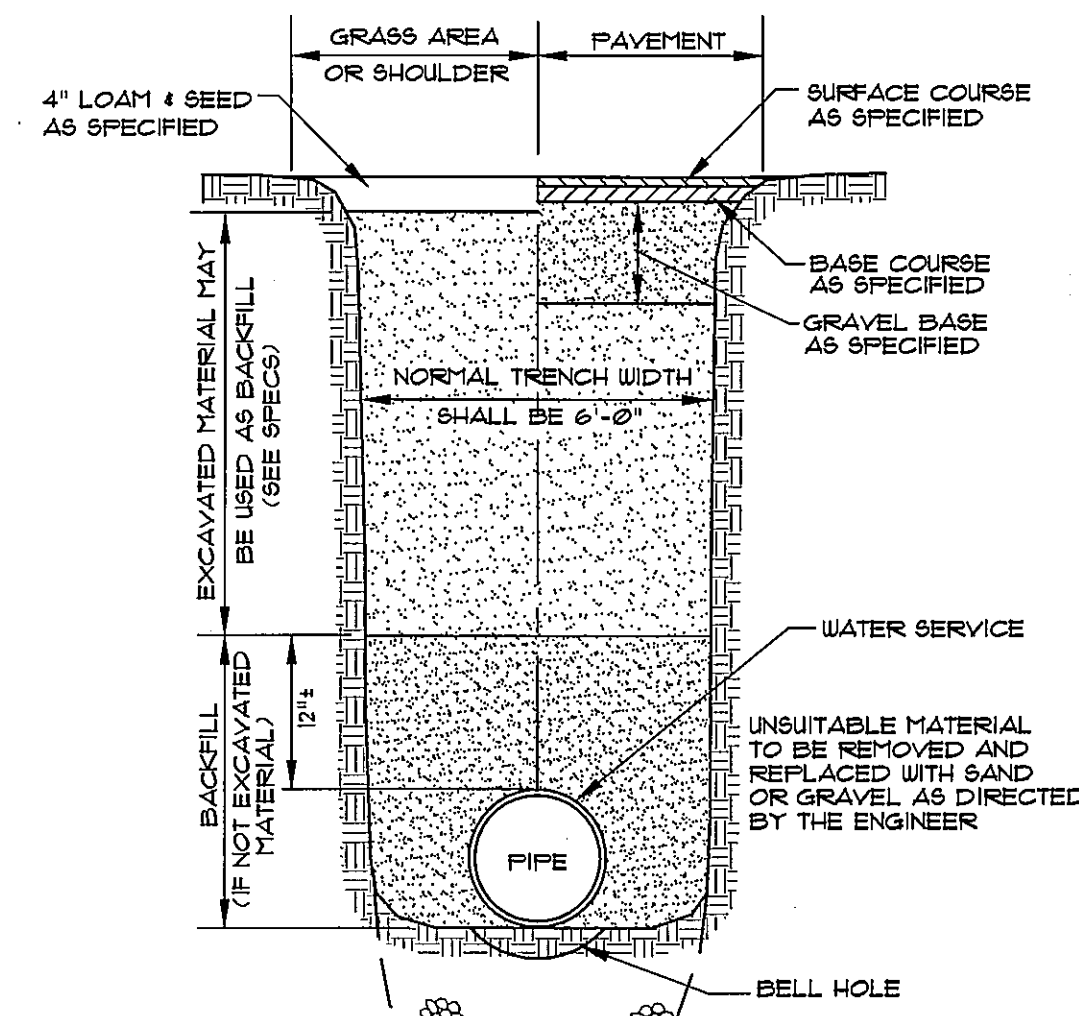


TYPICAL SERVICE CONNECTION
NOT TO SCALE

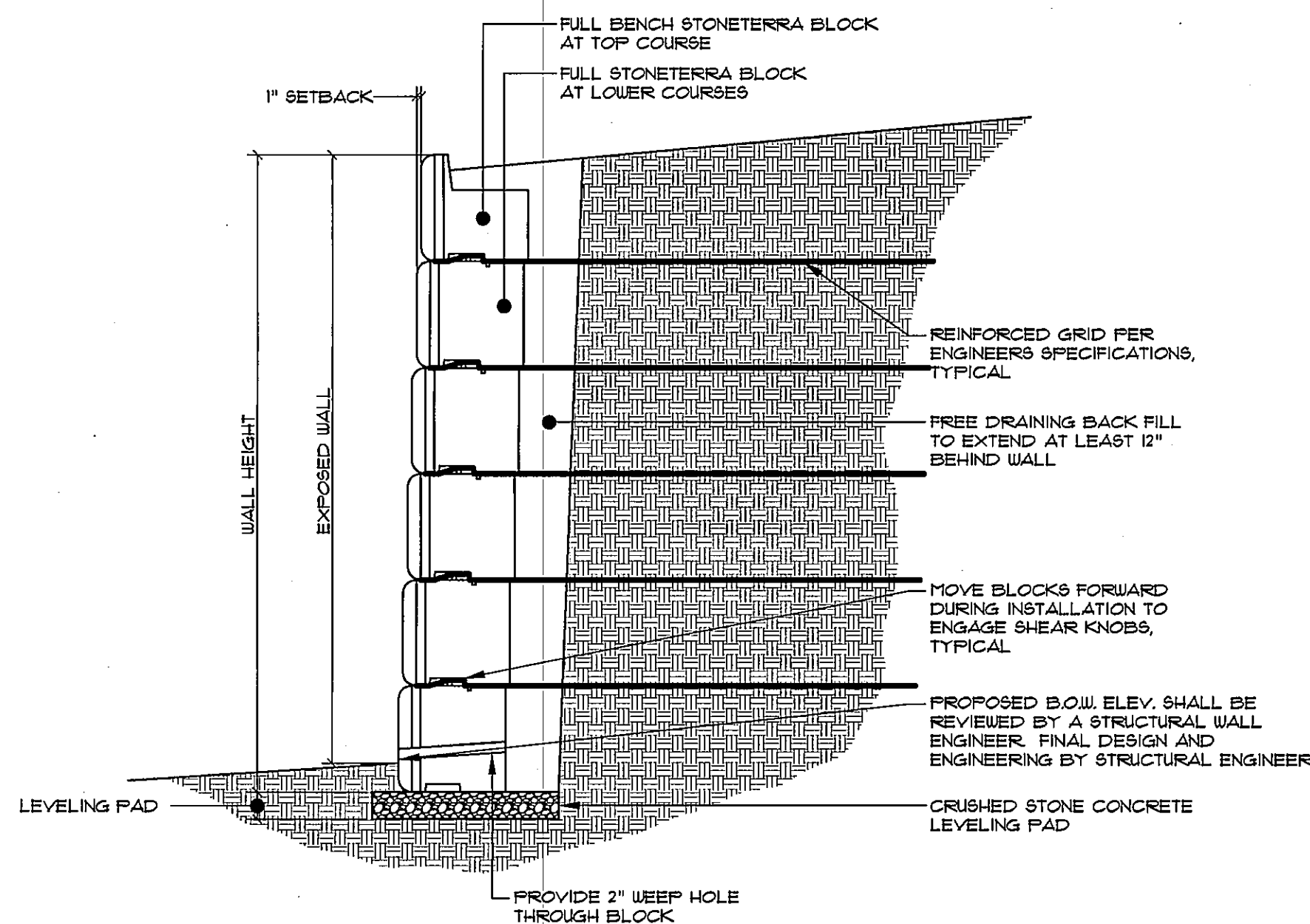
NOTE: ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY



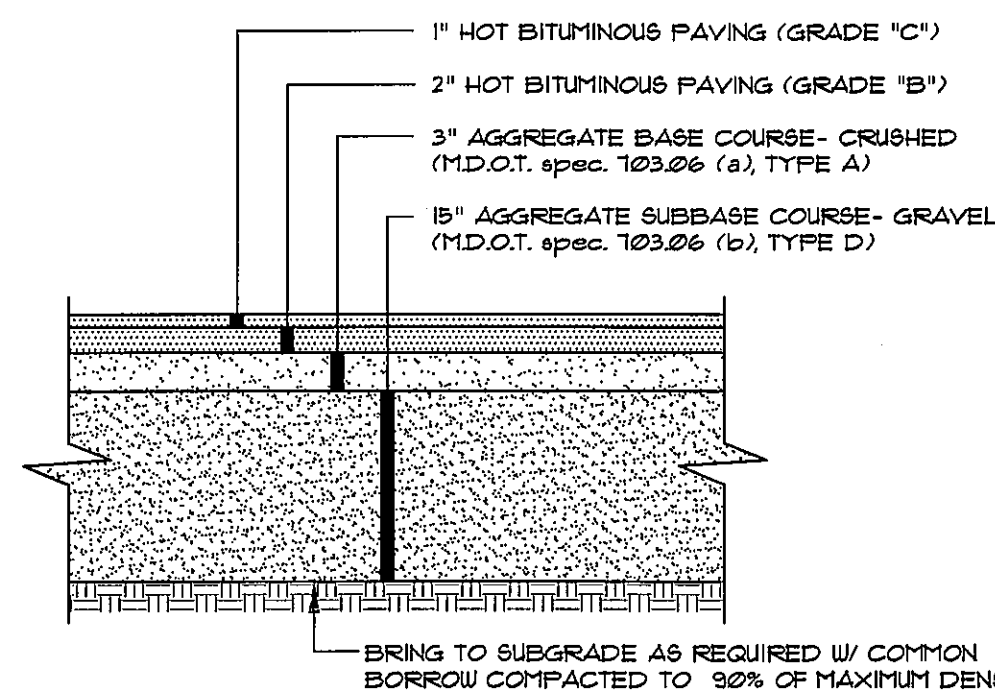
TYP. PIPE INSTALLATION DETAIL-CUMBERLAND AVE.
NOT TO SCALE



SECTION THRU EARTH TRENCH
NOT TO SCALE



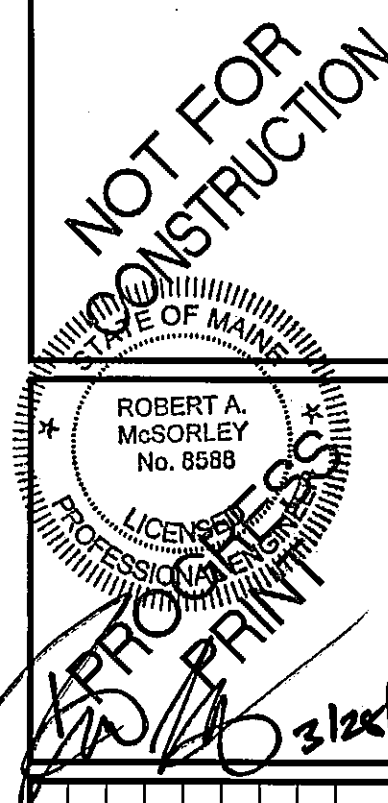
STONETERRA WALL SYSTEM DETAIL
NOT TO SCALE



NOTES:

- COMPACT GRAVEL SUBBASE, BASE COURSE TO 92% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
- CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

TYP. PAVED PARKING LOT SECTION
NOT TO SCALE



#	REV.	BY	DATE	STATUS

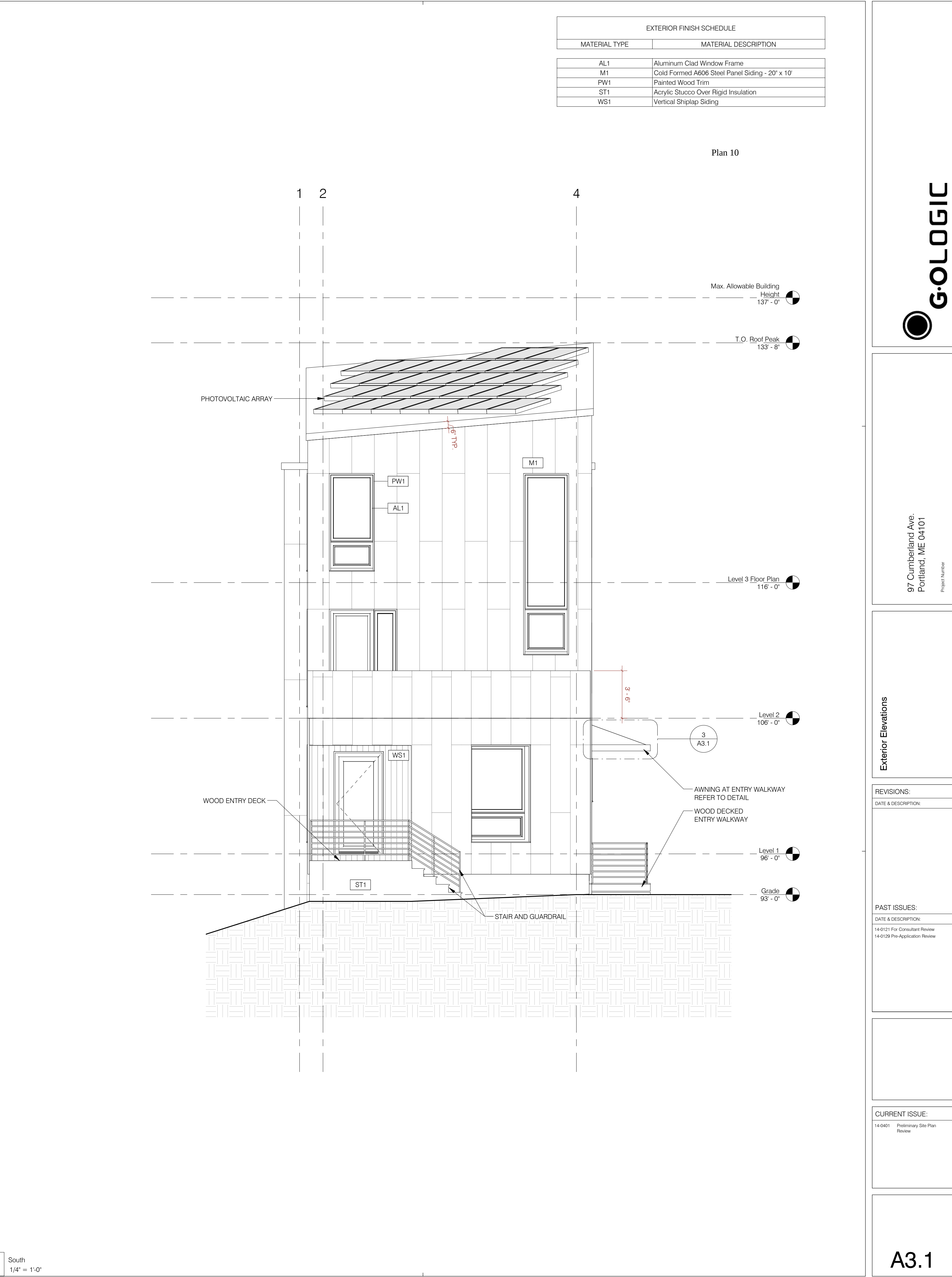
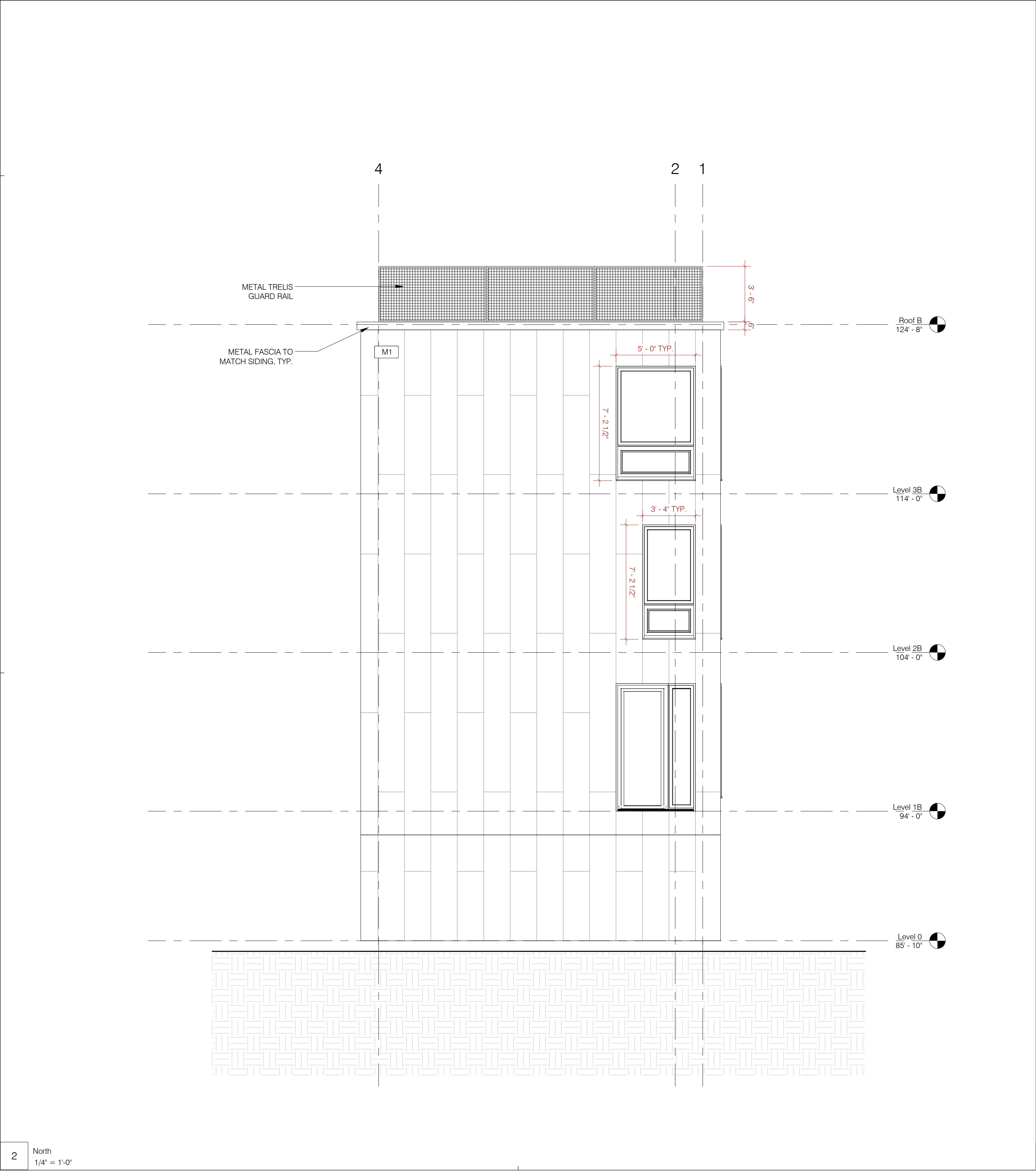
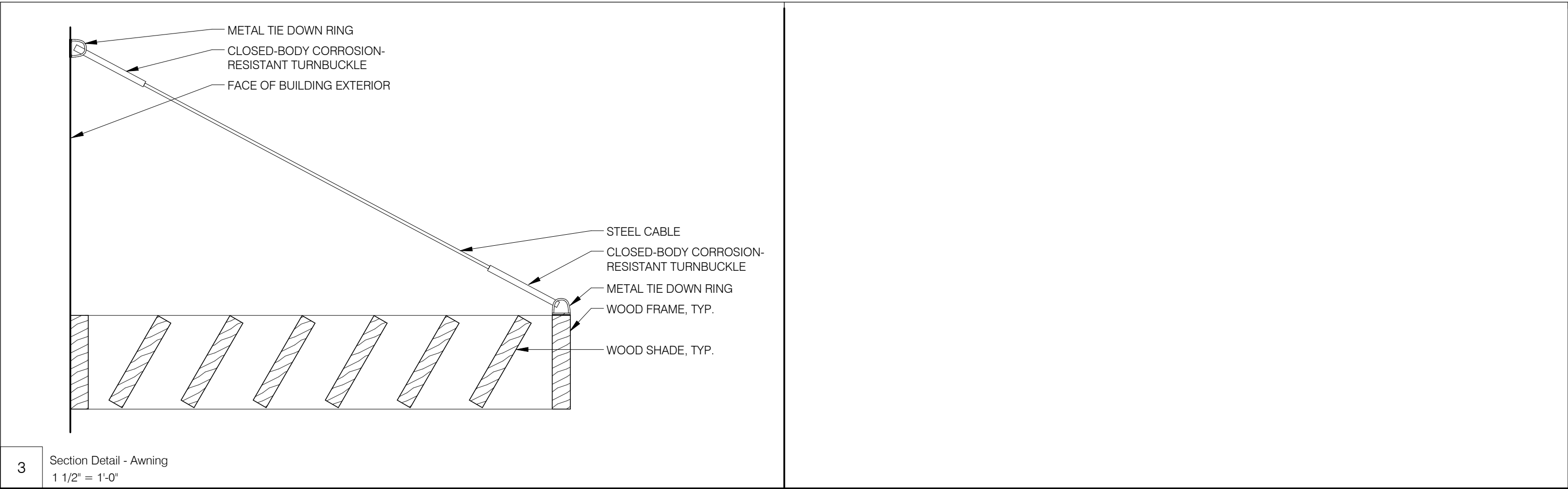
SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Road, Suite B
South Portland, ME 04106
Tel: 207-793-8586

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	SGD	JAR
14073					

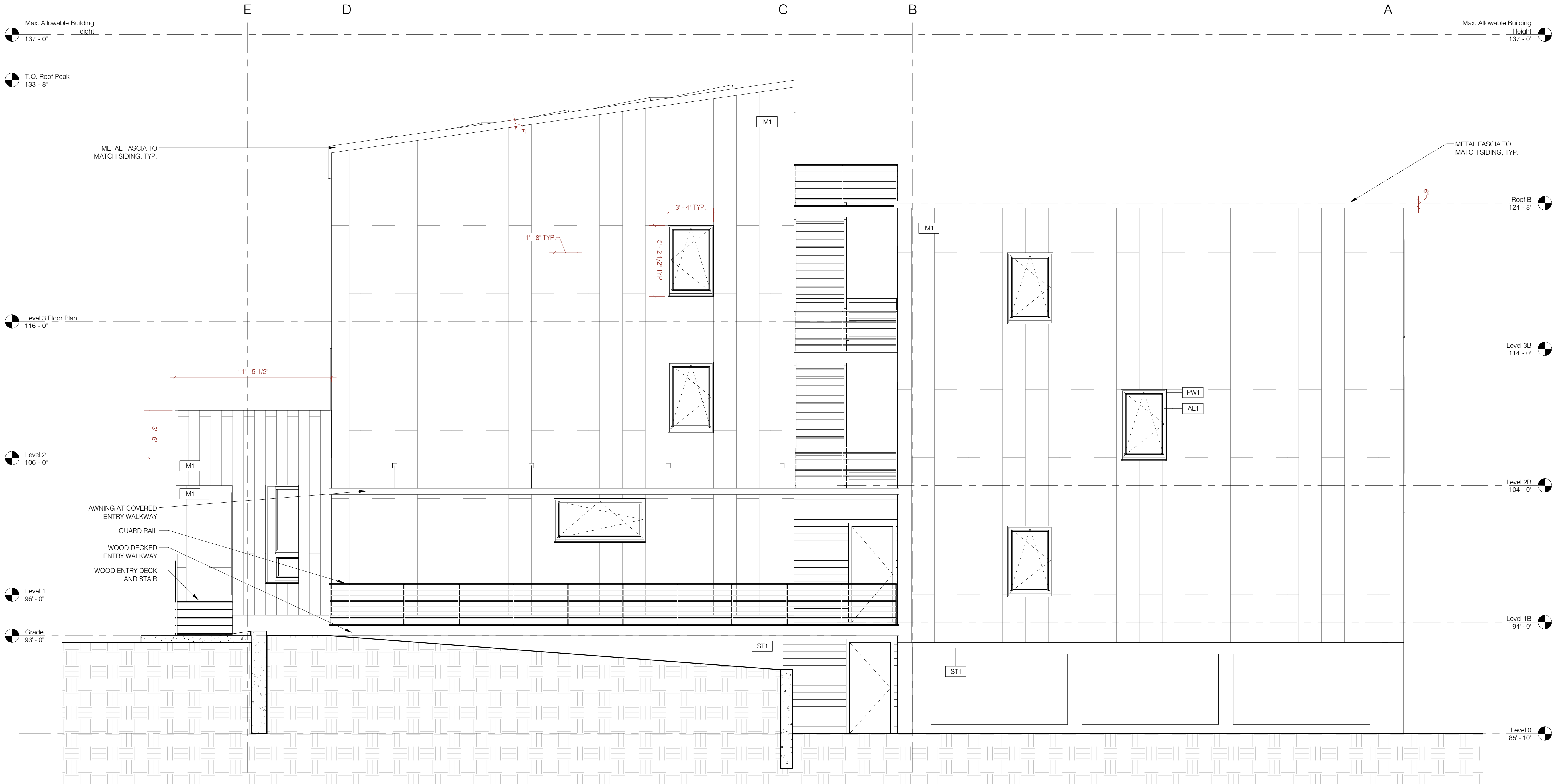
DETAILS
OF: 97 CUMBERLAND AVENUE
PORTLAND, MAINE
FOR: PETER DUGAS
243 STATE STREET
PORTLAND, MAINE

DATE	SCALE
03/24/14	N.T.S.

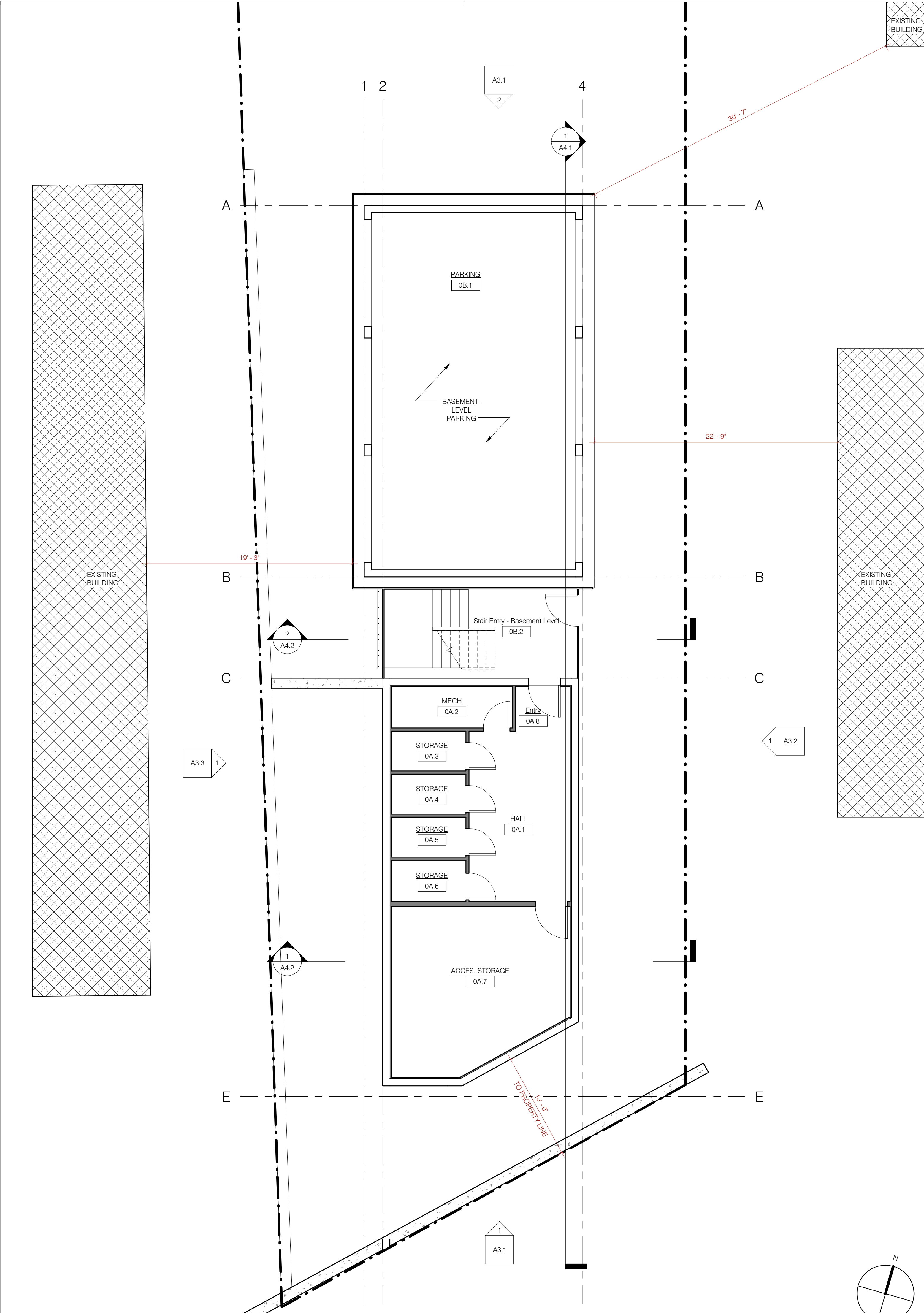
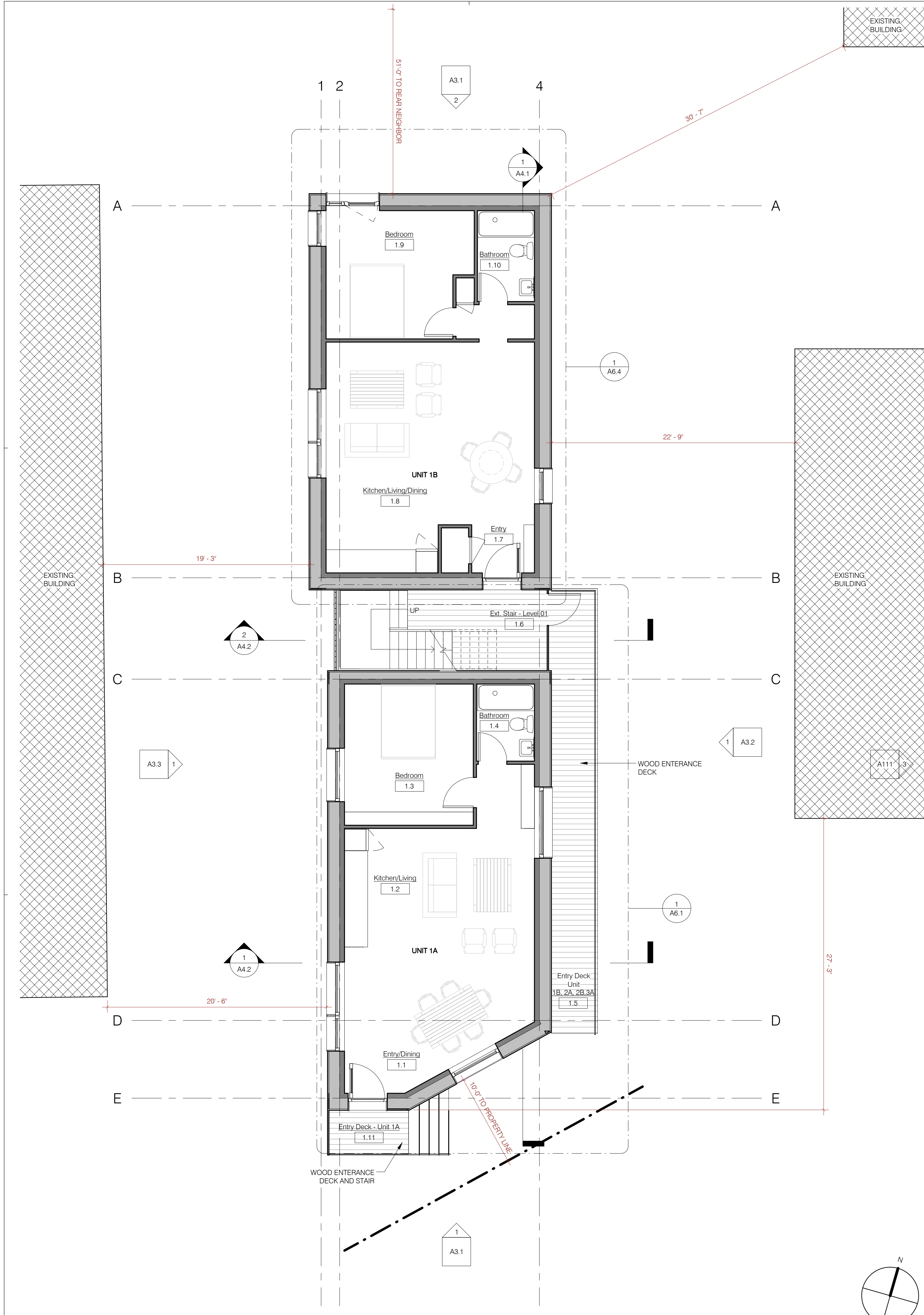
SHEET 5 OF 5



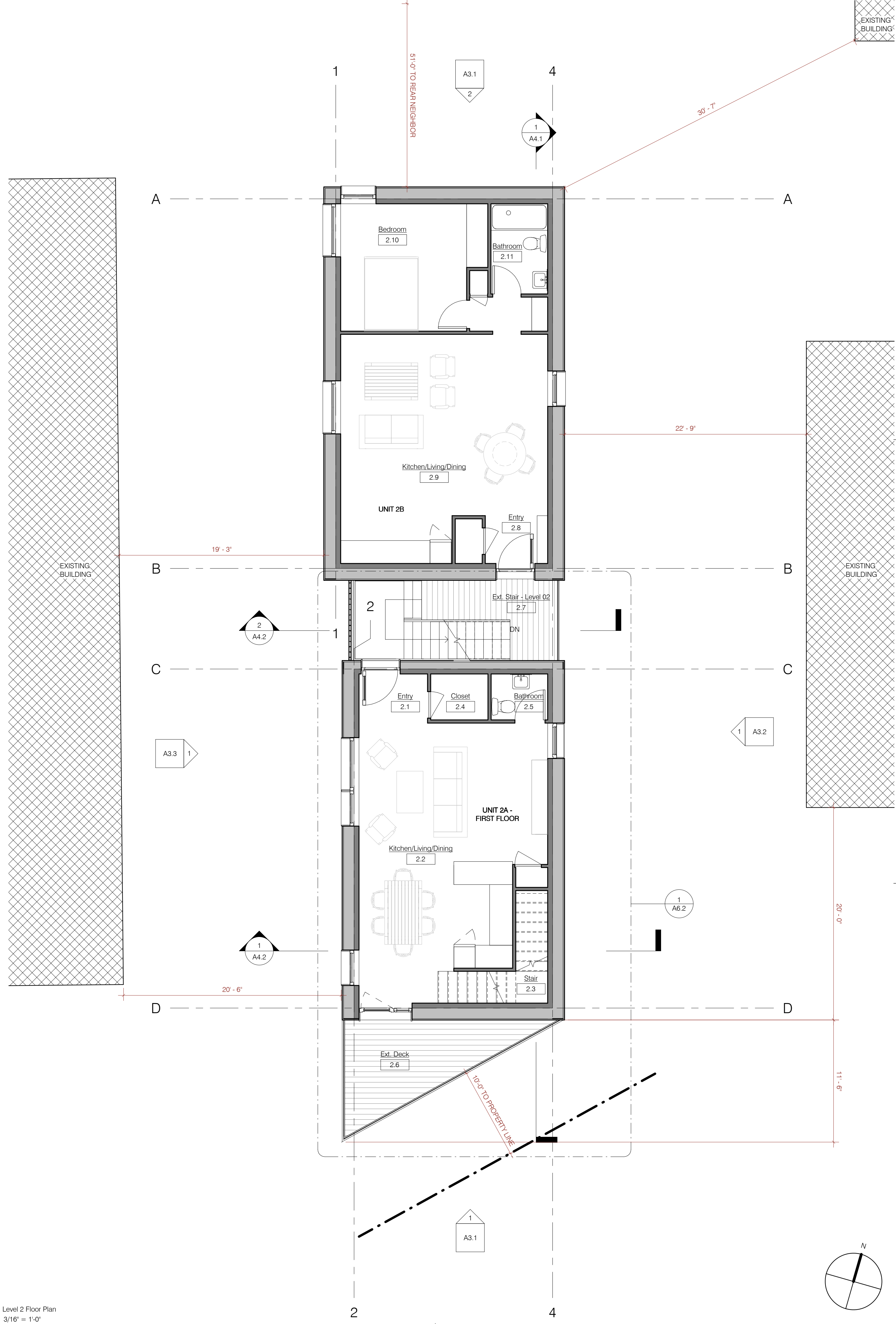
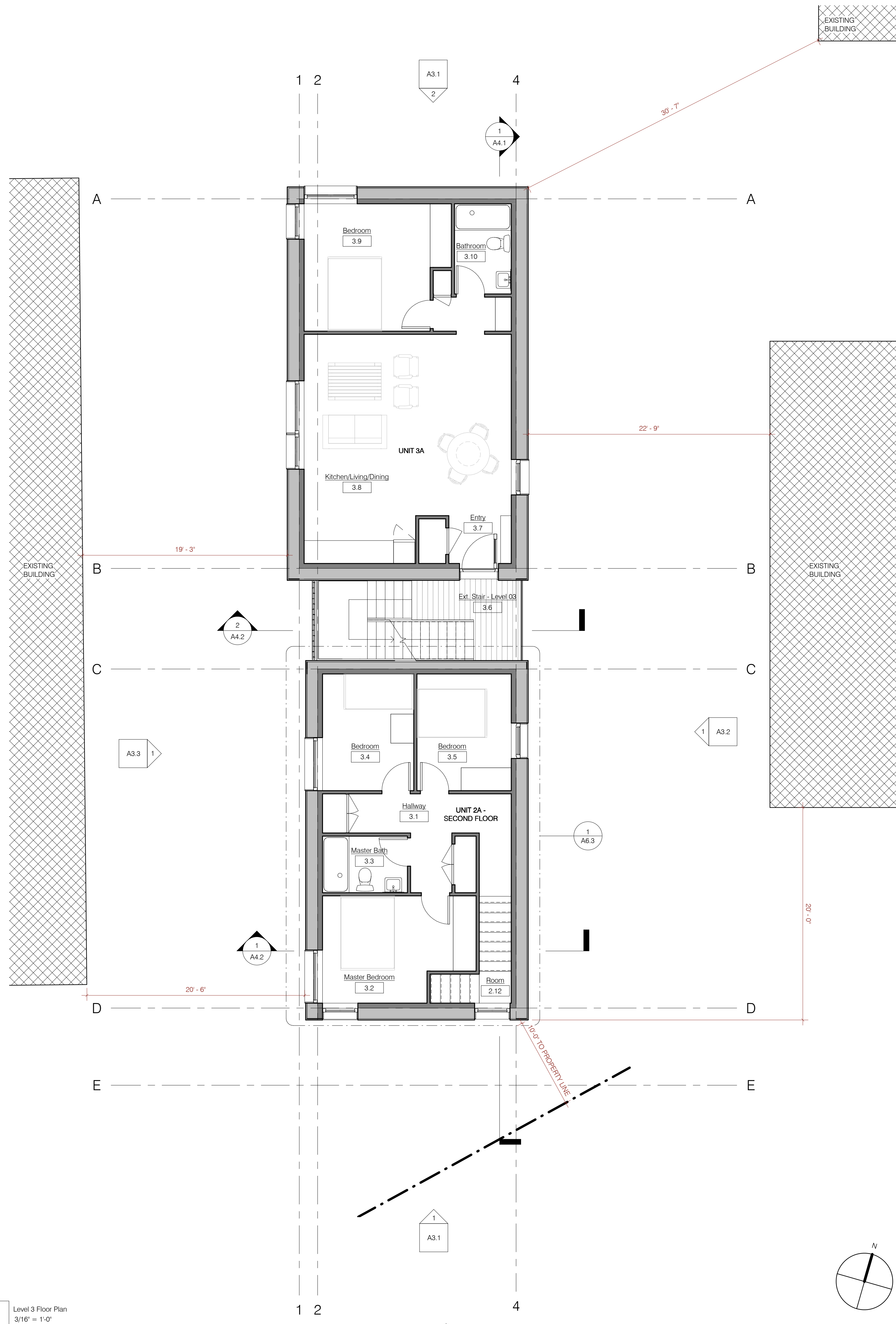
EXTERIOR FINISH SCHEDULE	
MATERIAL TYPE	MATERIAL DESCRIPTION
AL1	Aluminum Clad Window Frame
M1	Cold Formed A606 Steel Panel Siding - 20" x 10"
PW1	Painted Wood Trim
ST1	Acrylic Stucco Over Rigid Insulation
WS1	Vertical Shiplap Siding

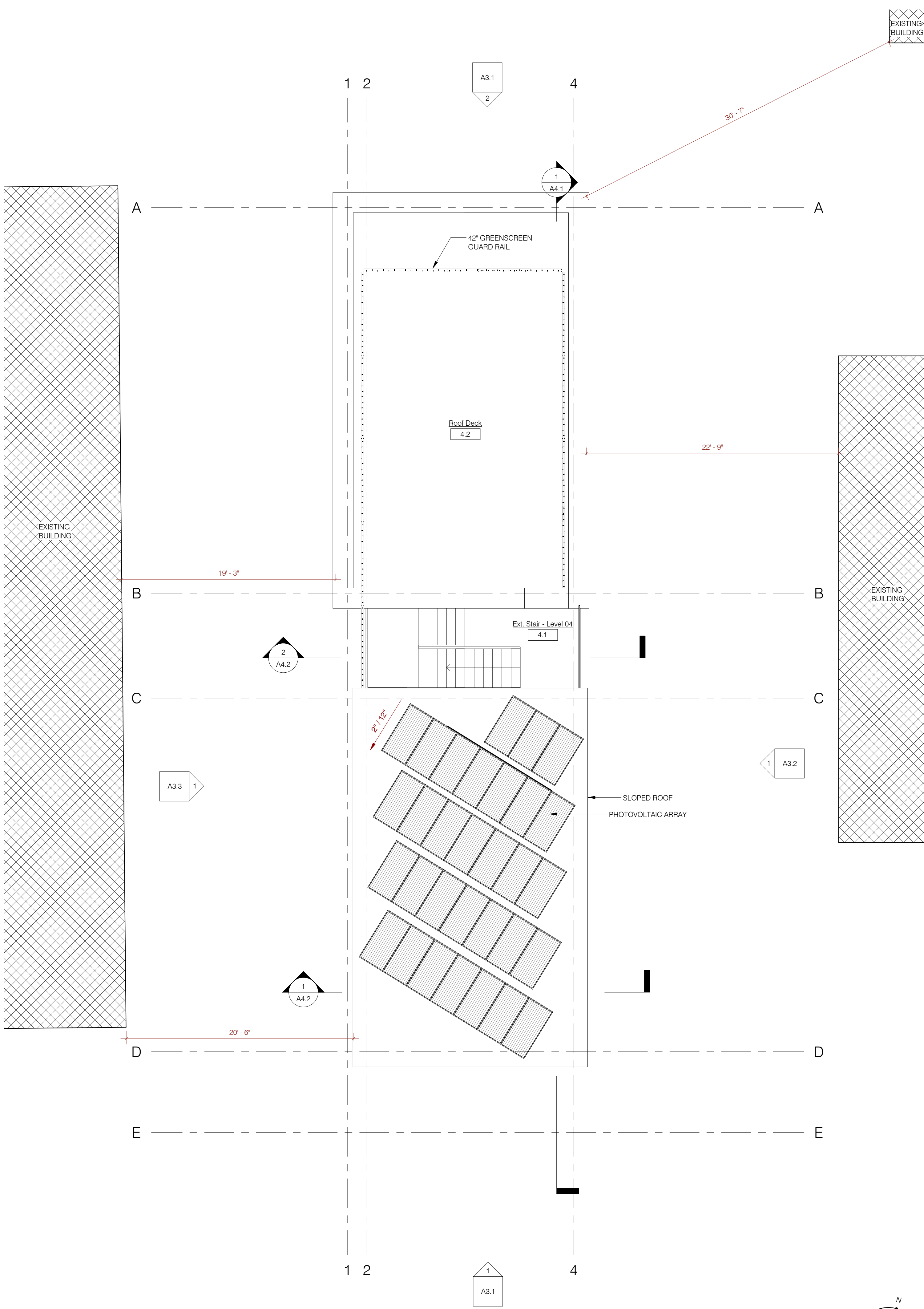


[illegible]



REVISIONS:
DATE & DESCRIPTION:
PAST ISSUES:
DATE & DESCRIPTION:
14-0121 For Consultant Review
14-0129 Pre-Application Review





1 Roof Plan
3/16" = 1'-0"





MEMORANDUM

TO: Chair O'Brien and Members of the Portland Planning Board

FROM: Alex Jaegerman, Planning Division Director

DATE: May 27, 2014

SUBJECT: Jetport Business Park Subdivision – Waiver of Joint Meeting with South Portland Planning Board – Third Amended Subdivision

Background: As the Board will recall, on March 11, 2014, the Planning Board voted to waive the State requirement for a joint meeting of a subdivision that straddles two communities, in respect to the DHHS project in South Portland. Recently there was a land transfer proposed to convey land from the DHHS lot to the two lots in the Johnson Road Subdivision, aka Jetport Park Subdivision that were the location of the access and utility easement to serve the DHHS building. The South Portland Planning Board has approved the land transfers as an amendment to the aforementioned subdivision, and has waived the requirement for a joint meeting with the Portland Planning Board. The South Portland Planner, Steve Puleo, and Michael King, representing the developer of the DHHS building, have requested that the Portland Planning Board consider a reciprocal waiver of joint meeting.

Request for Waiver of Joint Meeting: Section 30-A MRSA Section 4403(1-A) stipulates that when a subdivision under review contains land within the jurisdiction of two municipalities, the Planning Boards of both municipalities shall hold a joint review meeting, unless both Planning Boards agree in writing to waive this joint meeting requirement. After discussing this project with the South Portland Planning Department and internally, we recommend that the joint meeting between the Portland and South Portland Planning Boards be waived in this case. While there might be occasion to bring these Boards together to consider matters of mutual interest, this amendment involving the transfer of land to abutting lots does not warrant such a meeting.

The South Portland Planning Board approved the amended subdivision and waiver of joint meeting on May 13, 2014. Attachment 2 is the subdivision (excerpt below) showing the land triangles annexed to lots 5 and 6 of the subject subdivision.

City of Portland Planning Board
Waiver of Joint Municipal Subdivision Meeting Requirement

Re: Third Amended Subdivision, Johnson Road Subdivision, Jetport Boulevard, South Portland (Joint Municipal Planning Board Review Waiver; 30-A MRSA § 4403(1-A))

Findings of Fact

1. The contract owner of the property adjoining the Johnson Road Subdivision is Jetport State Building, LLC ("Jetport"), which is conveying property to abutting lots within the Jetport Park Subdivision, which requires an amendment to the Jetport Park Subdivision ("JPS"), also known as the Johnson Road Subdivision. This subdivision straddles the municipal boundary between Portland and South Portland so that there are lots in the subdivision in both Portland and South Portland.
2. Jetport's property is located at or about 151 Jetport Boulevard in South Portland. Its property is further identified as Lot 3E, on South Portland Assessor's Map 46.
3. The applicable State subdivision law, 30-A MRSA Sec. 4403(1-A), requires that if any portion of a subdivision crosses municipal boundaries review or amendment to such a subdivision must be reviewed by a joint meeting of the two planning boards unless both boards, upon written agreement waive such a joint meeting. The applicant formally requested that both planning boards agree to waive the joint meeting.
4. On May 13, 2014, the South Portland Planning Board voted to approve the amended subdivision, subject to conditions and waived the requirement for a joint meeting.
5. After having had an explanation of the factual background, the legal requirements and the applicant's preference for granting such a joint meeting waiver, the Planning Board hereby determines that the underlying purposes of the applicable subdivision laws, both State and local, will remain properly protected and promoted by waiving the joint meeting between the Portland and South Portland Planning Boards.

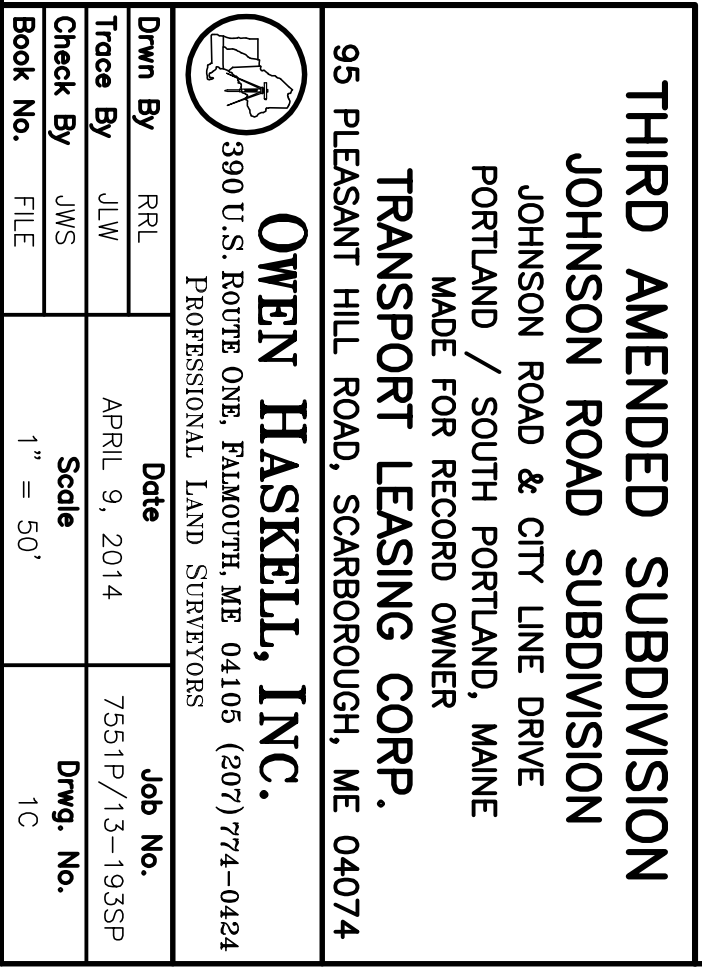
Decision

Based on the above stated facts, the Portland Planning Board, with a quorum present, voted on **[Date, Vote Record]** to grant a waiver of the requirement under 30-A MRSA Sec. 4403(1-A) for a joint review with the South Portland Planning Board and thereby authorizes its chair to sign this waiver form.

Date: _____

By: _____

Stuart G. O'Brien,
Its Chair





PLANNING BOARD REPORT PORTLAND, MAINE

Six unit Commercial Building
421 Warren Avenue
Final Level III Site Plan
Project ID 2014-016 CBL 296-A006001
PH Warren Avenue, LLC, Applicant

Submitted to: Portland Planning Board
Public Hearing Date: May 27th, 2014

Prepared by: Jean Fraser, Planner
Date: May 23rd, 2014

I. INTRODUCTION

Steve Bushey of Fay, Spoffard & Thorndike, on behalf of P H Warren Avenue, LLC, has submitted a Final Level III Site Plan for a proposed single story industrial building of 25,040 sq ft floor area to create a 6 unit commercial complex with 26 parking spaces. It is proposed to be accessed via an existing drive that currently serves 429 Warren Avenue (also owned by the applicant).

This project was the subject of a Planning Board Workshop on March 18, 2014, although at that time the proposal was for a 28,000 sq ft building with 7 larger units and a larger paved area that impacted substantially more wetland.

The proposed building is located on a 9.2 acre site that is part of the 48+ acre site known as “Warren Green”. The applicant has purchased the whole of the “Warren Green” site (see [Plan P1](#) and [Attachment 7](#)) and is currently in discussions regarding the possible sale of part or all of the remainder of this larger site to the City. The City would like to acquire some part of the area to enhance water quality and preserve water resources in the Capisic Brook watershed. The applicant also owns the properties abutting both sides of the project on the Warren Avenue frontage.

The proposed development of commercial units does not create a subdivision under State law or City ordinances, as both relate to dwelling units only.

A total of 116 notices of this Hearing were sent to property owners within 500 feet and to interested citizens and a notice was published in the May 19th and 20th, 2014 editions of the *Portland Press Herald*. The applicant held a public information meeting on March 17, 2014 regarding the associated MDEP application to fill in wetlands on part of the site, which was noticed widely. A Neighborhood Meeting was held on April 30, 2014 and attended by 6 neighbors ([Attachment M](#)). To date the Planning office has not received any written public comments although there have been telephone inquiries.

Required reviews: The site plan is being reviewed under the Land Use Code provision 14-526 (Site Plan). The project is located within the Capisic Brook Watershed District and must obtain a Stormwater Permit from the City of Portland (delegated review). The project requires a Natural Resources Protection Act (NRPA) approval from the Maine DEP (Tier I permit for wetland fill).

Required waivers: Three waivers are identified in the table below. The applicant has not addressed the tree preservation and landscaping ordinance and waivers may be requested in the context of that requirement.



<i>Requested Waiver</i>	<i>Standard and any waiver provisions</i>
Driveway Design: the access driveway into the proposal site is 45 feet in width and exceeds the maximum in order to allow for the large vehicles anticipated to require regular access to the site and to avoid conflict with the existing turning movements and traffic flows on the joint access drive.	<i>Technical Manual Section 1.7.1.4</i> which specifies a maximum of 36 feet wide for a major commercial driveway. (Note: the driveway is off of a private drive jointly serving the project not directly off of a public street; Tom Errico, Traffic Reviewer, supports the waiver.)
Parking Lot and Parking Space Design: The parking aisles are up to 68 feet in width to allow for circulation by truck vehicles and therefore exceed the maximum width.	<i>Technical Manual Section 1.14</i> which specifies a maximum of 24 feet for parking aisles. Tom Errico, Traffic Engineer, supports the waivers in view of the anticipated tenants.
Bicycle Parking Spaces- waiver requested from the requirement, as 2 are proposed outside and the applicant considers that tenants will likely store bicycles in their units.	Ordinance 14-526 Site Plan Standards requires 2 bicycle parking spaces for every 10 required vehicle parking spaces, which would be 4 bicycle parking spaces for this project.

II. PROJECT DATA

<i>DATA</i>	<i>Original Proposal (as for March Workshop)</i>	<i>Final Proposal (as reviewed in this hearing report)</i>
Total Site Area	418,393 sq ft	409,000 sq ft
Existing Zoning	B4	B4
Existing Use	Vacant, flat gravel	Vacant, flat gravel
Proposed Uses	Commercial units for rent	Commercial units for rent
Proposed structure height	21 feet	21 feet
Total Disturbed Area	110,207 sq ft	74,809 sq ft
Existing impervious areas	0	0
Proposed impervious areas	82,764 sq ft	56,252 sq ft
Increase in impervious area	82,764 st ft	56,252 sq ft
Existing wetland	3.5 to 4 acres	3.5 to 4 acres
Proposed wetland fill	25,093 sq ft	14,323 sq ft (see NRPA Permit in <u>Att N</u>)
Existing building footprint	0	0
Proposed building footprint	28,000 sq ft	25,040 sq ft
Proposed floorspace	28,000 sq ft	25,040 sq ft
Proposed parking as required by zoning	41 proposed; 28 required by zoning	36 proposed; 25 required by zoning
Proposed bicycle parking	4 (4 required by Ordinance)	2 (4 required by ordinance)
Estimated Cost of Project	\$1.5 million	\$1.5 million
Uses in Vicinity:	Mixed commercial along Warren Avenue; undeveloped at rear	Mixed commercial along Warren Avenue; undeveloped at rear

III. EXISTING CONDITION

The part of the site nearest to Warren Avenue, where the new building is proposed, is about half cleared with gravel and the remainder is wetland mixed with vegetation, including many trees. The rear part of the lot (approximately 7 acres) is mostly fingers of wetland which are part of a much larger area of wetland (Attachment 7 shows wetland over the wider “Warren Green” site).

Photo submitted by applicant



The lot is bounded on the west and east (nearest Warren Avenue) by commercial developments similar to the proposed project and owned by the applicant. The commercial development to the west is 429 Warren Avenue (2 buildings totaling about 35,000 sq ft) in the same ownership as the proposal site. It is served by an existing 36 foot wide access drive from Warren Avenue, and this is proposed as a shared access for the new commercial building.

There are bituminous sidewalks along the frontage and a former (now unused) curb cut on the site.

IV. PROPOSED DEVELOPMENT

The proposal plans (Plans P3. to P20.) show the layout and physical site work on the southern part of the lot where the new development is proposed, with the building elevations in Plan P20. The development has been reduced in scale so there is 35,000 sq ft less disturbed area and the impervious surface is reduced by approximately 26,500 sq ft.

The revised layout comprises a new single story 110 foot (at widest) by 300 foot L-shaped building containing 6 commercial units: 4 units at 3,500 sq ft each; and 2 units of 5,500 sq ft each, to total 25,000 q ft. Each unit will have an overhead door and pedestrian door and initially have an open interior to be leased and modified by small business users.

The parking has been reduced to 36 spaces, largely located near the front of the units with some around the periphery of a large paved area accessed by a 45 foot wide drive onto the joint access drive to Warren Avenue. Drainage will be managed by gravel wetlands to the rear of the building and along the joint access drive, and just over 14,323 sq ft of existing meadow and tree wetland will be filled in to accommodate the development. The impact on wetland is greatly reduced from the earlier proposal, which required filling of over 25,000 sq ft of wetland.

The proposals include the provision of three street trees in the Warren Avenue ROW but no other tree planting or reinstatement planting is proposed. Where the new access is created from the joint access drive, a few shrubs and boulders are proposed.

V. PUBLIC COMMENT and WORKSHOP

A. Public comments: There were no public comments at the time of the Planning Board Workshop and one written comment was received recently from a neighbor Maria Kerley on Iffley Street (PC1) expressing concerns about the impacts of this proposal. At the public meetings arranged by the applicant it is understood that some local residents indicated they would like the remaining land to be sold to the City. The sale of the rest of the lot is not an issue before the Board.

B. Planning Board comments: The Planning Board requested further explanation of the expanse of paved area associated with the first proposals, and sought clarification regarding tree saves and planting. The applicant has revised the proposals to reduce the building size (by 3000 sq ft) and this has resulted in a smaller area of paved surface and reduced wetland fill. The question of treesaves and planting has been addressed by the applicant but staff have suggested that this aspect needs further attention.

VI. RIGHT, TITLE AND INTEREST

The applicant has submitted evidence of ownership of the larger lot (48+acres) in a deed recorded in June 2013 at the Cumberland County Register of Deeds at Book 30781 Page 74. The owner has indicated that the 9.2 acre site will be retained and some or all of the remainder will be sold in due course, with a transfer to the City currently under discussion. Since the basis of the review is the 9.2 acre site (regarding compliance with numerical standards and dimensions), a potential condition of approval has been included to ensure that any sale of the remainder of the lot retains the development site so that it is substantially as presented in this report:

That this approval relates to the 9.2 acre site identified in Plan P6 fronting onto Warren Avenue, which at the time of this approval is part of a 48+acre site owned by the applicant. If any part of the 48+acre lot is sold off or further developed, the applicant would need to retain the 9.2 acre site that is subject of this approval and include it in any subdivision review, or otherwise obtain verification from the Zoning Administrator and Planning Authority that the subject site, as created by any sale, remains in conformity with zoning and site plan requirements; and

The proposal is accessed via a joint access with the neighboring development and some of the site development, including the driveway, some parking and landscaping, is located outside the subject parcel. At present the applicant

owns both the abutting and subject parcels, but one or both could be sold in the future. A potential condition of approval requires a joint access easement which includes shared rights for the drive access from Warren Avenue, and rights for the paving and local drive access, parking, landscaping and other elements that are encroaching on the abutting lot.

VII. STAFF REVIEW

A. ZONING ASSESSMENT

The revised final proposals have been reviewed by Marge Schmuckal, Zoning Administrator, and she has confirmed:

I have reviewed the revised project that reduces the size the square footage of the building and number of units to 6 from 7. I also reviewed the responses to my previous comments. All the B-4 requirements are being met. Again, a permit is required for the principal structure and separate use permits are required for each unit before occupying. Separate permits are required for all signage. ([Attachment 5](#))

B. SITE PLAN STANDARDS

The review has addressed the 9.2 acre parcel that is described on the submitted data sheet. The remainder of the 48+acre lot is not reviewed as it is intended to be transferred and not benefit the subject site.

A. Transportation

1. Impact on Surrounding Street system

The proposed development utilizes an existing access that currently serves the commercial units at 429 Warren Avenue (aka 424 Warren) , which serves just over 35,000 sq ft warehouse/commercial space plus ancillary offices. Tom Errico, the Consultant Traffic Engineer, requested that the applicant provide a traffic generation estimate for the proposed project as well as for the two existing buildings serviced by the shared driveway, in order to determine whether a Traffic Movement Permit (TMP) is necessary ([Attachment 3](#)). The applicant has submitted this information ([Attachment L](#)) and Mr Errico has confirmed a TMP is not required ([Attachment 3](#))

2. Access and circulation, loading and servicing

The access into the new site has been revised from a 60 foot wide curb cut to a 45 foot wide curb cut, branching from the existing access drive from Warren Avenue that currently serves 429 Warren (two existing warehouse /industrial /commercial buildings) (See [Plan P6](#)). The new internal curb cut opens immediately into a large area of pavement that extends about 110 feet out from the new building in the central area, narrowing to 80 feet from the new building at south end and partially wrapping around the building at both ends. This area provides access to the units by large vehicles, including tractor-trailers, and includes parking around the periphery and an area alongside the building for the snowplow ([Attachment O](#)).

The revised proposals appear to include pavement at the north end that is not required for the large tractor-trailer turning movements (as shown in [Plan P21](#)) nor for fire access or parking ([Attachment 3](#)). Staff requested a further explanation of the need for this particular shape of paved area and the applicant has addressed these questions in [Attachment O](#).

Tom Errico, Traffic Reviewer, has provided the following final comments and confirmed that he supports waivers for the driveway entrance and aisle widths ([Attachment 3](#)):

- *The proposed driveway entrance exceeds City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the wide driveway.*
Status - In response to this comment, the applicant has reduced the size of the driveway. The revised driveway width continues to exceed the City's standard. Based upon a review of a truck turning template graphic, I find the proposed driveway design to be acceptable and therefore I support a waiver from City standards.
- *The aisle widths in the internal parking/circulation area do not meet City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the expanded pavement areas.*
The applicant has provided a truck turning template graphic that shows a significant portion of the parking lot will be required for very large truck maneuvers. The graphic also illustrates

that the trucks will require use of areas that are noted as general passenger car parking spaces. From a traffic perspective the paved area will not present safety or circulation problems. The applicant will need to coordinate closely with tenants to ensure parking areas will not constrain large truck maneuvers. It is my understanding that the applicant has experience managing this type of situation. Given that the site is somewhat contained and is set back from Warren Avenue, I find conditions to be acceptable and support a waiver for parking lot aisle width.

3. Pedestrian Access

Each of the proposed 6 units have a pedestrian entrance from the central paved area which also provides parking spaces (Plan P6). Tom Errico, Traffic Reviewer, had requested a pedestrian link from the sidewalk to the building entrances, and marking of the area along the front of the building to identify a pedestrian route (Attachment 3).

The revised proposals include the pedestrian connection from the new building to the Warren Avenue sidewalk, but have not indicated the painted marking for the pedestrian route along the front of the building and across to the pedestrian link. A potential condition of approval has been included, at Mr Errico's recommendation, to include the painted markings for the pedestrian route.

4. Parking Requirements

The proposal includes 36 parking spaces, distributed around the perimeter of the central access area to serve the units. The zoning requirement would be 25 spaces (1 per 1000 sq ft). The additional parking is not directly creating the need for the shape of the paved area. In view of the unknown mix of tenants, staff consider the number of parking spaces to be acceptable.

5. Bicycle Parking Requirements

The ordinance standard for this development is 2 bicycle parking spaces for every 10 required vehicle parking spaces, ie 4 bicycle parking spaces. The applicant has provided 2 bicycle parking spaces in a rack near Warren Avenue and requested a waiver for the other 2 spaces based on the expectation that employees with bikes would store them within the units. Staff agree that in this case the two spaces for visitors is adequate and support the waiver.

6. Snow Storage

The site plan (Plan P6) does not specifically call out snow storage. The proposed paved area is likely to provide adequate area for snow storage, but the proposed wetland cells, swales and erosion control features about the paved area and a Snow Storage Plan is required to ensure that these areas are not used for snow storage. A potential condition of approval requests that snow storage areas be shown on the requested Landscape Plan.

Note: Public Transit Access and TDM requirements do not apply to this project.

B. Environmental Quality

1. Landscape Preservation

Preservation of a percentage of large trees within the setbacks of the 9.2 acre site is an Ordinance requirement. The City Arborist had previously requested a tree save plan but the applicant has indicated in Attachment L (page 10) that this is not required because the remaining 40 acres addresses this requirement. The evaluation of this proposal is based on the site of 9.2 acres described on the data sheet and staff consider that if there are any large trees near the edge of the proposed paved area, that they should be identified for protection on a plan. Staff have not suggested that the project be scaled down in order to protect trees, as the waiver provision in the ordinance would allow the applicant to remove and replace (elsewhere on the site) any large trees. A potential condition of approval covers this concern and other landscaping issues as discussed below.

2. Site Landscaping and Street Trees

The Site Plan (Plan P.6) shows three street trees and a few shrubs and boulders near the new access from the joint drive. The Site Plan and zoning ordinances include the following requirements which apply to this site and have been met by other developments on Warren Avenue:

B4 Zoning Requirement:

- (a) *Landscaping and screening:* The site shall be suitably landscaped for parking, surrounding uses and accessory site elements including storage and solid waste receptacles where required by article IV (subdivisions) and article V (site plan).

Site Plan Standards:

- (ii) *Parking Lot Landscaping:*
 - (a) *Developments with five (5) or more parking spaces shall include at least two (2) trees (or one (1) tree and three (3) shrubs) per five (5) parking spaces planted in landscaped islands to screen shade and break up parking. Trees and shrubs in parking lots may be in informal groups, straight rows, or concentrated in clusters as detailed in Section 4 of the Technical Manual.*
 - (b) *Landscaped islands shall be distributed so that uninterrupted pavement does not exceed forty (40) parking spaces.*
 - (c) *Landscaped islands shall be curbed and a minimum of eight (8) feet in width, not including curbing. The incorporation of bioretention into landscaped islands is strongly encouraged.*

As noted at the Workshop, planting is also needed for the proposed gravel wetlands and staff suggest a separate Landscape Plan for this, along with parking lot landscaping and replacement trees. A potential condition of approval is included to cover these issues along with tree preservation.

3. Stormwater Management

The proposals result in creation of new impervious areas that total 56,252 sq ft, of which the new commercial building accounts for just under a half (25,000 sq ft). The area of impervious surface has been reduced from over 80,000 sq ft in the revised proposals. The project also results in the filling of 14,323 sq ft of wetlands and the applicant has applied for a Tier I Permit under NRPA. The site is within the Capisic Brook Impaired Watershed.

The applicant has submitted a final Stormwater Management Report (Attachment K) and Dave Senus, consulting engineering reviewer, has confirmed that the overall proposals are acceptable subject to some minor conditions (Attachment 1) that have been included in the motion for the Board to consider. These include the requirement for an in-lieu compensation fee of \$6,950 because the project is required to comply with the Urban Impaired Stream Standard.

C. Public Infrastructure and Community Safety Standards

1. Consistency with City Master Plans

The Department of Public Services (David Margolis-Pineo) has commented (Attachment 2):

Since the curb cut on Warren Ave in front of this project is not proposed to be used, the applicant is requested to close the curb cut. The curbing shall be set in concrete to match the abutting curb work... Warren Ave in this area is currently under a pavement moratorium until October 26, 2014. However as long as the applicant does not encroach the pavement more than two feet from the face of curb, no moratorium repair will be requested if the work is done before this date.

The applicant has agreed to close this curb cut in the submitted narrative (Attachment L) but it is not shown on the plans. A suggested condition of approval requests this be shown in the site plan in Plan P6.

2. Public safety

The proposals are acceptable as they include lighting and a pedestrian link along the front of the building and connecting to the sidewalk on Warren Avenue.

3. Fire prevention

Captain Chris Pirone has outlined his concerns (Attachment 6) but further discussion is necessary to determine whether and where an additional hydrant is needed, whether the sprinkler connection is adequate. A potential condition of approval addresses this outstanding issue.

D. Site Design Standards

1. Site Lighting

The proposed lighting fixtures are included in Attachment J (at end) and the Photometric Plan is included in Plan P7; both meet the City's Technical Standards.

2. Construction Management Plan

The final submission includes an acceptable Construction Management Plan (Attachment H).

VIII. STAFF RECOMMENDATION

The Planning staff recommend approval of this project subject to the suggested conditions of approval as cited in the proposed motions.

IX. MOTIONS FOR THE BOARD TO CONSIDER

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 May 27, 2014 for application #2014-016 (421 Warren Avenue) relevant to Portland's Technical and Design Standards and other regulations, and the testimony presented at the Planning Board hearing:

1. The Planning Board (waives/does not waive) Technical Design Standard Section 1.7.1.4 which specifies a maximum of 36 feet wide for a major commercial driveway, to allow the drive entrance to be 45 feet wide.
2. The Planning Board (waives/does not waive) Technical Design Standard Section 1.14 *Parking Lot and Parking Space Design* to allow the drive aisles to be greater than 24 feet, as shown on Plan P6.
3. The Planning Board (waives/does not waive) Section 14-526 (a) (4) (b) and (c) Bicycle, Motorcycle and Scooter Parking to allow the proposed parking in commercial units to meet the standard, subject to 2 outside bicycle parking spaces being provided as shown on Plan P6.

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 May 27, 2014 for application #2014-016 (421 Warren Avenue) relevant to the Site Plan review and other regulations, and the testimony presented at the Planning Board hearing, the Planning Board finds the following:

1. SITE PLAN REVIEW

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 condition(s) of approval to be met prior to the issuance of a building permit unless stated otherwise:

Potential conditions of approval:

- i. That the applicant shall submit, for the City's Associate Corporation Counsel and Department of Public Services review and approval prior to the issuance of a building permit, and submit recorded copies prior to the issuance of a Certificate of Occupancy for any part of the principal structure, easements for joint use of the existing drive access from Warren Avenue, and paving, local drive access, parking, landscaping and other proposed elements that are encroaching on the abutting lot; and
- ii. That the applicant shall submit a Landscape Plan, based on an a submitted assessment of the trees on the site, that shows the following: tree saves; any required replacement planting; and additional planting; snow storage areas; all to address the landscape preservation and parking lot landscaping requirements of the Site Plan Ordinance (14-526), for review and approval by the Planning Authority and City Arborist; and

- iii. That the applicant shall contribute \$6,950 to the Capisic Brook water quality treatment program to address the required mitigation of project impacts in the Urban Impaired Stream Watershed; and
- iv. That the applicant shall address the Fire Prevention concerns, as outlined in the e-mail from Captain Chris Pirone of the Fire Department dated April 30, 2014, to the satisfaction of the Fire Department; and
- v. The stormwater inspection and maintenance plan should include provisions for the inspection and maintenance of the Roof Drip-line Filtration BMP as outlined in Section 7.6 of Volume III of the MaineDEP Stormwater BMP Manual and the post-construction stormwater management plan requirements outlined in Chapter 32 of the City of Portland Code of Ordinances.
- vi. The developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan submitted and dated February 2014, as revised April 2014, and revised to address condition vi above, 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. A maintenance agreement for the stormwater drainage system shall be submitted and signed for the principal structure with a copy to the Planning Division and Department of Public Services; and
- vii. That the applicant shall close the existing curb cut on Warren Avenue (east of the joint access from Warren Avenue into the site); install three signs along the back of the property where the asphalt ends stating: DO NOT DUMP - IMPAIRED WETLANDS; and shall mark with paint the pedestrian walking area in front of the building and between the building and Warren Avenue sidewalk; all prior to the issuance of a Certificate of Occupancy; and
- viii. That this approval relates to the 9.2 acre site identified in Plan P6 fronting onto Warren Avenue, which at the time of this approval is part of a 48+acre site owned by the applicant. If any part of the 48+acre lot is sold off or further developed, the applicant would need to retain the 9.2 acre site that is subject of this approval and include it in any subdivision review, and obtain verification from the Zoning Administrator and Planning Authority that the subject site, as created by any sale, remains in conformity with zoning and site plan requirements; and
- ix. That the applicant shall submit a copy of the ability to serve (wastewater) letter; and
- x. That separate reviews and permits are required the principal structure and separate use permits are required for each unit before occupation. Separate permits are also required for new signs, including those on the building, and for HVAC systems, which require submission of dBA levels to confirm compliance with the maximum sound limits of the B4 zone.

ATTACHMENTS:

Staff Review comments and background information

- 1. Engineering Review (David Senus, Woodard & Curran) comments 5.15.14 and 3.3.14
- 2. DPS (David Margolis-Pineo) comments 5.7.14, 5.16.14 and 3.11.14
- 3. Traffic Engineering Review (Tom Errico, T Y Lin), comments 5.22.14, 5.9.14 and 3.12.2014
- 4. City Arborist (Jeff Tarling) comments 3.13.14
- 5. Zoning Administrator (Marge Schmuckal) comments 5.21.14 and 3.14.14
- 6. Fire Department (Captain Chris Pirone) comments 4.30.14
- 7. Wider Warren Green Wetlands Plan (2007) (from rezoning files)

Public comments

PC1 Maria Kerley, 56 Iffley Street

Applicant's Final Submittal

- A. Cover letter
- B. Final Site Plan Application

- C. Table of contents of written submission
- D. Sec 1 Project Description and Photos
- E. Sec 2 Technical and Financial Capability and RTI
- F. Sec 3 Utility Letters
- G. Sec 4 Final Fire Safety Info
- H. Sec 5 Construction Management plan
- I. Sec 6 Solid Waste
- J. Sec 7 Narrative re Conformity with Standards and Lighting
- K. Sec 8 Stormwater Management Report
- L. Sec 9 Detailed responses to review comments
- M. Neighborhood Meeting Certificate and notes
- N. NRPA Tier 1 Application
- O. Letter 5.21.2014 re need for paved area

Plans

- P1. Boundary Survey Wider Area
- P2. Site Boundary Survey (C2.0)
- P3. Cover sheet
- P4. General Notes and Legend
- P5. Existing conditions
- P6. Site Layout and Utility Plan
- P7. Lighting and Photometric
- P8. Grading and Drainage
- P9. Gravel Wetland #1 Plan
- P10. Gravel Wetland #2 Plan
- P11. Erosion and Sedimentation Control
- P12. Details (C4.3)
- P13. Details (C6.0)
- P14. Details (C6.1)
- P15. Details (C6.2)
- P16. Details (C6.3)
- P17. Predevelopment Watershed
- P18. Post-Development Watershed
- P19. Floor Plans and Elevations
- P20. Elevations
- P21. Truck Turning Template

MEMORANDUM



TO: Jean Fraser, Planner
FROM: David Senus, P.E. & Ashley Auger, E.I.T.
DATE: May 15, 2014
RE: 421 Warren Avenue, Final Level III Site Plan Application

Woodard & Curran has reviewed the Final Level III Site Plan Application for the proposed 6-unit commercial complex located at 421 Warren Avenue in Portland, Maine. The project consists of constructing a single-level 25,000 SF industrial building along with associated site improvements, which will result in approximately 56,252 SF of new impervious area. The project is being reviewed for compliance with City of Portland Level III Site Plan requirements and under the City's delegated review authority for Chapter 500, Stormwater Management Law.

Documents Reviewed by W&C

- Final Level III Site Plan Application and attachments dated April 21, 2014, prepared by FST Engineers on behalf of PH Warren Avenue, LLC.
- Engineering Plans, Sheets C-1.0, C-1.1, C-2.0, C-2.1, C-3.0, C-3.1, C-4.0, C-4.1, C-4.2, C-4.3, C-5.0, C-6.0, C-6.1, C-6.2, C-6.3, C-7.0, and C-7.1, revised April 17, 2014, prepared by FST Engineers on behalf of PH Warren Avenue, LLC.

Comments

- 1) The project has been presented in compliance with the Maine DEP Chapter 500 Basic, General, and Flooding Standards.
- 2) Urban Impaired Stream Standard: The Applicant has elected to pay an in-lieu compensation fee based on the schedule in the MaineDEP Chapter 500 Rules, which has been calculated to be \$6,950.
- 3) The Applicant should submit documentation confirming capacity to serve wastewater for the proposed development upon receipt.
- 4) The stormwater inspection and maintenance plan should include provisions for the inspection and maintenance of the Roof Drip-line Filtration BMP as outlined in Section 7.6 of Volume III of the MaineDEP Stormwater BMP Manual and the post-construction stormwater management plan requirements outlined in Chapter 32 of the City of Portland Code of Ordinances.

MEMORANDUM



TO: Jean Fraser, Planner
FROM: David Senus, P.E. & Ashley Auger, E.I.T.
DATE: March 3, 2014
RE: 421 Warren Avenue, Preliminary Level III Site Plan Application

Woodard & Curran has reviewed the Preliminary Level III Site Plan Application for the proposed 7-unit commercial complex located at 421 Warren Avenue in Portland, Maine. The project consists of constructing a single-level 28,000 SF industrial building along with associated site improvements. The project is being reviewed for compliance with City of Portland Level III Site Plan requirements and under the City's delegated review authority for Chapter 500, Stormwater Management Law.

Documents Reviewed by W&C

- Preliminary Level III Site Plan Application and attachments dated February 12, 2014, prepared by FST Engineers on behalf of PH Warren Avenue, LLC.
- Engineering Plans, Sheets C-1.0, C-1.1, C-2.0, C-2.1, C-3.0, C-3.1, C-4.0, C-4.1, C-4.2, C-4.3, C-5.0, C-6.0, C-6.1, C-6.2, C-7.0, and C-7.1, dated February 10, 2014, prepared by FST Engineers on behalf of PH Warren Avenue, LLC.

Comments

- 1) In accordance with the City of Portland Preliminary Level III Site Plan Submissions Checklist, the Applicant is required to provide evidence of state approvals. The Applicant should forward the following approvals to the City upon receipt:
 - a) The Applicant has noted that the project requires a MaineDEP NRPA Tier III permit for approximately 25,093 SF of wetland impacts, which is being submitted concurrently with the City Site Plan Application. Evidence of receipt of this permit shall be required prior to the start of construction.
 - b) The Applicant is proposing to disturb more than one acre (approximately 110,207 SF); therefore a Maine Construction General Permit (MCGP) from the MaineDEP is required prior to the start of construction.
- 2) The application is preliminary. As such, we anticipate that additional documents will be submitted with the final application, including missing or incomplete gravel wetland details, confirmation of capacity to serve the development from utility companies, and a Construction Management Plan. Additionally, the Site Layout and Utility Plan, Sheet C-3.0, indicates several utility details that are TBD, such as outlet control structure elevations, sewer service invert elevations, natural gas pipe size, and electrical duct bank size; these details should be coordinated with the appropriate utilities prior to approval. Woodard & Curran will perform a review of the Final Application submittal upon receipt of those documents.
- 3) 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. In addition, the project is being reviewed under the City's delegated review authority for Chapter 500 Stormwater Management Law. We offer the following comments:
 - a) Basic Standards: 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 general accordance with Appendix A, B, & C of MaineDEP Chapter 500. Erosion Control Note 3 on Sheet C-1.1 states that silt barriers shall be inspected, repaired, and cleaned as noted in the erosion control notes shown on the erosion control detail sheet; however, it does not appear that these notes have been provide at this time. The Applicant should clarify. Additionally, details should be provided for proposed erosion control blanket installations and rip-rap slope and spillway protection.



- b) General Standards: The project will result in an increase in impervious area of approximately 82,764 square feet. As such, the project is required to include specific stormwater management features for stormwater quality control. The Applicant has proposed gravel wetlands near the front and rear of the development area in addition to a gravel drip strip. The Applicant has provided sufficient documentation demonstrating compliance with this standard; however, it should be noted that the design plans, calculations, and the HydroCAD model may be subject to change based on the comments contained herein, and shall be reviewed for compliance again upon receipt of the final submission package.
- c) Flooding Standard: The project will result in an increase in impervious area of approximately 82,764 square feet. As such, the project is required to include specific stormwater management features to control the rate of stormwater runoff from the site. The Applicant has provided sufficient documentation demonstrating compliance with this standard; however, it should be noted that the design plans, calculations, and the HydroCAD model may be subject to change based on the comments contained herein, and shall be reviewed for compliance again upon receipt of the final submission package.
- 4) *Urban Impaired Stream Standard:* The project is located within the Capisic Brook Watershed, which is identified as an Urban Impaired Stream by the Maine DEP. Section 5 of the City of Portland Technical Manual requires that all development within the Capisic Brook watershed, except single and two family homes, comply with the Urban Impaired Stream Standard pursuant to MaineDEP Chapter 500 Rules. To meet the Urban Impaired Stream standard, the Applicant must either pay a compensation fee or mitigate project impacts by treating, reducing, or eliminating an off-site or on-site pre-development impervious stormwater source. The Applicant has not provided information on how they plan to meet the Urban Impaired Stream standard with the preliminary submittal; the final submittal should present either a fee calculation or a design approach / plans on how the project will meet this standard.
- 5) *HydroCAD Model Review Comments:*
 - a) The pre- and post-development areas used in the HydroCAD model and provided in the summary tables on the watershed maps are not equal, specifically subcatchments 1 & 2 on the Post-Development plan. The Applicant should revise accordingly.
 - b) Subcatchment 1 is a very large area that remains largely unchanged from the pre- to post-development conditions; relocating POI 1 closer to the outfall of gravel wetland #2 will provide a better indication of the change in flow rates from the proposed development. The Applicant should consider revising the model accordingly.
 - c) It is unclear why the Applicant has chosen to model subcatchments 3A, 3B, and 3C, as they are not part of the proposed development and remain largely unchanged from the pre- to post-development condition. The Applicant should remove these subcatchments from the model.
 - d) The model includes storage within a 40% void space of the gravel wetlands between elevation 68.17 and 68.50; please clarify where this storage volume exists in the gravel wetland section.
 - e) As noted on the plans, the Applicant intends to add outlet elevation information to the outlet control structure details for both gravel wetlands as part of the final submittal. Without this information we cannot verify the routing or model inputs for Pond 4P (GW2) or Pond 5P (GW1). When the outlet control structure elevations are incorporated into the final submittal, please revisit or provide explanation on the routing methodology for GW1 & GW2 in the HydroCAD model; we are unable to follow the routing as currently presented.
- 6) *Gravel Wetland Design Comments:*
 - a) On Sheet C-4.2, the titles for the plan view and section view incorrectly note Gravel Wetland #1; these should state Gravel Wetland #2.
 - b) The Applicant has submitted drawdown calculations for sizing the gravel wetlands' outlet control structure orifice control devices; however, the orifices do not appear to be specified on the design plans/details. The Applicant should clarify with the final design package.
 - c) The Applicant should include outlet protection measures for the Gravel Wetland #2 outfall.



- d) The Applicant should specify appropriate plantings for the proposed gravel wetlands, per the UNH Stormwater Center Subsurface Gravel Wetland Design Specifications.
 - e) The pervious and impervious area treated numbers contained in Table 11 of the Stormwater Management Report do not appear to agree with those utilized in the HydroCAD model or noted on the Post Development Watershed Map (C-7.1); the Applicant should clarify.
- 7) The Stormwater Management Report refers to Appendix H for a Separate Stormwater Inspection & Maintenance Manual, and notes that it has not been included with this submission. The stormwater inspection and maintenance plan should be developed in accordance with and in reference to the UNH Stormwater Center Subsurface Gravel Wetland Design Specifications, Section 7.6 of Volume III of the MaineDEP Stormwater BMP Manual, MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.

From: David Margolis-Pineo
To: Jean Fraser
CC: Barbara Barhydt; Doug Roncarati
Date: 5/7/2014 3:17 PM
Subject: 421 Warren Ave
Attachments: WARREN AVE - 421 - PROPOSED SEVEN UNIT WAREHOUSE.docx

Jean,

The applicant has agreed to comply with Public Services comments dated March 11, 2014 attached.

Public Services has one more comment we would like to submit to the applicant.

In developments such as the one proposed, there has been a history of dumping into the wet lands. We would like the applicant to agree to install three signs along the back of the property where the asphalt ends stating: DO NOT DUMP
IMPAIRED WETLANDS

Thank you

From: David Margolis-Pineo
To: Jean Fraser
Date: 5/16/2014 4:51 PM
Subject: Re: 421 Warren- PB Hearing 5.27.14 (2014-016)

Jean,

The applicant has addressed all the concerns raised by Public Services.

We have no further comments.

>>> Jean Fraser 5/16/2014 2:38 PM >>>

Hi

I will be finalizing the Hearing Report on Wed next week and would appreciate your final comments on this project.

Attached please find particular responses to our comments and e-plan has all of the latest (final) submissions. They have reduced the scale of the project so impacts are reduced.

I have 2 other PB reports to prepare next week for the same meeting so if you could get me comments earlier than Thursday it would be very helpful.

thanks
Jean

March 11, 2014

Memo To: Barbara Barhydt
Jean Fraser
From: David Margolis-Pineo
Re: 421 Warren Av
Commercial Site
PH Warren Avenue, LLC

On behalf of the Department of Public Services, the following comments are offered for the above mentioned project.

1. Since the curb cut on Warren Ave in front of this project is not proposed to be used, the applicant is requested to close the curb cut. The curbing shall be set in concrete to match the abutting curb work. Please contact Rhonda Zazzara for details. 874-8831
Warren Ave in this area is currently under a pavement moratorium until October 26, 2014. However as long as the applicant does not encroach the pavement more than two feet from the face of curb, no moratorium repair will be requested if the work is done before this date. A Street Opening Permit will be required.
2. It would be desirable for the applicant to tap for the 2" domestic water service behind the sidewalk to avoid cutting into the sidewalk.
3. Please note on survey plan that Saville Street and Newcomb Street are Continued Paper Streets as per City Council Order #84 in September 1997.
4. Please add State Plane Coordinates for four (4) corners; at both ends of the rear 657.94' line and at both ends of the 140.51' line along Warren Ave.

This department has no further comments at this time.

Jean Fraser - 421 Warren Avenue

From: Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/22/2014 12:08 PM
Subject: 421 Warren Avenue
CC: David Margolis-Pineo <DMP@portlandmaine.gov>, Katherine Earley <KAS@port...

Jean – The following represents my final comments and are presented as a status update of my March 12, 2014 preliminary comments.

- The applicant shall provide a traffic generation estimate for the proposed project as well as for the two existing buildings serviced by the shared driveway. Following a review of the requested information, I will make a determination on the need for a Traffic Movement Permit.
 - **Status – The applicant has provided a trip generation estimate for the existing and proposed buildings and based upon the conclusions the project is expected to generate a worst-case peak hour volume of 54 trips. Based upon this estimate, the project does not require a Traffic Movement Permit.**
- The proposed driveway entrance exceeds City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the wide driveway.
 - **Status - In response to this comment, the applicant has reduced the size of the driveway. The revised driveway width continues to exceed the City's standard. Based upon a review of a truck turning template graphic, I find the proposed driveway design to be acceptable and therefore I support a waiver from City standards.**
- The aisle widths in the internal parking/circulation area do not meet City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the expanded pavement areas.
 - **The applicant has provided a truck turning template graphic that shows a significant portion of the parking lot will be required for very large truck maneuvers. The graphic also illustrates that the trucks will require use of areas that are noted as general passenger car parking spaces. From a traffic perspective the paved area will not present safety or circulation problems. The applicant will need to coordinate closely with tenants to ensure parking areas will not constrain large truck maneuvers. It is my understanding that the applicant has experience managing this type of situation. Given that the site is somewhat contained and is set back from Warren Avenue, I find conditions to be acceptable and support a waiver for parking lot aisle width.**
- A sidewalk connection from the proposed building to Warren Avenue shall be provided.
 - **The site plan has been revised to include this and therefore I have no further comment.**
- An area along the building frontage on the parking area shall be marked such that pedestrians have a direct routing to Warren Avenue.
 - **The plans should be revised to include this painted area.**

From: Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <JF@portlandmaine.gov>
Date: 5/9/2014 3:16 PM
Subject: RE: 421 Warren

Jean - I have reviewed the Auto-Turn graphic provided by the applicant and given what they illustrate, there seems to be a substantial amount of pavement that could be removed on the north end of the parking lot. I would note that the Auto-Turn graphic that is provided in the application materials only illustrates a WB-67 size truck entering and exiting the driveway. It is unclear on what type of loading dock maneuvers will be required and whether this type of truck circulation will require additional pavement needs. The applicant should provide the additional information if deemed relevant.

Thanks

Thomas A. Errico, PE

Senior Associate

Traffic Engineering Director

[T.Y. Lin International] T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

From: Jeff Tarling
To: Jean Fraser
Date: 3/13/2014 8:48 AM
Subject: Re: Need comments now for PB Workshop Memo- 421 Warren (2014-016)

Hi Jean -

The proposed 421 Warren Avenue project is in need of a 'tree save' plan. Hopefully, trees along the edge of the proposed development could be saved and if not the project should show replacement planting plans per city standards.

Thanks

Jeff Tarling

MEMORANDUM

To: FILE
From: Jean Fraser
Subject: Application ID: 2014-016
Date: 5/22/2014

Comments Submitted by: Marge Schmuckal/Zoning on 5/21/2014

I have reviewed the revised project that reduces the size the square footage of the building and number of units to 6 from 7. I also reviewed the responses to my previous comments. All the B-4 requirements are being met. Again, a permit is required for the principal structure and separate use permits are required for each unit before occupying. Separate permits are required for all signage.

Marge Schmuckal
Zoning Administrator

MEMORANDUM

To: FILE
From: Jean Fraser
Subject: Application ID: 2014-016
Date: 4/28/2014

Comments Submitted by: Marge Schmuckal/Zoning on 3/14/2014

This project is in a B-4 zone. I would like a little more detail pm the "commecial" use that is proposed. What kinds of businesses are being marketed? Each unit will need a separate permit to establish their use. The proposed use must be one of the listed permitted uses.

The uses affect the parking requirements. If all the uses are business, manufacturing & industrial uses, then 1 parking space per 1000 sf of floor area is required or 29 parking spaces. 41 parking spaces are shown. I do like that more than the minimum spaces are shown in case a different use is requested later. It gives a good buffer. I also noticed that 14 of the parking spaces are on an adjoining property. Hopefully there are easements that run with the property for those spaces.

Separate permits are required for the construction of the building and for each unit before the use of each unit. Separate permits are required for any new signage. It is noted that an illegal sign is still present on the adjoining property that should be removed.

Marge Schmuckal
Zoning Administrator

From: Chris Pirone
To: JF@portlandmaine.gov
Date: 4/30/2014 9:55 AM
Subject: 421 Warren ave

Initial Fire Comments:

Access looks good as aisle widths are presently 38'.
Is the 20' access at the rear of the building being proposed for the Fire Department?

It appears a sprinkler system is being installed.
The fire department connection for the sprinkler system will need to be located on the front of the building and will need to have a fire hydrant within 100' of the connection but no closer than 40'.

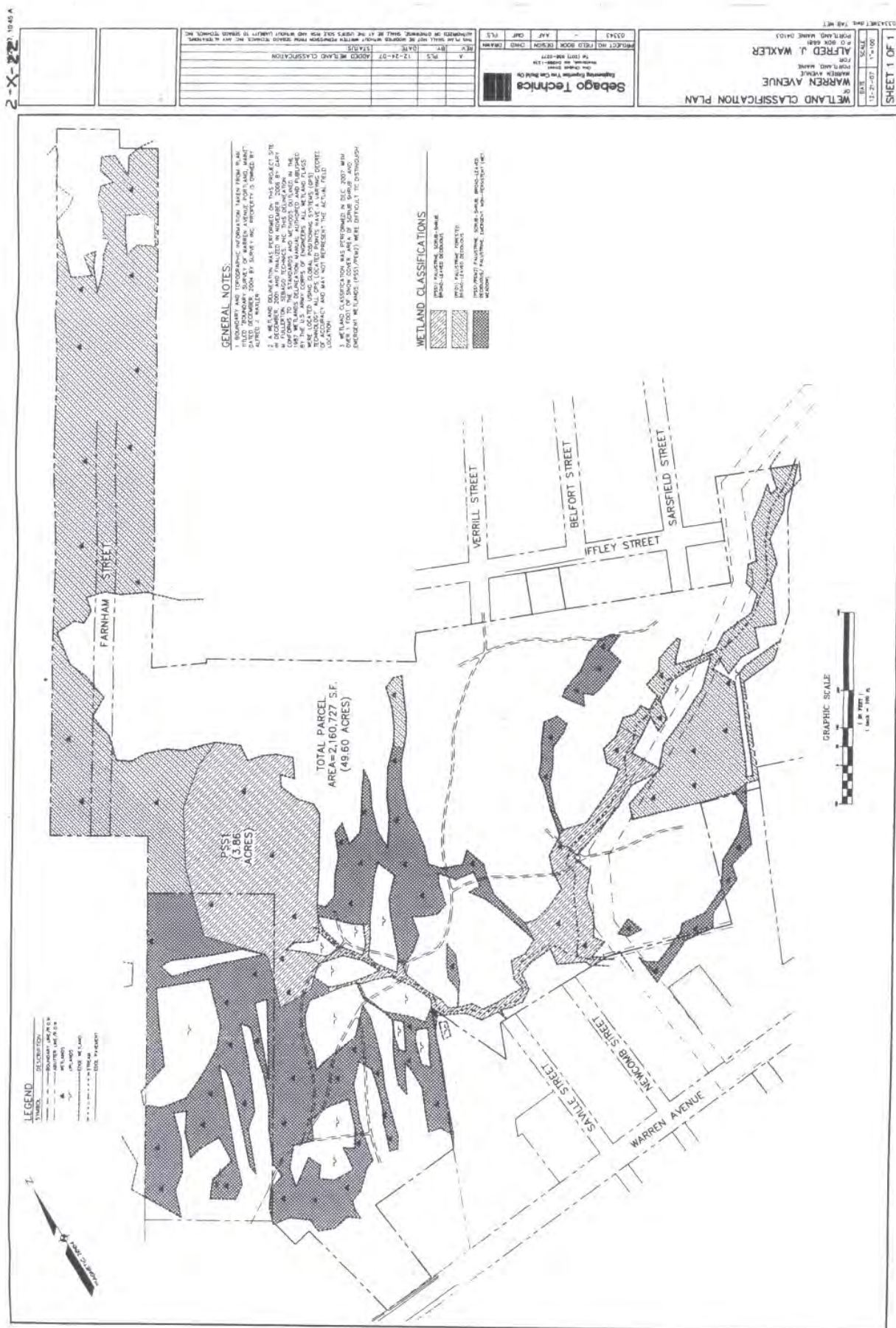
Has an NFPA 1 code analysis been performed for the site?

A private fire hydrant may need to be installed per NFPA 1 on site.

Identification of the building shall have the address at the entrance and on the building which each unit being identified by Suite and letter such as 421 Warren Ave. Suite A.

Exits from the building shall continue from the building onto the site with clear walkways for the occupants to stage if an emergency happens in the building.

Captain Chris Pirone
Portland Fire Department
Fire Prevention Bureau
380 Congress Street
Portland, ME 04101
(t) 207.874.8405
(f) 207.874.8410





April 21, 2014

Ms. Jean Fraser, Planner
Planning and Development Department
City of Portland
389 Congress Street
Portland, Maine 04101-3509

**Subject: 421 Warren Avenue
Final Site Plan Application/Delegated Review Stormwater**

Dear Ms. Fraser:

On behalf of PH Warren Avenue, LLC, we are pleased to provide the accompanying package of submission materials related to a proposed 6-unit commercial complex at 421 Warren Avenue. This submission package is intended to meet the City's Final Submission Requirements as outlined in the Level III Application procedures. These materials represent the ongoing design development for the proposed commercial complex on what is currently undeveloped land. The applicant has purchased approximately 48.71 AC. of property from JMC Warren Ave, LLC, with approximately 140.51 LF of frontage on Warren Avenue. The applicant is proposing a 70' x 300' (25,040 SF) industrial building similar in styling to the applicant's buildings at 429 Warren Avenue. The nearly rectangular building will be oriented perpendicular to Warren Avenue and the lot access will be off the applicant's existing drive that serves 429 Warren Avenue. The applicant is seeking Planning Board Approval to allow commencement of construction as soon as possible.

Since the Preliminary Submission on February 12, 2014, the applicant has reconsidered the building configuration layout. As a result, the proposed building site has decreased from the original 28,000 SF. By decreasing the building size and adjusting the pavement area footprint, the project's wetland impact has been decreased to below 15,000 SF, thus qualifying for a MeDEP NRPA Tier 1 Permit review.

Accompanying this cover letter are the following materials:

- Final Site Plan Application
- Section 1: Written Description of Project
- Section 2: Evidence of Right, Title and Interest
- Section 3: Utilities
- Section 4: Fire Safety
- Section 5: Construction Management Plan

Ms. Jean Fraser
April 21, 2014
Page 2

- Section 6: Solid Waste Generation
- Section 7: Written Assessment of Proposed Project's Compliance with Applicable Zoning and Land Use Requirements
- Section 8: Stormwater Management Plan
- Section 9: Comment Response Letter Addressing Preliminary Plan Comments
- Reduced Sized Plans

You will find in the accompanying materials, information including the Final Site Layout Plan and various site plans that provide greater detail for the site development activities. We have also included building elevations for the proposed building. Information pertaining to the project's utilities needs and statements regarding compliance with the City's Standards are contained within this submission.

In addition, the project requires a Maine Department of Environmental Protection Natural Resources Protection Act (NRPA) Tier I permit for wetland impacts of approximately 14,323 SF.

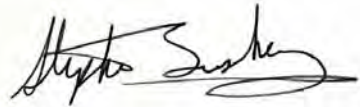
Finally, the applicant has scheduled a Public Information Meeting for April 30, 2014 at the Riverton School. Meeting minutes and list of attendees will be provided to the Planning Department upon completion of the Public Information Meeting.

On behalf of the Design Team, we look forward to your assistance on the project and we look forward to the nearest available Public Hearing meeting with the Planning Board. Please find one (1) hard copy of the application materials including one set each of 11 x 17 and full size plans, along with a diskette containing PDF files for all submitted materials.

If you have any questions regarding these materials please contact this office.

Sincerely,

FAY, SPOFFORD & THORNDIKE



Stephen R. Bushey, P.E.
Senior Engineer

SRB/smk

c: Peter Holmes
Jim Biskup, Biskup Construction



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 II: 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).

The Land Use Code (including Article V), the Technical Manual, and the Design Manual are available on the City's web site at <http://www.portlandmaine.gov/planning/default.asp>

Planning Division

Fourth Floor, City Hall
389 Congress Street
(207) 874-8721 or 874-8719

Office Hours

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

PROJECT NAME: 421 Warren Avenue Commercial Complex

PROPOSED DEVELOPMENT ADDRESS:

421 Warren Avenue, Portland, Maine

PROJECT DESCRIPTION:

New construction of a single level, multi-unit commercial complex consisting of 6 units.

CHART/BLOCK/LOT: Map 303/Lot A010
Map 304/Lot B028

PRELIMINARY PLAN
FINAL PLAN

02/12/2014 (date)

04/21/2014 (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: PH Warren Avenue, LLC c/o Peter F. Holmes Business Name, if applicable: Address: 401 Warren Avenue City/State : Portland, ME Zip Code: 04101	Applicant Contact Information Work # (207) 878-4496 Home# Cell # (207) 347-3398 Fax# e-mail: dick\harbour@maine.rr.com
Owner – (if different from Applicant) Name: SAME AS ABOVE Address: City/State : Zip Code:	Owner Contact Information Work # SAME AS ABOVE Home# Cell # Fax# e-mail:
Agent/ Representative Stephen Bushey, P.E. Name: Fay, Spofford & Thorndike Address: 778 Main Street, Suite 8 City/State : South Portland, ME Zip Code: 04106	Agent/Representative Contact information Work # 207-775-1121 Cell # 207-756-9359 e-mail: sbushey@fstinc.com
Billing Information Name: PH Warren Avenue, LLC c/o Peter F. Holmes Address: 421 Warren Avenue City/State : Portland, ME Zip Code: 04101	Billing Information Work # (207) 878-4496 Cell # (207) 347-3398 Fax# e-mail: dick\harbour@maine.rr.com

Engineer Stephen Bushey, P.E. Name: Fay, Spofford & Thorndike Address: 778 Main Street, Suite 8 City/State : South Portland, ME Zip Code: 04106	Engineer Contact Information Work # 207-775-1121 Cell # 207-756-9359 Fax# 207-879-0896 e-mail: sbushey@fstinc.com
Surveyor Name: Nadeau Land Surveys Attn: Jim Nadeau Address: 918 Brighton Avenue City/State : Portland, ME Zip Code: 04102	Surveyor Contact Information Work # (207) 878-7870 Cell # Fax# (207) 878-7871 e-mail: jim@nadeaulandsurveys.com
Architect Name: Biskup Construction Attn: Jim Biskup Address: 16 Danielle Drive City/State : Windham, ME Zip Code: 04062	Architect Contact Information Work # 207-892-9800 Cell # Fax# (207) 892-9895 e-mail: jim@biskupconstruction.com
Attorney Name: NOT APPLICABLE Address: City/State : Zip Code:	Attorney Contact Information Work # Cell # Fax# e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews) ☒ Less than 50,000 sq. ft. (\$500.00) ☐ 50,000 - 100,000 sq. ft. (\$1,000) ☐ 100,000 – 200,000 sq. ft. (\$2,000) ☐ 200,000 – 300,000 sq. ft. (\$3,000) ☐ over \$300,00 sq. ft. (\$5,000) ☐ Parking lots over 11 spaces (\$1,000) ☐ After-the-fact Review (\$1,000.00 plus applicable application fee) Plan Amendments (check applicable reviews) ☐ Planning Staff Review (\$250) ☐ Planning Board Review (\$500) The City invoices separately for the following: • Notices (\$.75 each) • Legal Ad (% of total Ad) • Planning Review (\$40.00 hour) • Legal Review (\$75.00 hour) Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.	Other Reviews (check applicable reviews) ☐ Traffic Movement (\$1,000) ☒ Stormwater Quality (\$250) ☐ Subdivisions (\$500 + \$25/lot) # of Lots ___ x \$25/lot = ____ ☐ Site Location (\$3,000, except for residential projects which shall be \$200/lot) # of Lots ___ x \$200/lot = ____ ☐ Other _____ ☐ Change of Use ☐ Flood Plain ☐ Shoreland ☐ Design Review ☐ Housing Replacement ☐ Historic Preservation
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APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or DVD with each plan submitted as separate files, with individual file names (see submittal requirements document attached).
2. In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Planning Division Office to start the review process.

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

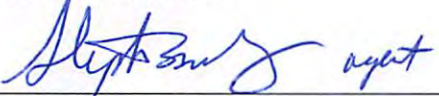
Refer to the application checklist for a detailed list of submission requirements.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site <http://www.portlandmaine.gov/citycode/chapter014.pdf>

APPLICANT SIGNATURE:

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 II 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: 
--	---

Date: 2/4/14

**Subject: 421 Warren Avenue Multi Unit Commercial Building
Agent Authorization Letter**

To Whom It May Concern:

PH Warren Avenue, LLC has retained Fay, Spofford & Thorndike, LLC to prepare requisite local, state and federal permit applications for the above referenced project. FST is authorized to act as an agent for PH Warren Avenue, LLC in matters related to these permits.

Sincerely,

Peter Holmes

Owner
Title

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	409,000	sq. ft. +/- *
Proposed Total Disturbed Area of the Site	74,809	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)	0	sq. ft.
Impervious Area (Total Proposed)	56,252	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	0	sq. ft.
Building Footprint (Total Proposed)	25,040	sq. ft.
Building Floor Area (Total Existing)	0	sq. ft.
Building Floor Area (Total Proposed)	25,040	sq. ft.
Zoning		
Existing	B4	
Proposed, if applicable	B4	
Land Use		
Existing	Undeveloped	
Proposed	6 Unit Multiplex - Commercial	
Residential, If applicable		
# of Residential Units (Total Existing)	0	
# of Residential Units (Total Proposed)	0	
# of Lots (Total Proposed)	0	
# of Affordable Housing Units (Total Proposed)	0	
Proposed Bedroom Mix		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)		
# of Two-Bedroom Units (Total Proposed)		
# of Three-Bedroom Units (Total Proposed)		
Parking Spaces		
# of Parking Spaces (Total Existing)	0	
# of Parking Spaces (Total Proposed)	36	
# of Handicapped Spaces (Total Proposed)	2	
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	0	
# of Bicycle Spaces (Total Proposed)	2	
Estimated Cost of Project	\$1.5 million	

*Part of broader 48.71 acre parcel - Applicant is seeking to divest approximately 40 acres of remaining land to City of Portland.

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
N/A		1	Written requests for waivers from site plan or technical standards, if applicable.
X		1	Evidence of financial and technical capacity
N/A		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;
X			Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);
X			Preliminary infrastructure improvements;
X			Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;
N/A			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);
N/A			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
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
N/A		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
N/A		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;
X			Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
X			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;
X			Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);
X			Location and proposed alteration to any watercourse;
X			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
X			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;
X		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
X		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;
X		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.

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LIST OF PLANS

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C-1.1	GENERAL NOTES AND LEGEND
C-2.0	PARTIAL BOUNDARY SURVEY AND TOPO PLAN BY NADEAU LAND SURVEYORS
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1. DEVELOPMENT DESCRIPTION

1.1 PROJECT OVERVIEW

PH Warren Avenue LLC has acquired an approximately 48.71 acre parcel located between Warren Avenue, Lane Avenue, and Iffley Street. The parcel is undeveloped and is characterized by low-lying wetlands scattered throughout the interior. The applicant owns the adjacent properties at 401 Warren Avenue (Harbor Auto Body) and at 429 Warren Avenue (two fully occupied commercial/industrial buildings). The applicant is proposing a similar development within the site area closest to Warren Avenue and they propose to share the 429 Warren Avenue access. The applicant is seeking a Level III Site Plan Approval and Stormwater Permit.

The applicant's proposal will be within a 9.4 acre site area although site work disturbance will be less than 3 acres.

1.2 PROJECT PURPOSE AND NEED

The proposed project is considered a unique opportunity to continue similar commercial development as is currently adjacent the property. The owner/applicant has enjoyed success with their properties at 401 and 429 Warren Avenue and the proposed site development looks to expand the number of rental units available at this location. The project's community benefits include the following:

- Enhanced commercial space opportunity within an area of similar commercial uses.
- A net increase in commercial units.
- Furtherance of the purposes of the B-4 zone as articulated in the Land Use Ordinance to "To provide appropriate locations for large-scale commercial uses and commercial uses that require larger land areas to accommodate their operations".

1.3 EXISTING CONDITIONS

The site conditions are undeveloped and are primarily characterized by flat grade near Warren Avenue. Towards the middle and rear of the parcel, the land is characterized by low-lying scrub-shrub and meadow wetlands and a natural drainageway that forms the headwaters of Capisic Brook.

Public utilities including water, sewer, natural gas, power and communications are readily available along Warren Avenue. New services will be extended into the site. Power to the site will be installed underground from an existing utility pole in front of the site.

The street conditions in front of the site are described as follows:

Street Name	Description	On-street Parking	Condition	Other
Warren Avenue	Approximately 40 foot wide paved way with two-way traffic and a center two-way left turn lane.	None	Bituminous sidewalk is in moderate condition with several areas that require improvement.	Existing drainage system on site side of street.

1.4 PROPOSED DEVELOPMENT

The applicant proposes to develop the property to its highest and best use. The development program includes the following components:

1.4.1 ON-SITE

A proposed 70' x 300' nearly rectangular industrial building is proposed. The structure will contain six (6) units. Five units will be 3,500 SF and two units will be 5,555 SF for a total of 25,040 SF of tenant space. Each unit will be provided with an overhead door and a man door entry. Each space will generally be open with only enclosed restrooms within each space. Tenant fit up may ultimately include some interior office space, storage or related type uses. The applicant expects to lease the spaces in a similar manner as to their buildings at 429 Warren Avenue, which includes multiple small business operators.

The project developer is not seeking LEED designation, but the building will conform to the most current International Energy Conservation Code.

The proposed project consists of new building construction for the 6-unit complex. The building will be oriented perpendicular to Warren Avenue and the access will be off the 429 Warren Avenue driveway. The existing 429 Warren Avenue driveway consists of a 36' wide paved surface containing separate left and right turn exiting lanes and a single entering lane. The entrance into the proposed site has been modified to 45 foot width to accommodate semi-trailer turning movements.

The yard area will include a paved surface in front of the building where 36 parking spaces will be provided. The pavement area has been designed to allow larger tractor-trailers to enter and maneuver, as many tenants will need occasional tractor-trailer vehicle access. The yard area will include provisions for a solid waste enclosure. Drainage systems including gravel wetlands will be constructed near the front and rear of the development area. The development will occupy approximately 2.5 acres of the site.

1.4.2 OFF-SITE

Site access is proposed via Warren Avenue. No offsite improvements are expected based on the condition of Warren Avenue and the existing site entrance at 429 Warren Avenue. Utilities are currently stubbed into the site.

1.5 LAND ORDINANCE REVIEW

1.5.1 OVERVIEW

The property currently lies within the City of Portland B-4 Zoning District. The following dimensional requirements will apply in the B-4 Zone all of which will be met by the project:

Dimensional Standard	Requirement
Minimum Lot Size	10,000 SF
Minimum Frontage	Sixty (60) Feet
Front yard setback	20 Feet
Side Yard Setback/Side Yard on a Street	10 feet/10 Feet
Rear Yard Setback	20 Feet
Minimum Lot Width	60 Feet
Maximum Impervious Surface	80%
Maximum Building height	65 Feet

1.5.2 SHORELAND ZONING

The site is not located within the Shoreland Zoning District.

1.6 STATE AND FEDERAL PERMITS

The project requires a Natural Resources Protection Act (NRPA) approval from the Maine Department of Environmental Protection. A NRPA Tier I Permit Application for wetland impacts will be filed with the MaineDEP concurrently with the City Site Plan Application. The site also requires a Stormwater Permit, which we are requesting be reviewed by the City of Portland under their delegated review authority. The development is subject to Site Plan approval by the City of Portland and Building Permit(s) are also required.

1.7 EASEMENTS OR OTHER BURDENS

According to the survey map prepared by Nadeau Land Survey and Survey Inc. there is an easement to CMP (CCRD 7320/57) as well as various access rights across the 429 Warren Avenue access drive serving other parties. See the Boundary Survey by Nadeau Land Survey accompanying this submission for further details.

1.8 TRAFFIC

The proposed project will not result in significant impacts to the surrounding street system. Based on ITE Land Use 110 Light Industrial, the project will result in fewer than 28 new AM or PM peak hour trips. Given the nature of the two-way conditions of Warren Avenue along with the existing two-way center left turn lane, we foresee no major impact to the capacity conditions on the street. Site lines and street conditions at the site entrance appear to be favorable. No further traffic analysis is currently proposed.

1.9 SOILS/GEOTECHNICAL REVIEW

1.9.1 OVERVIEW

S.W. Cole Engineering conducted a preliminary geotechnical investigation of the project site and their findings were presented to the development team. The site is generally characterized by layers of the following materials:

- Topsoil/Fill Cover
- Glaciomarine sands, silts and clay

Aggregate materials for foundation backfill, pavement base and subbase gravels and all trench backfilling will be primarily imported from off-site sources. The project earthwork will involve minor cutting and filling. In general, the building will be supported by traditional concrete spread footing and foundation wall systems.

1.10 NATURAL FEATURES

The development site does contain areas of wetlands as identified by Albert Frick Associates. A drainage way also exists towards the middle of the site, well away from the proposed development zone. The applicant is not proposing any further development beyond the limits currently depicted on the permitting documents. The site does not contain any vernal pools or other significant natural resources.

1.11 UTILITIES AND STORMWATER

The site will be served by existing utilities in the street including water, sewer, natural gas, and power. A 20" water main is located in Warren Avenue and an 8" water main has been previously stubbed into the property. A 6" sewer stub has also been installed onto the lot. Overhead power and communications are currently located on the opposite side of Warren Avenue with a crossover pole located on the site. An underground service extension into the building is proposed from a new pole mounted transformer.

The site is currently undeveloped and the runoff conditions consist of sheet flow directed either towards Warren Avenue or towards the middle of the site where a drainage way forms the headwaters of the Capisic Brook Watershed. Both of the applicant's adjacent properties at 401 Warren Avenue and 429 Warren Avenue have their own stormwater management facilities. The current proposal seeks to use the Best Management Practice identified as a Gravel Wetland. The advantage of the gravel wetland is the minimal vertical area needed for it to function. Based on the flat nature of the development site, the gravel wetland approach seems well suited to the project.

1.12 ATTACHMENTS

Attachment A – Existing Site Photographs

Attachment B – Figures

ATTACHMENT A

Existing Site Photographs



PHOTO 1



PHOTO 2



**FAY, SPOFFORD &
THORNDIKE**
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896

**421 Warren Ave – Portland, Maine
Existing Site Photographs
(FST JN SP-M104)**



PHOTO 3



PHOTO 4

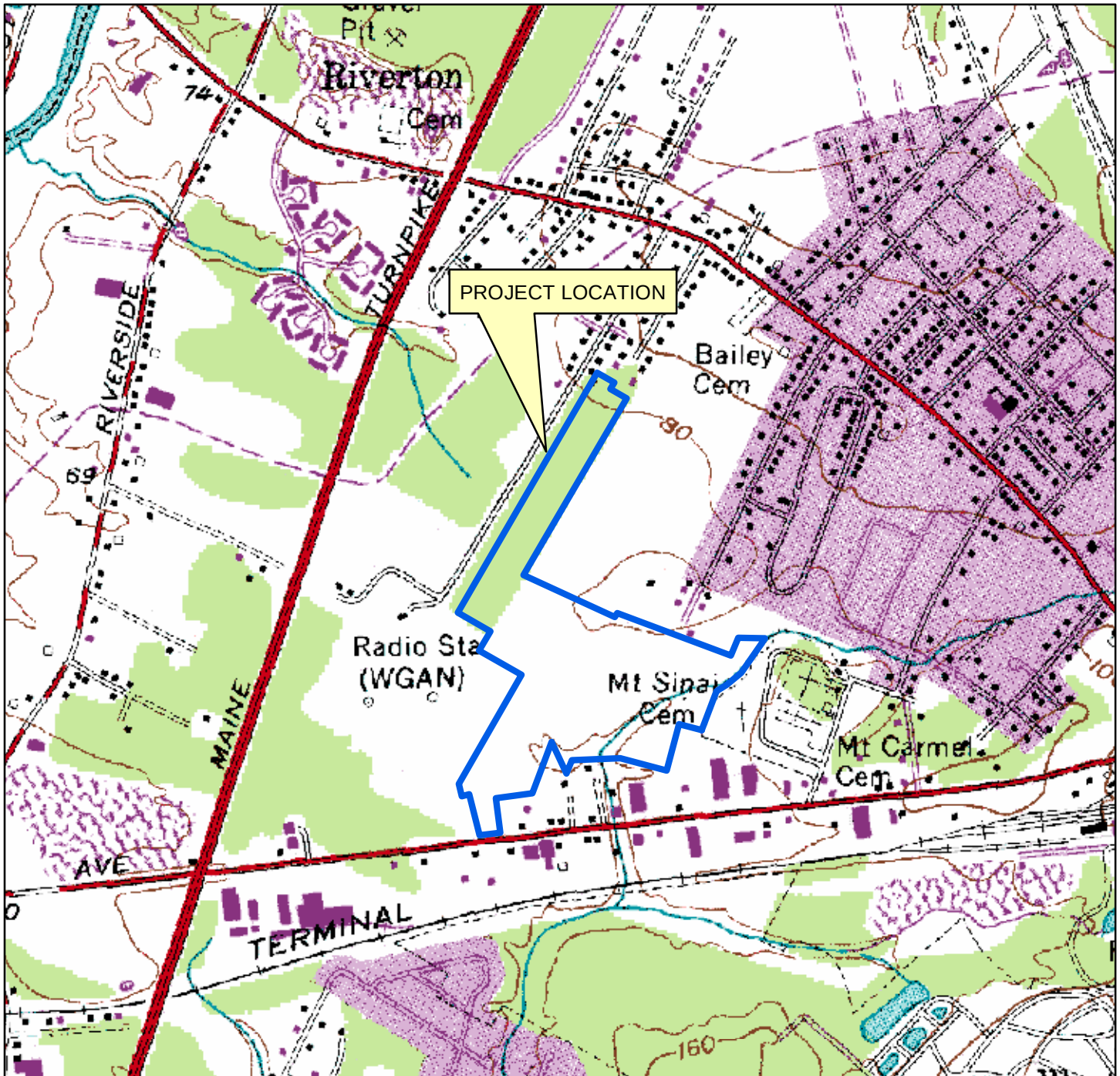


FAY, SPOFFORD &
THORNDIKE
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896

421 Warren Ave – Portland, Maine
Existing Site Photographs
(FST JN SP-M104)

ATTACHMENT B

Figures



USGS LOCATION MAP PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS

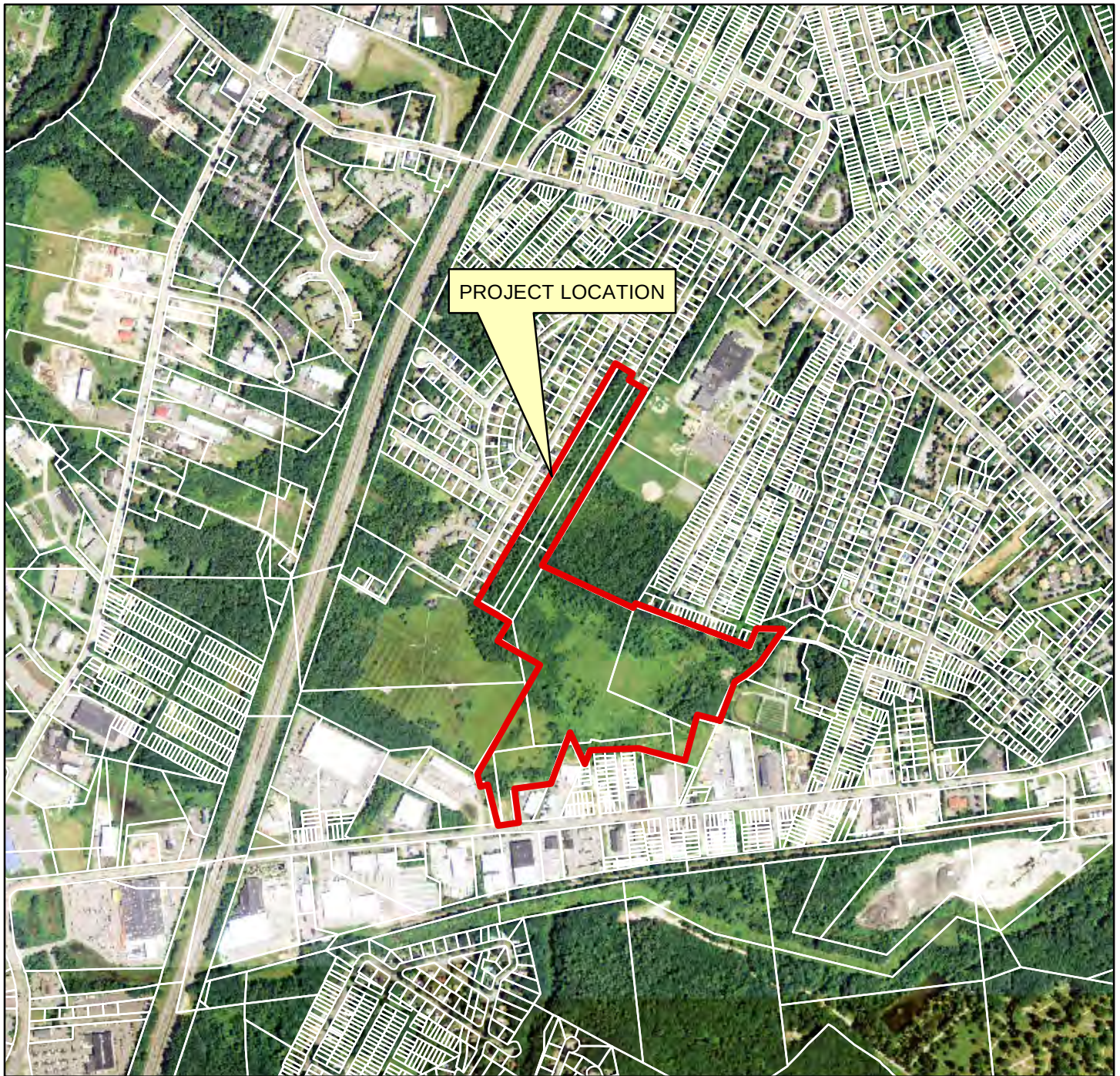


FAY, SPOFFORD & THORNDIKE, INC.
 ENGINEERS • PLANNERS • SCIENTISTS
 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_USGS
 SCALE: 1 inch = 1,000 feet

FIGURE

1



TAX MAP
PETER HOLMES COMMERCIAL SITE - WARREN AVENUE
PORTLAND, MAINE
SOURCE: CITY OF PORTLAND

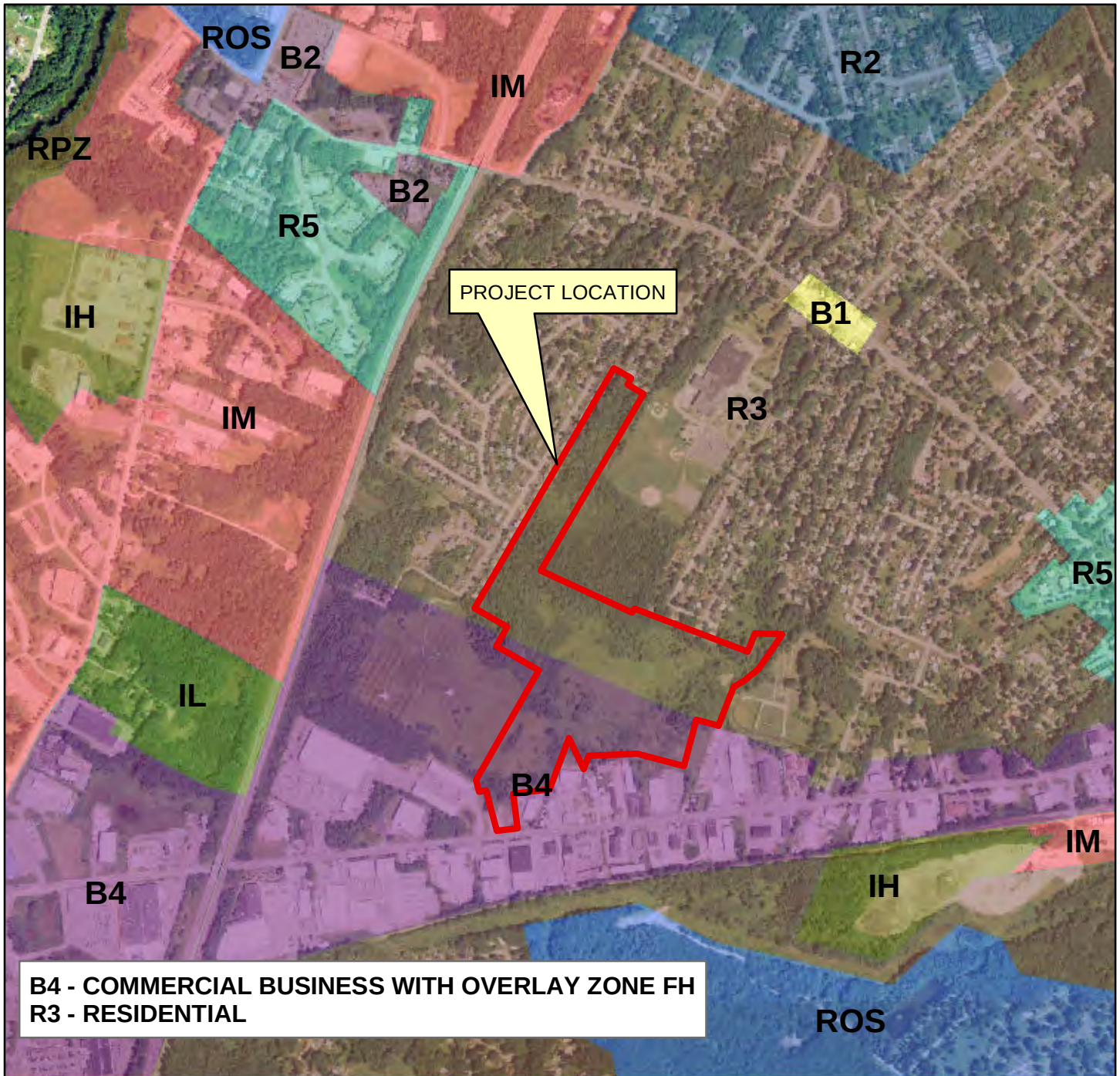


FAY, SPOFFORD & THORNDIKE, INC.
ENGINEERS • PLANNERS • SCIENTISTS
775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
CHECKED: SRB
DATE: OCT 2013
FILENAME: SP-M104_TAX MAP
SCALE: 1 inch = 1,000 feet

FIGURE

3



ZONING
PETER HOLMES COMMERCIAL SITE - WARREN AVENUE
PORTLAND, MAINE
 SOURCE: CITY OF PORTLAND



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 775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_ZONING
 SCALE: 1 inch = 1,000 feet

FIGURE

4



AERIAL PHOTOGRAPH PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS



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 775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_AERIAL
 SCALE: 1 inch = 1,000 feet

FIGURE

5



FLOOD MAP PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS

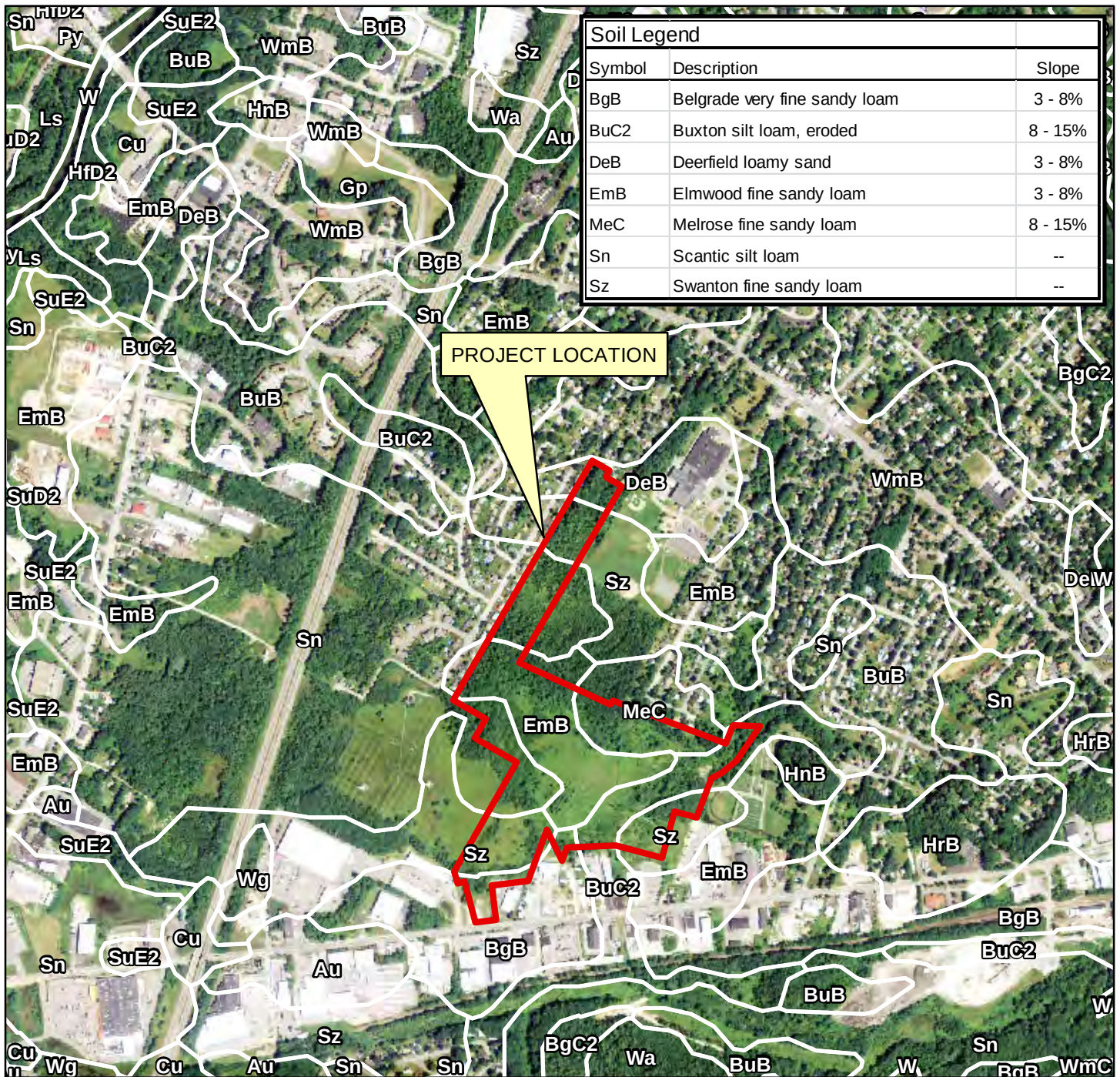


FAY, SPOFFORD & THORNDIKE, INC.
 ENGINEERS • PLANNERS • SCIENTISTS
 775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_FLOOD
 SCALE: 1 inch = 1,000 feet

FIGURE

7



SOILS MAP

PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS

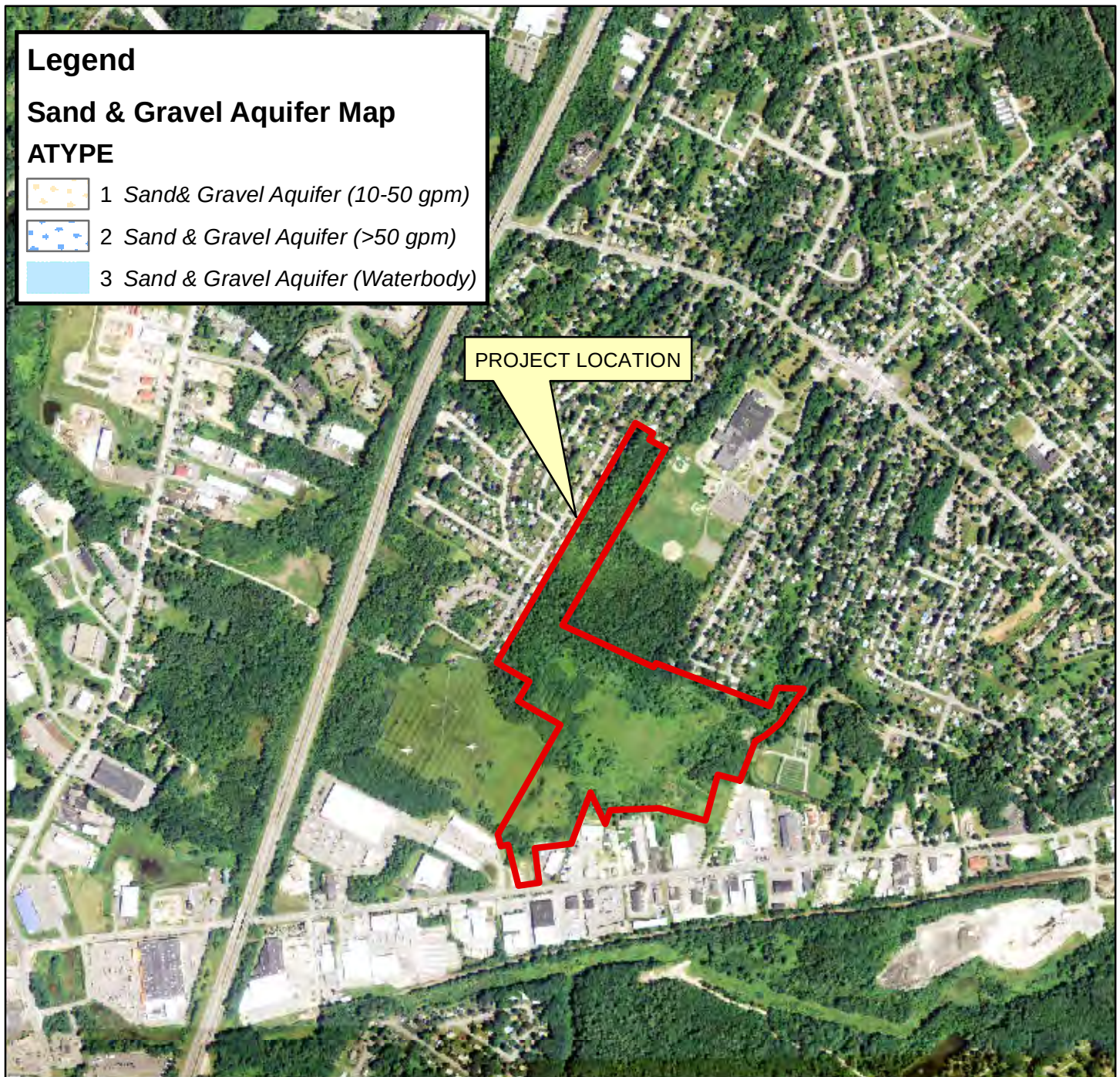


FAY, SPOFFORD & THORNDIKE, INC.
ENGINEERS • PLANNERS • SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
CHECKED: SRB
DATE: OCT 2013
FILENAME: SP-M104_SOILS
SCALE: 1 inch = 1,000 feet

FIGURE

8



SAND AND GRAVEL AQUIFER MAP PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS



FAY, SPOFFORD & THORNDIKE, INC.
 ENGINEERS • PLANNERS • SCIENTISTS
 775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_AQUIFER
 SCALE: 1 inch = 1,000 feet

FIGURE

9



SURFICIAL GEOLOGY MAP **PETER HOLMES COMMERCIAL SITE - WARREN AVENUE** **PORTLAND, MAINE**

SOURCE: MAINE OFFICE OF GIS - MAPS

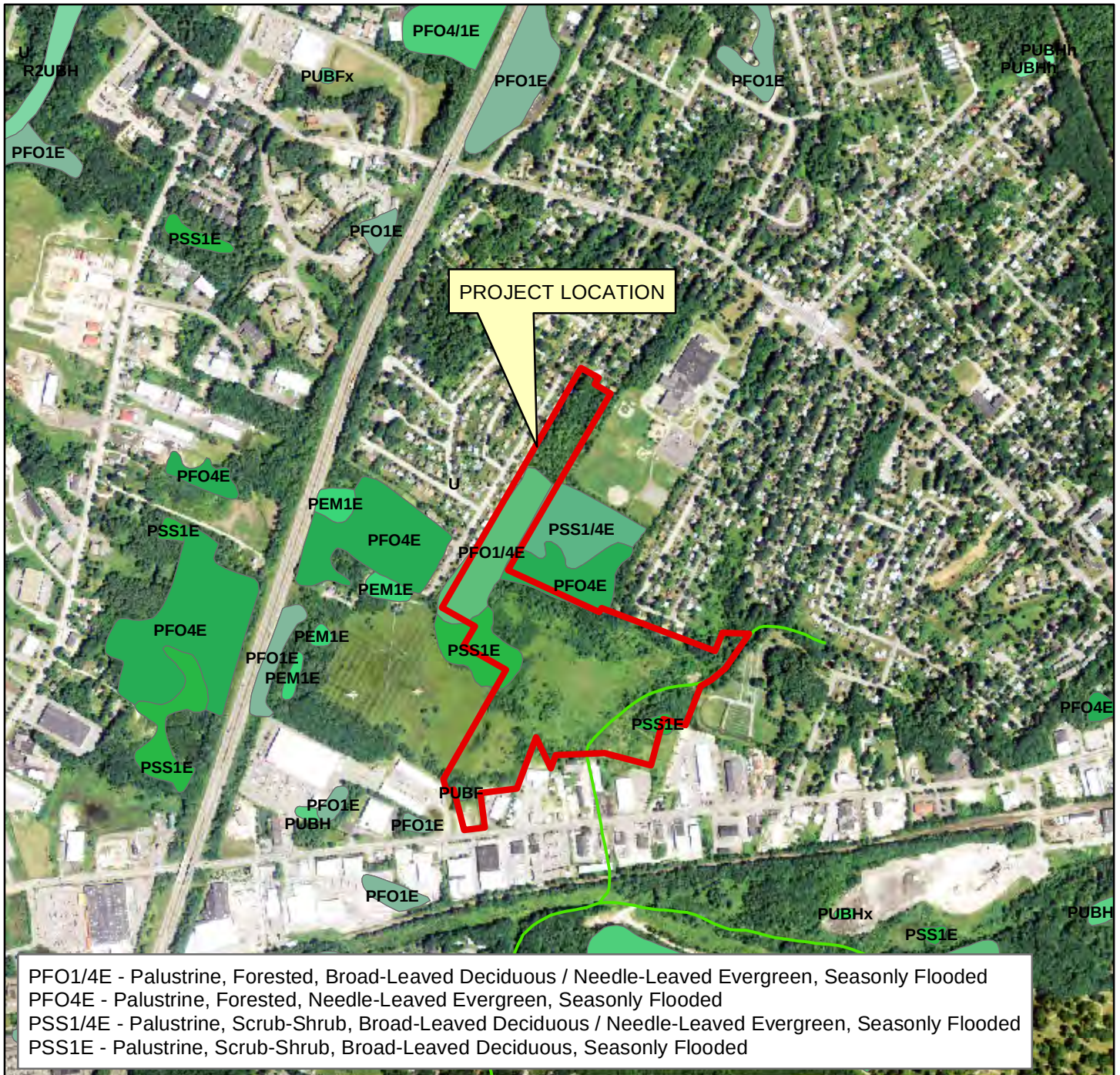


FAY, SPOFFORD & THORNDIKE, INC.
 ENGINEERS • PLANNERS • SCIENTISTS
 775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_GEOLOGY
 SCALE: 1 inch = 1,000 feet

FIGURE

10



NWI MAP PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS



FAY, SPOFFORD & THORNDIKE, INC.
ENGINEERS • PLANNERS • SCIENTISTS
775 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
CHECKED: SRB
DATE: OCT 2013
FILENAME: SP-M104_NWI
SCALE: 1 inch = 1,000 feet

FIGURE

11

2. TECHNICAL AND FINANCIAL CAPACITY

2.1 TITLE, RIGHT AND INTEREST

The applicant currently owns the site as evidenced by the accompanying deed contained in Attachment C to this section.

2.2 TECHNICAL CAPACITY

The applicant has assembled a highly qualified team of professionals to plan, permit, and develop construction documents for the project.

The Team services will be provided by the following companies and their respective team leaders:

2.3 CONSULTANT TEAM

<i>Civil Engineer</i>	Stephen R. Bushey, P.E. Fay, Spofford & Thorndike 778 Main Street, Suite 8 South Portland, ME 04106 (207) 775-1121 – Work (207) 879-0896 – Fax (207) 756-9359 – Cell sbushey@fstinc.com
<i>Surveyor</i>	Jim Nadeau Nadeau Land Surveys 918 Brighton Avenue Portland, Maine 04102 207-878-7870 – Work 207-878-7871 – Fax jim@nadeaulandsurveys.com
<i>Architect</i>	Jim Biskup Biskup Construction 16 Danielle Drive Windham, ME 04062 207-892-9800 – Work 207-892-9895 – Fax jim@biskupconstruction.com
<i>Wetland Scientist</i>	Jim Logan Albert Frick Associates 95A County Road Gorham, ME 04038 207-839-5563 – Work 207-839-5564 – Fax afa@maine.rr.com
<i>Geotechnical</i>	Timothy Boyce, P.E. S.W. Cole Engineering, Inc. 286 Portland Road Gray, ME 04039 207-657-2866 – Work 207-657-2840 – Fax tboyce@swcole.com

2.4 EXPERIENCE OF PROJECT TEAM

The team of consultants retained by developer has expertise and experience in the design of similar commercial projects. Resumes of key personnel for development team can be provided upon request.

2.5 FINANCIAL CAPACITY

The applicant has the means at its disposal for financing the proposed Warren Avenue project, as evidenced by the letter from Machias Savings Bank accompanying this section in Attachment D.

2.6 CONSTRUCTION COST ESTIMATE

A breakdown of the preliminary project cost includes the following:

- Site work \$250,000-\$500,000
- Structure \$1.0-\$1.2 million

These values are considered preliminary and approximate and are subject to change as building design and project layout is refined.

2.7 ATTACHMENTS

Attachment C – Deed

Attachment D – Financial Capacity Letter

ATTACHMENT C

Deed

QUITCLAIM DEED WITH COVENANT

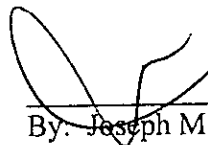
JMC Warren Ave, LLC, a Maine limited liability company with a mailing address of 247 Commercial Street, Suite A, Rockport, ME 04856, hereby grants to PH Warren Ave, LLC, Maine limited liability company with a mailing address of 401 Warren Avenue, Portland, ME 04103, with quitclaim covenant, the following real estate, with all improvements on it and all easements appurtenant to it, on Warren Avenue, Farnham Street, and Iffley Street, in the City of Portland, Cumberland County, Maine, further described as follows:

Please see attached Exhibit A

Meaning and intending to convey and hereby conveying the same premises described in a Quitclaim Deed with Covenant from Alfred J. Waxler to JMC Warren Ave, LLC dated May 31, 2006 and recorded at the Cumberland County Registry of Deeds in Book 24014, Page 149.

Dated: June 26, 2013.

JMC Warren Ave, LLC



By: Joseph M. Cloutier, Manager of
JMC Warren Ave, LLC
Duly Authorized Thereto

State of Maine
County of Cumberland, ss

June 26, 2013

Then personally appeared the above-named Joseph M. Cloutier, in his capacity as Manager of JMC Warren Ave, LLC and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of JMC Warren Ave, LLC.

Before me,

Carley A. Anderson

Notary Public/Attorney at Law

my commission expires
2/6/14

SEAL

EXHIBIT A

Beginning at a 5/8" rebar on the northerly sideline of Warren Avenue, said rebar marking the southwest corner of land now or formerly of Holmes as described in deed book 6918, page 53 Cumberland County Registry of Deeds;

thence north 77° 50' 09" west along the northerly sideline of Warren Avenue, 140.45 feet to a 5/8" rebar at land now or formerly of 424 Warren Avenue, LLC as described in deed book 17326, page 340 Cumberland County Registry of Deeds;

thence north 04° 49' 52" east along land of 424 Warren Avenue, LLC 285.79, feet to a no. 5 rebar;

thence north 85° 10' 08" west continuing along land of 424 Warren Avenue, LLC, 50.00 feet to a 5/8" rebar;

thence north 04° 49' 52" east continuing along land of 424 Warren Avenue, LLC, 84.64 feet to a point at land now or formerly of SAGA Communications of New England, Inc. as described in deed book 12543, page 308 Cumberland County Registry of Deeds;

thence north 49° 15' 54" east along land of SAGA Communications of New England, Inc., 851.18 feet to a no. 5 rebar; thence north 40° 44' 06" west continuing along land of SAGA Communications of New England, Inc., 328.39 feet to a no. 5 rebar;

thence north 49° 24' 48" east continuing along land of SAGA Communications of New England, Inc., 149.18 feet to an iron pipe; thence north 40° 29' 12" west continuing along land of SAGA Communications of New England, Inc., 254.52 feet to an iron pipe at land now or formerly of Bigelman as described in deed book 16291, page 92 Cumberland County Registry of Deeds;

thence north 49° 33' 05" east along land now or formerly of Bigelman, land now or formerly of Hoglund as described in deed book 16262, page 1, land now or formerly of Hoglund as described in deed book 16127, page 117, land now or formerly of Hoglund as described in deed book 19425, page 256, land now or formerly of Loranger as described in deed book 18832, page 241, land now or formerly of Legage as described in deed book 19393, page 66, land now or formerly of Nguyen as described in deed book 16474, page 83, land now or formerly of St. Joseph's Convent and Hospital as described in deed book 15551, page 194, land now or formerly of Vujanic as described in deed book 15874, page 260, land now or formerly of Sutton as described in deed book 7673, page 220, land now or formerly of Lam as described in deed book 7613, page 211, land now or formerly of Harmon as described in deed book 13217, page 321, land now or formerly of Cook as described in deed book 17702, page 26, land now or formerly of Ortiz as described in deed book 22187, page 170, land now or formerly of Lappin as described in deed book 21479, page 39, land now or formerly of Lam as described in deed book 10539, page 173, land now or formerly of Charles as described in deed book 15834, page 303, land now or formerly of Murray as described in deed book 21978, page 15, land now or formerly of Quinn as described in deed book 15009, page 333, land now or formerly of Saucier as described in deed book 7300, page 285, land now or formerly of Herrick as described in deed book 21200, page

150, land now or formerly of Libby as described in deed book 14389, page 142, land now or formerly of Vose as described in deed book 16527, page 203 and land now or formerly of Robey as described in deed book 13204, page 1 Cumberland County Registry of Deeds, 1872.78 feet to a no. 5 rebar at land now or formerly of Steele as described in deed book 14287, page 55 Cumberland County Registry of Deeds;

thence south 40° 18' 34" east along land now or formerly Steele and crossing a portion of Farnham Street, a paper street, 135.98 feet to a point at the center of Farnham Street, a paper street;

thence south 49° 41' 26" west along the center of Farnham Street, a paper street, 50.00 feet to a point at the center of Farnham Street, a paper street;

thence south 40° 18' 34" east crossing Farnham Street, a paper street and along land now or formerly of Mahaphanit as described in deed book 21338, page 304 Cumberland County Registry of Deeds, 125.00 feet to a 4"x4" granite monument at land now or formerly of City of Portland as described in deed book 3552, page 154 Cumberland County Registry of Deeds;

thence south 49° 41' 26" west along land now or formerly of City of Portland, 1379.34 feet to an iron pipe; thence south 45° 43' 10" east continuing along land now or formerly of City of Portland, 679.97 feet to an iron pipe;

thence north 49° 44' 52" east continuing along land now or formerly of City of Portland, 32.87 feet to a 5/8" rebar at land now or formerly of Kerley as described in deed book 11010, page 136 Cumberland County Registry of Deeds, thence south 49° 51' 29" east along land now or formerly of Kerley, along the terminus of Verrill Street and land now or formerly of Huynh as described in deed book 20307, page 40 Cumberland County Registry of Deeds, 302.31 feet to a point;

thence north 40° 08' 31" east along land now or formerly of Huynh, 110.00 feet to a no. 5 rebar on the southerly sideline of Iffley Street; thence south 49° 51' 29" east along the southerly sideline of Iffley Street, 89.43 feet to a point at land now or formerly of Franklin as described in deed book 15675, page 154 Cumberland County Registry of Deeds;

thence south 40° 08' 31" west along land now or formerly of Franklin, 110.00 feet to a point;

thence south 49° 51' 29" east along lands now or formerly of Franklin, Standish as described in deed book 13797, page 5, Barkhuff as described in deed book 3859, page 6, the terminus of Sarsfield Street, and land now or formerly of Jensen, 425.97 feet to an iron pipe;

thence north 41° 43' 08" east along land now or formerly of Jensen and the terminus of Iffley Street, 131.89 feet to a no. 5 rebar at land now or formerly of Hanson as described in deed book 2185, page 195 Cumberland County Registry of Deeds; thence south 68° 56' 53" east along land now or formerly of Hanson, 182.00 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1219, page 386 Cumberland County Registry of Deeds;

thence south 52° 10' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 31.10 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 610, page 424 Cumberland County Registry of Deeds;

thence south 54° 07' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 252.00 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1219, page 386 Cumberland County Registry of Deeds;

thence south 70° 03' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 125.40 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1558, page 209 Cumberland County Registry of Deeds;

thence south 78° 57' 03" west along land occupied now or formerly by Mt. Sinai Cemetery Association, 82.44 feet to a fence post; thence south 40° 23' 22" west along land occupied now or formerly by Mt. Sinai Cemetery Association and land now or formerly of Lead MT, LLC as described in deed book 17401, page 180 Cumberland County Registry of Deeds, 283.03 feet to a no. 5 rebar at land now or formerly of O'Connor Buick GMC Corp. as described in deed book 20997, page 83 Cumberland County Registry of Deeds;

thence north 55° 40' 47" west along land now or formerly of O'Connor Buick GMC Corp., 156.33 feet to a no. 5 rebar;

thence south 34° 19' 13" west along land now or formerly of O'Connor Buick GMC Corp. 322.34 feet to a no. 5 rebar at land now or formerly of Portland Rink Realty as described in deed book 7031, page 126 Cumberland County Registry of Deeds; thence north 55° 40' 47" west along land now or formerly of Portland Rink Realty and land now or formerly of Giroux Oil Co. Inc. as described in deed book 4342, page 31, deed book 3070, page 628 and deed book 3798, page 15 Cumberland County Registry of Deeds, 324.53 feet to an iron pipe;

thence north 72° 51' 29" west along land now or formerly of Giroux Oil Co. Inc., the terminus of Newcomb Street, land now or formerly of Bennett as described in deed book 15814, page 287 Cumberland County Registry of Deeds, the terminus of Saville Street, and land now or formerly of Vance as described in deed books 3080, page 873, deed book 3205, page 559, deed book 2833, page 190, deed book 2595, page 255, and deed book 2755, page 1 Cumberland County Registry of Deeds, 329.05 feet to a no. 5 rebar;

thence south 39° 50' 19" west along land now or formerly of Vance, 82.74 feet to a no. 5 rebar;

thence north 06° 04' 10" west continuing along land of Vance, 220.40 feet to a 5/8" rebar;

thence north 77° 50' 09" west continuing along land now or formerly of Vance, 12.27 feet to a no. 5 rebar;

thence south 39° 50' 52" west continuing along land now or formerly of Vance, 369.42 feet to a 5/8" rebar at land now or formerly of Holmes as previously described; thence north 77° 48' 43" west along land now or formerly of Holmes, 248.17 feet to a 5/8" rebar;

thence south 12° 11' 17" west continuing along land now or formerly of Holmes, 234.84 feet to the point of beginning.

This parcel contains 48.64 acres.

Bearings herein are based upon magnetic north 2002.

The real estate described above is a portion of the land conveyed to Alfred J. Waxler by two April 27, 1988 deeds from Your Home, Inc. recorded in Book 8261, Pages 269 and 273, and the December 31, 2005 deed from Your Home, Inc. recorded in Book 23556, Page 131.

Together with all rights described in the 2004 Affidavit recorded in Book 20828, Page 3.

Received
Recorded Register of Deeds
Jun 27, 2013 02:26:01P
Cumberland County
Pamela E. Lovley

ATTACHMENT D

Financial Capacity Letter



Experienced people. Exceptional service.

February 4, 2014

City of Portland
Planning Board
389 Congress Street 4th Floor
Portland, ME 04101

To whom it may concern:

Please accept this letter as confirmation that Peter Holmes is a customer of Machias Savings Bank. He has the financial capacity to complete the Warren Avenue project.

If you should have any questions, please feel free to contact me at 207-461-6160.

Sincerely,

A handwritten signature in cursive script that reads 'James O. Donnelly'. Below the signature, the name 'Cam' is written in a smaller, simpler script.

James O. Donnelly
Executive Vice President

4 Center Street, PO Box 318 | Machias, ME 04654-0318

(T) 800-339-3347 | (I) 207-255-2317 | (W) machiassavings.com

Member FDIC | Equal Housing Lender

3. UTILITIES

3.1 OVERVIEW

The site is currently served by a number of existing utilities including water, sewer, power, and communications. The project includes improvements to these systems. The Development Team continues to work closely with utility representatives and City officials to design adequate utility systems to serve the project. Capacity availability letters have been requested from each utility and responses are included with this submission. The following sections outline conditions and system improvements that are contemplated for each utility.

3.2 WATER SUPPLY

The proposed project will receive its water supply from the Portland Water District's public water supply system. FST sent a letter to the Portland Water District requesting that the Water District confirm their ability to provide water supply to the proposed development. Their response is included in this section.

The site is currently served by an 8" fire service main from Warren Avenue. We note that there are existing fire hydrants along Warren Avenue, thus providing ample coverage in this regard.

3.2.1 TOTAL PROJECT WATER USAGE

The total average daily water demand for the proposed project was estimated using commonly accepted flow per unit rates. These values are as follows:

6 Units at 180 gpd/unit =	1,080 gpd
37 Proposed Parking Spaces at 1 gpd/space =	36 gpd
TOTAL	1,116 gpd

3.3 WASTEWATER DISPOSAL

The proposed project will be connected to the Portland Water District's and City of Portland's wastewater collection and conveyance systems. The City of Portland Wastewater Capacity Application has been completed and forwarded to Mr. Frank Brancely. A copy is attached to this section.

The overall project is anticipated to generate an average daily flow of approximately 1,116 gpd. Based on the existing sewer systems in the area, there appears to be adequate capacity to handle these projected flow amounts.

3.4 NATURAL GAS SUPPLY

FST has contacted Northern Utilities regarding their ability to provide service to the project site. Currently, they maintain a distribution main in Warren Avenue. Our preliminary discussions have included the proposal to extend a gas supply main into the site. The development team continues to coordinate with the gas supplier as expected gas loads are refined.

3.5 ELECTRICITY SUPPLY

FST has contacted Central Maine Power (CMP) regarding their ability to provide service to the development site. CMP currently maintains overhead utilities in the area and they expect to continue service to the site through new underground primary service from Warren Avenue. The current proposal is to extend a new underground service from the pole mounted transformer(s) into the building. The applicant will continue to work with CMP for the delivery of primary power into the project.

3.6 ATTACHMENTS

Attachment E – Correspondence with Portland Water District

Attachment F – City of Portland Wastewater Capacity Application

Attachment G – Correspondence with Central Maine Power

ATTACHMENT E

Correspondence with Portland Water District



Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

March 13, 2014

Fay, Spofford & Thorndike
778 Main Street, STE 8
South Portland, ME 04106

Attn: Stephen R. Bushey, P.E.
Re: Multi-Unit Commercial Building; 421 Warren Avenue, Portland
Ability to Serve with PWD Water

Dear Mr. Bushey:

The Portland Water District has received your request for an Ability to Serve determination for the noted site submitted on February 28, 2014. Based on the information provided, 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 does not constitute approval of this project from the District. Please review this letter for any special conditions specified by the District and to determine the appropriate next steps to take to move your project through the submittal and approval process.

Existing Site Service

According to District records, the project site does currently have existing water service. An 8-inch diameter ductile iron water service line, located as shown on the attached water service card, provides water service to this site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is a 20-inch diameter cast iron water main on the south side of Warren Avenue and a public fire hydrant located 220-feet from the site.

The current data from the nearest hydrant with flow test information is as follows:

Hydrant Location:	Warren Avenue 1430' east of Grove Street	
Hydrant Number:	POD-HYD01320	
Last Tested:	2/13/2013	5/13/2004
Static Pressure:	85 psi	79 psi
Residual Pressure:	Not Measured	Not Measured
Flow:	Not Measured	1,352 GPM

Public Fire Protection

You have indicated that this project will not include the installation of new public hydrants to be accepted into the District water system. The decision to require new hydrants and to determine



their locations is solely that of the local fire department. 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 ability to serve request indicated that the total water usage required for the proposed seven unit commercial complex is 1,301 gallons per day. The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of the project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

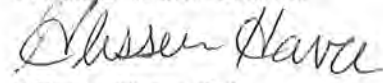
You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact the MEANS Division to request a hydrant flow test and we will work with you to get more complete data.

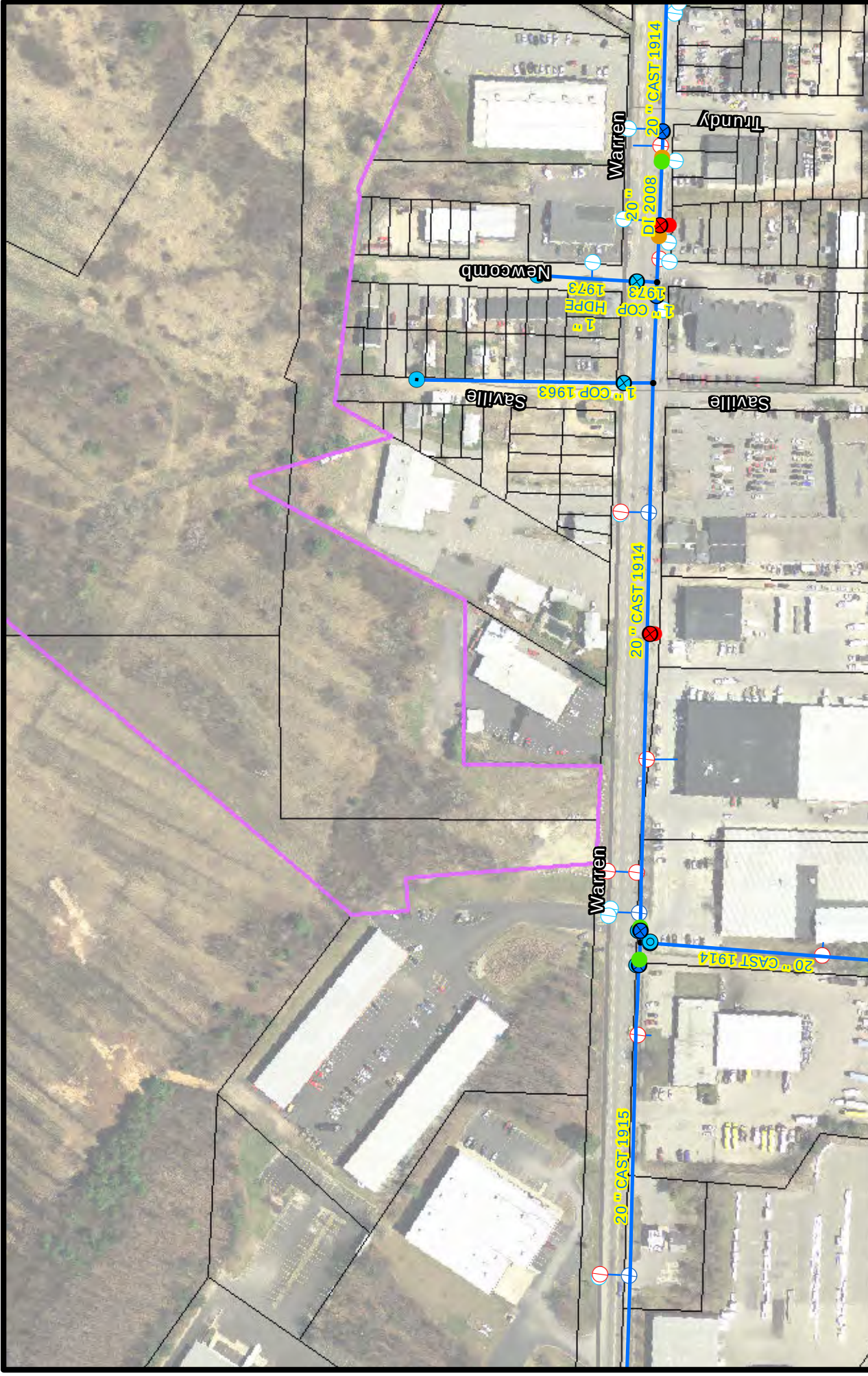
Conditions of Service

The District can confirm that the existing water system has the capacity to serve the proposed 7-unit commercial complex. We have reviewed the Site Layout and Utility Plan dated February 12, 2014 and have the following comment: Our records indicate that there is an existing 8-inch gate valve on the fire service at the street line. This valve should remain, and the domestic tap should be made prior to this gate valve so that the District will have a control valve on each service, which will allow them to be operated them independently.

Once a contractor has been selected and the project is ready to go to construction, please contact MEANS to arrange for an appointment to fill out a service application. If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District


Glissen Havu, E.I.
Design Engineer



421 Warren Avenue

Portland

PORTLAND WATER DISTRICT
 225 Douglass Street
 Portland, ME 04104

Scale 0 50 100 200 300 400 Feet
 1 inch = 200 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Reducer
- Hydrant
- Hydrant Control
- Combined Service
- Domestic Service
- Fire Service
- Private Hydrants
- Meter Pits
- Manhole
- CSO
- Gravity
- Force

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: GJH
Prepared For: Fay, Spofford & Thorndike
Scale: As Noted
Date: March 13, 2014



FAY, SPOFFORD &
THORNDIKE
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896
www.fstinc.com

February 28, 2014

Mr. Rico Spugnardi, Means Coordinator
Portland Water District
225 Douglass Street
PO Box 3553
Portland, Maine 04104-3553

**Subject: Multi-Unit Commercial Building
Warren Avenue, Portland, Maine
Request for Ability to Serve Letter**

Dear Mr. Spugnardi:

Our office is working as a consultant to Peter Holmes on a proposed multi-use commercial building on Warren Ave in Portland. We would like to verify the Portland Water District's ability to provide domestic and fire supply water for the project and determine any impact fees. The project site is located on Map 301/Lot J010; Map 302/Lot A001; Map 303/Lot A010; and Map 304/Lot B028 according to the City of Portland Tax Assessor's Maps.

The project will consist of the development of a seven unit commercial complex with five (5) unit at 3,500 SF and two units at 5,250 SF for a total building size of 28,000 SF. The building will include domestic and fire supply services.

The projected water use using the typical City of Portland flows information is as follows:

Use	Design Flow
7 units at 180 gpd/unit = 41 parking spaces at 1 gpd/space =	1,260 GPD 41 GPD
Total Water Usage Required:	1,301 GPD

Based on this modest amount of flow, we trust that the existing water supply system has adequate capacity to serve this project. We are in the process of completing the Site Plan Application for a submission to the City Planning Staff. We would appreciate your consideration of this request for an Ability to provide service determination. A copy of the proposed Site layout and utility plan accompanies this request letter.

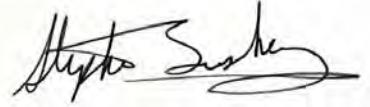
FAY, SPOFFORD & THORNDIKE

Mr. Rico Spugnardi
February 28, 2014
Page 2

If you have any questions regarding this letter, please contact our office.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light yellow rectangular background.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/smk

Attachment

*R:\SP-M104 Portland, ME Harbor Auto Body - Peter Holmes\Admin\Correspondence Out\Utilities\SP-M104 2014.02.28-Spugnardi-PWD
ABS.doc*

ATTACHMENT F

City of Portland Wastewater Capacity Application



April 16, 2014

Mr. Frank Brancely
City of Portland
Department of Public Services
55 Portland Street
Portland, Maine 04101-2991

**Subject: 421 Warren Avenue Multi Unit Commercial Building
Wastewater Capacity Application**

Dear Mr. Brancely:

Our office is working as a consultant to PH Warren Avenue, LLC on the 6 Unit Commercial Building project at 421 Warren Avenue in Portland. The project site is located on Map 304/Block B/Lot 28 and Map 303/Block A/Lot 10 according to the City of Portland Tax Assessor's Maps. On behalf of the developer, we are requesting a letter affirming that the proposed project can be served by the municipal wastewater treatment system.

The project will consist of the new construction of a single level, seven-unit commercial/industrial complex. Tenant spaces will vary in size from 3,500 SF to 5,555 SF.

The projected water use using the typical City of Portland flows information is as follows:

Use	Design Flow
6 units at 180 gpd/unit =	1,080 GPD
36 parking spaces at 1 gpd/space =	36 GPD
Total Water Usage Required:	1,116 GPD

The property is currently undeveloped so there is no historic wastewater generation for the site.

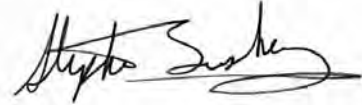
Based on this modest amount of flow, we trust that the existing wastewater collection and treatment system has adequate capacity to serve this project. We are in the process of completing the Site Plan Application for a submission to the City Planning Staff and would appreciate your response to the Planning Department.

Mr. Frank Brancely
April 16, 2014
Page 2

If you have any questions concerning this request, please contact me.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", with a stylized flourish at the end.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/cmd

c: Peter Holmes
Jim Biskup

Attachment

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

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



Mr. Frank J. Brancely,
Senior Engineering Technician,
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail: fjb@portlandmaine.gov

Date: 02/072014

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

Site Address: 421 Warren Avenue

Map 303/Lot A010

Map 304/Lot B028

Chart Block Lot Number: _____

Proposed Use: 6-Unit Commercial Complex

Previous Use: Undeveloped

Existing Sanitary Flows: 0 GPD

Existing Process Flows: 0 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)

X

(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:

PH Warren Avenue, LLC Attn: Peter F. Holmes

Owner/Developer Address:

401 Warren Avenue - Portland, ME 04101

Phone: 207-347-3398

Fax:

E-mail: dicklharbour@maine.rr.com

Engineering Consultant Name:

Fay, Spofford & Thorndike, Attn: Stephen Bushey, P.E.

Engineering Consultant Address:

778 Main Street, Suite 8, South Portland, ME 04106

Phone: 207-775-1121

Fax: 207-879-0896

E-mail: sbushey@fstinc.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: 1,116 GPD

Peaking Factor/ Peak Times: X6

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:

Not Applicable

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:

Not Applicable

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 below, or attached, as a separate sheet)

Notes, Comments or Calculation

6 Units at 180 gpd/unit =	1,080 gpd
36 Parking Spaces at 1 gpd/space =	36 gpd
TOTAL	1,116 gpd

DIMENSIONAL STANDARD	REQUIRED DIMENSION - B4	PROVIDED
MINIMUM LOT SIZE	10,000 SF	418,333 S.F.
MINIMUM STREET FRONTAGE	60 FEET	140.51 FEET
MINIMUM FRONT YARD	30 FEET OR THE AVERAGE DEPTH OF THE FRONT YARDS ON EITHER SIDE. AVERAGE DEPTH = 1 FOOT	54.85 FEET
MINIMUM REAR YARD	20 FEET	>20 FEET
MINIMUM SIDE YARD	1 OR 2 STORIES = 10 FEET 3 OR MORE STORIES = 12 FEET	20 FEET
MAXIMUM LOT COVERAGE	40% FOR LOTS CONTAINING 20 OR MORE UNITS; 50% FOR LOTS CONTAINING FEWER THAN 20 UNITS.	<40%
MINIMUM LOT WIDTH	60 FEET	>150 FEET
MAXIMUM STRUCTURE HEIGHT	65 FEET EXCEPT ON LOTS IN EXCESS OF 5 ACRES. 90 FEET IS PERMITTED IF EACH OF THE SETBACKS REQUIRED IS INCREASED BY 1 FOOT IN DISTANCE FOR EACH FOOT OF HEIGHT ABOVE 65 FEET	
IMPERVIOUS SURFACE RATIO	80%	<30%

BUILDING #1

#429 WARREN AVENUE
N/F
42A WARREN AVENUE, LLC
COMMERCIAL SITE
CCRD BOOK 304, PAGE 40
MAP 304, BLOCK 8, LOT 32

BUILDING #2

PLAN NOTES

- THE SUBJECT PARCEL IS NOT LOCATED WITHIN FLOOD HAZARD ZONE AS INDICATED ON FIRM PANEL 2300510006C.
- OWNER OF RECORD:
PH WARREN AVENUE, LLC
C/O 401 WARREN AVENUE
PETER F. HOLMES
CCRD BOOK 30781, PAGE 74
- SEE FULL PLAN SET TITLED "SITE DEVELOPMENT PLANS FOR MULTI-UNIT COMMERCIAL BUILDING" BY FAY, SPOFFORD & THORNDIKE, INC. DATED APRIL, 2014.
- SEE COVER SHEET FOR TAX MAP AND LOT REFERENCES. THIS SITE IS LOCATED IN THE B4 ZONE PER THE CITY OF PORTLAND ZONING MAP.
- SOLID WASTE REMOVAL SHALL BE BY PRIVATE WASTE HAULER UNDER DIRECT CONTRACT TO THE OWNER.
- ACCESS AND UTILITY RIGHTS SUBJECT TO SHARED ACCESS AND UTILITY AGREEMENT BETWEEN PETER F. HOLMES, LLC AND PH WARREN AVE, LLC (PROPERTIES ARE CURRENTLY UNDER COMMON OWNERSHIP).
- TOTAL WETLAND IMPACT = 14,323 SF

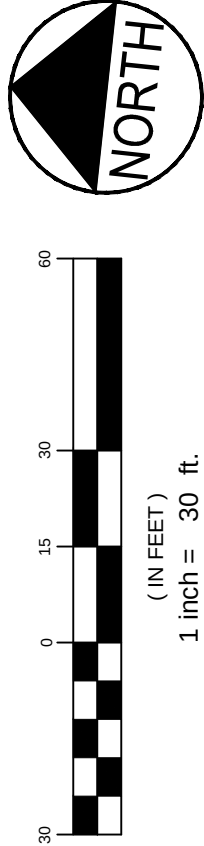
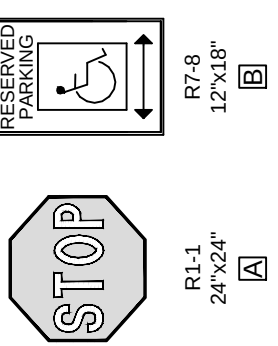
PLAN REFERENCES

- BOUNDARY SURVEY, WARREN AVENUE, PREPARED FOR REALTY RESOURCES CHARTERED, ALFRED J. WAKLER, BY SURVEY, INC. (JOB NO. 04-131) DATED DECEMBER 2004. THE VERSION OF THE PLAN REFERENCED BY FST, INC. WAS UNSIGNED.
- PLAN DEPICTING THE RESULTS OF A PARTIAL BOUNDARY SURVEY, EXISTING CONDITIONS AND PROPOSED LOT DIVISION MADE FOR P H WARREN AVE, LLC BY NADEAU LAND SURVEYS DATE 01.07.2014 (JOB #2131442BT).

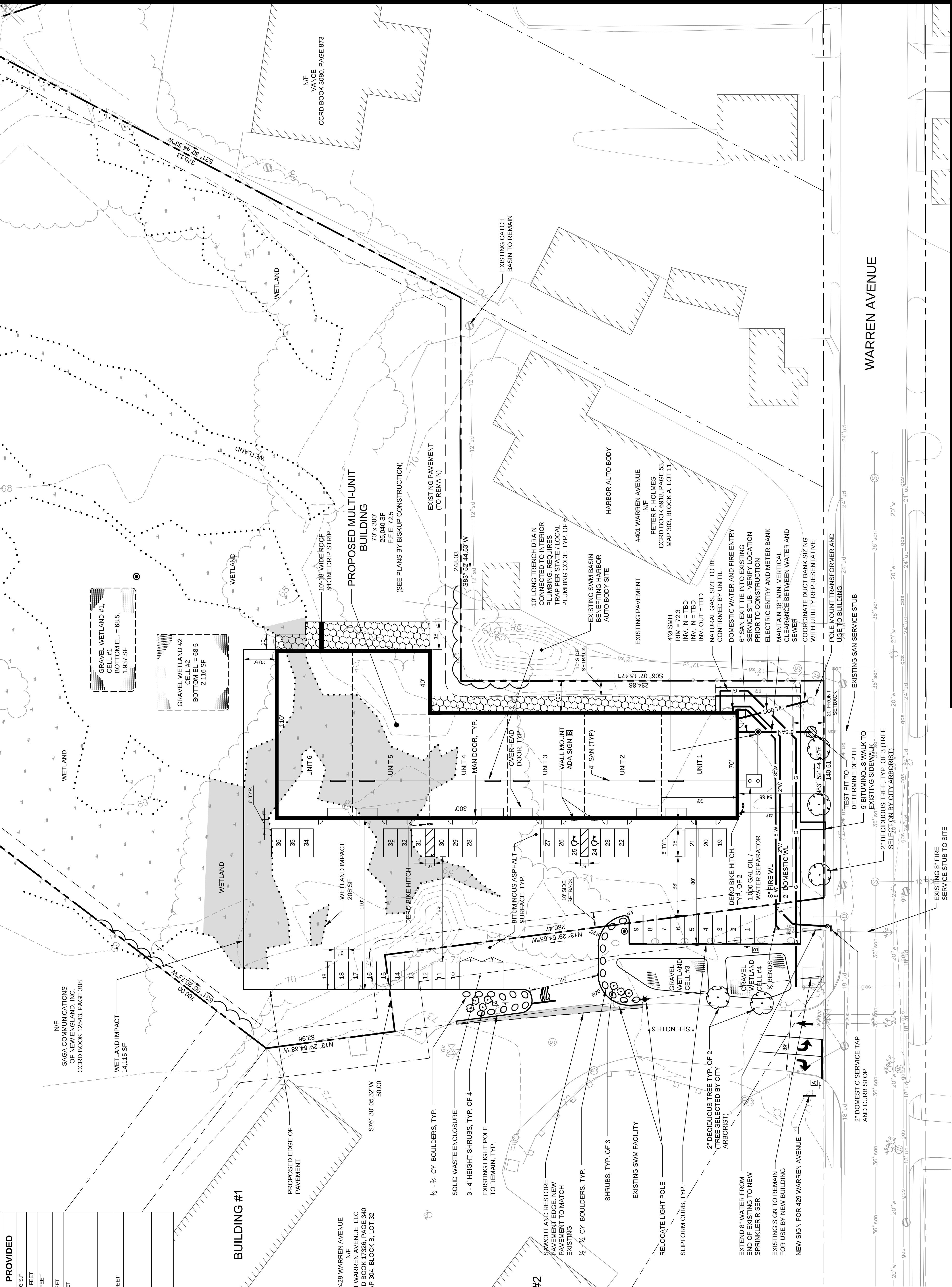
WAIVERS REQUESTED

- WAIVER FROM SECTION 14-528(4)(i)(ii) BICYCLE PARKING SPACES.

SIGN LEGEND



PRELIMINARY - NOT FOR CONSTRUCTION



				PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
				SHEET TITLE	SITE LAYOUT AND UTILITY PLAN
				CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILWOOD LANE SCARBOROUGH, ME 04074
2	04.17.14	FINAL PLAN SUBMISSION TO CITY		REVISIONS	LIC. # 7429
1	02.10.14	SUBMITTED TO CITY OF PORTLAND			
REV	DATE	DESCRIPTION			

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		DRAWN:	CMW	DATE:	NOVEMBER 2013
		DESIGNED:	SRB	SCALE:	1"=30'
		CHECKED:	SRB	JOB NO.:	SP-M104
		FILE NAME:	SP-M104-SITE	SHEET	C-30

ATTACHMENT G

Correspondence with CMP



3/10/2014

Stephen Bushey PE Senior Principal Engineer
FAY, SPOFFORD & THORNDIKE
778 Main Street| South Portland, Maine 04106
Tel: (207) 775-1121 Fax: (207)879-0896
sbushey@fstinc.com

RE: Ability to Serve Letter for 421 Warren Avenue project in Portland

Dear Mr. Bushey:

CMP has the ability to serve the proposed project located at 421 Warren Avenue in Portland, Maine, in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Standards Handbook. If you have any questions on the process, or need help in completion of the documents, please feel free to contact me.

New Service Milestones

- Call 1-800-565-3181 to establish a new account and an SAP work order.
- Submit any electronic drawings (PDF (preferred) or DWG files) of the site layout and proposed electrical connections if you have them.
- Submit Load information. Please complete this CMP spreadsheet using load information
- Submit the easement information worksheet. Please complete this CMP form and either email or fax back to us.
- Preliminary meetings with CMP to determine the details of job
- Field planner design appointment to cost out job and develop CMP Invoice.
- Submit invoice for payment.
- Easements signed and payment received.
- Job scheduled for completion after the electrical inspection has been received.

This process can take several months, depending upon several factors including transformer delivery, potential substation upgrades, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to bring your project on line.

162 Canco Road Portland, ME 04103
Tel (800) 750-4000
207-842-2367 office
207-458-0382 cell
207-626-4082 fax

www.cmpco.com



An equal opportunity employer



FAY, SPOFFORD &
THORNDIKE
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896
www.fstinc.com

February 28, 2014

Mr. Jamie Cough
Central Maine Power
162 Canco Road
Portland, ME 04103

**Subject: 4 Multi-Unit Commercial Building
Warren Avenue, Portland, Maine
Request for Ability to Serve Letter**

Dear Mr. Cough:

Our office is working as a consultant to Peter Holmes on a proposed multi-use commercial building on Warren Ave in Portland. We would like to verify CMP's ability to provide power for the project and determine any impact fees. The project site is located on Map 301/Lot J010; Map 302/Lot A001; Map 303/Lot A010; and Map 304/Lot B028 according to the City of Portland Tax Assessor's Maps.

The project will consist of the development of a seven unit commercial complex with five (5) unit at 3,500 SF and two units at 5,250 SF for a total building size of 28,000 SF. The building will include an underground service extension into the building. Three Phase power is desired. On behalf of the developer, we are requesting a letter affirming that the proposed project can be served by the CMP supply system.

We trust that the existing power supply system has adequate capacity to serve this project. We are in the process of completing the Final Site Plan Application for a submission to the City Planning Staff and we would appreciate your confirmation of site conditions.

We look forward to your review of this request and a summary of your findings and any updated cost projections for the project you may be able to provide. Please include in your assessment for any costs that could be associated with the following:

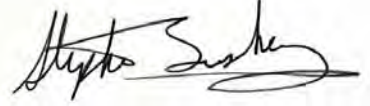
- Upgrades to nearby CMP infrastructure
- All onsite overhead and underground improvements
- Impact fees or connection fees
- CMP engineering costs

Mr. Jamie Cough
February 28, 2014
Page 2

If you have any questions regarding this letter, please contact our office.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light yellow rectangular background.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/smk

Attachment

4. FIRE SAFETY

4.1 OVERVIEW

FST has completed the Fire Department checklist and performed ongoing coordination with Fire Department representatives and City Planning officials. The accompanying memorandum outlines our findings with respect to compliance with the City's Public Safety standards as set forth in the City's Technical Manual Section 3 – Public Safety Standards.

Generally, the site access conditions will include at least three sided building access from proposed paved area and Warren Ave. Fire hydrants are located on Warren Ave opposite the site thus offering ample fire protection support. The proposed building will be fully sprinkled and code compliant to current standards.

Additional fire safety review and building related fire code evaluation and compliance evidence will be provided as part of the building permit process.

4.2 ATTACHMENTS

Attachment H – NFPA 1 Review to Access and Other Fire Department Issues Memo

ATTACHMENT H

NFPA 1 Review to Access and Other Fire Department Issues Memo



April 17, 2014

Captain Chris Pirone
City of Portland Fire Department
380 Congress Street
Portland, ME 04101

**Subject: 421 Warren Avenue
6 Unit Commercial Building
Fire Department Site Review Checklist**

Dear Captain Pirone:

In accordance with instructions in the City's Site Plan Review packet, please find enclosed the drawing necessary for your review of the proposed 421 Warren Avenue project in Portland. We have listed each item in your checklist below, followed by our response.

1. *Name, address, telephone number of applicant.*

PH Warren Avenue, LLC
c/o Peter F. Holmes – Harbor Auto Body
401 Warren Avenue
Portland, ME 04101
c/o Fay, Spofford & Thorndike
207-775-1121

2. *Name, address, telephone number of architect.*

Project Architect: Biskup Construction
16 Danielle Drive
Windham, ME 04062
Attn: Jim Biskup
207-892-9800

3. *Proposed uses of any structures (NFPA and IBC classification).*

Building	IBC Code	NFPA Code
Commercial	VB	V (000)

4. *Square footage of all structures (total and per story).*

Single Story – Industrial 25,040 SF

Captain Chris Pirone
April 17, 2014
Page 2

5. *Elevation of all structures.*

The first floor elevation is expected to be approximately 73.5 feet. Architectural building elevations accompany this letter and they show the various locations of door openings, etc. around the building perimeter.

6. *Proposed fire protection of all structures.*

The building will have a sprinkler system with additional protection per code. Fire flows and requirements for system storage or booster pumping are subject to the fire system design which will be performed prior to the request for a building permit.

7. *Hydrant locations.*

A fire hydrant is currently located on Warren Avenue less than 500 feet from the site.

8. *Water main(s) size and location.*

The site will be served by a 6" sprinkler service to be extended into the building off an existing 8" main stub into the site. A 2" domestic service will also be extended to the building. The building is expected to have internal sprinkler risers and a Siamese fire pump connection on the Warren Avenue side of the building.

9. *Access to all structures (min. 2 sides).*

The accompanying site plan depicts the site access conditions from Warren Avenue.

10. *A code summary shall be included referencing NFPA 1 and all fire department technical standards.*

NFPA 1 – Chapter 18 Fire Department Access and Water Supply

18.2 Fire Department Access:

The project site is located in a commercial developed area and is fronted by a public street. The following street width is currently available:

<u>Street</u>	<u>Width</u>
Warren Avenue	40 FT

Per NFPA 1 – Chapter 18.2.3.3.1, there will be public street access within 50 ft. of at least one exterior door. Per NFPA 1 – Chapter 18.2.3.2.2.1, all first story floors shall be located not more than 450 ft. from a Fire Department access road.

Captain Chris Pirone
April 17, 2014
Page 3

City of Portland Technical Manual – Section 3 Public Safety

3.4.1 Every dead-end roadway more than one hundred fifty (150') feet in length shall provide a turnaround at the closed end. Turnarounds shall be designed to facilitate future street connectivity and shall always be designed to the right (refer to Figure I-5).

Supporting Evidence: Not applicable

3.4.2 Where possible, developments shall provide access for Fire Department vehicles to at least two sides of all structures. Access may be from streets, access roads, emergency access lanes, or parking areas.

Supporting Evidence: As depicted on the site plan, the proposed building layout provides for minimum two sided access to the structure.

3.4.3 Building setbacks, where required by zoning, shall be adequate to allow for emergency vehicle access and related emergency response activities and shall be evaluated based on the following factors:

- *Building Height.*
- *Building Occupancy.*
- *Construction Type.*
- *Impediments to the Structures.*
- *Safety Features Provided.*

Supporting Evidence: The proposed development layout has contemplated emergency access conditions and provides for safe and efficient access along the public street for emergency vehicles.

3.4.4. Fire Dept. access roads shall extend to within 50' of an exterior door providing access to the interior of the structure.

Supporting Evidence: The building will be provided with an exterior door that will be within 50' of a Fire Department access route, namely Warren Avenue and the site entrance at 429 Warren Avenue.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Supporting Evidence: A minimum of 9 ft. vertical clearance will be provided below any overhead signage or utilities entering the site.

3.4.6. Elevators shall be sized to accommodate an 80 x 24 inch stretcher.

Captain Chris Pirone
April 17, 2014
Page 4

Supporting Evidence: The building does not require an elevator.

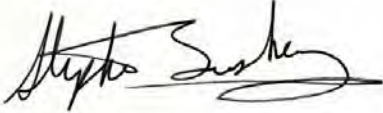
3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.

Supporting Evidence: The applicant will work with the City's Public Services Division to assign street addresses and numbering to meet City Standards.

If you need any further information, please contact our office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light gray rectangular background.

Stephen R. Bushey, P.E., C.P.E.S.C.
Senior Principal Engineer

SRB/cmd

Attachments: Drawing C-3.0 Site Layout & Utility Plan

c: Peter Holmes
Jim Biskup

5. CONSTRUCTION MANAGEMENT PLAN

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(9).

5.1 CONSTRUCTION MANAGEMENT PLAN

PH Warren Ave, LLC is seeking to commence construction during summer 2014 and complete the work by late 2014. The commercial development construction will involve site preparation, foundation and building construction, utilities and final site restoration. The accompanying construction plan outlines the anticipated timeline and sequence of activities.

5.2 ATTACHMENTS

Attachment I – Construction Management Plan

ATTACHMENT I

Construction Management Plan

421 WARREN AVENUE COMMERCIAL COMPLEX PROJECT

CONSTRUCTION MANAGEMENT PLAN

The Owner, Biskup Construction, and the field supervision team will work together onsite on a daily basis. This will ensure clear and timely communication with the Owner and seamless coordination of project activities. Project Management will be overseen by Biskup Construction working out of their home office in Windham, Maine. The Site Project Manager/Superintendent will be on site to oversee and manage the project during all phases of construction.

The work involves new construction of a multi-unit commercial complex on Warren Avenue in Portland with off-street parking available on the project site.

- **Final Approvals and Building Permit.** We anticipate final approvals for late May 2014. All necessary building permit documentation will be submitted to the City at this time.
- **Construction.** It is anticipated that construction will begin mid to late June, weather permitting.
- **Work Hours.** Work hours will be in accordance with City of Portland Regulations. Monday through Friday 7:00 AM to 7:00 PM and Saturday 8:00 AM to 3:00 PM.
- **Site Mobilization and Construction Entrance.** All construction access to site will be via Warren Avenue.
- **Traffic Management.** All traffic management for the site will be on Warren Avenue. Traffic management will occur during all phases of construction. This may include temporary construction signage on the street.
- **Site Protection.** Temporary fencing will be placed as needed along the Warren Avenue side of the project. Pedestrian access will be managed along Warren Avenue and protection may include fencing, construction signage and barricades where necessary for public safety and continued site accessibility.
- **Parking for workforce** will be located onsite or within the applicant's adjacent properties. Workers will avoid parking on Warren Avenue.
- **City Coordination.** Biskup Construction will work with the City of Portland, Portland Water District, Emergency Services and other entities to coordinate off site construction activities including all work within the public right of way. All traffic control, detours and signage will be in accordance with City requirements.

- Warren Avenue Right of Way Work. Utility and site drainage work along Warren Avenue is planned to occur in the early phases of the project. This work is anticipated to begin in the summer as street opening permits are issued and as weather permits. The Site Project Manager will notify the City of Portland, Portland Water District and Emergency Services of street openings and restriction to street access. Detour signage will be provided to direct traffic and pedestrians, if necessary. Right of way work will be coordinated for minimal interruption.
- Sidewalk Closure. During the Utility Right of Way work on Warren Avenue the public sidewalk will need to be temporarily closed to pedestrians. The sidewalk closure will be coordinated with the City of Portland and appropriate barriers and detour signage will be provided to direct pedestrians to the opposite side of the street.
- Waste management will be coordinated by the Site Project Manager. An appropriately sized dumpster or dump trailer will be stationed onsite for regular waste removal. Dumpster protection will be provided as necessary.
- Crane Usage. The use of a crane may be deemed necessary. If a crane is needed the Site Project Manager will adhere City of Portland Regulations.
- Management of excavated materials. The Site Project Manager will oversee the handling of all excavated materials and their appropriate disposal.
- Erosion control will be used and maintained throughout the site.
- Site Project Managers will coordinate materials deliveries. These deliveries will be received via Warren Avenue.
- Material storage and laydown areas will be on site. Materials will be protected as needed from weather and potential theft.
- Snow Removal, if necessary. Snow removal equipment will be brought on site on an as needed basis.
- Restoration of the site. Restoration includes loaming, seeding, mulching and landscaping per the landscaping plans.

6. SOLID WASTE

6.1 INTRODUCTION

This section of the application provides the estimates of solid waste generation, considers the reductions of the waste through the use of recycling, provides information on waste projections during construction of the development, and outlines the planned procedures for the transport and disposal of solid wastes that will be generated by the operation of the proposed commercial development.

The following volumes of solid waste associated with the construction and operation of the development have been estimated:

- 200 cubic yards of stumps and grubblings from the construction of the proposed development, associated site work improvements, access drive, and landscaping.
- 167 cubic yards of construction debris related to the new building construction activities (excluding volume of recycled materials).
- 200 pounds per week of solid waste will be generated by the operations of the development. After the recyclable material has been removed, it is estimated that the project will generate 2-3 tons of recyclable waste and 2-3 tons of non-recyclable waste per year.

6.2 SOLID WASTES GENERATED DURING CONSTRUCTION OF THE SITE

The solid wastes generated during the development site work will include minor packaging materials and minor amounts of solid waste that can be processed with the waste stream of the General Contractor for the building.

The applicant will retain a General Contractor to perform earthwork and land clearing on site. Land clearing will include minor building demolition, site cleanup, vegetation clearing, grubbing and topsoil removal. Removed topsoil may be screened and may be reused for onsite landscaping purposes if acceptable based on environmental conditions.

The Contractor will be permitted to dispose of trees and limbs by removing to an offsite location.

6.3 SOLID WASTE GENERATED DURING THE CONSTRUCTION OF THE PROPOSED BUILDING

The contract provisions and the wastes generation estimates for the proposed buildings will be as follows:

- The construction contract will provide a goal for recycling of solid waste of 80%.

- The construction contract will require a plan for recycling and the location of recycling facilities to be identified prior to any solid wastes removal from the site.
- Construction Debris and Waste – 33 c.y. after recycling.

Unless otherwise directed by the City, the waste stream will be transported and disposed of at the following locations:

Hazardous Materials:	WMI Crossroads Facility in Norridgewock, Maine
Mixed Construction Material:	Riverside Recycling Facility in Portland, Maine; WMI Crossroads Facility in Norridgewock, Maine or Juniper Ridge in Old Town, Maine (Contractor option)
Separated Wood Construction Debris:	KTI Biofuels in Lewiston, Maine
Separated Metal/Ferrous Material:	One Steel Recycling Inc. in Arundel or Oakland, Maine

The collection, transfer, disposal, and payment of all fees for solid wastes shall be the responsibility of the Contractor, with all waste transferred by a licensed non-hazardous waste transporter.

6.4 SOLID WASTE GENERATED FROM THE OPERATION OF THE DEVELOPMENT

The waste from development operations will be picked up through a contract with a licensed solid waste transporter.

6.5 FLUORESCENT LIGHTS AND FIXTURES

The development will use fluorescent light bulbs that do not have PCB ballasts. The electrical switches for the project will be specified to not contain mercury. Fluorescent bulbs and other universal wastes will be taken to Riverside Recycling Facility in Portland.

6.6 HAZARDOUS AND SPECIAL WASTES

The developer anticipates use of cleaners, solvents, etc. will be within normal household thresholds thus requiring no special measures for storage or use.

6.7 GRIT/SEDIMENT REMOVAL

The applicant will be responsible for the maintenance of the minor storm drain systems within the site. They will be responsible for the long-term maintenance of the stormwater management collection systems and the associated infrastructure including the removal of sand and sediment. Potential disposal facilities which accept this type of material include Commercial Recycling in Scarborough, Maine and Dragon Cement in

Thomaston, Maine. It is anticipated that the material from the project site will be delivered to Commercial Recycling where it will be kiln dried and used as a suitable mixing material for asphalt-based products. Given the limited amount of drainage infrastructure on the site, these volumes are considered to be insignificant.

6.8 ATTACHMENTS

Attachment J – Computations of Types and Volumes of Solid Wastes for Construction Project

ATTACHMENT J

**Computations of Types of Volumes of Solid Wastes
for Construction Project**

SOLID WASTES COMPUTATIONS AND DISPOSAL

A. SITE CONSTRUCTION:

- Type: Wood Waste from Clearing Operations
- Basis of Quality Computations: By Inspection
- Site Construction: Miscellaneous Areas Onsite

Location	Area to be Cleared	Rate per Acre	Yield
Developed yard area	2.0 acres	100 cubic yards per acre	= 200 c.y.
Total			= 200 c.y.

Disposition:

Trees: Cut above stump line. Chip and haul to approved offsite location or use on-site as mulch.

Stumps: Provide the Contractor the option in the construction documents to chip on site and use for erosion control mix, or haul to an approved disposal area.

Other Wastes Associated with Other Site Construction:

Cardboard from packaging etc.: Quantity should be limited. Construction documents will require a recycling program. Specify a goal of 80% recycling. All other to be placed in a separate dumpster on the site paid for and designated for Contractor. Contractor to haul to the Riverside Recycling Facility, or to the WMI Crossroads facility in Norridgewock, Maine.

B. NEW BUILDING CONSTRUCTION:

Basis of Estimate: 10 c.y./1,500 s.f. of finished space

Area: Approximately 25,040 square feet

Solid Waste: Approximately 167 c.y.

Set a goal in the construction documents to require segregation of cardboard and paper with a goal of 80%; segregation of metals with a goal of 85%.

Total: 167 c.y. before recycling

Net: 33 c.y. if 80% of the material is recycled

Require Contractor to: Provide one 20 c.y. dumpster. Haul to facilities identified in Section 8.2 with shipping manifest. The Contractor should identify recycling methods and sites prior to construction.

Disposition:

Assume 70 percent is wood or metal which can be transported to KTI Biofuels in Lewiston (for wood) or One Steel Recycling in Oakland, Maine for metals.

This will leave about 10 cubic yards of mixed construction debris that should be hauled to the Riverside Recycling Facility in Portland, WMI Crossroads facility in Norridgewock, Maine or the Juniper Ridge Facility in Old Town, Maine.

Require Contractor to: Provide dumpsters designated by material type. The contractor should identify recycling methods and sites prior to construction.

All haulers must have a current non-hazardous waste haul license. The Contractor shall provide the names of the haulers 10 days prior to removal of any demolition debris or construction debris from the site.

7. CONFORMITY WITH APPLICABLE DESIGN STANDARDS

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-526.

7.1 OVERVIEW

This project conforms with all the applicable design standards of Section 14-526 as demonstrated in the following narrative.

(a) Transportation Standards

1. Impact on Surrounding Street Systems:

The development will fit in with the existing street system as it will use an existing 36' wide driveway off Warren Avenue. Based on the number of commercial units the project is expected to have an insignificant impact on traffic in the neighborhood.

2. Access and Circulation:

a. Site Access and Circulation.

(i) The development provides access via Warren Avenue. Door controlled access will be provided at each end of the building and ample turning movement is provided at the street entrance. Internal circulation allows for the occasional movement of tractor-trailer vehicles. The entrance into the site has been modified from 60' down to 45' in an effort to address staff comments on the entrance design.

(ii) Access and egress have been designed to avoid conflicts with existing turning movements and traffic flows.

(iii) The site does not feature drive up services as mentioned in this requirement.

b. Loading and Servicing.

(i) At grade overhead doors are provided into each of the units. The units are envisioned as small business spaces that may involve tenants who require storage or operations space.

c. Sidewalks.

(i) Sidewalks currently exist on both sides of Warren Avenue in front of the site. All sidewalk improvements shall conform to the City of Portland Technical Manual as shown on the project design drawings. A sidewalk connection from the site's paved area to the Warren Avenue sidewalk has been added to the plan.

(ii) The sidewalk on Warren Avenue appears to be in satisfactory condition and does not require any major improvements.

3. Access and Circulation:

- a. The development consists of greater than 20,000 SF of commercial area therefore it is subject to Public Transit Standards. However, there are no transit routes that use Warren Avenue at this time.
- b. A new Transit stop is not proposed.
- c. A new transit stop is not proposed.
- d. Waiver: The applicant requests a waiver of the transit facility requirement, if necessary.

4. Parking:

a. Location and Required Number of Vehicle Parking Spaces:

- (i) The applicant is providing parking greater than a 1 space per 1,000 SF ratio which satisfies Section 14-332 (l) of the code.
- (ii) The applicant has not prepared a TDM strategy.
- (iii) The applicant proposes the amount of parking which is appropriate for the anticipated uses of this site.
- (iv) Parking spaces and aisles have been designed to meet the dimensional requirements of the Technical Manual.
- (v) The parking lot has been designed with an asphalt surface for long-term durability.

b. Location and Required Number of Bicycle Parking Spaces:

- (i) The project will include two bike racks. The applicant is requesting a waiver to provide less than the required number of bicycle racks based on the anticipation that the site tenants will likely store bicycles in their units.

c. Motorcycles and Scooter Parking:

- (i) The project does not provide designated motorcycle/scooter parking.

d. Snow Storage:

- (i) Snow storage management will employ two strategies;
 - 1. On-site snow storage around the perimeter of the site.
 - 2. Snow removal and offsite storage. Generally speaking the nature of the proposed site use precludes the need for significant snow removal.

5. Transportation Demand Management (TDM):

- a. A TDM plan is not required for the project.

(b) Environmental Quality Standards

1. Preservation of Significant Natural Features:

- a. The existing site retains no prominent significant natural features therefore no issue related to the preservation of these features applies. Much of the site's wetland area will be preserved.
- b. The applicant is not requesting a waiver from this standard.

2. Landscaping and Landscaping Preservation:

a. Landscape Preservation.

- (i) The site's existing tree population is limited so there is no formal tree preservation proposed.
- (ii) Not applicable
- (iii) Not applicable
- (iv) The applicant will require a waiver from this standard, if applicable.

b. Site Landscaping.

(i) Landscaped Buffers:

- (a) There are no observable service or loading areas.
- (b) The development is located in a commercial zone therefore minimizing the requirements for landscaping needs.
- (c) Not applicable.

(ii) Parking Lot Landscaping:

- a) The landscape plan includes perimeter tree plantings around the edge of the proposed pavement surface.
- b) Not applicable.
- c) Not applicable.

(iii) Not applicable.

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

- (i) Stormwater draining onto the site from adjacent properties is very limited. No changes to these offsite flow regimes is anticipated.
- (ii) The project will not adversely impact adjacent lots or the City street system.
- (iii) The project will not adversely impact adjacent lots or the City street system.
- (iv) The project will not adversely impact adjacent lots or the City street system.

b. The Stormwater Management Plan will meet the requirements and goals stated in Section 5 of the Technical Manual.

c. The project is located in the Capisic Brook watershed which is listed as an urban impaired stream by the MeDEP. The implementation of the gravel wetland BMP will allow the project to comply with the urban impaired stream standards.

d. N/A

e. The project is serviced by both a public wastewater system and public drainage system. The project will not pose a risk of groundwater contamination.

f. The project will be connected to the public sanitary sewer system which is adequately sized for the project flows.

(c) Public Infrastructure and Community Safety Standards.

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 commercial access.
- b. No changes to emergency access conditions within the surrounding streets is proposed.
- c. Fire hydrants are located within the adjacent street system. The new building will be fully sprinklered.

3. Availability and Adequate Capacity of Public Utilities:

- a. The applicant will secure letters from all applicable utilities stating their ability to serve this project. The project will require new onsite utility service infrastructure to serve the new building.
- b. All on site electrical lines will be underground.
- c. All new utility infrastructure will meet the provisions of the Technical Manual.
- d. The project will require a service connection to an existing stub that ties into the sewer system in Warren Avenue.
- e. The sanitary sewer collection system will be designed to meet all applicable sections of the Technical Manual. A stormwater management system is proposed that will comply with the Technical standards.
- f. The project will use an outside solid waste enclosure and waste removal services will be contracted to a private waste hauler as it currently performed at the applicant's properties at 401 and 429 Warren Avenue.

(d) Site Design Standards.

1. Massing, Ventilation and Wind Impact:

- a. The bulk, location and height of the proposed building have been designed to not result in adverse impacts to abutting properties.
- b. HVAC venting, if necessary, is proposed to be directed to the building roof and directed away from public spaces. The building will have minimal HVAC equipment besides a unit heater in each space.

2. Shadows:

- a. The development is located in the B-4 Zone and this standard is not applicable.

3. Snow and Ice Loading:

- a. The proposed building will be designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways.

4. View Corridors:

- a. The project site is located outside the Downtown Vision View Corridor Protection Plan.

5. Historic Resources:

- a. The development is not located in a historic district, historic landscape district or City designated landmark.

- b. The development is not located adjacent to or within 100 ft. of a designated landmark, historic district, or historic landscape district.
 - c. There are no known archaeological resources on the site.
- 6. Exterior Lighting:
 - a. Site Lighting.
 - (i) Exterior lighting will be designed to meet the requirements of Section 12 of the Technical Manual.
- 7. Noise and Vibration:

The project noise levels will be designed to meet the permitted levels as outlined in the zoning ordinance. There will be no exterior HVAC or mechanical equipment, therefore noise or vibrations related to this equipment will not be produced.
- 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) The project is not located in a historic district or subject to Article IX.
 - (ii) Proposed commercial signage is still being designed and subject to a condition of approval.
 - (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 is designed to be a high density commercial development with a single story building, adequate parking and related infrastructure.

ATTACHMENT K

Sight Lighting Information

WPLEDFC52

LED 52W Wallpacks. 3 cutoff options. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

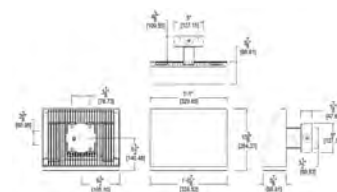
Weight: 17.6 lbs

LED Info

Watts: 52W
Color Temp: 5000K (Cool)
Color Accuracy: 65
L70 Lifespan: 100000
LM79 Lumens: 5,905
Efficacy: 97 LPW

Driver Info

Type: Constant Current
120V: 0.51A
208V: 0.33A
240V: 0.29A
277V: 0.24A
Input Watts: 61W
Efficiency: 86%



Technical Specifications

UL Listing:

Suitable for wet locations.

Lumen Maintenance:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

LEDs:

Two (2) multi-chip, high-output, long-life LEDs.

Drivers:

Two drivers, constant current, 720mA, Class 2, 100 - 277V, 50 - 60 Hz, 100 - 277VAC .8 Amps

THD:

8.3% at 120V, 11% at 277V

Ambient Temperature:

Suitable for use in 40°C ambient temperatures.

Surge Protection:

6kV

Cold Weather Starting:

The minimum starting temperature is -40°F/-40°C.

Thermal Management:

Cast aluminum Thermal Management system for optimal heat sinking. The WPLED is designed for cool operation, most efficient output and maximum LED life by minimizing LED junction temperature.

Housing:

Precision die cast aluminum housing, lens frame.

Mounting:

Die-cast aluminum wall bracket with (5) 1/2" conduit openings with plugs. Two-piece bracket with tether for ease of installation and wiring.

Arm:

Die-cast aluminum with wiring access plate.

Color Consistency:

7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High temperature silicone.

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Green Technology:

WPLEDs are Mercury and UV free.

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Replacement:

The WPLED52 replaces 250W HID Wallpacks.



California Title 24:

WPLED complies with California Title 24 building and electrical codes.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. See our full warranty .

Patents:

The WPLED design is protected by patents in the U.S. Pat D653,377, Canada Pat. 142252, China Pat. ZL201130356930.8, and Mexico Pat. 36921 and pending patent in TW.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

Trade Agreements Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Trade Agreements Act.

GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.



**STORMWATER MANAGEMENT REPORT
(BASIC, GENERAL, FLOODING, AND
URBAN IMPAIRED STREAM STANDARDS)**

**421 WARREN AVENUE
COMMERCIAL COMPLEX**

PREPARED FOR:

**PH WARREN AVENUE, LLC
401 WARREN AVENUE
PORTLAND, MAINE 04101**

PREPARED BY:

**FAY, SPOFFORD & THORNDIKE, INC.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121**

**FEBRUARY 2014
REVISED APRIL 2014**



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APPENDICES

A – Figures (Refer to Section 1 of the Site Plan Application)

B – Predevelopment Computations (2, 10 and 25-year Storm Event HydroCAD Computations)

C – Postdevelopment Computations (2, 10 and 25-year Storm Event HydroCAD Computations)

D – Water Quality Summary Chart and Computations

E – Orifice Drawdown Computations

F – Geotechnical Exploration Test Pit Logs

G – Erosion & Sediment Control Report

H – Inspection & Maintenance Manual for Stormwater Management and Related Stormwater Facilities

STORMWATER MANAGEMENT REPORT

1.0 INTRODUCTION

Fay, Spofford & Thorndike (FST) has been retained by PH Warren Ave, LLC to assist on the preparation of site design and site permitting for a proposed 25,040 SF footprint, multi-unit building in Portland, Maine. The development will include a new 6-unit building, 36 space parking lot, and related infrastructure improvements.

The project's primary stormwater management measure will be the construction of two gravel wetlands. Gravel wetlands are a relatively new BMP measure that offer higher storage volumes on sites with low hydraulic head. The gravel wetland section is intended to provide sufficient capacity to meet the Chapter 500 Flooding and water quality treatment standards. In addition to the gravel wetlands, the project's stormwater management will include a gravel drip strip for water quality treatment of runoff from the building roof.

This proposed project will create a total of 2.25 acres of developed area of which 1.29 acres will be new structure area (building and other impervious surfaces) within the approximately 4.63 acre project watershed area analyzed. The Applicant also owns nearly 55 acres of surrounding property. The 4.63 acre watershed area that was analyzed was determined to be relevant to the two project hydrologic points of interest impacted by the new development. This project meets the thresholds requiring a MaineDEP Stormwater Permit. The stormwater management design presented herein complies with criterion of the City of Portland Stormwater Requirements and the MaineDEP Chapter 500 Regulations. The Applicant is requesting the City of Portland complete the MaineDEP Stormwater review under their delegated review authority.

The development site is located on the north side of Warren Avenue between Interstate 95 and Forest Avenue in Portland. The site is owned by PH Warren Avenue, LLC. A large portion of this site currently drains to a drainage way in the northeast quadrant of the site. Part of the southerly tip of the site drains into Warren Avenue and is collected by the City's municipal drainage system. A second part of the southerly end drains across to Harbour Auto-Body and is collected in a small detention pond before being conveyed into the City drainage system.

The use of two gravel wetlands will allow the capture and treatment of the required water quality volume derived from a 1" rainfall as well as up to the 25-year storm event. The Stormwater Management devices on site will also meet the Chapter 500 flooding requirements up to a 100-year storm.

Various figures including USGS, aerial photographs, and related maps are appended to this report in Appendix A.

On behalf of the Applicant, FST has prepared this report to show the proposed Stormwater Management Plan meets the MeDEP's General Stormwater and Urban Impaired Stream Standards and City of Portland's Technical Standards.

2.0 EXISTING SITE CONDITIONS

The proposed site lies within a 4.63 acre analyzed watershed area which is part of a broader 48.71 acre property area. FST decided to only analyze watershed area in which the proposed development would impact two points of interest. The site is currently undeveloped with the following land cover:

TABLE 1 – EXISTING LAND COVER	
Current Land Cover	Area (acre)
Woods/Meadow	2.58
Roof	0.27
Lawn	0.42
Pavement	0.67
Gravel	0.69
Total	4.63

The existing site is comprised of mostly undeveloped woods, meadows, lawn and gravel areas.

Topography is relatively flat within the site. A large portion of the site drains over a flat wetland area towards a tributary in the northeast quadrant of the site. This tributary contributes to the so called “Northern Branch” of the Capisic Brook Stream System¹. About half of the area in the southern portion of the site drains towards Warren Avenue and where runoff is picked up by the City of Portland Municipal Stormwater System through a catch basin in the street. The remaining front area contributes runoff towards an existing detention pond adjacent to the Harbour Auto Body shop, which is located on property owned by the Applicant. Runoff is released from this detention pond and is discharged to the City of Portland Stormwater System.

The preliminary geotechnical explorations by S.W. Cole Engineering in December 2013 show that the site contains fill soils over a layer of relic topsoil underlain by glaciomarine sands, silts and clays.

The site is in the B-4 Zone and is considered by the City of Portland as a permitted use.

The site is not located in a mapped 100-year floodplain and is denoted as Zone X based upon the Portland FEMA mapping as depicted on Figure 7 containing an excerpt of the MGIS Firm Panel #2300510006B.

Figures 8, 9, and 10 appended to the report provide the USDA medium intensity soils, sand and gravel aquifers maps, and surficial geology map for the site. A copy of the geotechnical findings for the site is contained in Appendix F. Wetlands resources were delineated by James Logan of Albert Frick Associates.

3.0 PROPOSED PROJECT

The proposed project is generally described below and is shown on the Post Development Watershed Map. The project will develop 2.25 acres including 1.29 acres of impervious area.

The proposed project includes parking areas surrounding an approximately 25,040 SF building footprint. The site access will be off the existing Warren Avenue drive serving 429 Warren Avenue and this will consist of a 45’ wide two-lane driveway positioned directly in front of the building. The parking areas include 36 spaces on the west side of the building.

¹ See Capisic Brook Watershed Plan, Woodard & Curran, November 2012

The proposed land use for the site after development will be as follows:

TABLE 2 – POSTDEVELOPMENT LAND USE		
Proposed Land Cover	Area (acre)	Change from Current (acre)
Woods/Meadow	1.40	-1.18
Roof	0.85	+0.58
Lawn/Landscaped Planting Areas	0.70	+0.28
Pavement/Impervious	1.57	+0.90
Gravel	0.11	-0.58
Total	4.63	

The Erosion & Sediment Control Report contained in Appendix G of this section outlines the erosion control measures which will be required for the project (Basic Stormwater Standards).

4.0 WATERSHED DELINEATION METHOD

The following resources were used for watershed delineation:

- USGS Topographic Mapping
- Field Reconnaissance
Justin Pellerin, Design Engineer, Fay, Spofford & Thorndike
Reviewed by Stephen Bushey, P.E., Fay, Spofford & Thorndike
- Site Topographic Survey
Nadeau Land Survey Dated December 2013
- Hydrologic Soil Group Information
Medium Intensity Soils Survey by Albert Frick & Associates, Inc.

5.0 REFERENCES

- Urban Hydrology for Small Watersheds from the USDA SCC Technical Release SS, dated 1986
- Erosion and Sediment *Maine Erosion and Sediment Control BMPs”, published by the MeDEP in 2003* <http://www.maine.gov/dep/blwg/docstand/escbmps/index.htm>
- City of Portland – Code of Ordinances
- Stormwater Management for Maine Volume III – BMP Technical Design Manual
- Chapter 500 MaineDEP Rules, Revision December 2011
- City of South Portland Stormwater Manual – Gravel Wetland
- Modeling Software HydroCAD Stormwater Modeling System, Version 8.5, Applied Microcomputer Systems – used for modeling underground storage facilities
- Microsoft Excel 2010, Microsoft Corporation – used for spreadsheet computations.

6.0 DESIGN STORMS

TABLE 3 – RAINFALL	
Rainfall Amount (inches)	
2-Year Storm	3.0
10-Year Storm	4.7
25-Year Storm	5.5
100-Year Storm	6.7

Hydrologic Parameters: Cumberland County SE Type III Distribution: Antecedent Moisture Condition 2, SCS 24 Hour Distribution as per MeDEP Stormwater Best Management Practices (page 25).

7.0 PRESENTATION OF ANALYSIS

The stormwater analysis has been performed for the project to determine compliance with the stormwater management requirements of the City of Portland and the MeDEP Chapter 500 Stormwater Rules and to show a plan which will generally meet the requirements with any exceptions noted herein. The analysis is documented with supporting HydroCAD models appended to this narrative.

8.0 MODELING ASSUMPTIONS

- The gravel wetlands were modeled as ponds to capture and store up to the 100-year storm event rainfall volume. The gravel wetland section includes an 8” thick wetland soil layer underlain by a 3” pea stone layer and a permanently saturated 24” deep layer of crushed stone. The crushed stone layer will be tied into outlet control structures that will contain weirs/orifices that will control the rate of flow passing horizontally through the crushed stone system as well as control the overall peak discharge to the two points of analysis studied for the post development conditions.
- Analysis was run with pipe lengths modeled as culvert outlets. Pipe sizes were generated using the HydroCAD modeling flow computations.
- The Tc flow paths were assumed to be a min. of 6 minutes as recommended in the TR-55 technical manual. In instances where flow paths were computed to be less than 6 minutes a direct entry command was used.

9.0 PREDEVELOPMENT ANALYSIS

Runoff from the site currently flows to two points of analysis (POA). These consist of the following:

- Point of Analysis #1 is a point on the site where the directional flow of two wetland fingers meet and it is close to the proposed gravel wetland #2 discharge point. The area north of the proposed development is a relatively large and flat area. The point of analysis was chosen to minimize unnecessary watershed area in the analysis and to arrive at an accurate flow rate comparison of pre and post development flows. Due to the development the area tributary to this POA varies slightly from pre-development to post-development. Approximately 2.47 acres are tributary in the pre development condition versus approximately 2.52 acres of area tributary in the post development condition.

- Point of Analysis #2 is an existing City of Portland catch basin where flows from the southerly tip of the site drain and discharge into the city drainage system. Currently runoff drains from the proposed development site and a portion of Harbour Auto Body property into an existing detention pond that discharges via a pipe into the municipal system. Since flows from pre development sub catchment two travels to a detention pond on an adjacent property, FST felt like it was important to model the hydrological impacts from the adjacent site to accurately model pre versus post development conditions. As stated before, due to the development, the area tributary to this point varies slightly from pre development to post development. Approximately 2.16 acres are tributary in the pre development condition versus 2.11 acres of area tributary in the post development condition.

The Predevelopment Peak flows at the two POA's are as follows:

TABLE 4 PREDEVELOPMENT FLOWS (PEAK DISCHARGE RATES) AT POA			
POI #	2 Yr Storm Event (CFS)	10 Yr Storm Event (CFS)	25 Yr Storm Event (CFS)
1	1.46	3.21	4.08
2	3.66	6.87	8.13

10.0 POSTDEVELOPMENT ANALYSIS

The postdevelopment analysis considers the two gravel wetlands and the proposed roof drain gravel drip strip treatment systems for their storage capacity. These measures offer control to detain runoff volumes up to the 100-year storm event. Runoff passing through the gravel wetland section will be captured and stored within the pond reservoir. The outflow from each gravel wetland will be controlled through a control structure that will contain an orifice control mechanism to regulate the flow rate discharging from the system. The outlet pipes from each water storage system will discharge to stabilized ground conditions or via pipe to each Point of Interest. The following post development peak flows have been computed for each POA:

TABLE 5 POST DEVELOPMENT FLOWS (PEAK DISCHARGE RATES) AT POA			
POI #	2 Yr Storm Event (CFS)	10 Yr Storm Event (CFS)	25 Yr Storm Event (CFS)
1	1.19	3.03	3.92
2	2.79	5.92	6.90

11.0 STORMWATER MANAGEMENT OBJECTIVES

The goal of the Stormwater Management Plan is to design, operate, and maintain the development to avoid downstream erosion or significant water quality impairment, as well as to avoid downstream flooding.

These goals will be achieved by:

- Designing the project to meet the Portland Stormwater Management Standards and the MeDEP Chapter 500 Basic Standards, General Standards, and Flooding Standards (revised October 2010).
- Designing water quality measures to provide long-term removal of non-point contaminants.
- Implementing a plan to control erosion, sedimentation, or fugitive dust emissions during construction.
- Maintenance of the Stormwater Management System in accordance with the Stormwater O&M Manual (provided as a separate document).

The plan has been designed in accordance with the MeDEP Chapter 500 Stormwater and City of Portland Stormwater Rules.

12.0 **STORMWATER MANAGEMENT QUANTITY SUMMARY**

To meet the Flooding Standards of the MaineDEP Chapter 500 Stormwater Rules the project has been designed to store runoff in the two gravel wetlands and a roof drip strip system. Based on the storage volume provided by these reservoirs, there will be sufficient capacity to store greater than the 100 year storm event rainfall amount. For runoff from the building roof, the plans include the installation of a gravel drip strip system.

Flows and storage characteristics of the each gravel wetland and gravel drip strip are contained in Appendix D. A summary of the systems is as follows:

TABLE 6 SUMMARY OF GRAVEL WETLAND 1				
Storm Event Interval	Peak Flows In (CFS)	Peak Flows Out (CFS)	Storage (CF)	Peak Elevation (FT)
2-Year	1.06	0.44	1,213	69.11
10-Year	1.90	1.51	1,566	69.26
25-Year	2.29	1.88	1,668	69.30
100-Year	2.88	2.40	1,805	69.36

TABLE 7 SUMMARY OF GRAVEL WETLAND 2				
Storm Event Interval	Peak Flows In (CFS)	Peak Flows Out (CFS)	Storage (CF)	Peak Elevation (FT)
2-Year	2.31	0.27	3,988	69.32
10-Year	4.08	1.00	6,476	69.74
25-Year	4.91	1.34	7,511	69.91
100-Year	6.14	2.56	8,586	70.09

The following table summarizes the pre and post development comparison at each point of analysis:

TABLE 8 PRE AND POST COMPARISON (POI)						
Description	2 Year		10 Year		25 Year	
	Pre	Post	Pre	Post	Pre	Post
POI #1	1.46	1.19	3.21	3.03	4.08	3.92
POI #2	3.66	2.79	6.87	5.92	8.13	6.90

TABLE 9 SUMMARY OF GRAVEL DRIP STRIP				
Storm Event Interval	Peak Flows In (CFS)	Peak Flows Out (CFS)	Storage (CF)	Peak Elevation (FT)
2-Year	1.89	1.14	312	70.22
10-Year	3.01	1.25	1,103	70.78
25-Year	3.53	1.31	1,585	71.12
100-Year	4.32	1.41	2,383	71.69

The post development flows are lower than those in predevelopment conditions at each point of analysis and therefore the Flooding Standard Goal has been met. Postdevelopment computations are contained in Appendix C.

13.0 STORMWATER MANAGEMENT QUALITY SUMMARY

Approach

To meet the General Standards, our office has reviewed the implementation of the four approved treatment strategies listed below. Our findings are as follows:

- **Wetpond** – Wetponds were considered for part of the project’s stormwater management strategy; however, due to physical and natural resource site constraints and the required limits of proposed development, there is insufficient vertical and horizontal space to utilize this method of water quality treatment. Generally speaking, the development area would require a wet pond of approximately 0.5 to 0.75 acres in size; thus this option is not feasible.
- **Filter** – Filters cover a broad range of techniques including pre-approved proprietary stormwater treatment devices and a porous surface treatment. The development site has very flat relief and is not conducive to the use of filters which generally require at least 5’ of vertical space to an outlet.
- **Infiltration** – Our office has reviewed the Geotechnical Report about the site and the USDA medium intensity soil survey. The medium intensity soil survey maps the site as predominantly Scantic Silt loam. These soils are commonly found to be poorly drained. The limiting factor to effective infiltration is the restrictive layer (i.e. bedrock, depth to groundwater, and infiltration rates of receiving soils. The presence of a restrictive layer (high groundwater table and Glacial marine soils) will make infiltration very difficult to incorporate into this site. Geotechnical explorations show that glacial marine soils are present within 3 to 5 feet below existing grade and seasonally high groundwater table

approximately 5 feet below existing grade. Due to the proximity to the groundwater table and marine soils our office is not recommending the use of infiltration for the purposes of water quality treatment.

- **Buffers** – Buffers were not considered as part of the site’s stormwater management due to insufficient space. As an example, a minimum forested or meadow buffer width needs to be 75 feet, 100 feet or 150 feet with a slope of 0% - 8%, none of which is attainable on the site. Additionally, buffers are required to be encumbered by a conservation easement and deed restrictions.

Implementation

Our office has laid out a plan which utilizes two gravel wetlands that will treat the entire developed parking area. We have also implemented a gravel drip strip system to treat runoff from the proposed building. Gravel wetlands are horizontal flow retention and filter systems. These systems maintain a saturated gravel bed and provide treatment by stormwater movement through the gravel bed and plant/soil processes. These systems are suited to the project site due to poorly draining subsoils and limited availability of hydraulic head (vertical space). In addition, the salvage and reuse of existing onsite hydric (wetland) soil is particularly well suited to the use of gravel wetlands.

A water quality summary chart of the project is appended with this application in Appendix D. The basis of design of gravel wetlands and gravel drip strip are as follows:

- **Gravel Drip Strip** – The intent of a gravel drip strip is to collect and provide treatment for runoff from a building roof area. The gravel drip strip for this project was designed based on the following considerations from the MeDEP Chapter 7 Stormwater manual:

Stone layer is assumed to have 40% void space and be able to retain 1” of runoff over the entire building area.

For example, a 70’ deep building roof must be able to hold: $(70') \cdot (1/12) \cdot (1') = 5.83 \text{ CF}$, Per Foot of Building Length

For this project, there was 25,040 SF of building area, which requires a capacity of 2,087 CF of storage. Approximately 2,115 CF of storage will be available within the drip strip proposed along the rear of the building.

Complete gravel drip strip computations can be found in Appendix D.

- **Gravel Wetlands** – The gravel wetland treatment reservoirs have been designed to treat at least 95% of the new structure area and 80 % of the developed area along with the gravel drip strip to capture building roof runoff.

To meet Chapter 500, the Channel Protection Volume² provided must be equal to or greater than the following:

$$WQV = (P1) * (Rv) * (A)$$

Where P1=90% rainfall event assumed to be 1"

Where A = total tributary area within the sub-catchment

Where Rv= .05+*0.9*(I)

Where I = the percentage of impervious Area within the sub-catchment.

Typically, gravel wetlands are broken into three zones:

1. First, the forebay must hold 10% of the desired WQV. The purpose of the sediment forebay is to settle solids from storm water before it reaches the two gravel wetland cells.
2. Two wetland cells shall hold approximately 45% of desired WQV each. These cells provide a majority of the water treatment.
3. The water quality volume provided is equal to 3,346 cubic feet in the two gravel wetland systems. Gravel wetlands water quality computations can be found in Appendix D.

Based on University of New Hampshire Design Specifications, the gravel wetlands shall be sized to treat the entire water quality volume in 24 hours with a discharge rate that is controlled by an orifice on the under drain system. The orifice drawdown computations are appended in Appendix E.

For Gravel Wetland 1 located nearer to Warren Avenue, the discharge from larger storm events overflows over a broad crested weir contained in a precast concrete outlet control structure set at Elevation 69.00 (i.e. the basin stage when water quality volume has been reached). The overflow piping network is sized to handle runoff from a 25-year storm event. This system will discharge into an existing storm drain stub previously installed into the site.

For Gravel Wetland 2, located at the rear of site, the discharge from larger storm events will overflow over a weir spill-way set at Elevation 69.00. The overflow will flow into the undeveloped sub-catchment and eventually drain into a drainage way in the northeast quadrant of the site.

Therefore, water quality goals for the gravel wetland system meet the General Stormwater Standards of the November 2005 Chapter 500 Rules of MeDEP (rev. December 2011), as well as City of Portland Technical Standards.

14.0 CHAPTER 500 TREATMENT PERCENT COMPLIANCE

The proposed development project creates 1.29 acres of newly constructed impervious area and 0.96 acres of pervious area for a total disturbed area of about 2.25 acres.

² See UNHSC Subsurface Gravel Wetland Design Specifications, June 2009

Of the 1.29 acres of impervious area the proposed Stormwater Management Plan provides treatment for 1.29 acres or 99.44% percent. The disturbed area as part of this redevelopment is approximately 2.25 acres. Of the 2.25 acres the proposed Stormwater Management Plan provides treatment for 2.13 acres or 94.41% percent. Hence, the strategies proposed herein meets the minimum requirements stated in the General Standards.

TABLE 10 WATER QUALITY SUMMARY				
	Impervious Area (ac)	Treated Impervious (ac)	Developed Area (ac)	Treated Developed (ac)
	1.29	1.29	2.25	2.13
PERCENTAGE		100%		94.41%

A summary of the water quality treatment values is as follows:

- **Gravel Wetlands:** There are two gravel wetland areas proposed to treat runoff from the site's developed area. The design and treatment parameters are as follows:

TABLE 11 GRAVEL WETLAND		
Gravel Wetland Subcatchment	2*	4*
Impervious Area Treated (sf)	13,262	28,370
Pervious Area Treated (sf)	3,440	8,369
Required Sediment Forebay Water Quality Volume (cf)	108	228
Sediment Forebay Volume Provided (cf)	217	255
Required Wetland Cell Water Quality Volume (cf) Each Cell Approximately 45%	479	1,026
Bottom Elevation (ft)	68.50	68.50
Elevation Where Water Quality Volume is Achieved	69.00	69.00
Depth at Water Quality Volume (in.)	0.5	0.5
Controlling Orifice Size (in.)	0.95	1.4
Controlling Orifice Elevation (ft)	68.17	68.17
100 Year Storm Stage Elevation (ft)	69.36	70.09
Major Storm Event Control Devices	WEIR	WEIR
Freeboard (ft)	1.14	.91'
Surface Area Provided (sf)	1,727	4,191

See HydroCAD Computations – Appendix C

- **Gravel Drip Strip:** The rooftop will sheet runoff into a gravel drip strip system. The design results are summarized below.

TABLE 12 GRAVEL DRIP STRIP	
Water Quality Volume required= (1")*(roof area) (cf)	2,087
Proposed Stone Layer Volume (CF)	2,115
Bottom Elevation of Storage Layers (ft)	70.50
Top of Elevation of Stone Layer (ft)	72.00
Elevation Where Water Quality Volume is Achieved (ft)	72.00
Depth of Water Quality (ft)	1.5
Freeboard – 100-Year Storm (ft)	0.31
Maximum Volume Stone Reservoir (cf)	2,820
Proposed Surface Elevation (ft)	72.00

15.0 EROSION CONTROL

An Erosion Control Narrative, Plan, and Details have been prepared for the project and accompany this submission in Appendix G.

16.0 OPERATIONS AND MAINTENANCE

An Operations & Maintenance Manual has been prepared and accompanies this application in Appendix H.

17.0 PERMIT REQUIREMENTS

City of Portland review and permitting of the Stormwater Management Plan is required and will be completed with the review of the Site Plan Application submitted to the City of Portland Planning Department.

18.0 DRAINAGE NETWORK PIPE SIZING

The drainage network has been sized using the flows computed using HydroCAD modeling software. The pipe sizes are noted on the drawings.

19.0 URBAN REPAIRED STREAM COMPENSATION FEE SCHEDULE

This project falls within the Capisic Brook Watershed which the MaineDEP has identified as an Urban Repaired Stream. As noted in the Chapter 500 MaineDEP stormwater rules and Applicant whose project falls within in an urban repaired stream zone must either eliminate existing on or offsite impervious area or pay a fee. The Applicant has chosen to pay a fee which is based off the following schedule referencing MaineDEP Chapter 500:

TABLE 13 MAINE DEP URBAN REPAIRED STREAM COMPENSATION FEE SCHEDULE			
Area Type	Area (acres)	Cost Per Acre (\$)	Total Cost (\$)
Non-Roof Impervious	1.03	\$5,000	\$5,150
Roof Area	.58	\$2,000	\$1,160
Landscaped Area	.64	\$1,000	\$640
Totals	2.25	-	\$6,950

20.0 APPENDICES

- A – Figures (Refer to Section 1 of the Site Plan Application)
- B – Predevelopment Computations (2, 10 and 25-year Storm Event HydroCAD Computations)
- C – Postdevelopment Computations (2, 10 and 25-year Storm Event HydroCAD Computations)
- D – Water Quality Summary Chart and Computations
- E – Orifice Drawdown Computations
- F – Geotechnical Exploration Test Pit Logs
- G – Erosion & Sediment Control Report
- H – Inspection & Maintenance Manual for Stormwater Management and Related Stormwater Facilities

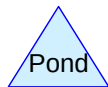
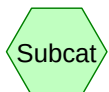
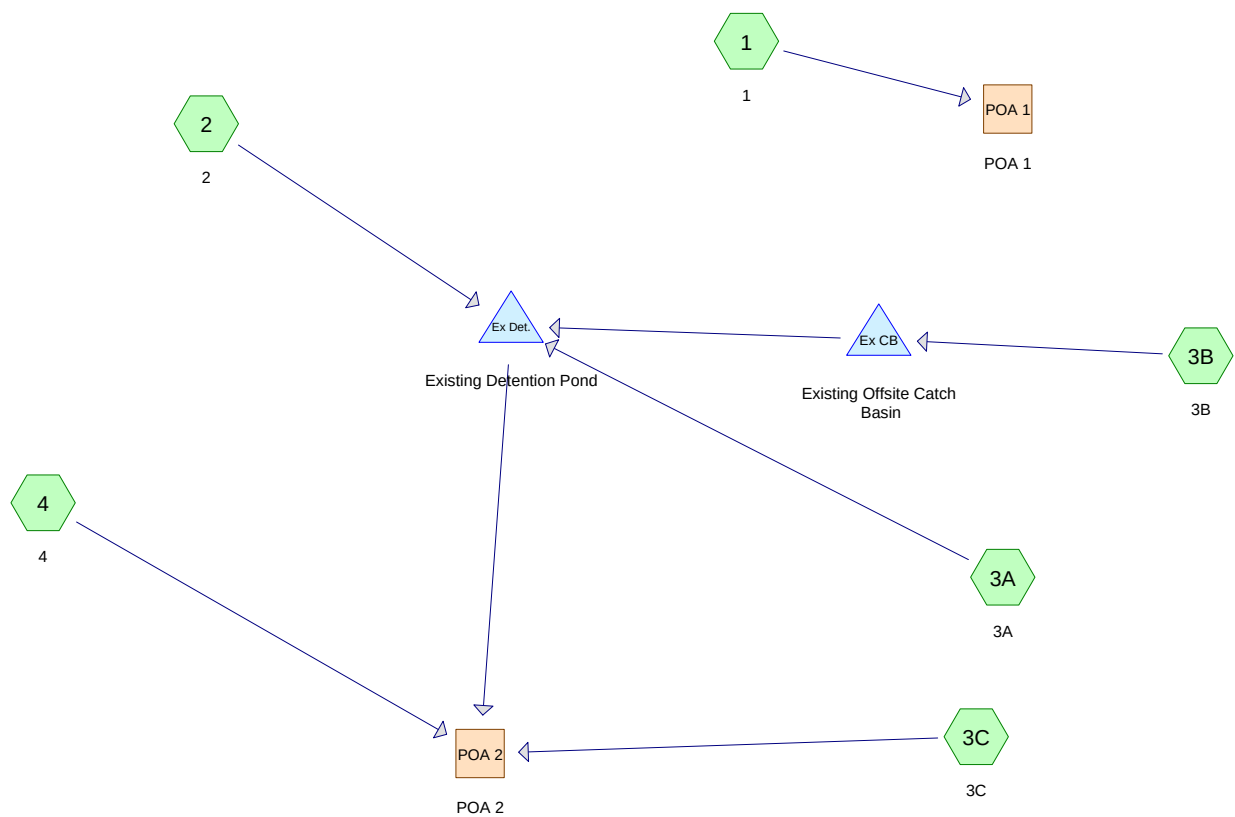
APPENDIX A

FIGURES

(Refer to Section 1 of the Site Plan Application)

APPENDIX B

PREDEVELOPMENT COMPUTATIONS (2, 10 AND 25-YEAR STORM EVENT HYDROCAD COMPUTATIONS)



Drainage Diagram for SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update
 Prepared by {enter your company name here}, Printed 4/11/2014
 HydroCAD® 8.50 s/n 000734 © 2007 HydroCAD Software Solutions LLC

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update

Prepared by {enter your company name here}

Printed 4/11/2014

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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.667	73	Woods, Fair, HSG C (1,2)
0.017	74	Existing Land Scaped Area (3A)
0.078	74	Pervious Pond Area (3A)
0.324	79	50-75% Grass cover, Fair, HSG C (2,4)
0.753	79	Pasture/grassland/range, Fair, HSG C (1)
0.528	79	Woods, Fair, HSG D (1)
0.633	84	Pasture/grassland/range, Fair, HSG D (1)
0.658	89	Gravel Pavement (2,4)
0.033	89	Gravel roads, HSG C (1)
0.469	98	Impervious (3B,3C)
0.428	98	Impervious Pavement (2,3A)
0.028	98	Pavement (4)
0.017	98	Smaller Building (3A)
4.631		TOTAL AREA

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update

Prepared by {enter your company name here}

Printed 4/11/2014

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.777	HSG C	1, 2, 4
1.161	HSG D	1
1.693	Other	2, 3A, 3B, 3C, 4
4.631		TOTAL AREA

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update *Type III 24-hr 2-YR Rainfall=3.00"*

Prepared by {enter your company name here}

Printed 4/11/2014

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Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1 Runoff Area=107,766 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=79 Runoff=1.46 cfs 0.245 af

Subcatchment2: 2 Runoff Area=17,114 sf 9.75% Impervious Runoff Depth=1.31"
Flow Length=305' Tc=6.0 min CN=81 Runoff=0.60 cfs 0.043 af

Subcatchment3A: 3A Runoff Area=21,816 sf 81.20% Impervious Runoff Depth=2.25"
Tc=6.0 min CN=93 Runoff=1.28 cfs 0.094 af

Subcatchment3B: 3B Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=2.77"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment3C: 3C Runoff Area=16,117 sf 100.00% Impervious Runoff Depth=2.77"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.085 af

Subcatchment4: 4 Runoff Area=34,630 sf 3.52% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=87 Runoff=1.62 cfs 0.115 af

Reach POA 1: POA 1 Inflow=1.46 cfs 0.245 af
Outflow=1.46 cfs 0.245 af

Reach POA 2: POA 2 Inflow=3.66 cfs 0.325 af
Outflow=3.66 cfs 0.325 af

Pond Ex CB: Existing Offsite Catch Basin Inflow=0.29 cfs 0.023 af
Primary=0.29 cfs 0.023 af

Pond Ex Det.: Existing Detention Pond Peak Elev=67.70' Storage=2,494 cf Inflow=2.17 cfs 0.160 af
12.0" x 190.0' Culvert Outflow=1.33 cfs 0.124 af

Total Runoff Area = 4.631 ac Runoff Volume = 0.605 af Average Runoff Depth = 1.57"
79.67% Pervious = 3.690 ac 20.33% Impervious = 0.942 ac

Summary for Subcatchment 1: 1

Runoff = 1.46 cfs @ 12.71 hrs, Volume= 0.245 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

Area (sf)	CN	Description
22,963	73	Woods, Fair, HSG C
22,985	79	Woods, Fair, HSG D
32,785	79	Pasture/grassland/range, Fair, HSG C
27,590	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
107,766	79	Weighted Average
107,766		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB
					Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

Area (sf)	CN	Description
* 4,035	89	Gravel Pavement
5,303	79	50-75% Grass cover, Fair, HSG C
* 1,668	98	Impervious Pavement
6,108	73	Woods, Fair, HSG C
17,114	81	Weighted Average
15,446		Pervious Area
1,668		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.21		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.00"
2.3	215	0.0090	1.53		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.5	305	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3A: 3A

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.094 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,973	98	Impervious Pavement
*	741	98	Smaller Building
	21,816	93	Weighted Average
	4,102		Pervious Area
	17,714		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.07 cfs @ 12.08 hrs, Volume= 0.085 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	16,117	98	Impervious
	16,117		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	24,611	89	Gravel Pavement
	8,799	79	50-75% Grass cover, Fair, HSG C
*	1,220	98	Pavement
	34,630	87	Weighted Average
	33,410		Pervious Area
	1,220		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach POA 1: POA 1

Inflow Area = 2.474 ac, 0.00% Impervious, Inflow Depth = 1.19" for 2-YR event
Inflow = 1.46 cfs @ 12.71 hrs, Volume= 0.245 af
Outflow = 1.46 cfs @ 12.71 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.157 ac, 43.65% Impervious, Inflow Depth = 1.81" for 2-YR event
Inflow = 3.66 cfs @ 12.11 hrs, Volume= 0.325 af
Outflow = 3.66 cfs @ 12.11 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex CB: Existing Offsite Catch Basin

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-YR event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af
Primary = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex Det.: Existing Detention Pond

Inflow Area = 0.992 ac, 54.78% Impervious, Inflow Depth = 1.93" for 2-YR event
 Inflow = 2.17 cfs @ 12.09 hrs, Volume= 0.160 af
 Outflow = 1.33 cfs @ 12.19 hrs, Volume= 0.124 af, Atten= 39%, Lag= 6.2 min
 Primary = 1.33 cfs @ 12.19 hrs, Volume= 0.124 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 67.70' @ 12.19 hrs Surf.Area= 1,538 sf Storage= 2,494 cf

Plug-Flow detention time= 160.6 min calculated for 0.124 af (78% of inflow)
 Center-of-Mass det. time= 79.3 min (881.8 - 802.5)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.33 cfs @ 12.19 hrs HW=67.70' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Inlet Controls 1.33 cfs @ 2.25 fps)

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update Type III 24-hr 10-YR Rainfall=4.70"

Prepared by {enter your company name here}

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Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1 Runoff Area=107,766 sf 0.00% Impervious Runoff Depth=2.55"
Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=79 Runoff=3.21 cfs 0.525 af

Subcatchment2: 2 Runoff Area=17,114 sf 9.75% Impervious Runoff Depth=2.72"
Flow Length=305' Tc=6.0 min CN=81 Runoff=1.25 cfs 0.089 af

Subcatchment3A: 3A Runoff Area=21,816 sf 81.20% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=93 Runoff=2.16 cfs 0.163 af

Subcatchment3B: 3B Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=4.46"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.037 af

Subcatchment3C: 3C Runoff Area=16,117 sf 100.00% Impervious Runoff Depth=4.46"
Tc=6.0 min CN=98 Runoff=1.70 cfs 0.138 af

Subcatchment4: 4 Runoff Area=34,630 sf 3.52% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=87 Runoff=3.01 cfs 0.218 af

Reach POA 1: POA 1 Inflow=3.21 cfs 0.525 af
Outflow=3.21 cfs 0.525 af

Reach POA 2: POA 2 Inflow=6.87 cfs 0.609 af
Outflow=6.87 cfs 0.609 af

Pond Ex CB: Existing Offsite Catch Basin Inflow=0.45 cfs 0.037 af
Primary=0.45 cfs 0.037 af

Pond Ex Det.: Existing Detention Pond Peak Elev=68.19' Storage=3,295 cf Inflow=3.86 cfs 0.289 af
12.0" x 190.0' Culvert Outflow=2.47 cfs 0.253 af

Total Runoff Area = 4.631 ac Runoff Volume = 1.169 af Average Runoff Depth = 3.03"
79.67% Pervious = 3.690 ac 20.33% Impervious = 0.942 ac

Summary for Subcatchment 1: 1

Runoff = 3.21 cfs @ 12.70 hrs, Volume= 0.525 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

Area (sf)	CN	Description
22,963	73	Woods, Fair, HSG C
22,985	79	Woods, Fair, HSG D
32,785	79	Pasture/grassland/range, Fair, HSG C
27,590	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
107,766	79	Weighted Average
107,766		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB
					Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.089 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

Area (sf)	CN	Description
* 4,035	89	Gravel Pavement
5,303	79	50-75% Grass cover, Fair, HSG C
* 1,668	98	Impervious Pavement
6,108	73	Woods, Fair, HSG C
17,114	81	Weighted Average
15,446		Pervious Area
1,668		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.21		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.00"
2.3	215	0.0090	1.53		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.5	305	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3A: 3A

Runoff = 2.16 cfs @ 12.08 hrs, Volume= 0.163 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,973	98	Impervious Pavement
*	741	98	Smaller Building
	21,816	93	Weighted Average
	4,102		Pervious Area
	17,714		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.70 cfs @ 12.08 hrs, Volume= 0.138 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	16,117	98	Impervious
	16,117		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 3.01 cfs @ 12.09 hrs, Volume= 0.218 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	24,611	89	Gravel Pavement
	8,799	79	50-75% Grass cover, Fair, HSG C
*	1,220	98	Pavement
	34,630	87	Weighted Average
	33,410		Pervious Area
	1,220		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach POA 1: POA 1

Inflow Area = 2.474 ac, 0.00% Impervious, Inflow Depth = 2.55" for 10-YR event

Inflow = 3.21 cfs @ 12.70 hrs, Volume= 0.525 af

Outflow = 3.21 cfs @ 12.70 hrs, Volume= 0.525 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.157 ac, 43.65% Impervious, Inflow Depth = 3.39" for 10-YR event

Inflow = 6.87 cfs @ 12.10 hrs, Volume= 0.609 af

Outflow = 6.87 cfs @ 12.10 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex CB: Existing Offsite Catch Basin

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-YR event

Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af

Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex Det.: Existing Detention Pond

Inflow Area = 0.992 ac, 54.78% Impervious, Inflow Depth = 3.49" for 10-YR event
 Inflow = 3.86 cfs @ 12.09 hrs, Volume= 0.289 af
 Outflow = 2.47 cfs @ 12.18 hrs, Volume= 0.253 af, Atten= 36%, Lag= 5.7 min
 Primary = 2.47 cfs @ 12.18 hrs, Volume= 0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 68.19' @ 12.18 hrs Surf.Area= 1,761 sf Storage= 3,295 cf

Plug-Flow detention time= 113.4 min calculated for 0.253 af (88% of inflow)
 Center-of-Mass det. time= 57.3 min (846.4 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.47 cfs @ 12.18 hrs HW=68.19' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 2.47 cfs @ 3.15 fps)

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update Type III 24-hr 25-YR Rainfall=5.50"

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Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1	Runoff Area=107,766 sf 0.00% Impervious Runoff Depth=3.24" Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=79 Runoff=4.08 cfs 0.667 af
Subcatchment2: 2	Runoff Area=17,114 sf 9.75% Impervious Runoff Depth=3.43" Flow Length=305' Tc=6.0 min CN=81 Runoff=1.57 cfs 0.112 af
Subcatchment3A: 3A	Runoff Area=21,816 sf 81.20% Impervious Runoff Depth=4.69" Tc=6.0 min CN=93 Runoff=2.57 cfs 0.196 af
Subcatchment3B: 3B	Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.53 cfs 0.043 af
Subcatchment3C: 3C	Runoff Area=16,117 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=1.99 cfs 0.162 af
Subcatchment4: 4	Runoff Area=34,630 sf 3.52% Impervious Runoff Depth=4.04" Tc=6.0 min CN=87 Runoff=3.67 cfs 0.268 af
Reach POA 1: POA 1	Inflow=4.08 cfs 0.667 af Outflow=4.08 cfs 0.667 af
Reach POA 2: POA 2	Inflow=8.13 cfs 0.746 af Outflow=8.13 cfs 0.746 af
Pond Ex CB: Existing Offsite Catch Basin	Inflow=0.53 cfs 0.043 af Primary=0.53 cfs 0.043 af
Pond Ex Det.: Existing Detention Pond	Peak Elev=68.41' Storage=3,701 cf Inflow=4.67 cfs 0.351 af 12.0" x 190.0' Culvert Outflow=2.78 cfs 0.316 af

Total Runoff Area = 4.631 ac Runoff Volume = 1.449 af Average Runoff Depth = 3.75"
79.67% Pervious = 3.690 ac 20.33% Impervious = 0.942 ac

Summary for Subcatchment 1: 1

Runoff = 4.08 cfs @ 12.70 hrs, Volume= 0.667 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
22,963	73	Woods, Fair, HSG C
22,985	79	Woods, Fair, HSG D
32,785	79	Pasture/grassland/range, Fair, HSG C
27,590	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
107,766	79	Weighted Average
107,766		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB
					Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 1.57 cfs @ 12.09 hrs, Volume= 0.112 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
* 4,035	89	Gravel Pavement
5,303	79	50-75% Grass cover, Fair, HSG C
* 1,668	98	Impervious Pavement
6,108	73	Woods, Fair, HSG C
17,114	81	Weighted Average
15,446		Pervious Area
1,668		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.21		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.00"
2.3	215	0.0090	1.53		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.5	305	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3A: 3A

Runoff = 2.57 cfs @ 12.08 hrs, Volume= 0.196 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,973	98	Impervious Pavement
*	741	98	Smaller Building
	21,816	93	Weighted Average
	4,102		Pervious Area
	17,714		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.99 cfs @ 12.08 hrs, Volume= 0.162 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	16,117	98	Impervious
	16,117		Impervious Area

SP-M104 2-3-14 PRE DEVELOPMENT 4-10-14 Update Type III 24-hr 25-YR Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 3.67 cfs @ 12.09 hrs, Volume= 0.268 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	24,611	89	Gravel Pavement
	8,799	79	50-75% Grass cover, Fair, HSG C
*	1,220	98	Pavement
	34,630	87	Weighted Average
	33,410		Pervious Area
	1,220		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach POA 1: POA 1

Inflow Area = 2.474 ac, 0.00% Impervious, Inflow Depth = 3.24" for 25-YR event

Inflow = 4.08 cfs @ 12.70 hrs, Volume= 0.667 af

Outflow = 4.08 cfs @ 12.70 hrs, Volume= 0.667 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.157 ac, 43.65% Impervious, Inflow Depth = 4.15" for 25-YR event

Inflow = 8.13 cfs @ 12.09 hrs, Volume= 0.746 af

Outflow = 8.13 cfs @ 12.09 hrs, Volume= 0.746 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex CB: Existing Offsite Catch Basin

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-YR event

Inflow = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af

Primary = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond Ex Det.: Existing Detention Pond

Inflow Area = 0.992 ac, 54.78% Impervious, Inflow Depth = 4.25" for 25-YR event
 Inflow = 4.67 cfs @ 12.09 hrs, Volume= 0.351 af
 Outflow = 2.78 cfs @ 12.19 hrs, Volume= 0.316 af, Atten= 40%, Lag= 6.4 min
 Primary = 2.78 cfs @ 12.19 hrs, Volume= 0.316 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 68.41' @ 12.19 hrs Surf.Area= 1,842 sf Storage= 3,701 cf

Plug-Flow detention time= 101.5 min calculated for 0.316 af (90% of inflow)
 Center-of-Mass det. time= 52.7 min (837.2 - 784.6)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

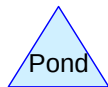
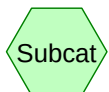
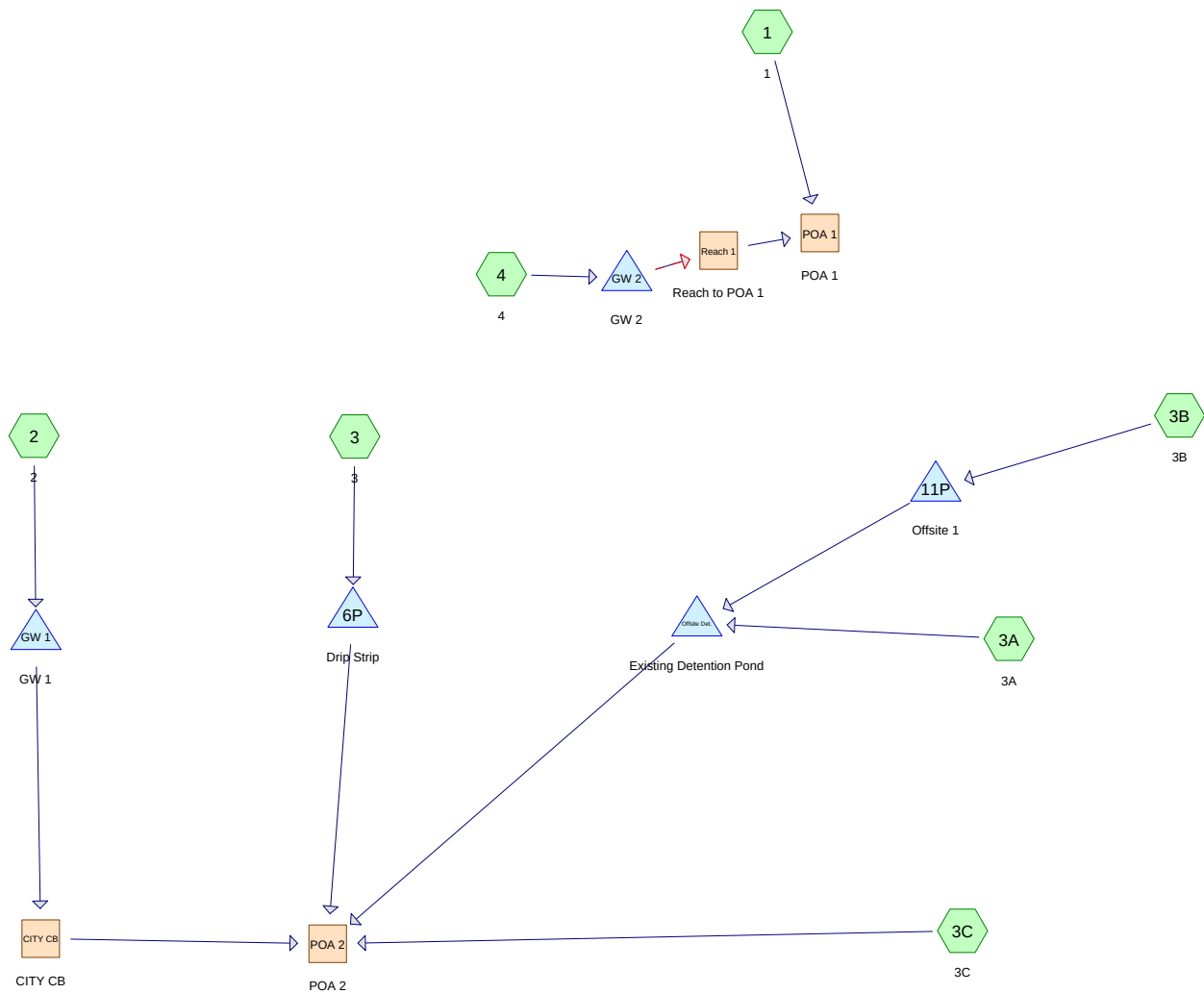
Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.78 cfs @ 12.19 hrs HW=68.41' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 2.78 cfs @ 3.54 fps)

APPENDIX C

POSTDEVELOPMENT COMPUTATIONS (2, 10 AND 25-YEAR STORM EVENT HYDROCAD COMPUTATIONS)



Drainage Diagram for SP-M104 4-16-14 POST DEVELOPMENT MODEL Update
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.096	73	Woods, Fair, HSG C (1)
0.017	74	Existing Land Scaped Area (3A)
0.078	74	Pervious Pond Area (3A)
0.641	74	Proposed Landscape (1,2,3A,4)
0.441	79	Pasture/grassland/range, Fair, HSG C (1)
0.229	79	Woods, Fair, HSG D (1)
0.636	84	Pasture/grassland/range, Fair, HSG D (1)
0.086	89	Gravel Drip Strip Area (3)
0.033	89	Gravel roads, HSG C (1)
0.016	98	Existing Pavement (4)
0.460	98	Impervious (3B,3C)
0.368	98	Impervious Pavement (3A)
0.009	98	New Impervious (3C)
0.636	98	New Pavement (4)
0.304	98	Pavement (2)
0.575	98	Proposed Building (3)
4.623		TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.570	HSG C	1
0.865	HSG D	1
3.189	Other	1, 2, 3, 3A, 3B, 3C, 4
4.623		TOTAL AREA

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1 Runoff Area=65,893 sf 0.00% Impervious Runoff Depth=1.31"
 Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=81 Runoff=1.00 cfs 0.166 af

Subcatchment2: 2 Runoff Area=20,782 sf 63.82% Impervious Runoff Depth=1.90"
 Flow Length=190' Tc=6.0 min CN=89 Runoff=1.06 cfs 0.076 af

Subcatchment3: 3 Runoff Area=28,800 sf 86.94% Impervious Runoff Depth=2.66"
 Tc=6.0 min CN=97 Runoff=1.89 cfs 0.146 af

Subcatchment3A: 3A Runoff Area=21,816 sf 73.52% Impervious Runoff Depth=2.16"
 Tc=6.0 min CN=92 Runoff=1.24 cfs 0.090 af

Subcatchment3B: 3B Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=2.77"
 Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment3C: 3C Runoff Area=16,113 sf 100.00% Impervious Runoff Depth=2.77"
 Tc=6.0 min CN=98 Runoff=1.07 cfs 0.085 af

Subcatchment4: 4 Runoff Area=43,696 sf 64.93% Impervious Runoff Depth=1.98"
 Flow Length=455' Tc=6.0 min CN=90 Runoff=2.31 cfs 0.166 af

Reach CITY CB: CITY CB Inflow=0.44 cfs 0.076 af
 Outflow=0.44 cfs 0.076 af

Reach POA 1: POA 1 Inflow=1.19 cfs 0.279 af
 Outflow=1.19 cfs 0.279 af

Reach POA 2: POA 2 Inflow=2.79 cfs 0.385 af
 Outflow=2.79 cfs 0.385 af

Reach Reach 1: Reach to POA 1 Avg. Depth=0.04' Max Vel=0.10 fps Inflow=0.27 cfs 0.113 af
 n=0.150 L=138.0' S=0.0072 '/' Capacity=58.12 cfs Outflow=0.25 cfs 0.113 af

Pond 6P: Drip Strip Peak Elev=70.22' Storage=312 cf Inflow=1.89 cfs 0.146 af
 6.0" x 51.0' Culvert Outflow=1.14 cfs 0.147 af

Pond 11P: Offsite 1 Inflow=0.29 cfs 0.023 af
 Primary=0.29 cfs 0.023 af

Pond GW 1: GW 1 Peak Elev=69.11' Storage=1,213 cf Inflow=1.06 cfs 0.076 af
 Outflow=0.44 cfs 0.076 af

Pond GW 2: GW 2 Peak Elev=69.32' Storage=3,988 cf Inflow=2.31 cfs 0.166 af
 Primary=0.25 cfs 0.091 af Secondary=0.03 cfs 0.022 af Outflow=0.27 cfs 0.113 af

Pond Offsite Det.: Existing Detention Pond Peak Elev=67.49' Storage=2,178 cf Inflow=1.53 cfs 0.113 af
 12.0" x 190.0' Culvert Outflow=0.72 cfs 0.077 af

Total Runoff Area = 4.623 ac Runoff Volume = 0.752 af Average Runoff Depth = 1.95"
48.80% Pervious = 2.256 ac 51.20% Impervious = 2.367 ac

Summary for Subcatchment 1: 1

Runoff = 1.00 cfs @ 12.71 hrs, Volume= 0.166 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

Area (sf)	CN	Description
4,163	73	Woods, Fair, HSG C
9,957	79	Woods, Fair, HSG D
19,210	79	Pasture/grassland/range, Fair, HSG C
27,709	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
* 3,411	74	Proposed Landscape
65,893	81	Weighted Average
65,893		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

Area (sf)	CN	Description
* 13,263	98	Pavement
* 7,519	74	Proposed Landscape
20,782	89	Weighted Average
7,519		Pervious Area
13,263		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	85	0.0222	1.34		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.1	105	0.0058	1.55		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.2	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3: 3

Runoff = 1.89 cfs @ 12.08 hrs, Volume= 0.146 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	25,040	98	Proposed Building
*	3,760	89	Gravel Drip Strip Area
	28,800	97	Weighted Average
	3,760		Pervious Area
	25,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3A: 3A

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.090 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,040	98	Impervious Pavement
*	1,674	74	Proposed Landscape
	21,816	92	Weighted Average
	5,776		Pervious Area
	16,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.07 cfs @ 12.08 hrs, Volume= 0.085 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	15,719	98	Impervious
*	394	98	New Impervious
	16,113	98	Weighted Average
	16,113		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 2.31 cfs @ 12.09 hrs, Volume= 0.166 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-YR Rainfall=3.00"

	Area (sf)	CN	Description
*	27,691	98	New Pavement
*	15,326	74	Proposed Landscape
*	679	98	Existing Pavement
	43,696	90	Weighted Average
	15,326		Pervious Area
	28,370		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	135	0.0111	1.12		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.2	130	0.0077	1.78		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.6	190	0.0068	1.24		Shallow Concentrated Flow, CD Grassed Waterway Kv= 15.0 fps
5.8	455	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach CITY CB: CITY CB

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 1.90" for 2-YR event
 Inflow = 0.44 cfs @ 12.31 hrs, Volume= 0.076 af
 Outflow = 0.44 cfs @ 12.31 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 1: POA 1

Inflow Area = 2.516 ac, 25.89% Impervious, Inflow Depth = 1.33" for 2-YR event
 Inflow = 1.19 cfs @ 12.76 hrs, Volume= 0.279 af
 Outflow = 1.19 cfs @ 12.76 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.108 ac, 81.42% Impervious, Inflow Depth = 2.19" for 2-YR event
 Inflow = 2.79 cfs @ 12.21 hrs, Volume= 0.385 af
 Outflow = 2.79 cfs @ 12.21 hrs, Volume= 0.385 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach Reach 1: Reach to POA 1

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 1.36" for 2-YR event
 Inflow = 0.27 cfs @ 12.72 hrs, Volume= 0.113 af
 Outflow = 0.25 cfs @ 13.23 hrs, Volume= 0.113 af, Atten= 7%, Lag= 30.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Max. Velocity= 0.10 fps, Min. Travel Time= 22.8 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 45.9 min

Peak Storage= 349 cf @ 13.23 hrs, Average Depth at Peak Storage= 0.04'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 58.12 cfs

60.00' x 1.00' deep channel, n= 0.150 Very weedy reaches w/pools
 Side Slope Z-value= 20.0 ' ' Top Width= 100.00'
 Length= 138.0' Slope= 0.0072 ' '
 Inlet Invert= 69.00', Outlet Invert= 68.00'



Summary for Pond 6P: Drip Strip

Inflow Area = 0.661 ac, 86.94% Impervious, Inflow Depth = 2.66" for 2-YR event
 Inflow = 1.89 cfs @ 12.08 hrs, Volume= 0.146 af
 Outflow = 1.14 cfs @ 12.19 hrs, Volume= 0.147 af, Atten= 40%, Lag= 6.2 min
 Primary = 1.14 cfs @ 12.19 hrs, Volume= 0.147 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 70.22' @ 12.19 hrs Surf.Area= 3,525 sf Storage= 312 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.9 min (768.6 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	2,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 5,288 cf Overall x 40.0% Voids
#2	70.00'	705 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,763 cf Overall x 40.0% Voids
		2,820 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	3,525	0	0
72.00	3,525	5,288	5,288

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.00	3,525	0	0
70.50	3,525	1,763	1,763

Device	Routing	Invert	Outlet Devices
#1	Primary	67.17'	6.0" x 51.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.92' S= 0.0049 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.14 cfs @ 12.19 hrs HW=70.22' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 1.14 cfs @ 5.81 fps)

Summary for Pond 11P: Offsite 1

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-YR event
 Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af
 Primary = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond GW 1: GW 1

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 1.90" for 2-YR event
 Inflow = 1.06 cfs @ 12.09 hrs, Volume= 0.076 af
 Outflow = 0.44 cfs @ 12.31 hrs, Volume= 0.076 af, Atten= 58%, Lag= 13.1 min
 Primary = 0.44 cfs @ 12.31 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 69.11' @ 12.31 hrs Surf.Area= 2,284 sf Storage= 1,213 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 339.1 min (1,152.8 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	3,446 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	1,727	0	0
69.00	2,123	963	963
69.90	3,396	2,484	3,446

Device	Routing	Invert	Outlet Devices
#1	Device 3	65.83'	6.0" x 18.0' long 6" UD CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.83' S= 0.0000 '/' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	0.9" Vert. Water Quality Orifice Control C= 0.600
#3	Primary	68.17'	12.0" x 140.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.00' S= 0.0226 '/' Cc= 0.900 n= 0.012
#4	Device 3	69.00'	4.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.44 cfs @ 12.31 hrs HW=69.11' TW=0.00' (Dynamic Tailwater)

3=Culvert (Passes 0.44 cfs of 2.00 cfs potential flow)
 1=6" UD (Passes 0.02 cfs of 0.73 cfs potential flow)
 2=Water Quality Orifice Control (Orifice Controls 0.02 cfs @ 4.68 fps)
 4=Broad-Crested Rectangular Weir (Weir Controls 0.42 cfs @ 0.93 fps)

Summary for Pond GW 2: GW 2

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 1.98" for 2-YR event
 Inflow = 2.31 cfs @ 12.09 hrs, Volume= 0.166 af
 Outflow = 0.27 cfs @ 12.72 hrs, Volume= 0.113 af, Atten= 88%, Lag= 38.3 min
 Primary = 0.25 cfs @ 12.73 hrs, Volume= 0.091 af
 Secondary = 0.03 cfs @ 12.58 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 2-YR Rainfall=3.00"

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Peak Elev= 69.32' @ 12.76 hrs Surf.Area= 5,569 sf Storage= 3,988 cf

Plug-Flow detention time= 286.4 min calculated for 0.113 af (68% of inflow)

Center-of-Mass det. time= 190.1 min (999.6 - 809.4)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	13,861 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	69.00'	255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		14,115 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	4,191	0	0
69.00	4,954	2,286	2,286
70.00	6,065	5,510	7,796
71.00	6,065	6,065	13,861

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	214	0	0
69.90	352	255	255

Device	Routing	Invert	Outlet Devices
#1	Secondary	68.17'	6.0" x 20.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 68.09' S= 0.0040 ' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	1.4" Vert. Orifice/Grate C= 0.600
#3	Primary	69.00'	0.5' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Primary	70.00'	10.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.25 cfs @ 12.73 hrs HW=69.32' TW=69.04' (Dynamic Tailwater)

3=Broad-Crested Rectangular Weir (Weir Controls 0.25 cfs @ 1.55 fps)


4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
Secondary OutFlow Max=0.03 cfs @ 12.58 hrs HW=69.31' TW=69.03' (Dynamic Tailwater)

1=Culvert (Passes 0.03 cfs of 0.40 cfs potential flow)


2=Orifice/Grate (Orifice Controls 0.03 cfs @ 2.57 fps)
Summary for Pond Offsite Det.: Existing Detention Pond

Inflow Area = 0.599 ac, 77.88% Impervious, Inflow Depth = 2.26" for 2-YR event
 Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.113 af
 Outflow = 0.72 cfs @ 12.25 hrs, Volume= 0.077 af, Atten= 53%, Lag= 10.0 min
 Primary = 0.72 cfs @ 12.25 hrs, Volume= 0.077 af

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 2-YR Rainfall=3.00"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Peak Elev= 67.49' @ 12.25 hrs Surf.Area= 1,427 sf Storage= 2,178 cf

Plug-Flow detention time= 200.6 min calculated for 0.077 af (69% of inflow)

Center-of-Mass det. time= 106.4 min (898.0 - 791.6)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.72 cfs @ 12.25 hrs HW=67.49' TW=0.00' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 0.72 cfs @ 1.88 fps)

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1	Runoff Area=65,893 sf 0.00% Impervious Runoff Depth=2.72" Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=81 Runoff=2.10 cfs 0.343 af
Subcatchment2: 2	Runoff Area=20,782 sf 63.82% Impervious Runoff Depth=3.49" Flow Length=190' Tc=6.0 min CN=89 Runoff=1.90 cfs 0.139 af
Subcatchment3: 3	Runoff Area=28,800 sf 86.94% Impervious Runoff Depth=4.35" Tc=6.0 min CN=97 Runoff=3.01 cfs 0.240 af
Subcatchment3A: 3A	Runoff Area=21,816 sf 73.52% Impervious Runoff Depth=3.80" Tc=6.0 min CN=92 Runoff=2.12 cfs 0.158 af
Subcatchment3B: 3B	Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.45 cfs 0.037 af
Subcatchment3C: 3C	Runoff Area=16,113 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=1.70 cfs 0.138 af
Subcatchment4: 4	Runoff Area=43,696 sf 64.93% Impervious Runoff Depth=3.59" Flow Length=455' Tc=6.0 min CN=90 Runoff=4.08 cfs 0.300 af
Reach CITY CB: CITY CB	Inflow=1.51 cfs 0.139 af Outflow=1.51 cfs 0.139 af
Reach POA 1: POA 1	Inflow=3.03 cfs 0.591 af Outflow=3.03 cfs 0.591 af
Reach POA 2: POA 2	Inflow=5.92 cfs 0.675 af Outflow=5.92 cfs 0.675 af
Reach Reach 1: Reach to POA 1	Avg. Depth=0.09' Max Vel=0.17 fps Inflow=1.00 cfs 0.247 af n=0.150 L=138.0' S=0.0072 '/' Capacity=58.12 cfs Outflow=0.93 cfs 0.247 af
Pond 6P: Drip Strip	Peak Elev=70.78' Storage=1,103 cf Inflow=3.01 cfs 0.240 af 6.0" x 51.0' Culvert Outflow=1.25 cfs 0.240 af
Pond 11P: Offsite 1	Inflow=0.45 cfs 0.037 af Primary=0.45 cfs 0.037 af
Pond GW 1: GW 1	Peak Elev=69.26' Storage=1,566 cf Inflow=1.90 cfs 0.139 af Outflow=1.51 cfs 0.139 af
Pond GW 2: GW 2	Peak Elev=69.74' Storage=6,476 cf Inflow=4.08 cfs 0.300 af Primary=0.96 cfs 0.219 af Secondary=0.04 cfs 0.029 af Outflow=1.00 cfs 0.247 af
Pond Offsite Det.: Existing Detention Pond	Peak Elev=67.86' Storage=2,743 cf Inflow=2.57 cfs 0.195 af 12.0" x 190.0' Culvert Outflow=1.79 cfs 0.160 af

Total Runoff Area = 4.623 ac Runoff Volume = 1.354 af Average Runoff Depth = 3.51"
48.80% Pervious = 2.256 ac 51.20% Impervious = 2.367 ac

Summary for Subcatchment 1: 1

Runoff = 2.10 cfs @ 12.70 hrs, Volume= 0.343 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

Area (sf)	CN	Description
4,163	73	Woods, Fair, HSG C
9,957	79	Woods, Fair, HSG D
19,210	79	Pasture/grassland/range, Fair, HSG C
27,709	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
* 3,411	74	Proposed Landscape
65,893	81	Weighted Average
65,893		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 1.90 cfs @ 12.09 hrs, Volume= 0.139 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.70"

Area (sf)	CN	Description
* 13,263	98	Pavement
* 7,519	74	Proposed Landscape
20,782	89	Weighted Average
7,519		Pervious Area
13,263		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	85	0.0222	1.34		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.1	105	0.0058	1.55		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.2	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3: 3

Runoff = 3.01 cfs @ 12.08 hrs, Volume= 0.240 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	25,040	98	Proposed Building
*	3,760	89	Gravel Drip Strip Area
	28,800	97	Weighted Average
	3,760		Pervious Area
	25,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3A: 3A

Runoff = 2.12 cfs @ 12.08 hrs, Volume= 0.158 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,040	98	Impervious Pavement
*	1,674	74	Proposed Landscape
	21,816	92	Weighted Average
	5,776		Pervious Area
	16,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.70 cfs @ 12.08 hrs, Volume= 0.138 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	15,719	98	Impervious
*	394	98	New Impervious
	16,113	98	Weighted Average
	16,113		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 4.08 cfs @ 12.09 hrs, Volume= 0.300 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-YR Rainfall=4.70"

	Area (sf)	CN	Description
*	27,691	98	New Pavement
*	15,326	74	Proposed Landscape
*	679	98	Existing Pavement
	43,696	90	Weighted Average
	15,326		Pervious Area
	28,370		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	135	0.0111	1.12		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.2	130	0.0077	1.78		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.6	190	0.0068	1.24		Shallow Concentrated Flow, CD Grassed Waterway Kv= 15.0 fps
5.8	455	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach CITY CB: CITY CB

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 3.49" for 10-YR event
 Inflow = 1.51 cfs @ 12.15 hrs, Volume= 0.139 af
 Outflow = 1.51 cfs @ 12.15 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 1: POA 1

Inflow Area = 2.516 ac, 25.89% Impervious, Inflow Depth = 2.82" for 10-YR event
 Inflow = 3.03 cfs @ 12.69 hrs, Volume= 0.591 af
 Outflow = 3.03 cfs @ 12.69 hrs, Volume= 0.591 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.108 ac, 81.42% Impervious, Inflow Depth = 3.85" for 10-YR event
 Inflow = 5.92 cfs @ 12.12 hrs, Volume= 0.675 af
 Outflow = 5.92 cfs @ 12.12 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach Reach 1: Reach to POA 1

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 2.96" for 10-YR event
 Inflow = 1.00 cfs @ 12.46 hrs, Volume= 0.247 af
 Outflow = 0.93 cfs @ 12.66 hrs, Volume= 0.247 af, Atten= 7%, Lag= 11.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Max. Velocity= 0.17 fps, Min. Travel Time= 13.8 min
 Avg. Velocity = 0.06 fps, Avg. Travel Time= 39.9 min

Peak Storage= 771 cf @ 12.66 hrs, Average Depth at Peak Storage= 0.09'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 58.12 cfs

60.00' x 1.00' deep channel, n= 0.150 Very weedy reaches w/pools
 Side Slope Z-value= 20.0 '/' Top Width= 100.00'
 Length= 138.0' Slope= 0.0072 '/'
 Inlet Invert= 69.00', Outlet Invert= 68.00'



Summary for Pond 6P: Drip Strip

Inflow Area = 0.661 ac, 86.94% Impervious, Inflow Depth = 4.35" for 10-YR event
 Inflow = 3.01 cfs @ 12.08 hrs, Volume= 0.240 af
 Outflow = 1.25 cfs @ 12.28 hrs, Volume= 0.240 af, Atten= 58%, Lag= 11.9 min
 Primary = 1.25 cfs @ 12.28 hrs, Volume= 0.240 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 70.78' @ 12.28 hrs Surf.Area= 7,050 sf Storage= 1,103 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 3.5 min (760.5 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	2,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 5,288 cf Overall x 40.0% Voids
#2	70.00'	705 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,763 cf Overall x 40.0% Voids
		2,820 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	3,525	0	0
72.00	3,525	5,288	5,288

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.00	3,525	0	0
70.50	3,525	1,763	1,763

Device	Routing	Invert	Outlet Devices
#1	Primary	67.17'	6.0" x 51.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.92' S= 0.0049 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.25 cfs @ 12.28 hrs HW=70.78' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 1.25 cfs @ 6.37 fps)

Summary for Pond 11P: Offsite 1

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-YR event
 Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af
 Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond GW 1: GW 1

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 3.49" for 10-YR event
 Inflow = 1.90 cfs @ 12.09 hrs, Volume= 0.139 af
 Outflow = 1.51 cfs @ 12.15 hrs, Volume= 0.139 af, Atten= 21%, Lag= 3.7 min
 Primary = 1.51 cfs @ 12.15 hrs, Volume= 0.139 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 69.26' @ 12.15 hrs Surf.Area= 2,493 sf Storage= 1,566 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 209.6 min (1,006.2 - 796.6)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	3,446 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	1,727	0	0
69.00	2,123	963	963
69.90	3,396	2,484	3,446

Device	Routing	Invert	Outlet Devices
#1	Device 3	65.83'	6.0" x 18.0' long 6" UD CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.83' S= 0.0000 '/' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	0.9" Vert. Water Quality Orifice Control C= 0.600
#3	Primary	68.17'	12.0" x 140.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.00' S= 0.0226 '/' Cc= 0.900 n= 0.012
#4	Device 3	69.00'	4.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=1.50 cfs @ 12.15 hrs HW=69.26' TW=0.00' (Dynamic Tailwater)

3=Culvert (Passes 1.50 cfs of 2.29 cfs potential flow)
 1=6" UD (Passes 0.02 cfs of 0.78 cfs potential flow)
 2=Water Quality Orifice Control (Orifice Controls 0.02 cfs @ 5.03 fps)
 4=Broad-Crested Rectangular Weir (Weir Controls 1.48 cfs @ 1.42 fps)

Summary for Pond GW 2: GW 2

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 3.59" for 10-YR event
 Inflow = 4.08 cfs @ 12.09 hrs, Volume= 0.300 af
 Outflow = 1.00 cfs @ 12.46 hrs, Volume= 0.247 af, Atten= 75%, Lag= 22.7 min
 Primary = 0.96 cfs @ 12.46 hrs, Volume= 0.219 af
 Secondary = 0.04 cfs @ 12.42 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 10-YR Rainfall=4.70"

Prepared by {enter your company name here}

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Peak Elev= 69.74' @ 12.47 hrs Surf.Area= 6,108 sf Storage= 6,476 cf

Plug-Flow detention time= 211.7 min calculated for 0.247 af (82% of inflow)

Center-of-Mass det. time= 141.5 min (934.3 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	13,861 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	69.00'	255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		14,115 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	4,191	0	0
69.00	4,954	2,286	2,286
70.00	6,065	5,510	7,796
71.00	6,065	6,065	13,861

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	214	0	0
69.90	352	255	255

Device	Routing	Invert	Outlet Devices
#1	Secondary	68.17'	6.0" x 20.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 68.09' S= 0.0040 ' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	1.4" Vert. Orifice/Grate C= 0.600
#3	Primary	69.00'	0.5' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Primary	70.00'	10.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.96 cfs @ 12.46 hrs HW=69.74' TW=69.08' (Dynamic Tailwater)

3=Broad-Crested Rectangular Weir (Weir Controls 0.96 cfs @ 2.59 fps)


4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
Secondary OutFlow Max=0.04 cfs @ 12.42 hrs HW=69.74' TW=69.08' (Dynamic Tailwater)

1=Culvert (Passes 0.04 cfs of 0.61 cfs potential flow)


2=Orifice/Grate (Orifice Controls 0.04 cfs @ 3.91 fps)
Summary for Pond Offsite Det.: Existing Detention Pond

Inflow Area = 0.599 ac, 77.88% Impervious, Inflow Depth = 3.91" for 10-YR event
 Inflow = 2.57 cfs @ 12.08 hrs, Volume= 0.195 af
 Outflow = 1.79 cfs @ 12.17 hrs, Volume= 0.160 af, Atten= 30%, Lag= 4.9 min
 Primary = 1.79 cfs @ 12.17 hrs, Volume= 0.160 af

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 10-YR Rainfall=4.70"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Peak Elev= 67.86' @ 12.17 hrs Surf.Area= 1,620 sf Storage= 2,743 cf

Plug-Flow detention time= 146.9 min calculated for 0.160 af (82% of inflow)

Center-of-Mass det. time= 75.1 min (853.1 - 778.0)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.79 cfs @ 12.17 hrs HW=67.86' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.79 cfs @ 2.49 fps)

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1 Runoff Area=65,893 sf 0.00% Impervious Runoff Depth=3.43"
 Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=81 Runoff=2.64 cfs 0.433 af

Subcatchment2: 2 Runoff Area=20,782 sf 63.82% Impervious Runoff Depth=4.25"
 Flow Length=190' Tc=6.0 min CN=89 Runoff=2.29 cfs 0.169 af

Subcatchment3: 3 Runoff Area=28,800 sf 86.94% Impervious Runoff Depth=5.15"
 Tc=6.0 min CN=97 Runoff=3.53 cfs 0.283 af

Subcatchment3A: 3A Runoff Area=21,816 sf 73.52% Impervious Runoff Depth=4.58"
 Tc=6.0 min CN=92 Runoff=2.53 cfs 0.191 af

Subcatchment3B: 3B Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=6.0 min CN=98 Runoff=0.53 cfs 0.043 af

Subcatchment3C: 3C Runoff Area=16,113 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=6.0 min CN=98 Runoff=1.99 cfs 0.162 af

Subcatchment4: 4 Runoff Area=43,696 sf 64.93% Impervious Runoff Depth=4.36"
 Flow Length=455' Tc=6.0 min CN=90 Runoff=4.91 cfs 0.364 af

Reach CITY CB: CITY CB Inflow=1.88 cfs 0.169 af
 Outflow=1.88 cfs 0.169 af

Reach POA 1: POA 1 Inflow=3.92 cfs 0.744 af
 Outflow=3.92 cfs 0.744 af

Reach POA 2: POA 2 Inflow=6.90 cfs 0.814 af
 Outflow=6.90 cfs 0.814 af

Reach Reach 1: Reach to POA 1 Avg. Depth=0.11' Max Vel=0.19 fps Inflow=1.39 cfs 0.312 af
 n=0.150 L=138.0' S=0.0072 '/' Capacity=58.12 cfs Outflow=1.31 cfs 0.312 af

Pond 6P: Drip Strip Peak Elev=71.12' Storage=1,585 cf Inflow=3.53 cfs 0.283 af
 6.0" x 51.0' Culvert Outflow=1.31 cfs 0.284 af

Pond 11P: Offsite 1 Inflow=0.53 cfs 0.043 af
 Primary=0.53 cfs 0.043 af

Pond GW 1: GW 1 Peak Elev=69.30' Storage=1,668 cf Inflow=2.29 cfs 0.169 af
 Outflow=1.88 cfs 0.169 af

Pond GW 2: GW 2 Peak Elev=69.91' Storage=7,511 cf Inflow=4.91 cfs 0.364 af
 Primary=1.34 cfs 0.281 af Secondary=0.05 cfs 0.031 af Outflow=1.39 cfs 0.312 af

Pond Offsite Det.: Existing Detention Pond Peak Elev=67.98' Storage=2,945 cf Inflow=3.06 cfs 0.234 af
 12.0" x 190.0' Culvert Outflow=2.09 cfs 0.199 af

Total Runoff Area = 4.623 ac Runoff Volume = 1.646 af Average Runoff Depth = 4.27"
48.80% Pervious = 2.256 ac 51.20% Impervious = 2.367 ac

Summary for Subcatchment 1: 1

Runoff = 2.64 cfs @ 12.70 hrs, Volume= 0.433 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
4,163	73	Woods, Fair, HSG C
9,957	79	Woods, Fair, HSG D
19,210	79	Pasture/grassland/range, Fair, HSG C
27,709	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
* 3,411	74	Proposed Landscape
65,893	81	Weighted Average
65,893		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 2.29 cfs @ 12.09 hrs, Volume= 0.169 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
* 13,263	98	Pavement
* 7,519	74	Proposed Landscape
20,782	89	Weighted Average
7,519		Pervious Area
13,263		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	85	0.0222	1.34		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.1	105	0.0058	1.55		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.2	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3: 3

Runoff = 3.53 cfs @ 12.08 hrs, Volume= 0.283 af, Depth= 5.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	25,040	98	Proposed Building
*	3,760	89	Gravel Drip Strip Area
	28,800	97	Weighted Average
	3,760		Pervious Area
	25,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3A: 3A

Runoff = 2.53 cfs @ 12.08 hrs, Volume= 0.191 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,040	98	Impervious Pavement
*	1,674	74	Proposed Landscape
	21,816	92	Weighted Average
	5,776		Pervious Area
	16,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 1.99 cfs @ 12.08 hrs, Volume= 0.162 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	15,719	98	Impervious
*	394	98	New Impervious
	16,113	98	Weighted Average
	16,113		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 4.91 cfs @ 12.08 hrs, Volume= 0.364 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Type III 24-hr 25-YR Rainfall=5.50"

	Area (sf)	CN	Description
*	27,691	98	New Pavement
*	15,326	74	Proposed Landscape
*	679	98	Existing Pavement
	43,696	90	Weighted Average
	15,326		Pervious Area
	28,370		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	135	0.0111	1.12		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.2	130	0.0077	1.78		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.6	190	0.0068	1.24		Shallow Concentrated Flow, CD Grassed Waterway Kv= 15.0 fps
5.8	455	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach CITY CB: CITY CB

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 4.25" for 25-YR event
 Inflow = 1.88 cfs @ 12.14 hrs, Volume= 0.169 af
 Outflow = 1.88 cfs @ 12.14 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 1: POA 1

Inflow Area = 2.516 ac, 25.89% Impervious, Inflow Depth = 3.55" for 25-YR event
 Inflow = 3.92 cfs @ 12.67 hrs, Volume= 0.744 af
 Outflow = 3.92 cfs @ 12.67 hrs, Volume= 0.744 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.108 ac, 81.42% Impervious, Inflow Depth = 4.63" for 25-YR event
 Inflow = 6.90 cfs @ 12.12 hrs, Volume= 0.814 af
 Outflow = 6.90 cfs @ 12.12 hrs, Volume= 0.814 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach Reach 1: Reach to POA 1

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 3.73" for 25-YR event
 Inflow = 1.39 cfs @ 12.42 hrs, Volume= 0.312 af
 Outflow = 1.31 cfs @ 12.58 hrs, Volume= 0.312 af, Atten= 5%, Lag= 9.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Max. Velocity= 0.19 fps, Min. Travel Time= 12.1 min
 Avg. Velocity = 0.06 fps, Avg. Travel Time= 38.3 min

Peak Storage= 953 cf @ 12.58 hrs, Average Depth at Peak Storage= 0.11'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 58.12 cfs

60.00' x 1.00' deep channel, n= 0.150 Very weedy reaches w/pools
 Side Slope Z-value= 20.0 ' / ' Top Width= 100.00'
 Length= 138.0' Slope= 0.0072 ' / '
 Inlet Invert= 69.00', Outlet Invert= 68.00'



Summary for Pond 6P: Drip Strip

Inflow Area = 0.661 ac, 86.94% Impervious, Inflow Depth = 5.15" for 25-YR event
 Inflow = 3.53 cfs @ 12.08 hrs, Volume= 0.283 af
 Outflow = 1.31 cfs @ 12.32 hrs, Volume= 0.284 af, Atten= 63%, Lag= 14.3 min
 Primary = 1.31 cfs @ 12.32 hrs, Volume= 0.284 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 71.12' @ 12.32 hrs Surf.Area= 7,050 sf Storage= 1,585 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 5.1 min (759.0 - 753.8)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	2,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 5,288 cf Overall x 40.0% Voids
#2	70.00'	705 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,763 cf Overall x 40.0% Voids
		2,820 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	3,525	0	0
72.00	3,525	5,288	5,288

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.00	3,525	0	0
70.50	3,525	1,763	1,763

Device	Routing	Invert	Outlet Devices
#1	Primary	67.17'	6.0" x 51.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.92' S= 0.0049 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.31 cfs @ 12.32 hrs HW=71.12' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 1.31 cfs @ 6.69 fps)

Summary for Pond 11P: Offsite 1

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-YR event
 Inflow = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af
 Primary = 0.53 cfs @ 12.08 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond GW 1: GW 1

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 4.25" for 25-YR event
 Inflow = 2.29 cfs @ 12.09 hrs, Volume= 0.169 af
 Outflow = 1.88 cfs @ 12.14 hrs, Volume= 0.169 af, Atten= 18%, Lag= 3.4 min
 Primary = 1.88 cfs @ 12.14 hrs, Volume= 0.169 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 69.30' @ 12.14 hrs Surf.Area= 2,550 sf Storage= 1,668 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 178.0 min (969.1 - 791.1)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	3,446 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	1,727	0	0
69.00	2,123	963	963
69.90	3,396	2,484	3,446

Device	Routing	Invert	Outlet Devices
#1	Device 3	65.83'	6.0" x 18.0' long 6" UD CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.83' S= 0.0000 '/' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	0.9" Vert. Water Quality Orifice Control C= 0.600
#3	Primary	68.17'	12.0" x 140.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.00' S= 0.0226 '/' Cc= 0.900 n= 0.012
#4	Device 3	69.00'	4.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=1.87 cfs @ 12.14 hrs HW=69.30' TW=0.00' (Dynamic Tailwater)

3=Culvert (Passes 1.87 cfs of 2.37 cfs potential flow)
 1=6" UD (Passes 0.02 cfs of 0.79 cfs potential flow)
 2=Water Quality Orifice Control (Orifice Controls 0.02 cfs @ 5.12 fps)
 4=Broad-Crested Rectangular Weir (Weir Controls 1.85 cfs @ 1.53 fps)

Summary for Pond GW 2: GW 2

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 4.36" for 25-YR event
 Inflow = 4.91 cfs @ 12.08 hrs, Volume= 0.364 af
 Outflow = 1.39 cfs @ 12.42 hrs, Volume= 0.312 af, Atten= 72%, Lag= 20.2 min
 Primary = 1.34 cfs @ 12.42 hrs, Volume= 0.281 af
 Secondary = 0.05 cfs @ 12.39 hrs, Volume= 0.031 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 25-YR Rainfall=5.50"

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Peak Elev= 69.91' @ 12.43 hrs Surf.Area= 6,317 sf Storage= 7,511 cf

Plug-Flow detention time= 193.4 min calculated for 0.312 af (86% of inflow)

Center-of-Mass det. time= 131.0 min (918.6 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	13,861 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	69.00'	255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		14,115 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	4,191	0	0
69.00	4,954	2,286	2,286
70.00	6,065	5,510	7,796
71.00	6,065	6,065	13,861

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	214	0	0
69.90	352	255	255

Device	Routing	Invert	Outlet Devices
#1	Secondary	68.17'	6.0" x 20.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 68.09' S= 0.0040 ' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	1.4" Vert. Orifice/Grate C= 0.600
#3	Primary	69.00'	0.5' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Primary	70.00'	10.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=1.34 cfs @ 12.42 hrs HW=69.91' TW=69.11' (Dynamic Tailwater)

3=Broad-Crested Rectangular Weir (Weir Controls 1.34 cfs @ 2.95 fps)


4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
Secondary OutFlow Max=0.05 cfs @ 12.39 hrs HW=69.91' TW=69.10' (Dynamic Tailwater)

1=Culvert (Passes 0.05 cfs of 0.67 cfs potential flow)


2=Orifice/Grate (Orifice Controls 0.05 cfs @ 4.32 fps)
Summary for Pond Offsite Det.: Existing Detention Pond

Inflow Area = 0.599 ac, 77.88% Impervious, Inflow Depth = 4.69" for 25-YR event
 Inflow = 3.06 cfs @ 12.08 hrs, Volume= 0.234 af
 Outflow = 2.09 cfs @ 12.17 hrs, Volume= 0.199 af, Atten= 32%, Lag= 5.1 min
 Primary = 2.09 cfs @ 12.17 hrs, Volume= 0.199 af

SP-M104 4-16-14 POST DEVELOPMENT MODEL Update Type III 24-hr 25-YR Rainfall=5.50"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Peak Elev= 67.98' @ 12.17 hrs Surf.Area= 1,684 sf Storage= 2,945 cf

Plug-Flow detention time= 133.5 min calculated for 0.199 af (85% of inflow)

Center-of-Mass det. time= 69.0 min (842.6 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.08 cfs @ 12.17 hrs HW=67.98' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 2.08 cfs @ 2.66 fps)

SP-M104 4-16-14 POST DEVELOPMENT MODEL Upd Type III 24-hr 100-YR Rainfall=6.70"

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Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: 1	Runoff Area=65,893 sf 0.00% Impervious Runoff Depth=4.53" Flow Length=317' Slope=0.0030 '/' Tc=50.8 min CN=81 Runoff=3.47 cfs 0.571 af
Subcatchment2: 2	Runoff Area=20,782 sf 63.82% Impervious Runoff Depth=5.42" Flow Length=190' Tc=6.0 min CN=89 Runoff=2.88 cfs 0.215 af
Subcatchment3: 3	Runoff Area=28,800 sf 86.94% Impervious Runoff Depth=6.34" Tc=6.0 min CN=97 Runoff=4.32 cfs 0.349 af
Subcatchment3A: 3A	Runoff Area=21,816 sf 73.52% Impervious Runoff Depth=5.76" Tc=6.0 min CN=92 Runoff=3.14 cfs 0.240 af
Subcatchment3B: 3B	Runoff Area=4,298 sf 100.00% Impervious Runoff Depth=6.46" Tc=6.0 min CN=98 Runoff=0.65 cfs 0.053 af
Subcatchment3C: 3C	Runoff Area=16,113 sf 100.00% Impervious Runoff Depth=6.46" Tc=6.0 min CN=98 Runoff=2.43 cfs 0.199 af
Subcatchment4: 4	Runoff Area=43,696 sf 64.93% Impervious Runoff Depth=5.53" Flow Length=455' Tc=6.0 min CN=90 Runoff=6.14 cfs 0.462 af
Reach CITY CB: CITY CB	Inflow=2.40 cfs 0.215 af Outflow=2.40 cfs 0.215 af
Reach POA 1: POA 1	Inflow=5.29 cfs 0.980 af Outflow=5.29 cfs 0.980 af
Reach POA 2: POA 2	Inflow=8.23 cfs 1.022 af Outflow=8.23 cfs 1.022 af
Reach Reach 1: Reach to POA 1	Avg. Depth=0.15' Max Vel=0.23 fps Inflow=2.56 cfs 0.410 af n=0.150 L=138.0' S=0.0072 '/' Capacity=58.12 cfs Outflow=2.26 cfs 0.410 af
Pond 6P: Drip Strip	Peak Elev=71.69' Storage=2,383 cf Inflow=4.32 cfs 0.349 af 6.0" x 51.0' Culvert Outflow=1.41 cfs 0.350 af
Pond 11P: Offsite 1	Inflow=0.65 cfs 0.053 af Primary=0.65 cfs 0.053 af
Pond GW 1: GW 1	Peak Elev=69.36' Storage=1,805 cf Inflow=2.88 cfs 0.215 af Outflow=2.40 cfs 0.215 af
Pond GW 2: GW 2	Peak Elev=70.09' Storage=8,586 cf Inflow=6.14 cfs 0.462 af Primary=2.51 cfs 0.375 af Secondary=0.05 cfs 0.035 af Outflow=2.56 cfs 0.410 af
Pond Offsite Det.: Existing Detention Pond	Peak Elev=68.17' Storage=3,273 cf Inflow=3.79 cfs 0.293 af 12.0" x 190.0' Culvert Outflow=2.45 cfs 0.258 af

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Total Runoff Area = 4.623 ac Runoff Volume = 2.090 af Average Runoff Depth = 5.43"
48.80% Pervious = 2.256 ac 51.20% Impervious = 2.367 ac

Summary for Subcatchment 1: 1

Runoff = 3.47 cfs @ 12.69 hrs, Volume= 0.571 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

Area (sf)	CN	Description
4,163	73	Woods, Fair, HSG C
9,957	79	Woods, Fair, HSG D
19,210	79	Pasture/grassland/range, Fair, HSG C
27,709	84	Pasture/grassland/range, Fair, HSG D
1,443	89	Gravel roads, HSG C
* 3,411	74	Proposed Landscape
65,893	81	Weighted Average
65,893		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	150	0.0030	0.06		Sheet Flow, AB Grass: Dense n= 0.240 P2= 3.00"
7.3	167	0.0030	0.38		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
50.8	317	Total			

Summary for Subcatchment 2: 2

Runoff = 2.88 cfs @ 12.08 hrs, Volume= 0.215 af, Depth= 5.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

Area (sf)	CN	Description
* 13,263	98	Pavement
* 7,519	74	Proposed Landscape
20,782	89	Weighted Average
7,519		Pervious Area
13,263		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	85	0.0222	1.34		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.1	105	0.0058	1.55		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.2	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3: 3

Runoff = 4.32 cfs @ 12.08 hrs, Volume= 0.349 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

	Area (sf)	CN	Description
*	25,040	98	Proposed Building
*	3,760	89	Gravel Drip Strip Area
	28,800	97	Weighted Average
	3,760		Pervious Area
	25,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3A: 3A

Runoff = 3.14 cfs @ 12.08 hrs, Volume= 0.240 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

	Area (sf)	CN	Description
*	3,377	74	Pervious Pond Area
*	725	74	Existing Land Scaped Area
*	16,040	98	Impervious Pavement
*	1,674	74	Proposed Landscape
	21,816	92	Weighted Average
	5,776		Pervious Area
	16,040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3B: 3B

Runoff = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

	Area (sf)	CN	Description
*	4,298	98	Impervious
	4,298		Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3C: 3C

Runoff = 2.43 cfs @ 12.08 hrs, Volume= 0.199 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

	Area (sf)	CN	Description
*	15,719	98	Impervious
*	394	98	New Impervious
	16,113	98	Weighted Average
	16,113		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 4: 4

Runoff = 6.14 cfs @ 12.08 hrs, Volume= 0.462 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-YR Rainfall=6.70"

	Area (sf)	CN	Description
*	27,691	98	New Pavement
*	15,326	74	Proposed Landscape
*	679	98	Existing Pavement
	43,696	90	Weighted Average
	15,326		Pervious Area
	28,370		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	135	0.0111	1.12		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
1.2	130	0.0077	1.78		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
2.6	190	0.0068	1.24		Shallow Concentrated Flow, CD Grassed Waterway Kv= 15.0 fps
5.8	455	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach CITY CB: CITY CB

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 5.42" for 100-YR event
Inflow = 2.40 cfs @ 12.14 hrs, Volume= 0.215 af
Outflow = 2.40 cfs @ 12.14 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 1: POA 1

Inflow Area = 2.516 ac, 25.89% Impervious, Inflow Depth = 4.68" for 100-YR event
Inflow = 5.29 cfs @ 12.57 hrs, Volume= 0.980 af
Outflow = 5.29 cfs @ 12.57 hrs, Volume= 0.980 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach POA 2: POA 2

Inflow Area = 2.108 ac, 81.42% Impervious, Inflow Depth = 5.82" for 100-YR event
Inflow = 8.23 cfs @ 12.12 hrs, Volume= 1.022 af
Outflow = 8.23 cfs @ 12.12 hrs, Volume= 1.022 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Reach Reach 1: Reach to POA 1

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 4.90" for 100-YR event
Inflow = 2.56 cfs @ 12.29 hrs, Volume= 0.410 af
Outflow = 2.26 cfs @ 12.41 hrs, Volume= 0.410 af, Atten= 12%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Max. Velocity= 0.23 fps, Min. Travel Time= 9.8 min

Avg. Velocity = 0.06 fps, Avg. Travel Time= 36.4 min

Peak Storage= 1,332 cf @ 12.41 hrs, Average Depth at Peak Storage= 0.15'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 58.12 cfs

60.00' x 1.00' deep channel, n= 0.150 Very weedy reaches w/pools

Side Slope Z-value= 20.0 ' / ' Top Width= 100.00'

Length= 138.0' Slope= 0.0072 ' / '

Inlet Invert= 69.00', Outlet Invert= 68.00'



Summary for Pond 6P: Drip Strip

Inflow Area = 0.661 ac, 86.94% Impervious, Inflow Depth = 6.34" for 100-YR event
 Inflow = 4.32 cfs @ 12.08 hrs, Volume= 0.349 af
 Outflow = 1.41 cfs @ 12.37 hrs, Volume= 0.350 af, Atten= 67%, Lag= 17.1 min
 Primary = 1.41 cfs @ 12.37 hrs, Volume= 0.350 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 71.69' @ 12.37 hrs Surf.Area= 7,050 sf Storage= 2,383 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 7.7 min (757.8 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	2,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 5,288 cf Overall x 40.0% Voids
#2	70.00'	705 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,763 cf Overall x 40.0% Voids
		2,820 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	3,525	0	0
72.00	3,525	5,288	5,288

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.00	3,525	0	0
70.50	3,525	1,763	1,763

Device	Routing	Invert	Outlet Devices
#1	Primary	67.17'	6.0" x 51.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.92' S= 0.0049 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.41 cfs @ 12.37 hrs HW=71.69' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.41 cfs @ 7.18 fps)

Summary for Pond 11P: Offsite 1

Inflow Area = 0.099 ac, 100.00% Impervious, Inflow Depth = 6.46" for 100-YR event
 Inflow = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af
 Primary = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Pond GW 1: GW 1

Inflow Area = 0.477 ac, 63.82% Impervious, Inflow Depth = 5.42" for 100-YR event
 Inflow = 2.88 cfs @ 12.08 hrs, Volume= 0.215 af
 Outflow = 2.40 cfs @ 12.14 hrs, Volume= 0.215 af, Atten= 17%, Lag= 3.2 min
 Primary = 2.40 cfs @ 12.14 hrs, Volume= 0.215 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
 Peak Elev= 69.36' @ 12.14 hrs Surf.Area= 2,625 sf Storage= 1,805 cf

Plug-Flow detention time= 146.2 min calculated for 0.215 af (100% of inflow)
 Center-of-Mass det. time= 146.4 min (931.0 - 784.6)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	3,446 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	1,727	0	0
69.00	2,123	963	963
69.90	3,396	2,484	3,446

Device	Routing	Invert	Outlet Devices
#1	Device 3	65.83'	6.0" x 18.0' long 6" UD CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.83' S= 0.0000 '/' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	0.9" Vert. Water Quality Orifice Control C= 0.600
#3	Primary	68.17'	12.0" x 140.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 65.00' S= 0.0226 '/' Cc= 0.900 n= 0.012
#4	Device 3	69.00'	4.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=2.40 cfs @ 12.14 hrs HW=69.35' TW=0.00' (Dynamic Tailwater)

3=Culvert (Passes 2.40 cfs of 2.47 cfs potential flow)
 1=6" UD (Passes 0.02 cfs of 0.81 cfs potential flow)
 2=Water Quality Orifice Control (Orifice Controls 0.02 cfs @ 5.24 fps)
 4=Broad-Crested Rectangular Weir (Weir Controls 2.37 cfs @ 1.67 fps)

Summary for Pond GW 2: GW 2

Inflow Area = 1.003 ac, 64.93% Impervious, Inflow Depth = 5.53" for 100-YR event
 Inflow = 6.14 cfs @ 12.08 hrs, Volume= 0.462 af
 Outflow = 2.56 cfs @ 12.29 hrs, Volume= 0.410 af, Atten= 58%, Lag= 12.1 min
 Primary = 2.51 cfs @ 12.29 hrs, Volume= 0.375 af
 Secondary = 0.05 cfs @ 12.23 hrs, Volume= 0.035 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

SP-M104 4-16-14 POST DEVELOPMENT MODEL Upd Type III 24-hr 100-YR Rainfall=6.70"

Prepared by {enter your company name here}

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Peak Elev= 70.09' @ 12.29 hrs Surf.Area= 6,417 sf Storage= 8,586 cf

Plug-Flow detention time= 172.0 min calculated for 0.410 af (89% of inflow)

Center-of-Mass det. time= 118.5 min (899.8 - 781.2)

Volume	Invert	Avail.Storage	Storage Description
#1	68.50'	13,861 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	69.00'	255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		14,115 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.50	4,191	0	0
69.00	4,954	2,286	2,286
70.00	6,065	5,510	7,796
71.00	6,065	6,065	13,861

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	214	0	0
69.90	352	255	255

Device	Routing	Invert	Outlet Devices
#1	Secondary	68.17'	6.0" x 20.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 68.09' S= 0.0040 ' Cc= 0.900 n= 0.012
#2	Device 1	65.83'	1.4" Vert. Orifice/Grate C= 0.600
#3	Primary	69.00'	0.5' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Primary	70.00'	10.0' long x 0.7' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=2.50 cfs @ 12.29 hrs HW=70.09' TW=69.14' (Dynamic Tailwater)

3=Broad-Crested Rectangular Weir (Weir Controls 1.78 cfs @ 3.28 fps)
4=Broad-Crested Rectangular Weir (Weir Controls 0.72 cfs @ 0.82 fps)**Secondary OutFlow** Max=0.05 cfs @ 12.23 hrs HW=70.08' TW=69.12' (Dynamic Tailwater)

1=Culvert (Passes 0.05 cfs of 0.73 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.05 cfs @ 4.72 fps)**Summary for Pond Offsite Det.: Existing Detention Pond**

Inflow Area = 0.599 ac, 77.88% Impervious, Inflow Depth = 5.87" for 100-YR event
 Inflow = 3.79 cfs @ 12.08 hrs, Volume= 0.293 af
 Outflow = 2.45 cfs @ 12.18 hrs, Volume= 0.258 af, Atten= 35%, Lag= 5.6 min
 Primary = 2.45 cfs @ 12.18 hrs, Volume= 0.258 af

SP-M104 4-16-14 POST DEVELOPMENT MODEL Upd Type III 24-hr 100-YR Rainfall=6.70"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Peak Elev= 68.17' @ 12.18 hrs Surf.Area= 1,756 sf Storage= 3,273 cf

Plug-Flow detention time= 118.5 min calculated for 0.258 af (88% of inflow)

Center-of-Mass det. time= 62.5 min (831.0 - 768.5)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	4,848 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	432	0	0
66.00	740	586	586
67.00	1,171	956	1,542
68.00	1,693	1,432	2,974
69.00	2,056	1,875	4,848

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	12.0" x 190.0' long Culvert CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 66.05' S= 0.0050 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=2.45 cfs @ 12.18 hrs HW=68.17' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 2.45 cfs @ 3.12 fps)

APPENDIX D

WATER QUALITY SUMMARY CHART AND COMPUTATIONS

Water Quality Calculations

Area	Treatment Approach	Total Developed Area	Total Treated Developed Area	Total New Impervious Area	Total Treated New Impervious Area
SUB CATCHMENT 1	NONE	3,411	0	0	0
SUB CATCHMENT 2	Gravel Wetland 1	20,782	20,782	13,263	13,263
SUB CATCHMENT 3	Gravel Drip Strip	28,800	28,800	28,800	28,800
SUB CATCHMENT 4	Gravel Wetland 2	43,017	43,017	27,691	27,691
Untreated flow to adjacent Site	NONE	2,068	0	394	0
Totals		98,078	92,599	70,148	69,754

Developed Area Treated %	94.41%
Impervious Area Treated %	99.44%

APPENDIX E

ORIFICE DRAWDOWN COMPUTATIONS

ORIFICE DIAMETER FOR GRAVEL WET LAND 1

Elevation	Surface Area (sq.ft)	Area End (sq.ft)	Area End Depth (ft)	Volume (c.f)	Head (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
69.00	2,123.00	1925.00	0.50	962.50	0.83	0.0216	44593.17	12.387
68.50	1,727.00	1727.00	0.33	569.91	0.33	0.0136	41875.11	11.632
68.17	1,727.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.000
							TOTAL	24.019

$CA (2gh)^{1/2}$

Orifice Diameter	0.95	inch
Area	0.0049	sq.ft
g	32.174	ft/s ²
C	0.6	Orifice/Grate

ORIFICE DIAMETER FOR GRAVEL WETLAND 2

Depth (ft)	Surface Area (sq.ft)	Area End (sq.ft)	Area End Depth (ft)	Volume (c.f)	Head (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
69.00	4,954.00	4572.50	0.50	2286.25	0.83	0.0469	48773.33	13.548
68.50	4,191.00	4191.00	0.33	1383.03	0.33	0.0296	46792.08	12.998
68.17	4,191.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.000
							TOTAL	26.546

$CA (2gh)^{1/2}$

Orifice Diameter	1.4	inch
Area	0.0107	sq.ft
g	32.174	ft/s ²
C	0.6	Orifice/Grate

APPENDIX F

GEOTECHNICAL EXPLORATION TEST PIT LOGS

R E P O R T

December 27, 2013
13-1392 S

Geotechnical Engineering Services

Proposed Pre-Engineered Building
424 Warren Avenue
Portland, Maine

PREPARED FOR:

Peter F. Holmes
c/o Harbour Auto Body
401 Warren Avenue
Portland, Maine 04103

PREPARED BY:

S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
207-657-2866



S.W.COLE
ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing*
- *GeoEnvironmental Services*
- *Ecological Services*

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Sheet 10	Underdrain Detail

13-1392 S

December 27, 2013

Peter F. Holmes
c/o Harbour Auto Body
401 Warren Avenue
Portland, Maine 04103

Subject: Geotechnical Engineering Services
Proposed Pre-Engineered Building
424 Warren Avenue
Portland, Maine

Dear Peter:

In accordance with our Proposal dated December 12, 2013, we have performed subsurface explorations for the subject project in Portland, Maine. This report presents 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 work was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. Our scope of work included the making of thirteen test pit explorations, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Proposed Construction

Based on the information provided by FST, Inc. (project civil engineer), we understand development plans call for construction of a new L-Shaped, pre-engineered steel building with associated paved and stormwater management areas. We understand the building will occupy a plan area of about 38,500 SF and is proposed at a finished floor

elevation of 72.0 feet, requiring about 1 to 3 feet of tapered fill over the building pad. Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Thirteen test pits (TP-101 through TP-109 and TP-ST-1 through TP-ST-4) were made at the site on December 20, 2013, by Eastern Excavation, Inc. of Westbrook, Maine working under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The exploration locations were selected and established by S.W.COLE using taped measurements from existing site features.

The approximate exploration locations are shown on the "Exploration Location Plan" attached as Sheet 1. Logs of the explorations are attached as Sheets 2 through 8. A key to the notes and symbols used on the log is attached as Sheet 9. The ground surface elevations shown on the logs were estimated based on topographic information shown on Sheet 1.

2.2 Testing

The soils were visually classified as they were encountered at the explorations. Pocket Penetrometer Tests (PPT) were performed on some cohesive soils encountered at the test pits. PPT results are shown on the test pit logs.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Surficial Conditions

The site is located at 424 Warren Avenue in Portland, Maine. The site consists of an open gravel lot adjacent to Warren Avenue transitioning to a lightly wooded area and open grassed field area to the north and to the rear of the existing Harbour Auto Body Facility. The site is relatively flat and level with existing grades varying from about elevation 68 to 70 feet within the proposed building footprint.

Existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

3.2 Subsurface Conditions

Underlying a surficial layer of topsoil, the test pits encountered a soils profile generally consisting of fill and/or reworked soils overlying a layer of relic topsoil overlying glaciomarine sands, silts, and clays. The principal strata encountered are summarized below. Refer to the attached logs for more detailed descriptions of the subsurface findings.

Fill and Reworked Soils: Each test pit encountered a layer of fill and/or reworked soils extending to depths varying from 0.8 to 3.2 feet below ground surface. The fill generally consisted of sand or clay with varying portions of silt, gravel, cobbles, organics and miscellaneous debris such as bricks and plastic. The reworked soils generally consisted of disturbed silt and clay with varying portions of sand and organics.

Relic Topsoil: Underlying the fill and/or reworked soils, test pits TP-105 through TP-109 encountered a layer of relic topsoil up to about 1 foot in thickness. The relic topsoil generally consisted of dark brown silty sand with organics. A layer of reworked, disturbed silty sandy clay was encountered below the relic topsoil at test pit TP-105 to a depth of about 3.5 feet.

Glaciomarine Soils: Underlying the fill, reworked soils, and/or relic topsoil, the test pits encountered glaciomarine soils generally consisted of brown to gray-brown sands, silts, and relatively stiff silty clays. The test pits were terminated in the glaciomarine soils at depths varying from 4.0 to 6.2 feet below the ground surface.

3.3 Groundwater Conditions

The soils encountered at the explorations were generally moist to wet. Groundwater seepage was encountered at some of the explorations at depths varying from 3.1 to 5.5 feet. Groundwater likely becomes perched on the relatively impervious glaciomarine silts and clays encountered beneath the site. It should be anticipated that seasonal groundwater levels will fluctuate, especially during periods of snowmelt and precipitation.

3.4 Seismic and Frost Conditions

The 25-year Air Freezing Index for the Portland, Maine area is about 1,250-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet.

Based on the findings at the explorations and our experience on adjacent sites, we interpret the site soils to correspond to Seismic Soil Site Class E according to 2009 IBC.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations are:

- The existing fill, relic topsoil, and reworked/disturbed soils must be completely removed beneath the proposed building footprint and replaced with compacted Granular Borrow.
- Spread footing foundations and on-grade floor slabs bearing on properly prepared subgrades appear appropriate for the proposed construction.
- A 6-inch thick layer of crushed stone wrapped in geotextile fabric is recommended beneath the perimeter building foundations. Interior footings may bear on compacted Granular Borrow or stable, native non-organic soils.
- Perimeter foundation underdrains should be provided for the proposed building.
- Imported Granular Borrow, Structural Fill and Crushed Stone will be needed for construction. The existing fills and native soils are unsuitable for reuse below the proposed building or as backfill for foundations.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

All organics, existing fills, relic topsoil, and reworked/disturbed soils must be completely removed from beneath the proposed building and entrance slabs until undisturbed native non-organic soils are encountered. Overexcavation of existing unsuitable materials should

extend 1-foot horizontally outward from outer edge of perimeter footings for each foot of excavation depth (1H:1V bearing splay). Overexcavations should be backfilled to grade with properly compacted Structural Fill (over wet subgrades and during wet/cold weather conditions) or with properly compacted Granular Borrow (over dry subgrades and during non-freezing, dry conditions).

At least 6-inches of Crushed Stone wrapped in non-woven geotextile, such as Mirafi 160N or equivalent, should be provided below perimeter foundations. The crushed stone and geotextile should overlay undisturbed native glaciomarine soils and/or properly compacted Structural Fill or Granular Borrow overlying undisturbed native glaciomarine soils.

We recommend that excavations be completed with a smooth-edged bucket to help lessen disturbance of native soils and foundation bearing surfaces. S.W.COLE should observe exposed subgrades prior to placement of compacted fills and geotextile wrapped crushed stone mats below the footings.

4.3 Excavation and Dewatering

Excavation work will generally encounter existing fills, relic topsoil, reworked native soils and native glaciomarine sands, silts, and clays. Care must be exercised during construction to minimize disturbance of the bearing soils. Final cuts to subgrade elevation should be performed with a smooth-edged bucket to help minimize soil disturbance.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. The layer of geotextile wrapped Crushed Stone recommended below foundations will provide a media from which to sump and pump, as needed. Controlling the water levels to below planned excavation depths will help stabilize subgrades during construction.

Excavations must be properly shored and/or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. The contractor is ultimately responsible for dewatering and stability of excavations.

4.4 Foundations

We recommend the proposed building be supported on spread footings bearing on properly prepared subgrades. We recommend the following geotechnical parameters for design consideration:

- Design Frost Depth = 4.5 feet
- Allowable Soil Bearing Pressure = 1.5 ksf or less
- Seismic Site Soil Class = E (IBC 2009)
- Base Friction Factor = 0.40
- Lateral Earth Pressure = 65 pcf (equivalent fluid pressure)
- Unit Weight of Backfill = 130 pcf (compacted Structural Fill)
- At-Rest Lateral Earth Pressure Coefficient = 0.5 (compacted Structural Fill)
- Internal Friction Angle of Backfill = 30° (compacted Structural Fill)

Footings should be at least 18-inches in width regardless of bearing pressure.

4.5 Foundation Drainage

We recommend an underdrain system be installed along the exterior side of the perimeter foundations. The underdrain system should consist of a 4-inch diameter, perforated SDR-35 foundation drain pipe surrounded by at least 6-inches of Crushed Stone, fully enveloped in non-woven geotextile, such as Mirafi 160N or equivalent. 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 drainage. General underdrain details are illustrated on Sheet 10.

If a drip strip is used, S.W.COLE should be consulted to provide recommendations for frost protection.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 120 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill overlying properly prepared subgrades. 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 shall 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

Entrance slabs adjacent to buildings must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and sidewalks. We recommend that clean, non-frost susceptible sand and gravel meeting the requirements of 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 extend the full width of the entrance slabs and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement subbase gravel at a 3H:1V or flatter slope. General details of this frost transition zone are illustrated on Sheet 10.

4.8 Backfill and Compaction

We recommend the following fill and backfill materials for use during construction:

Granular Borrow: Sand or silty sand meeting the requirements of MDOT Standard Specification 703.19 Granular Borrow. Granular Borrow is recommended for use as:

- Fill to raise site grades and backfill overexcavations (dry and non-freezing conditions and over dry subgrades)

Structural Fill: 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
¾ inch	25 to 90
#40	0 to 30
#200	0 to 5

Structural Fill is recommended for use as:

- Fill to raise site grades and backfill overexcavations (wet and cold weather conditions and over wet subgrades)
- Backfill for building foundations and below entrance slabs
- Slab-on-grade base material

Crushed Stone: Crushed Stone used below footings and around underdrains should consist of crushed rock meeting the gradation requirements of MDOT Standard Specifications 703.22 "Underdrain Backfill Type C".

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 areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted in loose lifts not exceeding 12-inches with 2 to 3 passes of a vibratory plate compactor with a static weight of at least 600 lbs.

4.9 Weather Considerations

Construction activity should be limited during wet weather and the site soils may require drying before construction activities may continue. 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.

4.10 Design Review and Construction Testing

S.W.COLE should be retained to review the foundation and earthwork construction documents to determine that our geotechnical recommendations have been properly interpreted and implemented.

A soils and concrete testing program should also be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to provide earthwork observations as well as testing services for soils, concrete, asphalt, steel and spray-applied fireproofing construction materials.

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,

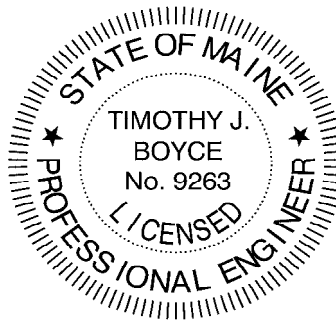
S. W. Cole Engineering, Inc.

Evan M. Walker, P.E.
Geotechnical Engineer



Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

EMW:tjb



Attachment A Limitations

This report has been prepared for the exclusive use of Peter F. Holmes for specific application to the proposed Pre-Engineered Building at 424 Warren Avenue in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct the work 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.

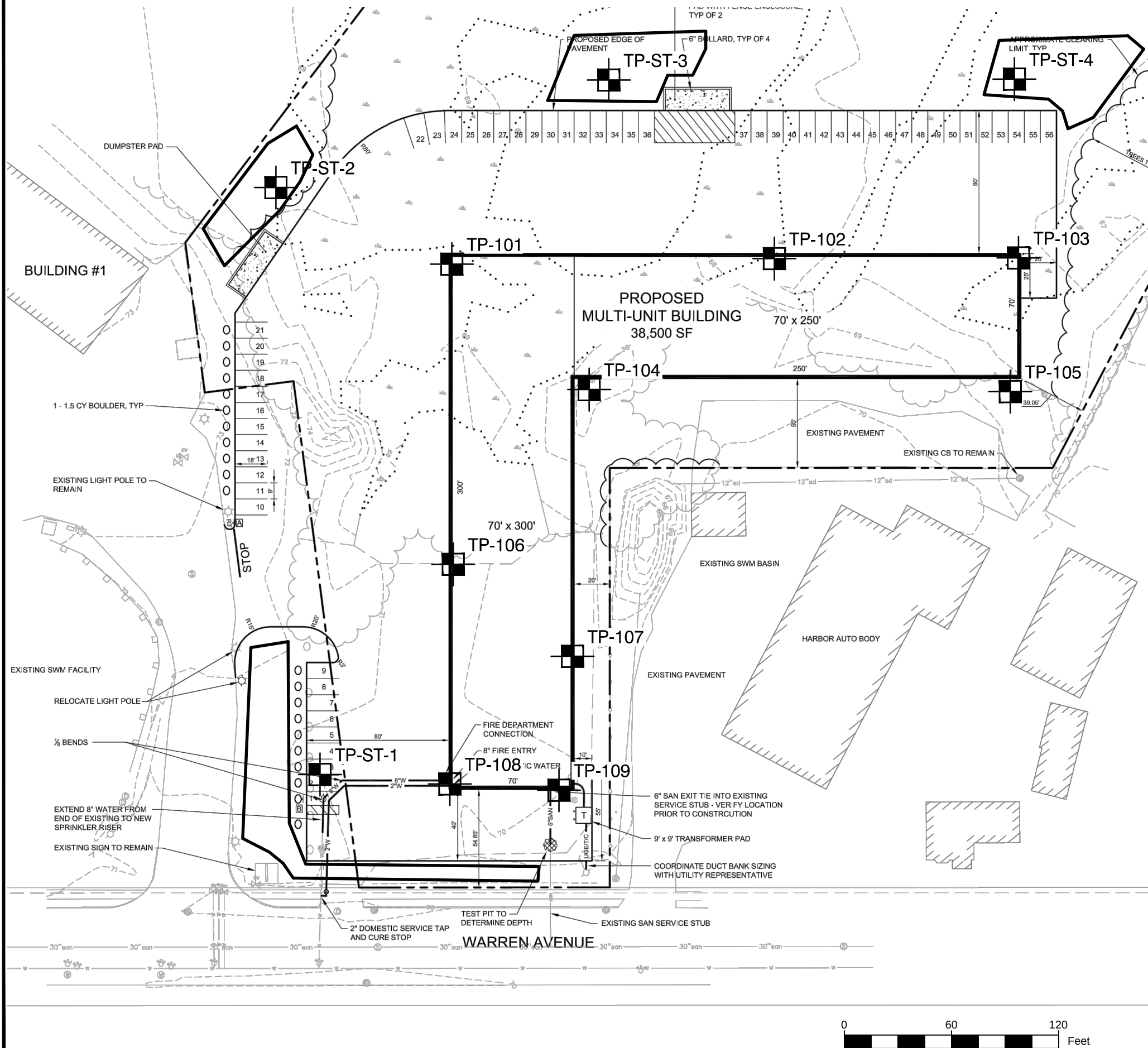
The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations 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 work 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.

R:\2013\13-1392\CAD\Drawings\13-1392 Sheet 1 ELP.dwg, 12/27/2013 2:09:37 PM, 1:1, TJH, S.W. Cole Engineering, Inc.

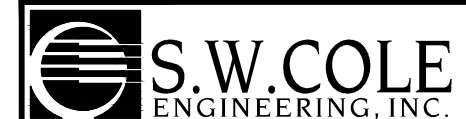


LEGEND:



NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=30' SCALE PLAN OF THE SITE ENTITLED "SITE LAYOUT AND UTILITY PLAN," PREPARED BY FAY, SPOFFORD & THORNDIKE, INC., DATED NOVEMBER 2013.
2. THE TEST PITS WERE LOCATED IN THE FIELD BY TAPED 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.



PETER F. HOLMES
EXPLORATION LOCATION PLAN
PROPOSED PRE-ENGINEERED BUILDING
424 WARREN AVENUE
PORTLAND, MAINE

Job No.:	13-1392	Scale:	1" = 60'
Date :	12/24/2013	Sheet:	1

PROJECT / CLIENT: PROPOSED PRE-ENGINEERED BUILDING / PETER F. HOLMES
 LOCATION: 424 WARREN AVENUE, PORTLAND, MAINE
 EXCAVATOR: EASTERN EXCAVATION, INC. / KOMATSU PC 50 MR

SWC REP.: EMW
 PROJECT NO.: 13-0912

TEST PIT <u>TP-101</u>			
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>69' +/-</u>	LOCATION: <u>SEE SHEET 1</u>
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION
NO.	DEPTH		TEST RESULTS
		0.5	VEGETATION / BROWN CLAYEY SILTY SAND WITH ORGANICS (TOPSOIL)
		1.5	REWORKED DARK GRAY AND BROWN SILTY SAND CLAYEY WITH ORGANICS (FILL / DISTURBED SOILS)
			BROWN SILTY FINE SAND WITH SILT SEAMS
		5.5	

COMPLETION DEPTH: 5.5' DEPTH TO WATER: SEEPAGE/CAVING @ 4.6'

TEST PIT <u>TP-102</u>			
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>68' +/-</u>	LOCATION: <u>SEE SHEET 1</u>
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION
NO.	DEPTH		TEST RESULTS
		0.2	VEGETATION / DARK BROWN CLAYEY SILTY SAND WITH ORGANICS (TOPSOIL)
		0.8	DARK GRAY-BROWN AND BLACK SANDY SILTY CLAY WITH BRICK, ORGANICS (FILL)
			GRAY-BROWN WITH RUST-BROWN STAINING SILTY FINE SAND WITH SILT LAYERS
		3.6	
		5.3	BROWN SILTY CLAY WITH SAND SEAMS ~ VERY STIFF ~

COMPLETION DEPTH: 5.3' DEPTH TO WATER: SEEPAGE @ 3.9', SOILS MOIST ABOVE 3.9'

PROJECT / CLIENT: PROPOSED PRE-ENGINEERED BUILDING / PETER F. HOLMES
 LOCATION: 424 WARREN AVENUE, PORTLAND, MAINE
 EXCAVATOR: EASTERN EXCAVATION, INC. / KOMATSU PC 50 MR

SWC REP.: EMW
 PROJECT NO.: 13-0912

TEST PIT <u>TP-103</u>				
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>68' +/-</u>	LOCATION: <u>SEE SHEET 1</u>	
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
NO.	DEPTH			
		0.3	VEGETATION / BROWN CLAYEY SILTY SAND WITH ORGANICS (TOPSOIL)	
		2.0	REWORKED BROWN SILTY CLAY WITH SAND SEAMS WITH ORGANICS (FILL / DISTURBED SOILS)	
		4.8'	LAYERED BROWN SILTY FINE SAND, CLAYEY SILT AND SILTY CLAY	

COMPLETION DEPTH: 4.8' DEPTH TO WATER: SEEPAGE @ 3.1'

TEST PIT <u>TP-104</u>				
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>70' +/-</u>	LOCATION: <u>SEE SHEET 1</u>	
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
NO.	DEPTH			
		2.0	DARK BROWN SILTY SAND WITH COBBLES, ORGANICS, BRICKS, PLASTIC DEBRIS (FILL)	
		2.5	ORANGE-BROWN SILTY FINE SAND	
		6.0	LAYERED GRAY-BROWN SILTY CLAY WITH SILTY FINE SAND LAYERS	

COMPLETION DEPTH: 6.0' DEPTH TO WATER: SEEPAGE @ 5.5'. SOILS MOIST ABOVE 5.5'



SWC REP.: EMW
PROJECT NO. 13-0912

[illegible]

PROJECT / CLIENT: PROPOSED PRE-ENGINEERED BUILDING / PETER F. HOLMES
 LOCATION: 424 WARREN AVENUE, PORTLAND, MAINE
 EXCAVATOR: EASTERN EXCAVATION, INC. / KOMATSU PC 50 MR

SWC REP.: EMW
 PROJECT NO.: 13-0912

TEST PIT <u>TP-107</u>				
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>69' +/-</u>	LOCATION: <u>SEE SHEET 1</u>	
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
NO.	DEPTH			
		1.5	BROWN GRAVELLY SAND SOME SILT WITH COBBLES ORGANICS IN UPPER 6" +/- (FILL)	
		2.0	DARK BROWN SILTY SAND WITH ORGANICS (RELIC TOPSOIL)	
		5.0	LAYERED GRAY-BROWN SILTY SAND AND SILTY CLAY	

COMPLETION DEPTH: 5 DEPTH TO WATER: ALL SOILS MOIST TO WET

TEST PIT <u>TP-108</u>				
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>70' +/-</u>	LOCATION: <u>SEE SHEET 1</u>	
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
NO.	DEPTH			
		0.6	BROWN GRAVELLY SAND SOME SILT WITH COBBLES (FILL)	@ 4.5' : q _p = 7 KSF
		1.4	DARK BROWN AND BLACK SILTY SAND WITH ORGANICS (RELIC TOPSOIL)	
		1.7	ORANGE-BROWN SILTY SAND	
		3.5	LIGHT GRAY-BROWN SILTY SAND	
		6.0	GRAY-BROWN CLAYEY SANDY SILT WITH SAND LAYERS	

COMPLETION DEPTH: 6.0' DEPTH TO WATER: ALL SOILS MOIST

PROJECT / CLIENT: PROPOSED PRE-ENGINEERED BUILDING / PETER F. HOLMES
 LOCATION: 424 WARREN AVENUE, PORTLAND, MAINE
 EXCAVATOR: EASTERN EXCAVATION, INC. / KOMATSU PC 50 MR

SWC REP.: EMW
 PROJECT NO.: 13-0912

TEST PIT <u>TP-109</u>				
DATE: <u>12/20/13</u>		SURFACE ELEVATION: <u>70' +/-</u>	LOCATION: <u>SEE SHEET 1</u>	
SAMPLE		DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
NO.	DEPTH			
			BROWN SILTY GRAVELLY SAND WITH COBBLES (FILL)	
		1.9		
		2.1	DARK BROWN SILTY SAND WITH ORGANICS (TOPSOIL)	
		4.0	GRAY SILTY FINE SAND WITH SILT AND SILTY CLAY SEAMS TRACE ROOTLETS	
		6.2	GRAY-BROWN WITH RUST-BROWN MOTTLING SILTY SANDY CLAY	
COMPLETION DEPTH: <u>6.2'</u>			DEPTH TO WATER: <u>ALL SOILS MOIST</u>	

Town, City, Plantation
PORTLAND

Street, Road Subdivision
WARREN AVENUE

Owner's Name
PETER HOLMES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP ST-1 ☒ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY LOAMY SAND (FILL)	FROZEN	VARIABLE BROWN	
SANDY LOAM		DARK BROWN 10YR3/3	
LOAMY SAND	FRIABLE	YELLOWISH BROWN 10YR5/6	
FINE SAND W/ SILT LENSES		MIXED OLIVE BROWN	FEW FAINT
	SOMEWHAT FIRM TO FIRM	LIGHT OLIVE BROWN	
	(NO SATURATION)		
SILTY CLAY LOAM	FIRM	OLIVE GRAY	COMMON DISTINCT
	(LIMIT OF EXCAVATION @ 52")		

Soil Classification Slope Limiting Factor ☒ Ground Water
Profile Condition % 23 " ☐ Restrictive Layer
☐ Bedrock
☐ Pit Depth

Soil Series Name: FILL OVER ELDRIDGE (ELMWOOD) Drainage Class: Hydrologic Group:

Observation Hole TP ST-2 ☒ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK BROWN	
			COMMON DISTINCT
SILTY CLAY LOAM	SOMEWHAT FIRM	OLIVE GRAY	
LOAMY FINE SAND	FRIABLE	LIGHT OLIVE BROWN	
SILTY CLAY LOAM	FIRM	OLIVE	△△△ FREE WATER
	(LIMIT OF EXCAVATION @ 56")		

Soil Classification Slope Limiting Factor ☒ Ground Water
Profile Condition % 7 " ☐ Restrictive Layer
☐ Bedrock
☐ Pit Depth

Soil Series Name: STRIPPED LAMOINE Drainage Class: Hydrologic Group:

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP ST-3 ☒ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK BROWN 10YR3/3	
SILTY CLAY (FILL/ OVERBURDEN)	FIRM	OLIVE	RELIC
SILTY CLAY LOAM		OLIVE BROWN	
W/ SILT & LOAMY FINE SAND IN LENSES			
			△△△ FREE WATER

Soil Classification Slope Limiting Factor ☒ Ground Water
Profile Condition % 46 " ☐ Restrictive Layer
☐ Bedrock
☐ Pit Depth

Soil Series Name: STRIPPED/REGRADED LAMOINE Drainage Class: Hydrologic Group:

Observation Hole TP ST-4 ☒ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILTY CLAY (REGRADED & OVERBURDEN)	FROZEN	VARIABLE OLIVE BROWN & OLIVE GRAY	
	SOMEWHAT FIRM		MANY PROMINENT (RELIC)
SILTY CLAY LOAM W/LOAMY FINE SAND AND SILT LENSES	FIRM	VARIABLE OLIVE BROWN AND DARK YELLOWISH BROWN	COMMON DISTINCT
			NOTE: NO FREE WATER IN TEST PIT
	(LIMIT OF EXCAVATION @ 55")		

Soil Classification Slope Limiting Factor ☒ Ground Water
Profile Condition % 9 " ☐ Restrictive Layer
☐ Bedrock
☐ Pit Depth

Soil Series Name: STRIPPED/REGRADED LAMOINE Drainage Class: Hydrologic Group:

Site Evaluator / Soil Scientist Signature

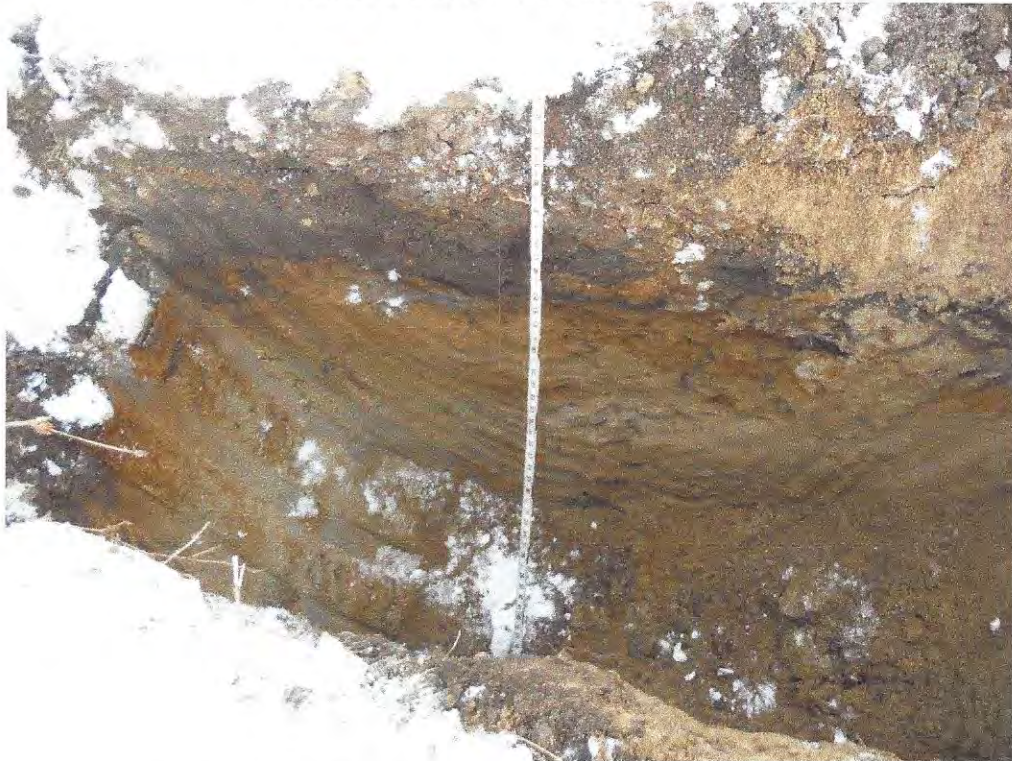
237/213
SE/CSS #

12-20-13
Date

Peter Holmes Site
off Warren Avenue
Portland, Maine



View of excavator near edge of upland



View of typical non-hydric, regraded soils on site (TP ST-4)

APPENDIX G

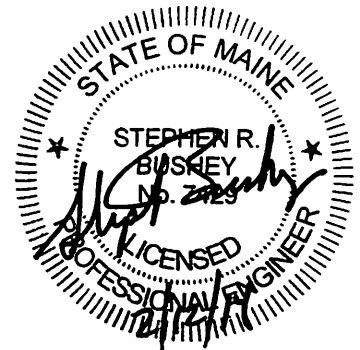
EROSION CONTROL PLAN

**BASIC STANDARDS
EROSION AND SEDIMENTATION CONTROL REPORT**

**421 WARREN AVENUE
COMMERCIAL COMPLEX**

PREPARED FOR:

**PH WARREN AVENUE, LLC
421 WARREN AVENUE
PORTLAND, MAINE 04101**



PREPARED BY:

**FAY, SPOFFORD & THORNDIKE, INC.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121**

FEBRUARY 2014

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5.0	DESCRIPTION AND LOCATION OF LIMITS OF ALL PROPOSED EARTH MOVEMENTS.....	2
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Figures and Photographs

Please refer to Section 1 of the Site Plan Application for Figures and Photographs

Appendices

- Appendix A – Seeding Plan
- Appendix B – Sample Erosion Control Compliance Certification and Inspection Forms
- Appendix C – DirtGlue™ Application and Use Requirements

1.0 INTRODUCTION

Fay, Spofford & Thorndike (FST) has been retained by Peter Holmes to assist on the preparation of site design and site permitting for a proposed 28,000 SF footprint multi-unit building in Portland, Maine. The development will include a new multi-unit building, 41 space parking lot and related infrastructure improvements. This proposed project will create a total of 2.53 ac of developed area of which 1.90 ac will be new structure area (building and other impervious surfaces) within the approximately 7.95 acre project watershed area analyzed. The landowner of this site also owns an approximate additional 40 acres surrounding this site.

The development site is located on the north side of Warren Avenue between Interstate 95 and Forest Avenue in Portland. The site is owned by PH Warren Avenue, LLC. A large portion of this site currently drains to a drainage way in the northeast quadrant of the site. Part of the southerly tip of the site drains into Warren Avenue and is collected by the City's municipal drainage system. A second part of the southerly end drains across to Harbour Auto-Body and is collected in a small detention pond before being routed into the city drainage system.

A USGS Map, Zoning, Aerial Photographs, Flood, Soils, figures are included in Section 1 of the Site Plan Application. The accompanying plan set includes erosion control details and overall erosion control plan.

This section of the permit application presents the Erosion Sediment Control Plan designed for the project. The erosion control plans will be contained in the contract documents for implementation by the Contractor who is awarded the bid for the project. This project is coordinated with the MeDEP erosion control requirements. The Contract documents will require that turbid discharges from the site do not occur. Fugitive dust emissions will be controlled and the requirements of this erosion control plan, and all permit requirements will be fulfilled. Winter construction may be required. Specific erosion controls stipulated by the plan and this report are minimum requirements.

2.0 EXISTING SITE CONDITIONS

The current site cover conditions are summarized in the table below:

SUMMARY OF LAND USE COVER	
Current Land Cover	Area (acre)
Woods/Meadow	5.75
Roof	0.28
Lawn	0.46
Pavement	0.67
Gravel	0.79
Total	7.95

3.0 EXISTING DRAINAGE FEATURES

The existing site is comprised of undeveloped woods, meadow and lawn area associated and gravel areas.

Topography is relatively flat within the site. A large portion of the site drains over a flat wetland area towards a tributary in the northeast quadrant of the site. About half of the area in the southern portion of the site drains towards Warren Avenue and is picked up by the City of Portland Municipal Stormwater System through a catch basin in the street. The other half flows towards an existing detention pond adjacent to Harbour Auto Body shop, which is located on property owned

by the applicant. Flow is released from this detention pond and is discharged to the City of Portland Stormwater System.

The preliminary geotechnical explorations by S.W. Cole Engineering in December 2013 show that the site contains fill soils over a layer of relic topsoil underlain by glaciomarine sands, silts and clays.

4.0 OVERVIEW OF SOIL EROSION AND SEDIMENTATION CONCERNS

The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. The “K” value is frequently used with the universal soil loss equation. The higher values are indicative of the more erodible soils. The relative K values of the underlying material at the site would be as follows:

Soil Symbol	Soil Description	“K” Value
Scantic	Silt Loam	0.49-0.64

The primary emphasis of the Erosion and Sedimentation Control Plan to be implemented for this project is as follows:

- **Temporary Measures:** Planning the project to have erosion resistant measures in place by implementing measures intended to prevent erosion from occurring.
- **Phasing Sequencing:** The plan includes measures to intercept and convey runoff to temporary sediment sumps and control devices as the construction of the project occurs. The use of small collection sumps with a clean sand filter above an underdrained discharge is recommended to supplement the principal sumps to help reduce turbidity.
- **Use of Type 1 Settling:** Installing sediment sumps and swales early in the construction sequence to provide secondary relief for erosion control measures within the site until late in the project when the sedimentation areas need to be removed for final restoration.
- **Restabilization:** Stabilization of areas denuded to underlying parent material must occur within stipulated time frame to minimize the period of soil exposure and stabilization of drainage paths to avoid rill and gully erosion.
- **Interim Entrapment:** The use of on-site measures to capture sediment (hay bales/silt fence, etc.) before it is conveyed to sediment sumps.
- **Long Term Site Protection:** The implementation of long-term measures for erosion/sediment and pollutant treatment through the construction of permanent water quality measures including gravel wetlands.
- **Special Winter Construction Measures:** These will be required for work between September 15 and April 15.

5.0 DESCRIPTION AND LOCATION OF LIMITS OF ALL PROPOSED EARTH MOVEMENTS

The construction of the project will disturb about 4 acres of land. The limit of disturbance is generally coincident with the limit of grading.

The earth moving will include trenching for underground utilities, excavation for the water quality measures, earthwork to reshape the perimeter of the site, earthwork to prepare and shape the parking lot, excavation attendant with the building, and excavation and borrow for the project improvements.

6.0 PROPOSED DRAINAGE FEATURES

The postdevelopment plan includes consideration and design for water quality treatment of stormwater runoff. These measures will also constitute the stormwater management provisions for the development.

Certain manholes on the project provide flow management by directing stormwater to different areas and by regulating the discharge rates for various points of analysis.

The proposed cover conditions for the site upon completion of the project will be as follows:

TABLE 2 – POSTDEVELOPMENT LAND USE		
Proposed Land Cover	Area (acre)	Change from Current (acre)
Woods/Meadow	4.38	-1.37
Roof	0.92	+0.64
Lawn/Landscaped Planting Areas	0.66	+0.20
Pavement	1.77	+1.17
Gravel	0.22	-0.57
Total	7.95	

7.0 CRITICAL AREAS

Critical resource areas include nearby wetlands to the north of the site. No special species habitats have been identified on the interior areas of the site. It is noted that the stormwater systems shall not be activated until the tributary areas have been stabilized and at least three weeks has passed subsequent to placement of bituminous concrete paving materials.

8.0 EROSION/SEDIMENTATION CONTROL DEVICES

As part of the site development, the Contractor will be obligated to implement the following erosion and sediment control devices. These devices shall be installed as indicated on the plans or as described within this report. For further reference on these devices, see the *Maine Department of Environmental Protection Erosion and Sediment Control BMPS Manual (March, 2003)*.

1. Siltation fence or an erosion control mix berm shall be installed down slope of any disturbed areas to trap runoff borne sediments until the site is revegetated. The silt fence shall be installed per the detail provided in the plan set and inspected immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the fence line. If such erosion is observed, the Contractor shall take proactive action to identify the cause of the erosion and take action to avoid its reoccurrence. Typically, this requires that stabilization measures be undertaken. Proper placement of stakes and keying the bottom of the fabric into the ground is critical to the fence's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not directed to the silt fence.

2. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulching should be occurring several times per week when the site construction activity is high and at sufficient intervals to reduce the period of exposure of bare soils to the time limits set forth in this plan. Mulch placed on slopes of less than 10 percent shall be anchored by applying water; mulch placed on slopes steeper than 10 percent shall be covered with fabric netting as immediately after mulching as practicable and anchored with staples in accordance with the manufacturer's recommendations. Proposed drainage channels, which are to be revegetated, shall receive Curlex® blankets by American Excelsior Company selected for the slope, velocity, and whether the measure is temporary or intended to be in place for a sustained period. Mulch application rates are provided in Appendix A of this section. Hay mulch shall be available on site at all times in order to provide immediate temporary stabilization when necessary. Where necessary, a windrow of crushed stone and/or gravel shall be placed at the top of the slope and directed to a temporary stone channel or pipe sluice to convey runoff down slopes. A dissipation device such as stone or a plunge pool should be installed at the base of the slope and sluice outlet to dissipate the energy of the water from the sluice or channel.
3. Temporary sediment sumps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved. The sediment sumps need to include a sand filter above an underdrain or a chemical coagulant to remove fine-grained sediment. Appropriate measures to reduce sediment suspended in discharges to less than 280 NTU's will be required.
4. Riprap slopes, ditch linings, stone check dams, hay bale barriers, and culvert outlet aprons are intended to stabilize and protect denuded soil surfaces or dissipate the energy and erosive forces from concentrated flows. Installation details and stone sizes are provided in the construction plan set on the erosion control detail sheets.
5. A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent local roads and streets and the existing driveway for 429 Warren Avenue.
6. Stone sediment traps or a premanufactured SiltSack™ and a sediment bag will be installed at catch basin inlets to prevent silt from entering the municipal storm drain system. Installation details are provided in the plan set on the erosion control detail sheets.
7. Dirtbags™ will be required to be on site and available for construction dewatering. The Contractor will be required to provide two Dirtbags™ with one prepared for operation prior to commencing any trenching operations. Dirtbags™ will need to be installed above filter sand and crushed stone in accordance with the details shown on the plan set will need to be installed.
8. Loam and seed is intended to serve as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Specific areas as shown on the landscape plan may receive sod. Application rates are provided in Appendix A of this section for temporary and permanent seeding.
9. Stone check dams will be installed in areas noted on the plan or as warranted, based upon observations during construction of the site.
10. Silt logs are an option for stone check dams and may be substituted provided the devices are well anchored.
11. DirtGlue™ is an acceptable means of temporary stabilization and is intended to form a "crust" on the surface that is resistant to erosion. However, applications where DirtGlue™ is used must be protected from traffic that would crack the "crust" and the DirtGlue™ has temperature

limitations that restrict the periods of use. Use of this material shall conform to the requirements of Appendix D.

12. Wattles (constructed of rice straw) are to be used for small areas where the surface is irregular and where an immediate measure is needed to protect downstream measures.

9.0 TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES

The following are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone-stabilized construction entrances shall be placed at any construction access points from adjacent streets or the existing 429 Warren Avenue driveway. The location of the construction entrance shown on the drawings should be considered illustrative and will need to be adjusted as appropriate and located at any area where there is the potential for tracking of mud and debris onto existing roads or streets. Stone stabilized construction entrances will require the stone to be removed and replaced, as it becomes covered or filled with mud and material tracked by vehicles exiting the site.
2. Dirtbags™ shall be installed in accordance with the details in the plan set. The purpose of the Dirtbags™ is to receive any water pumped from excavations during construction. A Dirtbag™ shall be installed and prepared for operation prior to any trenching or foundation construction on site. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone and filter sand under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.
3. Temporary stockpiles of common excavation will be protected as follows:
 - a) Temporary stockpiles shall not be located at least 50 feet upgradient of the perimeter silt barrier.
 - b) Inactive stockpiles shall be stabilized within 5 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch. If necessary, mesh shall be installed to prevent wind from removing the mulch.
4. All denuded areas except gravel areas shall receive mulch, erosion control mesh fabric, or other approved temporary erosion sediment measure within 7 days of initial disturbance of soil or before a predicted rain event of $>1/2$ " unless permanent measures are installed.
5. All soils disturbed between September 15 and April 15 will be covered with mulch within 5 days of disturbance, prior to any predicted storm event of the equivalent of $1/2$ " of rainfall in a 24-hour period, or prior to any work shutdown lasting more than 35 hours (including weekends and holidays). The mulch rate shall be double the normal rate.

For work that is conducted between September 15 and April 15 of any calendar year, all denuded areas will be covered with hay mulch, applied at twice the normal application rate, and (in areas over 10% grade) anchored with a fabric netting. The time period for applying mulch shall be limited to 5 days for all areas, or immediately in advance of a predicted rainfall event.
6. Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations.
7. Silt fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The

bottom of the fence should be properly anchored a minimum of 6" per the plan detail and backfilled. Any silt fence identified by the owner or reviewing agencies as not being properly installed during construction shall be immediately repaired in accordance with the installation details.

8. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or a premanufactured SiltSack™. Stone sediment barrier installation details are provided in the plan set. The barriers or SiltSacks™ shall be inspected after each rainfall and repairs made as necessary, including the removal of sediment. Sediment shall be removed and the barrier or SiltSack™ restored to its original dimensions when the sediment has accumulated to one-half the design depth of the barrier. Sediment shall be removed from SiltSacks™ as necessary. Inlet protection shall be removed when the tributary drainage area has been stabilized.
9. All slopes steeper than 4:1 shall receive erosion control mesh.
10. Slopes steeper than 3:1 shall receive erosion control blanket.
11. Areas of visible erosion and the temporary sediment sumps shall be stabilized with crushed stone. The size of the stone shall be determined by the contractor's designated representative in consultation with the Owner.
12. Any flow from the site that is concentrated must be directed to a sump with sand filter and underdrained discharge.
13. Underground utilities must be installed in compliance with the following standards and other requirements of this erosion control plan:
 - No more than 500 linear feet of trench may be opened at one time;
 - Excavated materials shall be placed on the uphill side of trenches;
 - Dewatering of the trench shall be pumped through a Dirtbag™ and appropriate sediment control facilities to avoid a turbid discharge; and
 - Stabilization shall occur as soon as practicable.
14. Rice straw wattles shall be used to control localized erosion.
15. Maintenance of the erosion control, sedimentation facilities, and control of fugitive dust must occur until the site is stabilized with permanent erosion control measures. For turf areas, stabilization shall be defined to be the establishment of a 90 percent "catch of grass" with no areas larger than 2 square feet, and no spots that cumulatively add up to more than 5 square feet per 100 square feet.

10.0 STANDARDS FOR STABILIZING SITES FOR THE WINTER

The construction of the project will require winter construction. The project is anticipated to require about 11-12 months to construct. For permitted winter construction, the erosion control measures are substantially more stringent due to the cold temperatures and lack of weather conditions which aid in drying the subgrade soils through evaporation.

If construction activities involving earth disturbance continue past September 15 or begin before April 15, the following must be incorporated with the erosion control plan and implementation:

1. Enlarged access points must be stabilized to provide for snow stockpiling.

2. Limits of disturbance shall be reduced to the extent practicable.
3. A snow management plan including adequate storage and control of snowmelt, requiring cleared snow to be stored downgradient of all areas of disturbance shall be prepared by the contractor and submitted to the Owner for review and approval.
4. Snow shall not be stored in sediment basins or to preclude drainage structures from operating as intended.
5. A minimum 25-foot buffer maintained from perimeter controls such as silt fence shall be maintained on the “work area side” to allow for snow clearing and maintenance.
6. Drainage systems intended to operate during the winter shall be catalogued, shown on a plan, and inspected after each snow removal period to make sure the drainage structures are open and free of snow and ice dams.
7. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
 - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
 - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
8. Standard for the timely stabilization of ditches and channels: The Contractor shall construct and stabilize all stone-lined ditches and channels on the site by September 15. The contractor shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the Contractor fails to stabilize a ditch or channel to be grass-lined by September 1, then the Contractor shall take one of the following actions to stabilize the ditch for late fall and winter.
 - i. Install a sod lining in the ditch. The contractor shall line the ditch with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.
 - ii. Install a stone lining in the ditch. The contractor shall line the ditch with stone riprap by September 15. The contractor shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the Contractor shall regrade the ditch prior to placing the stone lining so as to prevent the stone lining from reducing the ditch’s cross-sectional area.
9. Standard for the timely stabilization of disturbed slopes: The Contractor shall construct and stabilize stone-covered slopes by September 15. The Contractor shall seed and mulch all slopes to be vegetated by September 1. The Department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the Contractor fails to stabilize any slope to be vegetated by September 1, then the Contractor shall take one of the following actions to stabilize the slope for late fall and winter.
 - i. Stabilize the soil with temporary vegetation and erosion control mesh. By September 15, the Contractor shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The contractor shall 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 slope by September 15,

then the Contractor shall cover the slope with a layer of wood waste compost as described in item iii of this standard or with stone rip rap as described in item iv of this standard.

- ii. Stabilize the slope with sod. The Contractor shall stabilize the disturbed slope with properly installed sod by September 15. 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 33% (3H:1V) or having groundwater seeps on the slope face.
 - iii. Stabilize the slope with wood waste compost. The Contractor shall place a six-inch layer of wood waste compost on the slope by September 15. Prior to placing the wood waste compost, the Contractor shall remove any snow accumulation on the disturbed slope. The contractor shall not use wood waste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.
 - iv. Stabilize the slope with stone rip rap. The Contractor shall place a layer of stone riprap on the slope by September 15. The Contractor shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.
10. Standard for the timely stabilization of disturbed soil: By September 1, the Contractor shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the Contractor fails to stabilize these soils by this date, then the Contractor shall take one of the following actions to stabilize the soil for late fall and winter.
- i. Stabilize the soil with temporary vegetation. By September 15, the Contractor shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1,000 square feet, and anchor the mulch with plastic netting. The Contractor shall monitor the 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 September 15, then the Contractor shall mulch the area for over-winter protection as described in item iii of this standard.
 - ii. Stabilize the soil with sod. The Contractor shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the Contractor 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.
 - iii. Stabilize the soil with mulch. By September 15, the Contractor shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1,000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the Contractor shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the Contractor shall anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.
 - iv. Stabilize all stockpiles with mulch within 24 hours.

11.0 SPECIAL MEASURES FOR SUMMER CONSTRUCTION

The summer period is generally optimum for construction in Maine, but it is also the period when intense short duration storms are most common, making denuded areas very susceptible to erosion,

when dust control needs to be the most stringent, and when the potential to establish vegetation is often restricted by moisture deficit. During these periods, the Contractor must:

1. Implement a program to apply dust control measures on a daily basis except those days where the precipitation exceeds 0.25 inch. This program shall extend to and include adjacent streets used by construction vehicles.
2. Spray any mulches with water after anchoring to dampen the soil and encourage early growth. Spraying may be required several times. Temporary seed may be required until the late summer seeding season.
3. Mulch, cover, and moisten stockpiles of fine-grained materials, which are susceptible to erosion. In the summer months, the potential for wind erosion is of concern, as well as erosion from the intense, short-duration storms, which are more prevalent in the summer months.
4. Take additional steps needed to control fugitive dust emissions to minimize reductions in visibility and the airborne disbursement of fine-grained soils. This is particularly important along the adjacent streets.

These measures may also be required in the spring and fall during the drier periods of these seasons.

12.0 SEDIMENTATION SUMPS

The sediment sumps shall be sized in accordance with the plan and specifications. The bottom of the sumps is intended to be used for temporary infiltration.

Discharge must be through a sand filter over an underdrained outlet to aid in the control of turbidity levels in the discharge. An emergency bypass shall be included and shall be constructed of 6" of stone overlaying filter fabric and discharge to undisturbed turf.

13.0 PERMANENT EROSION CONTROL MEASURES

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. The drainage conveyance systems have been designed to intercept and convey the 25-year storm. In the case of open channels or swales, this includes the design of measures to resist scour of the channel.
2. All storm drainpipes shall have stabilization at their outlet to protect the outlet and receiving channel of the culverts from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized prior to directing runoff to the tributary pipe or culvert. Orifices in hydraulic control structures will be protected with a wire mesh screen with an opening of no more than 25 percent of the orifice size and a surface area of at least 25 times the area of the orifice.
3. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.), will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. Native topsoil and wetland soils shall be stockpiled and temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality.

4. Permanent seeding shall be conducted only in April through May and in late summer until September 15.
5. A riprap plunge pool will be installed at the stormwater management discharges at the wetland edge to disperse the flows.

14.0 TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES

The Contractor must control fugitive dust emissions respect and not impede the neighboring land uses while controlling sediment laden runoff to 280 NTU or less. For all grading activities, the Contractor shall exercise extreme caution not to overexpose the site by limiting the disturbed area and shall stabilize any steep slopes within 24 hours if final slope grading and stabilization will not be completed within 7 days. Any final slopes shall have the specified erosion control measures installed within 7 days of final stabilization.

The following construction sequence shall be required, (unless otherwise authorized in writing by the Owner's project manager or authorized permit agent).

The description of the work is:

- Mark the Phase 1 work limits.
- Install safety fence and security signs around the perimeter of the site.
- Establish and install construction entrances with gates.
- Install silt fence or equivalent sediment barrier along the perimeter and other designated areas requiring silt fence or equivalent sediment barrier.
- Establish Dirtbag® area and pump system for dewatering activities.
- Construct sedimentation facilities with riprap discharge locations.
- Construct a diversion swale(s) to direct as much of the site to the sedimentation basins as possible.
- Install temporary seed and mulch around the perimeter of the temporary sedimentation facilities.

There is more flexibility for the contractor to schedule the work provided once the erosion control measures are in place. The measures shown on the erosion control drawing of the plan set are the measures that need to be installed as soon as practicable during construction in subsequent phases.

The underground facilities and treatment units shall not be activated until authorized by the design engineer or a certified erosion control professional who has signed an affidavit indicating they have reviewed the plans, Stormwater Management, Erosion Sediment Control Plan, Stormwater O&M Manual, and any State and Local site permits issued for the project.

15.0 CONTRACTING PROCEDURE

The onsite components of the project will be constructed by a General Contractor under contract to the Developer. Offsite improvements may be constructed by a General Contractor under contract to the owner. The Contractor shall submit a schedule for the completion of the work, which will satisfy the following criteria:

1. The construction sequence of Section M should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to prevent the duration of areas exposed or susceptible to erosion as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as sediment barriers and construction entrances in place before large areas of land are denuded.
2. The work shall be conducted in sections which will:
 - a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the preceding 30 days.
 - b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading and temporarily stabilized within 7 days of initial disturbance or before a predicted storm event of over ½" of rain.
 - c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.
 - d) Achieve the parking space numbers indicated in the construction phasing.
3. Once final grade has been established, the Contractor may choose to dormant seed the disturbed areas prior to placement of mulch and placement of fabric netting anchored with staples.
 - a) If dormant seeding is used for the site, all disturbed areas shall receive 6" of loam and seed at an application rate of 5#/1,000 s.f.

All areas seeded during the winter months will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) shall be revegetated by replacing loam, seed, and mulch.
 - b) If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.
4. The area of denuded, non-stabilized construction shall be limited to the minimum area practicable. An area shall be considered to be denuded until the subbase gravel is installed in parking areas, or the areas of future loam and seed have been loamed, seeded, and mulched. The mulch rate shall be twice the rate specified in the seeding plan. [For example, 115#/1,000 s.f. x 2 = 230#/s.f.]
5. Within the exposed work area, temporary sedimentation sumps shall be provided any concentrated flow area with sand filter or chemical coagulation. Additional information is provided in prior sections of this narrative and on the Erosion Control Details of the plan set. Along the sedimentation sumps, barriers shall be provided at sufficient intervals to permit runoff to be accumulated to a maximum depth of 12" before overflowing.
6. The schedule shall be subject to the approval of the Owner.

7. The Contractor must maintain an accurate set of record drawings indicating the date when an area is first denuded, the date of temporary stabilization, and the date of final stabilization. On September 15 of any calendar year, the Contractor shall submit a detailed plan for stabilizing the site for the winter and a description of what activities are planned during the winter.
8. The Contractor must install any added measures which may be necessary to control erosion/sedimentation and fugitive dust emissions from the site, with adjustments made dependent upon forecasted and actual site and weather conditions.
9. The Contractor shall note that no area within 50 feet of a slope with a vertical drop of more than 3' in 50 feet shall remain denuded for a period of over 5 days before it is temporarily stabilized. Temporary stabilization shall be the installation of mulching. All other areas shall be stabilized within 7 days or before a predicted rain event. For construction between September 15 and April 15 of any calendar year, all areas shall be temporarily stabilized at the earlier time frames specified above.
10. Certain erosion control products (such as DirtGlue™) come in a form that a release could occur on the site or into the environs. The Contractor shall include MSDS information for all products that have the potential for release to the environment and shall be responsible for implementing a safety control program for proper handling of these materials on the site.
11. A notice and point of contact with cell phone number shall be posted at the trailer to permit access to the erosion records during normal work hours and in case of emergency at other times. All additions and construction records shall be copied via e-mail to the Owner.

The Owner reserves the right to add additional personnel to this list at the pre-construction conference or at reasonable intervals during the project.
12. The Owner will provide a copy of the Maine Construction General Permit Notice of Intent acceptance letter to the Contractor. This letter shall be maintained at the site with the Erosion Control Plan.
13. Any revisions to the Erosion Control Plan must be authorized in writing by the Preparer of the Plan (Fay, Spofford & Thorndike). The Preparer of the Plan shall be permitted reasonable time to review and notify the city and other agencies of said changes. Revisions to the Erosion Control Plan will be required:
 - a. Whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater *discharges* from the site;
 - b. Whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
 - c. To address issues or deficiencies identified during an inspection by the *qualified inspector*, the MaineDEP, City of Portland, or other regulatory authority.
14. Should the Owner notify the contractor that the activity on the site is in violation of the Erosion Control Plan, the Contractor shall at its sole cost correct the deficiencies and file a photographic log with a list of corrective actions with the Owner within 7 days of notification by the Owner.
15. The Contractor shall engage a qualified inspector to monitor the work. This inspector shall be approved by the Owner prior to the individual being engaged on the project. This inspection

shall be a part of the Contractor's Quality Control Plan for the project by the Contractor. The inspector's qualifications and duties that he shall perform are as follows:

- a. Licensed Professional Engineer or Certified Professional in Erosion Control
- b. Covered by Workman's Compensation Insurance
- c. Experienced in this type of work, the specific erosion controls applicable to this project with a resume approved by the engineer
- d. Compensated on a unit rate basis with no incentives for reduced costs or subject to any type of compensation for passing inspections
- e. Approved by the Owner and the preparer of this plan

The *qualified inspectors* shall conduct site inspections in accordance with the following timetable:

- a. Where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
- b. Where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the City's stormwater contact person or, in areas under the jurisdiction of a *regulated traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity) in writing prior to reducing the frequency of inspections.
- c. Where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the Erosion Control requirements and are operational. The *owner or operator* shall notify the City's stormwater contact person in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the Contractor shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed, and that all post-construction stormwater management practices have been constructed in conformance with the Erosion Control Plan by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination. The *owner or operator* shall then submit the completed Notice of Termination form to the City of Portland and MaineDEP.

At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the Contract documents and Permit conditions, all areas of disturbance that have not achieved *final stabilization*, all points of discharge to natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather which shall be consistent with the National Weather Service Forecast Office, Portland-Gray, ME and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of discharge from the construction site and sampling to determine the turbidity in NTU's. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any *discharge* of sediment to the surface water body;
- f. Identification of all erosion and sediment control practices that need repair or maintenance;
- g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
- k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

Within one business day of the completion of an inspection, the *qualified inspector* shall notify the owner the appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame, at its sole cost.

All inspection reports shall be signed by the *qualified inspector*. The inspection reports shall be maintained on site.

16. The Owner reserves the right to have quality assurance monitoring of the work. The Contractor shall, at its sole cost, cooperate with the Owner and their quality assurance monitoring of the work including maintaining an accurate schedule for performing the work. The Owner will notify the contractor if any particular elements of the work should be uncovered or available for observation by the Quality Assurance Monitor selected by the Owner. The Owner reserves the right to conduct the quality assurance monitoring during working hours at any time during the project.

16.0 PROVISIONS FOR MAINTENANCE OF THE EROSION/SEDIMENTATION CONTROL FEATURES

The project will be contracted to a General Contractor. The project is subject to the requirements of the local permits, and a state regulated Construction General Permit and City of Portland Site Plan Approval.

This project requires the Contractor to prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection, and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. Specific responsibilities of the inspector(s) will include:

1. Execution of the Contractor/Subcontractor Certification contained in Appendix B by any and all parties responsible for erosion control measures on the site as required by the permit authorities.
2. Assuring and certifying the Owner's construction sequence is in conformance with the specified schedule of this section. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirements of this section shall be prepared and signed by the inspector(s).
3. In addition to the weekly certifications, the inspector(s) shall maintain written reports recording construction activities on site which include:
 - Dates when major grading activities occur in a particular areas.
 - Dates when major construction activities cease in a particular area, either temporarily or permanently.
 - Dates when an area is stabilized.
4. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inch or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:
 - Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.
 - Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.
 - Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.

- Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 90 percent is required prior to removal of erosion control measures.
 - All erosion controls shall be removed within 30 days of permanent stabilization except for mulch and netting not detrimental to the project. Removals shall include but not be limited to all silt fence, hay bales, inlet protection, and stone check dams.
 - Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.
 - Silt sacks should be removed and replaced at least every three months and at any time where the weekly inspection reveals that siltation has significantly retarded the rate of flow through the silt sack.
 - Discharges should be measured during storm events to document the turbidity of stormwater discharge is <280 NTU.
5. If inspection of the site indicates a change should be made to the erosion control plan, to either improve effectiveness or correct a site-specific deficiency, the inspector shall immediately implement the corrective measure and notify the Owner of the change.
 6. Arranging for an on-site meeting prior to commencing winter construction to assure that all special winter construction measures will be implemented and to review the specific requirements of this plan for winter construction.

All certifications, inspection forms, and written reports prepared by the inspector(s) shall be filed with the Owner, and the Permit File contained on the project site. All written certifications, inspection forms, and written reports must be filed within one (1) week of the inspection date.

The Contractor has sole responsibility for complying with the erosion/sediment control report, including control of fugitive dust, and shall be responsible for any monetary penalties resulting from failure to comply with these standards.

Once construction has been completed, long-term maintenance of the stormwater management system will be the responsibility of the applicant. Inspection and Maintenance items with a list of maintenance requirements and frequency are described in a separate document. In the event of defective workmanship or any failure by the contractor and its subcontractors to adhere to the Standards set forth in these documents, the Contractor shall be responsible to correct, at its sole cost, any latent defects together with reimbursement of Owner for any expenses borne by the Owner up to the time of said correction. This provision shall remain in effect beyond any stated or implied warranty period.

17.0 PRECONSTRUCTION CONFERENCE

Prior to any construction at the site, representatives of the Contractor, the Owner, and the site design engineer and any personnel identified in the permit conditions shall meet to discuss the scheduling of the site construction and the designation of the responsible parties for implementing the plan. The Contractor shall be responsible for scheduling the meeting. Prior to the meeting, the Contractor will prepare a detailed schedule and a marked-up site plan indicating areas and components of the work and key dates showing date of disturbance and completion of the work. The Contractor shall conduct a meeting with employees and sub-contractors to review the erosion control plan, the construction techniques which will be employed to implement the plan, and provide a list of attendees and items

discussed at the meeting to the Owner. Three copies of the schedule, the Contractor's meeting minutes, and marked-up site plan shall be provided to the Owner.

18.0 APPENDICES

Appendix A – Seeding Plan

Appendix B –Sample Erosion Control Compliance Certification and Inspection Forms

Appendix C –DirtGlue™ Application and Use Requirements

19.0 PLAN REFERENCES

Drawings C-5.0 & C-6.0 to C-6.2 Erosion/Sediment Control Plan and Details

APPENDIX A

Seeding Plan

PERMANENT SEEDING PLAN (TURF AROUND PERIMETER)

Project: 421 Warren Avenue Commercial Complex

Site Location: Portland, Maine

X Permanent Seeding Temporary Seeding

1. **Area to be Seeded:** Approximately 1.0 acre(s) or 40 /M. Sq. Ft.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method use (do not overcompact).
3. **Apply Lime as Follows:** #/acres or 138# /M Sq. Ft. or per soil test
4. **Fertilize:** pounds of - N-P-K/ac.
20 pounds of 3-27-5 N-P-K/M Sq. Ft. or per soil test
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the following mixture:**
30% Perennial Rye
35% Kentucky Bluegrass
35% Penn Lawn Tall Fescue
7. **Mulching Instructions:** Apply at the rate of tons per acre or 115 pounds per M. Sq. Ft.
8. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	8.0	#/1,000 s.f.
Total Mulch	115	#/1,000 s.f.
Total Other	0	0

9. **Remarks:**

Seeding dates April 15 to May 31 and August 1 until September 1. Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis.

Deep tine aerate if soil is compacted.

If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 6%.

TEMPORARY SEEDING PLAN (EROSION CONTROL MIX)

Project: 421 Warren Avenue Commercial Complex

Site Location: Portland, Maine

X Permanent Seeding X Temporary Seeding

1. **Area to be Seeded:** Approximately 0.5 acre(s) or ____/M. Sq. Ft.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.
3. **Apply Lime as Follows:** ____ #/acres or 138#/M Sq. Ft. or per soil test
4. **Fertilize:** ____ pounds of _____ - _____ N-P-K/ac.
20 pounds of 10-10-10 N-P-K/M Sq. Ft. or per soil test
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the following mixture:**
Annual Rye-grass 50%
Timothy 25%
Winter Rye 25%
7. **Mulching Instructions:** Apply at the rate of ____ tons per acre or 230 pounds per M. Sq. Ft.
8. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	1	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

9. Remarks:

For areas with slopes >10% and fall and winter erosion control areas, mulch netting shall be used per manufacturer's specifications.

Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 6%.

APPENDIX B

Sample Erosion Control Compliance Certification and Inspection Forms

**MAINE CONSTRUCTION GENERAL PERMIT
CONTRACTOR/SUBCONTRACTOR CERTIFICATION**

PROJECT INFORMATION

Project Name: 421 Warren Avenue Commercial Complex
Address: Portland, Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Firm Name:
Address:
Telephone:
Type of Firm:

CERTIFICATION STATEMENT

“I certify under penalty of law that I understand the terms and conditions of the Maine Construction General Permit (MCGP) permit that authorizes the stormwater discharges associated with construction activity from the project site identified as part of this certification.”

Signature

Typed Name

Title

Date

MAINE CONSTRUCTION GENERAL PERMIT

INSPECTION REPORT

PROJECT INFORMATION

Project Name: 421 Warren Avenue Commercial Complex
Address: Portland, Maine

INSPECTOR INFORMATION

Inspector Name: _____
Firm: _____
Title: _____
Qualifications: _____
Weather and Soil Conditions: _____

INSPECTION SUMMARY

Date of Inspection: _____
Major Observations: _____

1. Attach the following to the Report:

- a. A description of the condition of the runoff at all points of discharge from the construction site and sampling to determine the NTU. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- b. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any discharge of sediment to the surface water body;
- c. Identification of all erosion and sediment control practices that need repair or maintenance.
- d. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- e. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

- f. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPP and technical standards;
 - g. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
 - h. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
2. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the owner the appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
 3. All inspection reports shall be signed by the *qualified inspector*. The inspection reports shall be maintained on site and distributed via email at the time of filing.

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN (MUST BE SUBMITTED WITHIN 2 DAYS OF INSPECTION TO OWNER FOR APPROVAL):

CERTIFICATION STATEMENT:

“I certify under penalty of law that this document and all Appendices were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Signature

Typed Name

Title

Date

APPENDIX C

DirtGlue™ Application and Use Requirements

DIRTGLUE™
APPLICATION INSTRUCTIONS FOR DUST CONTROL

METHODOLOGY

A. Heavy Duty Driving Surface

Application Rates (per surface acre)

<i>DirtGlue</i> ™ Polymer Emulsion:	2,400 gallons/acre
Water:	3,600 -14,400 gallons/acre

Application Process

1. Loosen the existing soil using a scarifying attachment mounted on a grader (or similar piece of equipment) or a tractor with an agriculture disk attachment. If additional soil is required, it should be applied and mixed into the existing soil at this time. It is important to loosen the soil to ensure penetration of the *DirtGlue*™/water mixture into the soil.
2. Apply *DirtGlue*™/water mixture to soil using a water truck equipped with a gravity feed drip bar, spray bar, or automated distributor truck. Multiple passes will be necessary to get the desired amount of *DirtGlue*™ polymer emulsion for the specific application. Multiple passes will also ensure gradual, thorough saturation of the soil.
3. Thoroughly blend the *DirtGlue*™/water mixture into the soil with a rototiller, “S” harrow, or similar attachment. The soil must be evenly mixed and saturated with the *DirtGlue*™/water mixture to a depth of four (4”) inches.
4. Grade the soil to finish grade with a grader, a small dozer or other suitable equipment.
5. Compact the soil with a vibratory roller. The final compaction should be greater than asphalt (Strive for 100% compaction, but always in excess of 95%).
6. Immediately after compacting, apply a topcoat of *DirtGlue*™ polymer emulsion to seal the road surface. In order to ensure a longer life and superior performance of the application, an additional coat should be applied between twenty four to forty eight hours after completion and then annually as an ongoing maintenance procedure. This topcoat should be applied at a rate of 250 gallons per surface acre.

B. Temporary Light Duty Driving Surface

This type of application will provide acceptable performance when used by cars and light trucks. It is not intended for constant use by heavy-duty trucks and/or tracked construction equipment. Areas that will be used by this type of equipment should be treated as a heavy-duty application as noted above.

Application Rates (per surface acre)

<i>DirtGlue</i> ™ Polymer Emulsion:	1,200 gallons/acre
Water:	3,600-6000 gallons/acre

Application Process:

1. Loosen the existing soil for a depth of two (2”) inches using a scarifying attachment mounted on a grader (or similar piece of equipment) or a tractor with a rototiller or agriculture disk attachment. If additional soil is required, it should be applied and mixed into the existing soil

at this time. It is important to loosen the soil to ensure penetration of the **DirtGlue™**/water mixture into the soil.

2. Apply **DirtGlue™**/water mixture to soil using a water truck equipped with gravity feed drip bar, spray bar, or automated distributor truck. Multiple passes will be necessary to get the desired amount of **DirtGlue™** polymer emulsion for the specific application. Multiple passes will also ensure gradual, thorough saturation of the soil. Do not apply the **DirtGlue™**/water mixture so heavy as to create run-off.
3. Grade the soil to finish grade with a grader, a small dozer or other suitable equipment.
4. Compact with a vibratory roller. The final compaction should be greater than asphalt (Strive for 100% compaction, but always in excess of 95%).
5. Immediately after compacting, apply a topcoat of **DirtGlue™** polymer emulsion to seal the road surface. In order to ensure a longer life and superior performance of the application, an additional coat should be applied between twenty four to forty eight hours after completion and then again annually as an ongoing maintenance procedure.

C. **Dust & Erosion Control (Non-driving Areas)**

This type of application is intended for pedestrian use only. Vehicular use will break through the skin and adversely affect the performance of the application. Areas that will require any vehicular use should be treated as a light-duty application as noted above or retreated as traffic damage occurs.

Application Rates (per surface acre)

<i>DirtGlue™</i> Polymer Emulsion:	300 gallons (windblown dust control) 600 gallons (bank stabilization, erosion/silt, run-off control)
Water:	2,000-6,000 gallons

Application Process

1. Apply *DirtGlue™*/water mixture to existing soil using a water truck equipped with a gravity feed spray bar or tank and pump (i.e. hydro seeder).
2. Add *DirtGlue™* to water rather than water to *DirtGlue™* or place a fill hose at bottom of tank, underneath surface of liquid to prevent foaming.
3. When applying *DirtGlue™*/water mixture, dispense large droplets. Avoid any fine mist. The intent is to apply a sheet of liquid onto the soil.
4. It is important to determine the moisture content of the soil prior to starting an application. The moisture content will have an effect on the dilution ratio of the *DirtGlue™*/water mixture. Your *DirtGlue™* representative will assist you in determining the correct dilution ratio for the conditions on your site.
5. Temperature and, to a lesser extent, humidity have a significant effect on curing/drying time. Testing has shown that applications should be done only when the air temperature will be above 50° F for at least 72 hours following the application. Soil temperature must be above 40° F for several days.
6. The *DirtGlue™* application must be protected from the rain until the curing process has formed a skin on the surface. Uncured *DirtGlue™* is water soluble. If the application is exposed to rain before it has the opportunity to cure, the rainwater will dilute the polymer and wash it out of the soil. If this happens, the application will not be as strong.

**CONDITIONS FOR USE OF DIRTGLUE™ (REGISTERED TRADEMARK OF
DIRTGLUE™ ENTERPRISES)
APPROVED MATERIALS LIST**

Applicant: DirtGlue™ Enterprises

General Conditions

1. DirtGlue™ Enterprises shall ensure that every applicator of DirtGlue™ is provided a copy of these conditions.
2. These Conditions do not override the need for any applicator to obtain permits (including DEP permits) or approvals that may be required (e.g., use associated with activities in or near regulated wetlands, surface waters, or other regulated natural resources).
3. DirtGlue™ shall only be used as stated in these conditions and shall not be mixed with any other chemicals, including petroleum products.
4. No application shall be conducted when the National Weather Service forecasts greater than 25% probability of precipitation in the application area to occur within 24 hours, or the temperature will drop below 35° F anytime within 24 hours after the application.
5. Applications shall not be conducted when the ground is saturated (due to precipitation or wetting) as defined by visible pools of water at or in the vicinity of the application, in order to prevent movement of DirtGlue™ beyond the shoulder of the road.
6. DirtGlue™ must not be applied or handled in a manner that could result in spillage or application within 100 feet of a wetland regulated by New York State, or 50 feet of all other water bodies and bridges.
7. Any spill which could enter the waters of the state shall be reported to the DEC Spills Hotline within two hours (1-800-457-7362). Any required response (including any needed cleanup) in addition to that being conducted shall then be determined by the DEC regional office.
8. The time of application shall be chosen to take meteorological conditions into account, to avoid significant potential airborne or odor impacts.
9. Prior to application, DirtGlue™ Material Safety Data Sheet shall be provided to applicators and others who would come in proximity or contact with the material.

APPENDIX H

INSPECTION & MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT AND RELATED STORMWATER FACILITIES

**INSPECTION AND MAINTENANCE MANUAL
FOR STORMWATER MANAGEMENT AND
RELATED STORMWATER FACILITIES**

**421 WARREN AVENUE COMMERCIAL COMPLEX
PORTLAND, ME**

PREPARED FOR:

**PH WARREN AVENUE, LLC
401 WARREN AVENUE
PORTLAND, MAINE 04101**

PREPARED BY:

**FAY, SPOFFORD & THORNDIKE, INC.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121**

APRIL 2014



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APPENDICES

Attachment A – Sample Inspection Logs

Attachment B – Permits for Project

Attachment C – Summary Checklist for Inspection and Maintenance

I. SUMMARY

The proposed Warren Avenue Commercial Complex is subject to the City of Portland's Performance Standards for Stormwater Management, specifically, contained in Section 27-1536 of the City's Code of Ordinances. The responsibilities and requirements for monitoring and reporting a development's stormwater management system are more fully outlined on the following narrative. This Inspection and Maintenance Manual is intended to be a tool for reference by the development's owner/operator and their third party inspector as they perform required inspections and system maintenance.

II. INTRODUCTION

Relatively complex stormwater management facilities are commonly installed in development projects including commercial facilities, and many other developments. The complexity and goals of these systems vary with the nature of the receiving water, as well as the type of development. Runoff from developed areas of the project, including rooftops, paved or lawn areas typically contain materials that can impact the receiving waters. Source control and the installation of wet ponds, infiltration galleries, and green infrastructure practices often combined with pretreatment measures or followed by vegetated buffer strips, filtration, and other best management practices, can significantly reduce the non-point pollution discharge from the developed area. These measures are particularly important to projects in the watersheds of sensitive water bodies, or projects with potential impacts to groundwater. With the increased cost of land and development and operational costs, there is an increased tendency to construct portions of the stormwater management systems underground, to employ green infrastructure practices where practicable, and to enhance pretreatment devices to capture non-point contaminants as close to the source as possible.

The effectiveness of water quality management provisions and other components of the stormwater management system are dependent on the site setting, the design, upkeep, and maintenance to assure they meet their intended function over an extended period of years. It is critical that the stormwater management facilities are designed considering both the opportunities and constraints of the site be regularly inspected, and that maintenance is performed on an as-needed basis. It must also be recognized that the effectiveness of these formal treatment BMP's and their maintenance



Figure 1 – Wetpond

requirements, are related to the routine maintenance of effective source control, inspection, and maintenance of the stormwater drainage facilities that collect and transport the flow to the ponds, infiltration galleries, green infrastructure elements, and other treatment measures. Thus, maintenance should be directed to the total system, not just the primary stormwater management facility.

The purpose of this document is to define, in detail, the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended when they were designed. This manual is specific to this site and the defined BMP's selected for application on this specific project. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need for the item; a description of the work required;

and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program for operation and maintenance. A supplemental section provides guidance for construction monitoring of the facilities during their installation and more detailed checklists (Attachment D). Certain facilities are not intended to be placed in service until the tributary catchment area has the permanent cover in place and any contributing turf areas have achieved a 90% catch of vegetation (i.e. established). This manual discusses the specific measures designed and intended to be featured in this project.

A. GUIDELINES OVERVIEW

A summary of the individual components of stormwater management facilities has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the frequency of maintenance on the system as recommended by the designer.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

III. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Site Plan
- Maine Department of Environmental Protection Maine Construction General Permit.

The permit applications pending for the project include the design information for the stormwater system.

A copy of the permits and Stormwater Management Report should be appended to this manual as Attachment B. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Fay, Spofford & Thorndike for civil engineering for the new commercial building located at 421 Warren Avenue in Portland, Maine. Fay, Spofford & Thorndike has prepared the design for the stormwater management facilities and may be contacted at:

Fay, Spofford & Thorndike
778 Main Street, Suite 8
South Portland, Maine 04106
Tel. (207) 775-1121

It is recommended the preparer of the plan be contacted with any particular questions on the design intent or similar issues. This plan includes measures for Green Infrastructure elements including gravel wetlands.

The Owner/Operator of the plan will be:

PH Warren Avenue, LLC
401 Warren Avenue
Portland, Maine 04101
Tel. 207-878-4496

The applicable plans/design documents, which apply to the project, are:

1. Site Plans/Permit Applications
2. The Erosion Control/Sedimentation Control Plan for the project.
3. The Stormwater Management Plan for the project.

A copy of these documents should be retained with the manual.

The proposed design will include gravel wetlands, sediment forebays, collection and conveyance discharge systems and drainage swales.

IV. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management area. These O&M procedures will complement scheduled source control sweeping of the pavement areas and routine maintenance of the cover in the drainage catchment controlled by the applicant. Source control includes not over-salting the parking field and access roadway which can be encouraged in the design process by maintaining adequate grades to avoid ponding and icing, and generally maintaining the surfaces free of litter and deleterious debris. This also includes elements such as repair of winter damage that can expose cover material to erosion, to maintaining good cover in vegetated areas, to maintaining landscape materials which can reduce storm water flows through inception and evapotranspiration. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. GRAVEL WETLANDS

Preface: Gravel wetlands are designed horizontal flow-through treatment cells that are preceded by a sediment basin used to treat/detain flow on a site. Gravel wetlands are utilized on sites that are flat because they do not require as much hydraulic head as a typical bio-retention cell or under-drain soil filter.

Inspection: 1st year Post Construction: Inspect and confirm that system drains within 24-48 hours to make sure water quality controls are working properly after significant rain events. Inspecting vegetation (especially during the first growing season) to ensure vegetation is growing adequately. Quarterly inspection of soil and repairing eroded areas especially on slopes in necessary. Checking inlets, outlets and overflow spillways are also necessary on a regular basis.

General Post Construction: Inspect filter surface for dense, complete root mat establishment across wetland surface. Inspect gravel wetland surface for water or other evidence of gravel wetland risers clogging.

Maintenance: Plants need to be watered as necessary especially during first growing season. Areas of poor growth may need to be re-vegetated. Any vegetation that appears diseased needs to be treated. Removal of any trash and debris should be removed from sediment forebay as needed. Sediment should be removed from sediment forebay when it accumulates to a depth of 12 inches or 10% of pretreatment volume. Sediment should be removed from gravel wetland cells when sediment depth is greater than 3 inches.

Frequency: Gravel wetlands shall be inspected regularly during the first year after construction to ensure that device is working properly. After the first year of construction the gravel wetland system shall be inspected every 6 months.

Design Guidelines: The Gravel wetlands for the Warren Avenue commercial building have been designed based on the assumption that they will be inspected and maintained according the criteria laid out. Failure to do so will cause the system to function incorrectly.

B. VEGETATED SWALES

Preface: Vegetated swales are often used to convey stormwater. Swales can be intended to be part of a green infrastructure system and may be:

1. Mowed and maintained
2. Reverted to wetlands
3. Naturalized

Inspection: Swales should be inspected for erosion and sedimentation and examined for deleterious material that could clog downstream inlets.

Maintenance: Eroded or silted channels need to be repaired when discovered. If erosion is a problem, the swale design should be examined. Likewise, if situation is a continuing problem, the upgradient conditions should be assumed.

Frequency: It is recommended vegetated swales be inspected quarterly until vegetation is established and a year after installation. Thereafter, if no problems have been noticed, the frequency can be reduced to once per year.

Design Guidelines: The vegetated swale should consider channel cover at the time of concentration as well as several years after construction.

Design computations should state the assumed channel of vegetation and provide the basis for the Manning's or other roughness coefficient and for design.

Applicability: The Warren Avenue facility will have minor open channel systems as shown on the drainage and stormwater management plans.



VEGETATED SWALE WITH HAY BALE CHECK DAM TO REDUCE VELOCITIES UNDER CONSTRUCTION

C. TRIBUTARY DRAINAGE SYSTEM

Preface: Stormwater from some of the project will be directed through a conveyance system which transports the flow ultimately to its discharge location. This conveyance system will be principally overland flow and a limited amount of piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in sediment sumps in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the stormwater management system.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that its carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with leaves or other debris. The inlet basins are normally equipped with sumps fitted with hooded outlets, which will remove large sediment particles from the flow stream.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

In some projects most of the stormwater is carried in open swales, channels, or ditches. These conveyance channels may be rip rapped or vegetated, depending on the gradient and expected flow velocities. These facilities must be inspected to insure debris or sedimentation does not reduce their carrying capacity. Excess vegetative growth must

also be noted. The surface protection for the channels, either stone or vegetation, must be inspected to insure its integrity. Any areas subject to erosion should be noted.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sedimentation to any downstream receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. When the filter bag in an inlet restricts capacity and is coated with silt or other deleterious materials, the bag should be removed and catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the site. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed. In general a sump or sediment trap should be used to capture flushed sediment for removal.

Frequency: The piped drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

Maintenance/Inspection Responsibility:

Maintenance Personnel: PH Warren Avenue, LLC

Special Services: The owner may elect to contract with an independent agent for cleaning or replacement of components of the drainage system. Remedial source control measures may be performed by the owner or an outside service depending upon the nature of the particular situation.

D. LITTER

Litter should be removed as a matter of course by workers and be a part of the grounds maintenance contract.

E. SUMMARY CHECKLIST

The above described inspection and maintenance items have been summarized on a checklist attached hereto as Attachment C.

V. PROGRAM ADMINISTRATION

A. GENERAL

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities.
2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.
4. The administrative body must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.
5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. RECORD KEEPING

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Attachment B.

C. CONTRACT SERVICES

In some instances or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

ATTACHMENT A

Sample Inspection Logs

WARREN AVENUE COMMERICAL COMPLEX
PORTLAND, ME

STORMWATER MANAGEMENT
FACILITIES POND
ANNUAL INSPECTION & MAINTENANCE LOG

FACILITY:		YEAR:	
LOCATION:		CONTRACTOR:	
FUNCTION:		INSPECTOR:	
DATE OF INSPECTION:			
ITEM IDENTIFICATION	DESCRIPTION OF CONDITIONS	MAINTENANCE ACCOMPLISHED	DATE OF MAINTENANCE
GENERAL COMMENTS:			

WARREN AVENUE COMMERCIAL COMPLEX
PORTLAND, ME

STORMWATER MANAGEMENT
MONTHLY INSPECTION & MAINTENANCE LOG

FACILITY:			YEAR:			
LOCATION:			CONTRACTOR:			
FUNCTION:						
MONTH	DAY	INSPECTOR	WATER DEPTH	OVERFLOW WEIR		WEIR CONDITION
				CLEAR	DEBRIS	
JANUARY						
FEBRUARY						
MARCH						
APRIL						
MAY						
JUNE						
JULY						
AUGUST						
SEPTEMBER						
OCTOBER						
NOVEMBER						
DECEMBER						
LIST SPECIAL MAINTENANCE UNDERTAKEN:						

WARREN AVENUE COMMERCIAL COMPLEX
PORTLAND, ME

STORMWATER MANAGEMENT
SEMI-ANNUAL INSPECTION & MAINTENANCE LOG

SEMI-ANNUAL INSPECT 1.2	FACILITY:
DATE:	LOCATION:
INSPECTOR:	FUNCTION:
WEIR CONDITION:	
OUTLET CONDITION	

FORE BAY SUMP	EST. DEPTH SED.	REMOVED? Y/N	EST. VOL. CY	WHERE DISPOSED OF	STRUCTURAL CONDITION

CONTROL STRUCTURE:
DESCRIBE CONDITIONS FOUND & MAINTENANCE ACCOMPLISHED:

ATTACHMENT B

Permits for Project

(To be Added at a Subsequent Time)

ATTACHMENT C

Summary Checklist Inspection and Maintenance

**Stormwater Management System
Maintenance Program – Summary Checklist**

Item	Commentary	Frequency				
		Monthly	Quarterly	Semi-Annual	Annual	Long Term
Tributary Drainage	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Vegetated Swales	Swales should be inspected for erosion and sedimentation		X (until vegetation established)		X	
Parking Lot Cleaning	Parking lot is to be swept at mid winter and spring. Power washing with an appropriate vacuum/power wash vehicle to be done twice a year.			X		
Litter	Litter should be removed daily.					
Berms	Inspect berms for sags, sloughing, or erosion and undesirable tree growth. Mow berm slope to control vegetation repair structure flaws upon identification.	Mow X Summer			X	
Submerged Pipelines and Sediment Storage Manholes	The pipeline should be inspected quarterly		X			



April 21, 2014

Ms. Jean Fraser, Planner
Planning and Development Department
City of Portland
389 Congress Street
Portland, Maine 04101-3509

**Subject: 421 Warren Avenue
Preliminary Level III Site Plan Application
Response to Peer Review Comments**

Dear Ms. Fraser:

We have received and reviewed Woodard & Curran's peer review comments dated March 3, 2014 and Tom Errico's comments dated March 12, 2014 regarding the Preliminary Level III Site Plan Application for the 421 Warren Avenue Commercial Complex project. We offer our responses to these comments. For ease of reference we have repeated each comment in *italics* followed by our response.

WOODARD & CURRAN COMMENTS DATED MARCH 3, 2014

Comment 1:

In accordance with the City of Portland Preliminary Level III Site Plan Submissions Checklist, the Applicant is required to provide evidence of state approvals. The Applicant should forward the following approvals to the City upon receipt:

- a) *The Applicant has noted that the project requires a MaineDEP NRPA Tier III permit for approximately 25,093 SF of wetland impacts, which is being submitted concurrently with the City Site Plan Application. Evidence of receipt of this permit shall be required prior to the start of construction.*

Response:

The site has been re-designed to impact 14,323 SF of wetlands which will require a MaineDEP NRPA TIER I permit. The NRPA Tier I has been filed with the MaineDEP and its review will run concurrent with the Site Plan Review. See updated site plan sheet C-3.0 for proposed wetland impacts.

Ms. Jean Fraser
April 21, 2014
Page 2

- b) The Applicant is proposing to disturb more than one acre (approximately 110,207 SF); therefore a Maine Construction General Permit (MCGP) from the MaineDEP is required prior to the start of construction.*

Response:

The Final Site Plan results in a disturbed area of (approximately 98,078 SF) therefore a Maine Construction General Permit (MCGP) has been filed with the MaineDEP.

Comment 2:

The application is preliminary. As such, we anticipate that additional documents will be submitted with the final application, including missing or incomplete gravel wetland details, confirmation of capacity to serve the development from utility companies, and a Construction Management Plan. Additionally, the Site Layout and Utility Plan, Sheet C-3.0, indicates several utility details that are TBD, such as outlet control structure elevations, sewer service invert elevations, natural gas pipe size, and electrical duct bank size; these details should be coordinated with the appropriate utilities prior to approval. Woodard & Curran will perform a review of the Final Application submittal upon receipt of those documents.

Response:

The Applicant has included more extensive gravel wetland details, confirmation of capacity to serve from development utility companies, a construction management plan and related supporting information as part of the Final Site Plan application.

Comment 3:

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. In addition, the project is being reviewed under the City's delegated review authority for Chapter 500 Stormwater Management Law. We offer the following comments:

- a) Basic Standards: 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 general accordance with Appendix A, B, & C of MaineDEP Chapter 500. Erosion Control Note 3 on Sheet C-1.1 states that silt barriers shall be inspected, repaired, and cleaned as noted in the erosion control notes shown on the erosion control detail sheet; however, it does not appear that these notes have been provide at this time. The Applicant should clarify. Additionally, details should be provided for proposed erosion control blanket installations and rip-rap slope and spillway protection.*

Ms. Jean Fraser
April 21, 2014
Page 3

Response:

No response required.

b) General Standards: The project will result in an increase in impervious area of approximately 82,764 square feet. As such, the project is required to include specific stormwater management features for stormwater quality control. The Applicant has proposed gravel wetlands near the front and rear of the development area in addition to a gravel drip strip. The Applicant has provided sufficient documentation demonstrating compliance with this standard; however, it should be noted that the design plans, calculations, and the HydroCAD model may be subject to change based on the comments contained herein, and shall be reviewed for compliance again upon receipt of the final submission package.

Response:

No response required.

c) Flooding Standard: The project will result in an increase in impervious area of approximately 82,764 square feet. As such, the project is required to include specific stormwater management features to control the rate of stormwater runoff from the site. The Applicant has provided sufficient documentation demonstrating compliance with this standard; however, it should be noted that the design plans, calculations, and the HydroCAD model may be subject to change based on the comments contained herein, and shall be reviewed for compliance again upon receipt of the final submission package.

Response:

No response required.

Comment 4:

Urban Impaired Stream Standard: The project is located within the Capisic Brook Watershed, which is identified as an Urban Impaired Stream by the Maine DEP. Section 5 of the City of Portland Technical Manual requires that all development within the Capisic Brook watershed, except single and two family homes, comply with the Urban Impaired Stream Standard pursuant to MaineDEP Chapter 500 Rules. To meet the Urban Impaired Stream standard, the Applicant must either pay a compensation fee or mitigate project impacts by treating, reducing, or eliminating an off-site or on-site pre-development impervious stormwater source. The Applicant has not provided information on how they plan to meet the Urban Impaired Stream standard with the preliminary submittal; the final submittal should present either a fee calculation or a design approach / plans on how the project will meet this standard.

Ms. Jean Fraser
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Page 4

Response:

The Applicant has reviewed the Urban Impaired Stream Standard and decided to pay the compensation fee based on the schedule in the MaineDEP Chapter 500 Rules. The schedule can be found in section 19.0 of the storm water management report. The calculated fee amount is \$6,950.

Comment 5 – HydroCAD Model Review Comments:

- a) *The pre- and post-development areas used in the HydroCAD model and provided in the summary tables on the watershed maps are not equal, specifically subcatchments 1 & 2 on the Post- Development plan. The Applicant should revise accordingly.*

Response:

The Pre and Post Development areas used in HydroCAD were revised and are now equal to the summary tables on the Watershed Maps C-7.0 & C-7.1

- b) *Subcatchment 1 is a very large area that remains largely unchanged from the pre- to post-development conditions; relocating POI 1 closer to the outfall of gravel wetland #2 will provide a better indication of the change in flow rates from the proposed development. The Applicant should consider revising the model accordingly.*

Response:

The Engineer agrees with the comment that Sub-catchment 1 considered too much area. Sub-catchment 1 has been reduced in size and a new POA has been chosen to analyze flow closer to the Gravel Wetland #2 discharge point. See Post/Pre Development Maps C-7.0 and C-7.1 and HydroCAD Computations found in Appendices B and C of the Stormwater Report for changes to the analysis of sub-catchment 1.

- c) *It is unclear why the Applicant has chosen to model subcatchments 3A, 3B, and 3C, as they are not part of the proposed development and remain largely unchanged from the pre- to post- development condition. The Applicant should remove these subcatchments from the model.*

Response:

The Engineer has chosen to model Sub-catchments 3A, 3B and 3C because in the predevelopment condition, Sub-catchment 2 drains across to the detention pond located on adjacent property (Harbour Auto-Body). The water from this detention pond is then routed through a 12" pipe into POA # 2, which is a City catch basin. In post development conditions this flow is cutoff and diverted through an onsite pipe system; however, in order to accurately compare pre/post conditions, the Harbour Auto-Body watershed (contributing to POA 2) needed to be analyzed. Refer to Sheet C-7.0 to see that sub-catchment two drains offsite.

Ms. Jean Fraser
April 21, 2014
Page 5

- d) The model includes storage within a 40% void space of the gravel wetlands between elevation 68.17 and 68.50; please clarify where this storage volume exists in the gravel wetland section.*

Response:

The storage with a 40% void space for Gravel Wetlands 1 and 2 were determined to be incorrect and were thus removed from the HydroCAD model. See Appendix C of the Stormwater Report for updated HydroCAD computations.

- e) As noted on the plans, the Applicant intends to add outlet elevation information to the outlet control structure details for both gravel wetlands as part of the final submittal. Without this information we cannot verify the routing or model inputs for Pond 4P (GW2) or Pond 5P (GW1). When the outlet control structure elevations are incorporated into the final submittal, please revisit or provide explanation on the routing methodology for GW1 & GW2 in the HydroCAD model; we are unable to follow the routing as currently presented.*

Response:

The Applicant has added outlet control structure to the plans and details. Refer to Sheet C-4.3, Detail E for an updated elevation schedule.

Comment 6 – Gravel Wetland Design Comments:

- a) On Sheet C-4.2, the titles for the plan view and section view incorrectly note Gravel Wetland #1; these should state Gravel Wetland #2.*

Response:

Sheet C-4.2 has been corrected to state Gravel Wetland # 2.

- b) The Applicant has submitted drawdown calculations for sizing the gravel wetlands' outlet control structure orifice control devices; however, the orifices do not appear to be specified on the design plans/details. The Applicant should clarify with the final design package.*

Response:

Orifice sizes and locations have been added to outlet control structure details on Sheet C-4.3. Orifice details correspond to drawdown computations submitted in Appendix E.

Ms. Jean Fraser
April 21, 2014
Page 6

c) The Applicant should include outlet protection measures for the Gravel Wetland #2 outfall.

Response:

Outlet protection for Gravel Wetland #2 has been included. See Grading & Drainage plan sheet C-4.0, and stormwater details sheets.

d) The Applicant should specify appropriate plantings for the proposed gravel wetlands, per the UNH Stormwater Center Subsurface Gravel Wetland Design Specifications.

Response:

The design currently contemplates the reuse of wetland sod that will be salvaged from the impacted wetland areas. We believe there is an opportunity to salvage these soils for this use. We have discussed this idea with Jim Logan of Albert Frick Associates, Inc. and he concurs with our proposal.

e) The pervious and impervious area treated numbers contained in Table 11 of the Stormwater Management Report do not appear to agree with those utilized in the HydroCAD model or noted on the Post Development Watershed Map (C-7.1); the Applicant should clarify.

Response:

Revisions to the water quality treatment numbers have been made to match numbers in the HydroCAD model. Please refer to Appendix D of the Stormwater Report and Sheet C-7.1 to see these updates.

Comment 7:

The Stormwater Management Report refers to Appendix H for a Separate Stormwater Inspection & Maintenance Manual, and notes that it has not been included with this submission. The stormwater inspection and maintenance plan should be developed in accordance with and in reference to the UNH Stormwater Center Subsurface Gravel Wetland Design Specifications, Section 7.6 of Volume III of the MaineDEP Stormwater BMP Manual, MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.

Response:

A Stormwater Inspection & Maintenance Manual has been developed using UNH Stormwater Center Subsurface Gravel Wetland Design Specifications, and Section 7.6 of Volume III of the MaineDEP Stormwater BMP Manual, MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances. Please refer to Appendix H of the Stormwater Management Report.

Ms. Jean Fraser
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TOM ERRICO'S COMMENTS DATED MARCH 12, 2014

Comment 1:

The applicant shall provide a traffic generation estimate for the proposed project as well as for the two existing buildings serviced by the shared driveway. Following a review of the requested information, I will make a determination on the need for a Traffic Movement Permit.

Response:

The following trip generation is estimated for the existing buildings and proposed building using ITE-LUC 130 Industrial Park (7th edition)

	AM Peak (adjacent)	PM Peak (Adjacent)	AM Peak (Generator)	PM Peak (Generator)
Existing Building (37,500 SF)	32	32	31	32
Proposed Building (25,040 SF)	21	22	21	22
TOTAL	53	54	52	54

Comment 2:

The proposed driveway entrance exceeds City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the wide driveway.

Response:

The latest site plans indicate a proposed driveway width of 45' to allow turning of semi-tractor trucks into the new lot area. This is a reduction of 15' from the preliminary plan. The Applicant is seeking a waiver to provide an entrance slightly larger than the 30 ft. industrial driveway width outlined in Section 1.7.2.4 of the Technical Manual.

Comment 3:

The aisle widths in the internal parking/circulation area do not meet City standards and a waiver will be required. The applicant shall provide an Auto-Turn analysis documenting the need for the expanded pavement areas.

Response:

See the accompanying Auto-Turn figure depicting the movement of a WB-67 vehicle into/out of the proposed yard area. The applicant is requesting a waiver of the parking area dimensional standards.

Ms. Jean Fraser
April 21, 2014
Page 8

Comment 4:

A sidewalk connection from the proposed building to Warren Avenue shall be provided.

Response:

A sidewalk connection has been added to the plans.

Comment 5:

An area along the building frontage on the parking area shall be marked such that pedestrians have a direct routing to Warren Avenue.

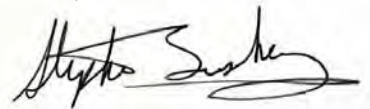
Response:

The Site Layout Plan includes a 6' wide space between the parking spaces and building face, thus providing ample pedestrian area.

At this time we are not aware of any further staff comments. If you have any questions regarding these materials please contact this office.

Sincerely,

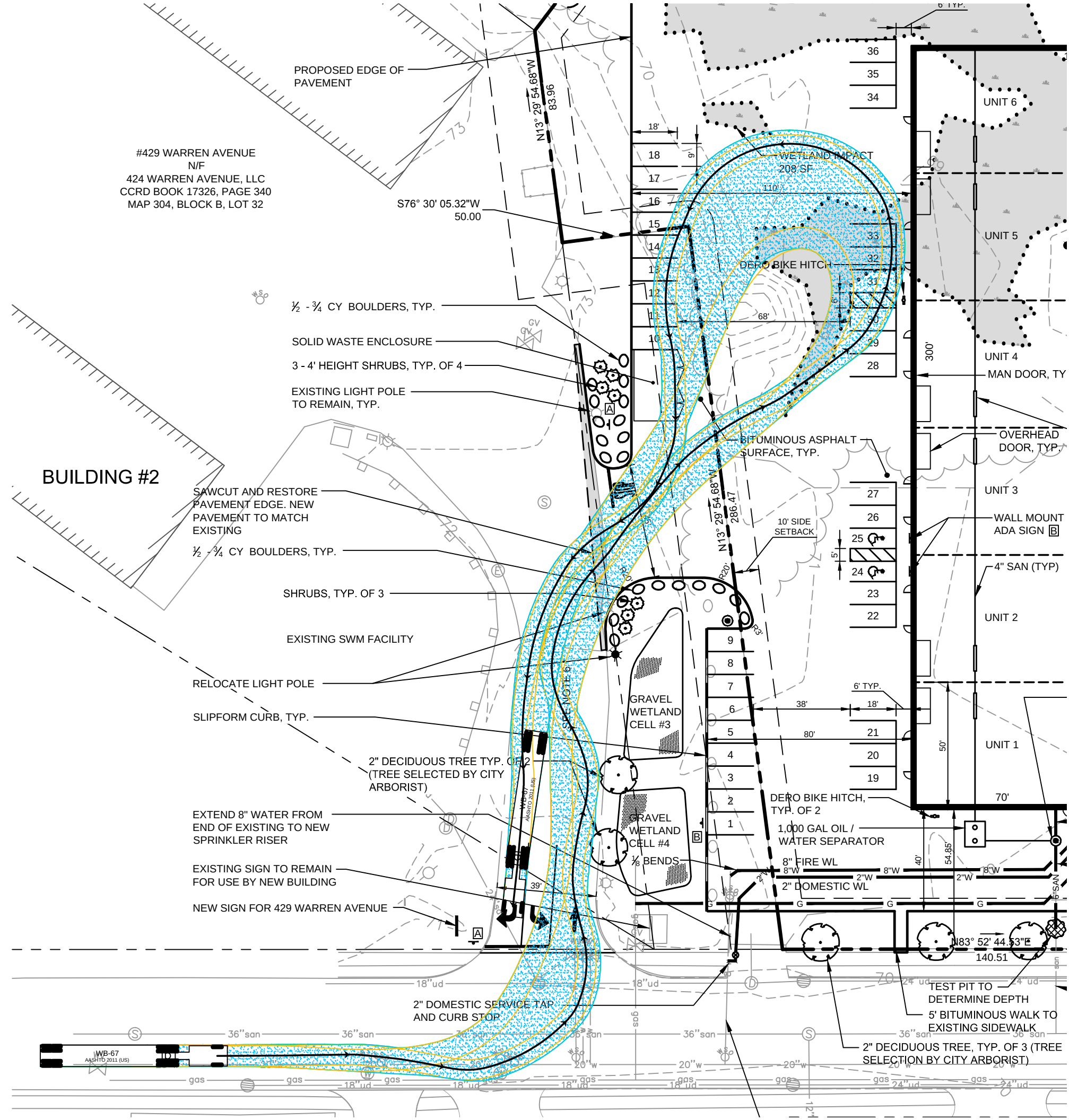
FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light yellow rectangular background.

Stephen R. Bushey, P.E.
Senior Engineer

Attachment – AutoTurn Figure

SRB/smk





May 6, 2014

Ms. Jean Fraser, Planner
Planning and Development Department
City of Portland
389 Congress Street
Portland, Maine 04101-3509

Subject: 421 Warren Avenue
Final Site Plan Application/Delegated Review Stormwater
Comment Response #1 Supplemental information

Dear Jean:

We have received the staff comments sent via your email message of today and we offer the following responses to each. The comments are stated again below followed by our response.

Jeff Tarling Comments from 03/13/2014

Comment 1: The proposed 421 Warren Avenue project is in need of a "Tree Save" Plan. Hopefully trees along the edge of the proposed development could be saved and if not the project should show replacement planting plans per City Standards.

Response: The project involves approximately 2.25 acres of developed area out of the 48 acres that the applicant owns. The applicant is currently negotiating with City officials for the sale of 40 or more acres of the property to the City, hence we believe a substantial "tree save" effort will be made if these discussions are successful. There are significant areas of trees within the property off Lane Avenue and south of Iffley Street that could become large open spaces, if the City acquires the property. The few trees in the area of the proposed development are largely immature hard woods and wetland species. The development plan does include 5 tree plantings along Warren Avenue. The site development area has been minimized as much as practicable to reduce wetland impacts; hence the project size has been scaled back now several times due to regulatory issues. The applicant is reluctant to scale the project back any further otherwise project viability becomes tenable.

Marge Schmuckal Zoning comments from 4/28/2014

Comment 1: The project is in the B-4 zone. I would like a little more detail on the "commercial" use that is proposed. What kinds of businesses are being marketed? Each unit will need a separate permit to establish their use. The proposed use must be one of the listed permitted uses.

Ms. Jean Fraser
May 6, 2014
Page 2

Response: The building is proposed to basically match the use types currently occupying the applicant's two buildings at 429 Warren Avenue. These uses include several auto care tenants, some warehouse space and Crossfit MF, a specialty fitness center. These uses are all compliant with the list of permitted uses within the B-4. Specifically these uses are compliant with Section 14-229.11, parts (1), (10), (11), (14), (19), among others. These uses are also consistent with the general theme of businesses within the Warren Avenue corridor. The applicant is aware of the lengthy list of permitted uses in the B-4 zone and will be seeking generally only those uses as tenants that are permitted within the zone.

Comment 2: The uses affect the parking requirements.....Hopefully there are easements that run with the property for those spaces.

Response: The applicant is the owner of the abutting property. The applicant intends to provide a cross access easement to benefit the 421 Warren Avenue property.

Comment 3: Separate permits are required for the construction of the building and for each unit before the use of each unit. Separate permits are required for new signage. It is noted that an illegal sign is still present on the adjoining property that should be removed.

Response: The applicant's contracting team is aware of the city's procedures for building permits and related use permits. We have made the applicant aware of the sign comment and they will be addressing that issue separately.

David Margolis Pineo Comments March 11, 2014

Comment 1: Since the curb cut on Warren Ave in front of this project is not proposed to be used, the applicant is requested to close the curb cut. The curbing shall be set in concrete to match the abutting curb cut. Please contact Rhonda Zazzara for details 874-8831

Response: The applicant will complete the curb cut closure in accordance with the City standards.

Comment 2: It would be desirable for the applicant to tap for the 2" domestic water service behind the sidewalk to avoid cutting the sidewalk.

Response: It is the applicant's intention to complete the domestic water service tap per this recommendation. The tap will be behind the sidewalk to the extent practicable, but within the ROW limits per the PWD requirements.

Comment 3: Please note on survey plan that Saville Street and Newcomb Street are continued paper streets as per City Council Order #84 in September 1997.

Response: The applicant's surveyor has been made aware of this comment. Staff should advise as to the need for an updated plan if necessary.

Ms. Jean Fraser
May 6, 2014
Page 3

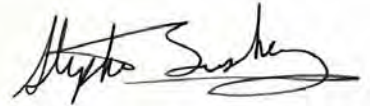
Comment 4: Please add State Plane Coordinates for four (4) corners; at both ends of the rear 657.94' line and at both ends of the 140.51' line along Warren Avenue.

Response: This information will be provided on an updated plan once received from the surveyor. This will be provided to your attention under separate cover in advance of the Public Hearing.

If you have any questions regarding these materials please contact this office.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light yellow rectangular background.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/smk

c: Peter Holmes
Jim Biskup, Biskup Construction

Neighborhood Meeting Certification

I, Stephen Bushey, PE hereby certify that a neighborhood meeting was held on April 30, 2014 at the Riverton Elementary School 1600 Forest Avenue, Portland, Maine in the Multi-Purpose Room B, 911 at 6:00 pm.

I also certify that on April 8, 2014 invitations were mailed to 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,

A handwritten signature in black ink, appearing to read 'Stephen Bushey', written over a horizontal line.

5/19/14 (date)

Attached to this certification are:

1. Coy of the invitation sent
2. sign-in sheet
3. Meeting minutes
4. Abutters list



**Meeting Minutes for Public Information Meeting
April 30, 2014 6:00 pm**

Project: 421 Warren Avenue Site Development
Applicant: PH Warren Avenue LLC
Location: Riverton School, Portland, Maine
Attendees: See attached list

The group convened at around 6:00 pm at which time Peter Holmes and Steve Bushey provided an overview of the proposed project to be located at 421 Warren Avenue. The project description included the building scope and proposed uses. It was explained that the project will be similar in nature to the property at 429 Warren Avenue, which is also owned by Mr. Holmes. The following are questions and comments from the group:

1. Will there be an access from Iffley Street or Lane Avenue? Mr. Bushey explained that the site will only be accessed from Warren Avenue and that overall Mr. Holmes is proposing to develop about 3 acres of the 48 acre parcel that he owns.
2. Mr. Holmes provided a long explanation about his goals for selling 40-43 acres of the parcel to the City of Portland. His development goals are to only complete this one project and to transfer the remaining land to the City.
3. The group discussed the Capasic Brook Watershed Plan prepared by the City and we discussed the role of the property within the scope of the watershed Master Plan. The attendees all generally expressed large desire to have the land placed into conservation by the City so as to prevent possible future development.
4. Mr. Bushey encouraged the attendees to contact their district City Councilor regarding the proposed land transfer.
5. Mr. Bushey explained the City review process and stated that the attendees are welcome to attend the Public Hearing for the project, at which time an approval will be sought.
6. The meeting lasted about 1 hour.

End of Meeting Minutes



April 8, 2014

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for a 6-unit commercial complex located at 421 Warren Avenue in Portland, Maine. The property involves an approximately 25,040 s.f. building and associated parking area.

Meeting Location: Riverton Elementary School, 1600 Forest Ave., Portland, Maine
Multi-Purpose B Room 911*
Meeting Date: Wednesday, April 30th, 2014
Meeting Time: 6:00 P.M.

***Room 911 is located on the Community Center side. Please park at the bottom of the hill next to the playground. The room is located to the right of the entrance.**

The City code requires that property owners within 500 feet (1,000 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.

Please feel free to contact our office with any questions at (207)775-1121.

FAY, SPOFFORD & THORNDIKE, LLC

By

Stephen R. Bushey, P.E.
Senior Principal Engineer

SRB/jls

Note: Under Section 14-32© and 14-624(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 plan 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.

R:\SP-M104 Portland, ME Harbor Auto Body - Peter Holmes\Admin\Correspondence Out\SP-M104 04-08-14 Neighborhood Meeting Invitation for April 30th.doc

Public Info MEETING

4/30/14

421 WARREN AVE.

NAME	ADDRESS
Mary-Jo Brink	89 Verrill ST.
ALLISON HUGHES	103 VERRILL
Michael M ^e Leod	97 Verrill St.
Peter Holmes	901 Warren Ave.
James Sless	111 Verrill
Elizabeth Bay	111 Verrill
Melissa Blanchard	144 Belfort St.
	Portland ME 04103

OWNR_NAME1	OWNR_NAME2	MAIL_ADDR1
WARREN AVENUE REALTY LLC		90 BAY STATE RD
GERALD S. ROBINOV &	DAVID KOOCHER	PO BOX 10109
LEEMILT'S PETROLEUM INC		125 JERICHO TPKE
HUTCHINS REAL ESTATE LLC		187 RIVERSIDE DR
ROBERT A. FUSCO JR. &	MARYANN E. FUSCO	305 PALMER AVE
PH WARREN AVE LLC		12 WILDWOOD LN
WARREN AVE LLC		444 RIVERSIDE INDUSTRIAL PARK
RONALD J. GRAHAM &	PRISCILLA A. GRAHAM	313 WARREN AVE
MOUNT SINAI CEMETERY ASSOC. INC.		185 HICKS ST
JAMES W. SPEAR		111 VERRILL ST
ALLISON HUGHES &	ROBERT LAVIN	103 VERRILL ST
JUANITA C. MCLEOD &	MICHAEL J. MCLEOD	97 VERRILL ST
ROBERT J. BRINK &	MARY JO BRINK	89 VERRILL ST
MARIE E. BERNATCHE		96 VERRILL ST
AXA REALTY LLC		380 WARREN AVE
JAMES P. BLANCHARD &	JANE E. BLANCHARD	102 VERRILL ST
NANCY L. BURNHAM		43 IFFLEY ST
DONNA J. KEMPTON		169 BELFORT ST
MARIA R. KERLEY &	NICOLA ALEXANDRA KERLEY	56 IFFLEY ST
DUNG HUYNH &	THU VAN THI LE	44 IFFLEY ST
PH WARREN AVE LLC		12 WILDWOOD LN
WAYNE H. FRANKLIN &	MARY M. FRANKLIN	5 HIDDEN BROOK DR
CHARLES E. VANCE &	MARY C. VANCE	18 MAINS RD
SAGA COMMUNICATIONS OF NEW ENGLAND INC.		420 WESTERN AVE
JOHN B. VANCE &	JOAN A. VANCE	393 WARREN AVE
PETER F. HOLMES		12 WILDWOOD LN
JOHN H. BENNETT		77 MIDDLE ST
GIROUX OIL COMPANY INC.		343 WARREN AVE
THREE EIGHTY LLC		380 WARREN AVE
352 WARREN AVENUE LLC		29 DOWNEAST LN
THOMAS ROSSI &	PAVALO ROSSI	131 BOSTON ST
KEVIN S. MOWATT &	PAMELA J. MOWATT	198 RAY ST
PROPERTIES LLC		543 ALLEN AVE
AMG INVESTMENTS LLC		921 AUGUSTA RD
EDWARD C. POOLER		4 JAMES HENRY LN
W W GRAINGER INC.		100 GRAINGER PKY

424 WARREN AVENUE LLC	401 WARREN AVE
GALILEO BJ'S PLAZA LLC	PO BOX 4900
HEATHER M. GWINN	187 LANE AVE
NGHIA LAM & CHIAO I. BAE	168 LANE AVE
JESSICA L. TIMBERLAKE &	172 LANE AVE
PERO VUJANIC &	180 LANE AVE
ST JOSEPH'S CONVENT AND HOSPITAL	605 STEVENS AVE
HENRY C. NGUYEN ETALS	188 LANE AVE
JARITA DEVELOPMENT LLC	159 HARRIS RD
BRENDA M. PIERSON	11 JARITA CT
CAMILLE E. SHIFFLER &	14 JARITA CT
JOHN D. BOUCHER	15 JARITA CT
JESSICA M. SIMPSON &	17 JARITA CT
KAREN K. MCLEOD &	18 JARITA CT
AARON R. HOFFMAN &	19 JARITA CT
PAMELA J. PRESCOTT	23 JARITA CT
NANCY CRAWFORD	26 JARITA CT
JAMES F. SYMONDA	27 JARITA CT
TIMOTHY R. GOFF &	32 JARITA CT
SUSAN HENDRIX	33 JARITA CT
KERRY CONWAY	37 JARITA CT
CHRISTOPHER A. LEE	43 JARITA CT
MARY L. LUNT	45 JARITA CT
RANJU A. SONI &	1120 MANSIONES LN
ANNA REIN	49 JARITA CT
NOAH WINTER	195 LANE AVE
RAFAL HADZIEWICZ & ILONA HADZIEWICZ	207 LANE AVE
JASON J. MILLETTE &	213 LANE AVE
BRIAN D. BATCHELDER &	233 LANE AVE
JAMES M. HOGLUND &	214 LANE AVE
STEPHANIE A. LOVE &	194 LANE AVE
MATTHEW S. MILLIARD &	202 LANE AVE
FREDDY KANIKI &	12101 DREW HILL LN
PETER E. HOGLUND &	56 LANE AVE
RANDALL S. BIGELMAN &	230 LANE AVE



April 21, 2014

Mr. Bill Bullard
MeDEP
312 Canco Road
Portland, ME 04103

**Subject: PH Warren Ave LLC
NRPA Tier I Application
421 Warren Avenue, Portland, Maine**

Dear Bill:

Fay, Spofford & Thorndike (FST) has been retained to assist the property owner, PH Warren Avenue, LLC with permitting for a proposed commercial development at 421 Warren Avenue in Portland, Maine. The accompanying Figure depicts the site location. As we discussed at our pre-application meeting on March 12, 2014, the applicant is seeking to construct a new multi-unit commercial building and associated infrastructure improvements. Since the pre-application meeting, the applicant has reconsidered the development size and layout, which has resulted in an overall decrease in the wetland impacts. The proposed impacts are approximately 14,323 SF. As you know, Jim Logan of Albert Frick Associates completed the wetlands characterization and field data collection. The wetland areas impacted contain no wetlands of special significance or significant wildlife habitat according to Albert Frick Associates.

PH Warren Avenue, LLC has acquired an approximately 48.71 acre parcel located between Warren Avenue, Lane Avenue, and Iffley Street. The parcel is undeveloped and is characterized by low-lying wetlands scattered throughout the interior. The applicant owns the adjacent properties at 401 Warren Avenue (Harbour Auto Body) and at 429 Warren Avenue (two fully occupied commercial/industrial buildings). The applicant is proposing a similar development within the site area closest to Warren Avenue and they propose to share the 429 Warren Avenue access. The applicant is seeking a Tier I NRPA Permit.

The applicant's proposal will be within a site area of less than 4 acres. The applicant is currently discussing the potential to transfer a portion of the site to the City; however, this action is dependent on funding availability by the City.

The applicant will also be seeking City of Portland Planning Authority Level III Site Plan approval. That review will include a Stormwater Management component related to Chapter 500 compliance, under the City's Delegated Review authority. The proposed site design includes the installation of multiple gravel wetland cells to provide water quality treatment.

Mr. Bill Bullard
April 21, 2014
Page 2

On behalf of PH Warren Ave, LLC, FST is pleased to provide the accompanying package of submission materials related to the proposed multi-unit commercial development located at 421 Warren Avenue in Portland, Maine. This submission package is intended to meet the State's NRPA Tier 1 Wetland Fill Requirements.

Accompanying this cover letter are the following materials:

- Application for NRPA Tier I Permit
- Attachment #1: Evidence of Title, Right or Interest
- Attachment #2: USGS Location Map
- Attachment #3: Project Description Narrative
- Attachment #4: Wetland Impact Figures and Plan Sheet C-3.0
- Attachment #5: Existing Site Photographs
- Attachment #6: Statement of Avoidance & Minimization
- Attachment #7: Correspondence to Maine Historic Preservation Commission
- Check for \$150.00 made to Treasurer, State of Maine.

We look forward to your review of this application. Please find one (1) original and one (1) hard copy of the application materials. A hard copy of this submission package has also been forwarded to Rod Howe at the USACOE and to the City of Portland, Planning Department.

If you have any questions regarding these materials please contact this office.

Sincerely,

FAY, SPOFFORD & THORNDIKE



Stephen R. Bushey, P.E.
Senior Principal Engineer

SRB/smk

Enclosure

c: Rod Howe, USACOE
Jim Logan, Albert Frick Associates
Peter Holmes

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

→ PLEASE TYPE OR PRINT IN **BLACK INK ONLY**

1. Name of Applicant: PH Warren Ave, LLC		5. Name of Agent: Fay, Spofford & Thorndike Attn: Stephen Bushey, P.E.							
2. Applicant's Mailing Address: 401 Warren Ave Portland, Maine 04101		6. Agent's Mailing Address: 778 Main Street, Suite 8 South Portland, Maine 04106							
3. Applicant's Daytime Phone #: 207-878-4496		7. Agent's Daytime Phone #: 207-775-1121							
4. Applicant's Email Address: Required from <i>either</i> applicant or agent:		8. Agent's E-mail Address: sbushey@fstinc.com							
9. Location of Activity: (Nearest Road, Street, Rt.#) 421 Warren Ave		10. Town: Portland	11. County: Cumberland						
12. Type of Resource: (Check all that apply)	☐ River, stream or brook ☐ Great Pond ☐ Coastal Wetland ☒ Freshwater Wetland ☐ Wetland Special Significance ☐ Significant Wildlife Habitat ☐ Fragile Mountain		13. Name of Resource: Unnamed wetland						
	14. Amount of Impact: (Sq.Ft.)		Fill: 14,323 SF Dredging/Veg Removal/Other:						
15. Type of Wetland: (Check all that apply)	☐ Forested ☒ Scrub Shrub ☐ Emergent ☐ Wet Meadow ☐ Peatland ☐ Open Water ☐ Other _____	FOR FRESHWATER WETLANDS <table border="1"> <thead> <tr> <th>Tier 1</th> <th>Tier 2</th> <th>Tier 3</th> </tr> </thead> <tbody> <tr> <td> ☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft ☒ 10,000-14,999 sq ft </td> <td> ☐ 15,000 – 43,560 sq. ft. </td> <td> ☐ > 43,560 sq. ft. or ☐ smaller than 43,560 sq. ft., not eligible for Tier 1 </td> </tr> </tbody> </table>		Tier 1	Tier 2	Tier 3	☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft ☒ 10,000-14,999 sq ft	☐ 15,000 – 43,560 sq. ft.	☐ > 43,560 sq. ft. or ☐ smaller than 43,560 sq. ft., not eligible for Tier 1
	Tier 1	Tier 2	Tier 3						
☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft ☒ 10,000-14,999 sq ft	☐ 15,000 – 43,560 sq. ft.	☐ > 43,560 sq. ft. or ☐ smaller than 43,560 sq. ft., not eligible for Tier 1							
16. Brief Activity Description Includes commercial development of multi-unit building for various small businesses. Includes parking area and related improvements.									
17. Size of Lot or Parcel & UTM Locations:		☐ _____ square feet, or ☒ <u>48.71</u> acres UTM Northing: <u>15872644.03</u> UTM Easting: <u>1292635.17</u>							
18. Title, Right or Interest: ☒ own ☐ lease ☐ purchase option ☐ written agreement									
19. Deed Reference Numbers: Book#: 30781 Page: 74		20. Map and Lot Numbers: Map #: 303 304 Lot #: A010 B028							
21. DEP Staff Previously Contacted: Bill Bullard		22. Part of a larger project: ☐ Yes ☒ No	After-the-Fact: ☐ Yes ☒ No						
23. Resubmission of Application? ☐ Yes → ☒ No	If yes, previous application #	Previous project manager:							
24. Written Notice of Violation? ☐ Yes → ☒ No	If yes, name of DEP enforcement staff involved:	25. Previous Wetland Alteration: ☐ Yes ☒ No							
26. Detailed Directions to the Project Site: Project site located between 401 Warren Ave (Harbour Auto Body) and 429 Warren Ave (two commercial buildings)									
27. TIER 1		TIER 2/3 AND INDIVIDUAL PERMITS							
☒ Title, right or interest documentation ☒ Topographic Map ☒ Narrative Project Description ☒ Plan or Drawing (8 1/2" x 11") ☒ Photos of Area ☒ Statement of Avoidance & Minimization ☒ Statement/Copy of cover letter to MHPC		☐ Title, right or interest documentation ☐ Topographic Map ☐ Copy of Public Notice/Public Information Meeting Documentation ☐ Wetlands Delineation Report (Attachment 1) that contains the information listed under Site Conditions ☐ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized ☐ Erosion Control/Construction Plan ☐ Functional Assessment (Attachment 3), if required ☐ Compensation Plan (Attachment 4), if required ☐ Appendix A and others, if required ☐ Statement/Copy of cover letter to MHPC ☐ Description of Previously Mined Peatland, if required							
28. FEES Amount Enclosed:									
CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2									

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 :

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fined not more than \$10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

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 address located on the front page of this application (see #4 for the applicant and #8 for the agent)."


SIGNATURE OF AGENT/APPLICANT

Date: 4/16/14

Signature of Agent STEPHEN BUSHEY agent

Date: 4/16/14

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

(yellow)

Date: 2/4/14

**Subject: 421 Warren Avenue Multi Unit Commercial Building
Agent Authorization Letter**

To Whom It May Concern:

PH Warren Avenue, LLC has retained Fay, Spofford & Thorndike, LLC to prepare requisite local, state and federal permit applications for the above referenced project. FST is authorized to act as an agent for PH Warren Avenue, LLC in matters related to these permits.

Sincerely,

Peter Holmes

Owner
Title

ATTACHMENT 1

EVIDENCE OF TITLE, RIGHT OR INTEREST

1.0 Overview

The Owner currently owns the property as evidence by the deed attached.

QUITCLAIM DEED WITH COVENANT

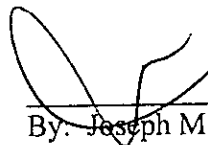
JMC Warren Ave, LLC, a Maine limited liability company with a mailing address of 247 Commercial Street, Suite A, Rockport, ME 04856, hereby grants to PH Warren Ave, LLC, Maine limited liability company with a mailing address of 401 Warren Avenue, Portland, ME 04103, with quitclaim covenant, the following real estate, with all improvements on it and all easements appurtenant to it, on Warren Avenue, Farnham Street, and Iffley Street, in the City of Portland, Cumberland County, Maine, further described as follows:

Please see attached Exhibit A

Meaning and intending to convey and hereby conveying the same premises described in a Quitclaim Deed with Covenant from Alfred J. Waxler to JMC Warren Ave, LLC dated May 31, 2006 and recorded at the Cumberland County Registry of Deeds in Book 24014, Page 149.

Dated: June 26, 2013.

JMC Warren Ave, LLC



By: Joseph M. Cloutier, Manager of
JMC Warren Ave, LLC
Duly Authorized Thereto

State of Maine
County of Cumberland, ss

June 26, 2013

Then personally appeared the above-named Joseph M. Cloutier, in his capacity as Manager of JMC Warren Ave, LLC and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of JMC Warren Ave, LLC.

Before me,

Carley A. Anderson

Notary Public/Attorney at Law

my commission expires
2/6/14

SEAL

EXHIBIT A

Beginning at a 5/8" rebar on the northerly sideline of Warren Avenue, said rebar marking the southwest corner of land now or formerly of Holmes as described in deed book 6918, page 53 Cumberland County Registry of Deeds;

thence north 77° 50' 09" west along the northerly sideline of Warren Avenue, 140.45 feet to a 5/8" rebar at land now or formerly of 424 Warren Avenue, LLC as described in deed book 17326, page 340 Cumberland County Registry of Deeds;

thence north 04° 49' 52" east along land of 424 Warren Avenue, LLC 285.79, feet to a no. 5 rebar;

thence north 85° 10' 08" west continuing along land of 424 Warren Avenue, LLC, 50.00 feet to a 5/8" rebar;

thence north 04° 49' 52" east continuing along land of 424 Warren Avenue, LLC, 84.64 feet to a point at land now or formerly of SAGA Communications of New England, Inc. as described in deed book 12543, page 308 Cumberland County Registry of Deeds;

thence north 49° 15' 54" east along land of SAGA Communications of New England, Inc., 851.18 feet to a no. 5 rebar; thence north 40° 44' 06" west continuing along land of SAGA Communications of New England, Inc., 328.39 feet to a no. 5 rebar;

thence north 49° 24' 48" east continuing along land of SAGA Communications of New England, Inc., 149.18 feet to an iron pipe; thence north 40° 29' 12" west continuing along land of SAGA Communications of New England, Inc., 254.52 feet to an iron pipe at land now or formerly of Bigelman as described in deed book 16291, page 92 Cumberland County Registry of Deeds;

thence north 49° 33' 05" east along land now or formerly of Bigelman, land now or formerly of Hoglund as described in deed book 16262, page 1, land now or formerly of Hoglund as described in deed book 16127, page 117, land now or formerly of Hoglund as described in deed book 19425, page 256, land now or formerly of Loranger as described in deed book 18832, page 241, land now or formerly of Legage as described in deed book 19393, page 66, land now or formerly of Nguyen as described in deed book 16474, page 83, land now or formerly of St. Joseph's Convent and Hospital as described in deed book 15551, page 194, land now or formerly of Vujanic as described in deed book 15874, page 260, land now or formerly of Sutton as described in deed book 7673, page 220, land now or formerly of Lam as described in deed book 7613, page 211, land now or formerly of Harmon as described in deed book 13217, page 321, land now or formerly of Cook as described in deed book 17702, page 26, land now or formerly of Ortiz as described in deed book 22187, page 170, land now or formerly of Lappin as described in deed book 21479, page 39, land now or formerly of Lam as described in deed book 10539, page 173, land now or formerly of Charles as described in deed book 15834, page 303, land now or formerly of Murray as described in deed book 21978, page 15, land now or formerly of Quinn as described in deed book 15009, page 333, land now or formerly of Saucier as described in deed book 7300, page 285, land now or formerly of Herrick as described in deed book 21200, page

150, land now or formerly of Libby as described in deed book 14389, page 142, land now or formerly of Vose as described in deed book 16527, page 203 and land now or formerly of Robey as described in deed book 13204, page 1 Cumberland County Registry of Deeds, 1872.78 feet to a no. 5 rebar at land now or formerly of Steele as described in deed book 14287, page 55 Cumberland County Registry of Deeds;

thence south 40° 18' 34" east along land now or formerly Steele and crossing a portion of Farnham Street, a paper street, 135.98 feet to a point at the center of Farnham Street, a paper street;

thence south 49° 41' 26" west along the center of Farnham Street, a paper street, 50.00 feet to a point at the center of Farnham Street, a paper street;

thence south 40° 18' 34" east crossing Farnham Street, a paper street and along land now or formerly of Mahaphanit as described in deed book 21338, page 304 Cumberland County Registry of Deeds, 125.00 feet to a 4"x4" granite monument at land now or formerly of City of Portland as described in deed book 3552, page 154 Cumberland County Registry of Deeds;

thence south 49° 41' 26" west along land now or formerly of City of Portland, 1379.34 feet to an iron pipe; thence south 45° 43' 10" east continuing along land now or formerly of City of Portland, 679.97 feet to an iron pipe;

thence north 49° 44' 52" east continuing along land now or formerly of City of Portland, 32.87 feet to a 5/8" rebar at land now or formerly of Kerley as described in deed book 11010, page 136 Cumberland County Registry of Deeds, thence south 49° 51' 29" east along land now or formerly of Kerley, along the terminus of Verrill Street and land now or formerly of Huynh as described in deed book 20307, page 40 Cumberland County Registry of Deeds, 302.31 feet to a point;

thence north 40° 08' 31" east along land now or formerly of Huynh, 110.00 feet to a no. 5 rebar on the southerly sideline of Iffley Street; thence south 49° 51' 29" east along the southerly sideline of Iffley Street, 89.43 feet to a point at land now or formerly of Franklin as described in deed book 15675, page 154 Cumberland County Registry of Deeds;

thence south 40° 08' 31" west along land now or formerly of Franklin, 110.00 feet to a point;

thence south 49° 51' 29" east along lands now or formerly of Franklin, Standish as described in deed book 13797, page 5, Barkhuff as described in deed book 3859, page 6, the terminus of Sarsfield Street, and land now or formerly of Jensen, 425.97 feet to an iron pipe;

thence north 41° 43' 08" east along land now or formerly of Jensen and the terminus of Iffley Street, 131.89 feet to a no. 5 rebar at land now or formerly of Hanson as described in deed book 2185, page 195 Cumberland County Registry of Deeds; thence south 68° 56' 53" east along land now or formerly of Hanson, 182.00 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1219, page 386 Cumberland County Registry of Deeds;

thence south 52° 10' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 31.10 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 610, page 424 Cumberland County Registry of Deeds;

thence south 54° 07' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 252.00 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1219, page 386 Cumberland County Registry of Deeds;

thence south 70° 03' 31" west along land now or formerly of Mt. Sinai Cemetery Association, 125.40 feet to a no. 5 rebar at land now or formerly of Mt. Sinai Cemetery Association as described in deed book 1558, page 209 Cumberland County Registry of Deeds;

thence south 78° 57' 03" west along land occupied now or formerly by Mt. Sinai Cemetery Association, 82.44 feet to a fence post; thence south 40° 23' 22" west along land occupied now or formerly by Mt. Sinai Cemetery Association and land now or formerly of Lead MT, LLC as described in deed book 17401, page 180 Cumberland County Registry of Deeds, 283.03 feet to a no. 5 rebar at land now or formerly of O'Connor Buick GMC Corp. as described in deed book 20997, page 83 Cumberland County Registry of Deeds;

thence north 55° 40' 47" west along land now or formerly of O'Connor Buick GMC Corp., 156.33 feet to a no. 5 rebar;

thence south 34° 19' 13" west along land now or formerly of O'Connor Buick GMC Corp. 322.34 feet to a no. 5 rebar at land now or formerly of Portland Rink Realty as described in deed book 7031, page 126 Cumberland County Registry of Deeds; thence north 55° 40' 47" west along land now or formerly of Portland Rink Realty and land now or formerly of Giroux Oil Co. Inc. as described in deed book 4342, page 31, deed book 3070, page 628 and deed book 3798, page 15 Cumberland County Registry of Deeds, 324.53 feet to an iron pipe;

thence north 72° 51' 29" west along land now or formerly of Giroux Oil Co. Inc., the terminus of Newcomb Street, land now or formerly of Bennett as described in deed book 15814, page 287 Cumberland County Registry of Deeds, the terminus of Saville Street, and land now or formerly of Vance as described in deed books 3080, page 873, deed book 3205, page 559, deed book 2833, page 190, deed book 2595, page 255, and deed book 2755, page 1 Cumberland County Registry of Deeds, 329.05 feet to a no. 5 rebar;

thence south 39° 50' 19" west along land now or formerly of Vance, 82.74 feet to a no. 5 rebar;

thence north 06° 04' 10" west continuing along land of Vance, 220.40 feet to a 5/8" rebar;

thence north 77° 50' 09" west continuing along land now or formerly of Vance, 12.27 feet to a no. 5 rebar;

thence south 39° 50' 52" west continuing along land now or formerly of Vance, 369.42 feet to a 5/8" rebar at land now or formerly of Holmes as previously described; thence north 77° 48' 43" west along land now or formerly of Holmes, 248.17 feet to a 5/8" rebar;

thence south 12° 11' 17" west continuing along land now or formerly of Holmes, 234.84 feet to the point of beginning.

This parcel contains 48.64 acres.

Bearings herein are based upon magnetic north 2002.

The real estate described above is a portion of the land conveyed to Alfred J. Waxler by two April 27, 1988 deeds from Your Home, Inc. recorded in Book 8261, Pages 269 and 273, and the December 31, 2005 deed from Your Home, Inc. recorded in Book 23556, Page 131.

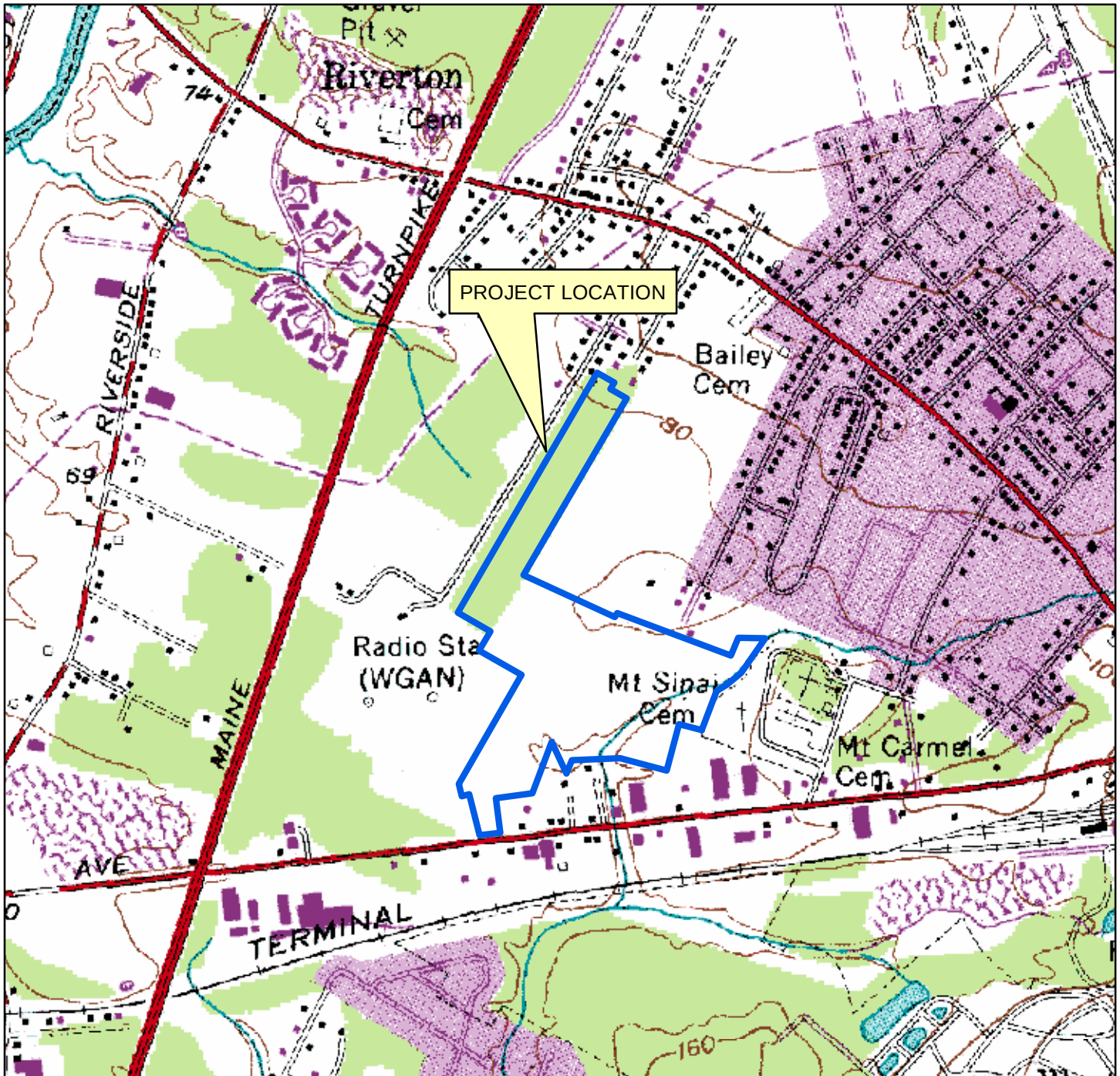
Together with all rights described in the 2004 Affidavit recorded in Book 20828, Page 3.

Received
Recorded Register of Deeds
Jun 27, 2013 02:26:01P
Cumberland County
Pamela E. Lovley

ATTACHMENT 2
USGS LOCATION MAP

2.0 Overview

The following figure is an excerpt of the USGS Topographic Map with the location of the project site delineated.



USGS LOCATION MAP PETER HOLMES COMMERCIAL SITE - WARREN AVENUE PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS - MAPS



FAY, SPOFFORD & THORNDIKE, INC.
 ENGINEERS • PLANNERS • SCIENTISTS
 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: DED
 CHECKED: SRB
 DATE: OCT 2013
 FILENAME: SP-M104_USGS
 SCALE: 1 inch = 1,000 feet

FIGURE

1

ATTACHMENT 3

PROJECT DESCRIPTION NARRATIVE

3.0 Overview

PH Warren Avenue, LLC has acquired an approximately 48.71 acre parcel located between Warren Avenue, Lane Avenue, and Iffley Street. The parcel is undeveloped and is characterized by flat terrain and low-lying wetlands scattered throughout the front and interior site area. Further north into the site the terrain steepens and rises to the residential neighborhood off Iffley Street. The applicant owns the adjacent properties at 401 Warren Avenue (Harbour Auto Body) and at 429 Warren Avenue (two fully occupied commercial/industrial buildings). The applicant is proposing a similar development within the site area closest to Warren Avenue and they propose to share the 429 Warren Avenue access. The applicant is seeking a Level III Site Plan Approval and Stormwater Permit from the City of Portland. The applicant is also seeking a Tier I Natural Resources Protection Act Permit from the DEP.

The applicant's proposal will be within a site area of less than 4 acres. It is the applicant's intent to work with City officials for the transfer of a portion of the property to the City as part of a land exchange/preservation opportunity.

3.1 Project Purpose and Need

The proposed project is considered a unique opportunity to continue similar commercial development as is currently adjacent the property. The owner/applicant has enjoyed success with their properties at 401 and 429 Warren Avenue and the proposed site development looks to expand the number of rental units available at this location. The project's community benefits include the following:

- Enhanced commercial space opportunity within an area of similar commercial uses.
- A net increase in commercial units.
- Furtherance of the purposes of the B-4 zone as articulated in the Land Use Ordinance to "To provide appropriate locations for large-scale commercial uses and commercial uses that require larger land areas to accommodate their operations".

3.2 Existing Conditions

The site conditions are undeveloped and are primarily characterized by flat grade near Warren Avenue. Towards the middle and rear of the parcel, the land is characterized by low-lying meadow wetlands and a natural drainageway that forms the headwaters of Capisic Brook. This drainageway is located beyond the proposed development area and will not be impacted by development activities.

Public utilities including water, sewer, natural gas, power and communications are readily available along Warren Avenue. New services will be extended into the site. Power to the site will be installed underground from an existing utility pole in front of the site.

The street conditions in front of the site are described as follows:

Street Name	Description	On-street Parking	Condition	Other
Warren Avenue	Approximately 40 foot wide paved way with two-way traffic and a center two-way left turn lane.	None	Bituminous sidewalk is in moderate condition with several areas that require improvement.	Existing drainage system on site side of street.

3.3 Proposed Development

The applicant proposes to develop the property to its highest and best use. The development program includes the following components:

3.3.1 ON-SITE

A proposed 70' x 300' nearly rectangular industrial building is proposed. The structure will contain six (6) units. Four units will be 3,500 SF and two units will be 5,555 SF for a total of 25,040 SF of tenant space. Each unit will be provided with an overhead door and a standard door entry. Each space will generally be open with only enclosed restrooms within each space. Tenant fit up may ultimately include some interior office space, storage or related type uses. The applicant expects to lease the spaces in a similar manner as to their buildings at 429 Warren Avenue, which includes multiple small business operators.

The project developer is not seeking LEED designation, but the building will conform to the most current International Energy Conservation Code.

The proposed project consists of new building construction for the 6-unit complex. The building will be oriented perpendicular to Warren Avenue and the access will be off the 429 Warren Avenue driveway. The existing 429 Warren Avenue driveway consists of a 36' wide paved surface containing separate left and right turn exiting lanes and a single entering lane.

The yard area will include a paved surface in front of the building where 36 parking spaces will be provided. The pavement area has been designed to allow larger tractor-trailers to enter and maneuver as many tenants will need occasional tractor-trailer vehicle access. The yard area will include provisions for a solid waste enclosure. Drainage systems including gravel wetlands will be constructed near the front and rear of the development area. The development will occupy approximately 2.5 acres of the site.

3.3.2 OFF-SITE

Site access is proposed via Warren Avenue. No offsite improvements are expected based on the condition of Warren Avenue and the existing site entrance at 429 Warren Avenue. Utilities are currently stubbed into the site.

3.4 Land Ordinance Review

3.4.1 OVERVIEW

The property currently lies within the City of Portland B-4 Zoning District. The following dimensional requirements will apply in the B-4 Zone all of which will be met by the project:

Dimensional Standard	Requirement
Minimum Lot Size	10,000 SF
Minimum Frontage	Sixty (60) Feet
Front yard setback	20 Feet
Side Yard Setback/Side Yard on a Street	10 feet/10 Feet
Rear Yard Setback	20 Feet
Minimum Lot Width	60 Feet
Maximum Impervious Surface	80%
Maximum Building height	65 Feet

3.4.2 SHORELAND ZONING

The site is not located within the Shoreland Zoning District.

3.5 State and Federal Permits

The project requires a Natural Resources Protection Act (NRPA) approval from the Maine Department of Environmental Protection. The NRPA Tier I Permit Application for wetland impacts will be filed concurrently with the City of Portland Site Plan Application. The site also requires a Stormwater Permit, which we are requesting be reviewed by the City of Portland under their delegated review authority. The development is subject to Site Plan approval by the City of Portland and Building Permit(s) are also required.

3.6 Easements or Other Burdens

According to the survey map prepared by Nadeau Land Survey and Survey Inc. there is an easement to CMP (CCRD 7320/57) as well as various access rights across the 429 Warren Avenue access drive serving other parties. See the Boundary Survey by Nadeau Land Survey accompanying this submission for further details.

3.7 Traffic

The proposed project will not result in significant impacts to the surrounding street system. Based on ITE Land Use 110 Light Industrial, the project will result in fewer than 28 new AM or PM peak hour trips. Given the nature of the two-way conditions of Warren Avenue along with the existing two-way center left turn lane, we foresee no major impact to the capacity conditions on the street. Site lines and street conditions at the site entrance appear to be favorable. No further traffic analysis is currently proposed.

3.8 Soils/Geotechnical Review

3.8.1 OVERVIEW

S.W. Cole Engineering conducted a preliminary geotechnical investigation of the project site and their findings were presented to the development team. The site is generally characterized by layers of the following materials:

- Topsoil/Fill Cover
- Glaciomarine sands, silts and clay

Aggregate materials for foundation backfill, pavement base and subbase gravels and all trench backfilling will be primarily imported from off-site sources. The project earthwork will involve minor cutting and filling. In general, the building will be supported by traditional concrete spread footing and foundation wall systems.

3.9 Natural Features

The development site contains areas of scrub-shrub wetlands as identified by Albert Frick Associates. A drainage way also exists towards the middle of the site, well away from the proposed development zone. The applicant is not proposing any further development beyond the limits currently depicted on the permitting documents. The site does not contain any vernal pools, wetlands of special significance or other significant natural resources.

3.10 Utilities and Stormwater

The site will be served by existing utilities in the street including water, sewer, natural gas, and power. A 20" water main is located in Warren Avenue and an 8" water main has been previously stubbed into the property. A 6" sewer stub has also been installed onto the lot. Overhead power and communications are currently located on the opposite side of Warren Avenue with a crossover pole located on the site. An underground service extension into the building is proposed from a new pole mounted transformer.

The site is currently undeveloped and the runoff conditions consist of sheet flow directed either towards Warren Avenue or towards the middle of the site where a drainage way forms the headwaters of the Capisic Brook Watershed. Both of the applicant's adjacent properties at 401 Warren Avenue and 429 Warren Avenue have their own stormwater management facilities. The current proposal seeks to use the Best Management Practice identified as a Gravel Wetland. The advantage of the gravel wetland is the minimal vertical area needed for it to function. Based on the flat nature of the development site, the gravel wetland approach seems well suited to the project.

ATTACHMENT 4

WETLAND IMPACT FIGURES AND PLAN SHEET C-3.0

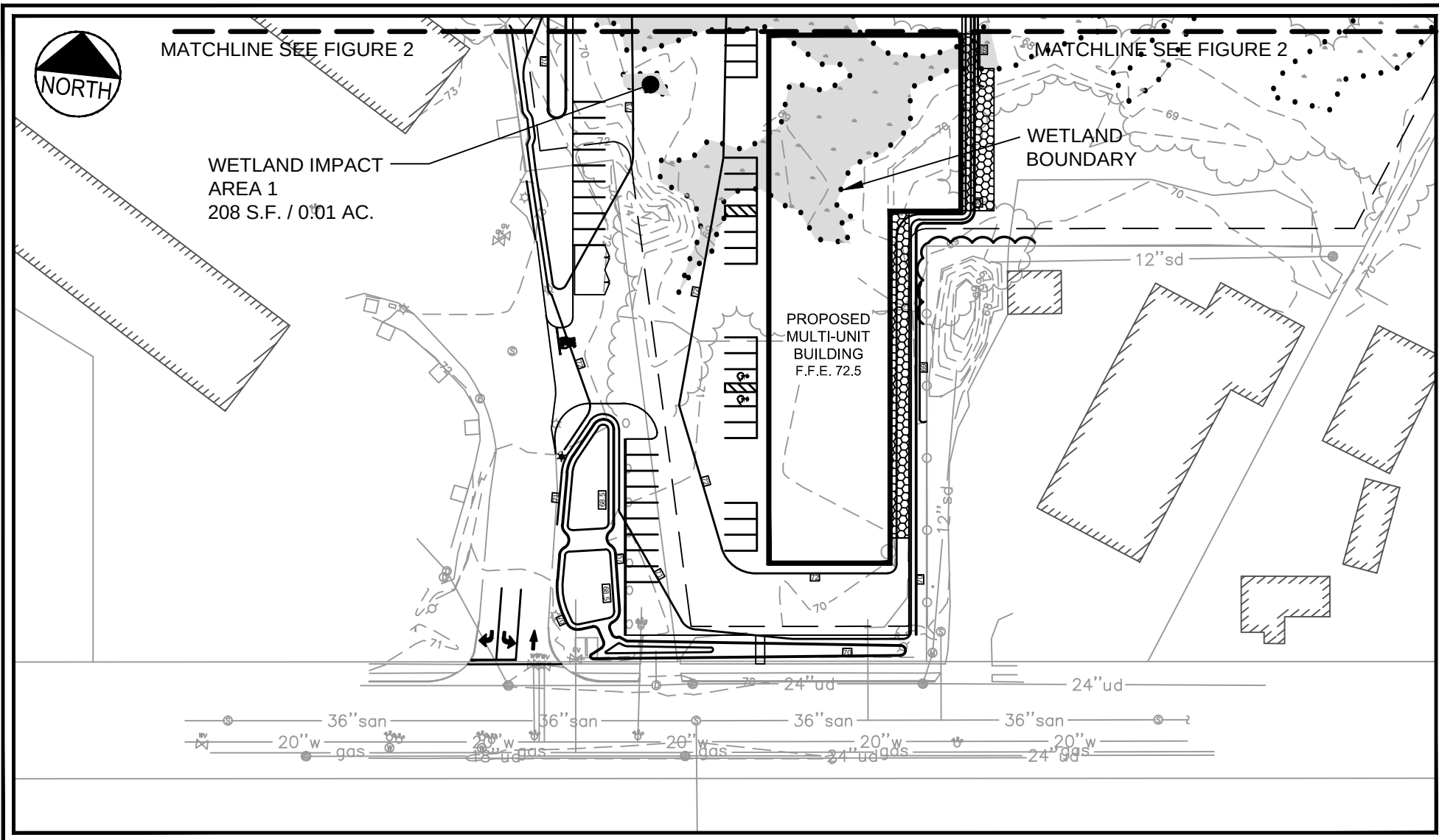


FIGURE: 1	BOOK: PAGE: REFER TO PLANS IN SLDA APPLICATION	LOCATION: PORTLAND, ME WARREN AVE	PROPOSED ACTIVITY: -	PROJECT APPLICANT: PETER F HOLMES
	LEGAL DESCRIPTION: REFER TO PLANS IN SLDA APPLICATION	WATER BODY: -	ABUTTERS: SEE EXHIBIT 25 OF SLDA APPLICATION	SCALE: 1" = 80' DATUM: NAD 83 DATE: 04.16.14 FAY, SPOFFORD & THORNDIKE, INC.

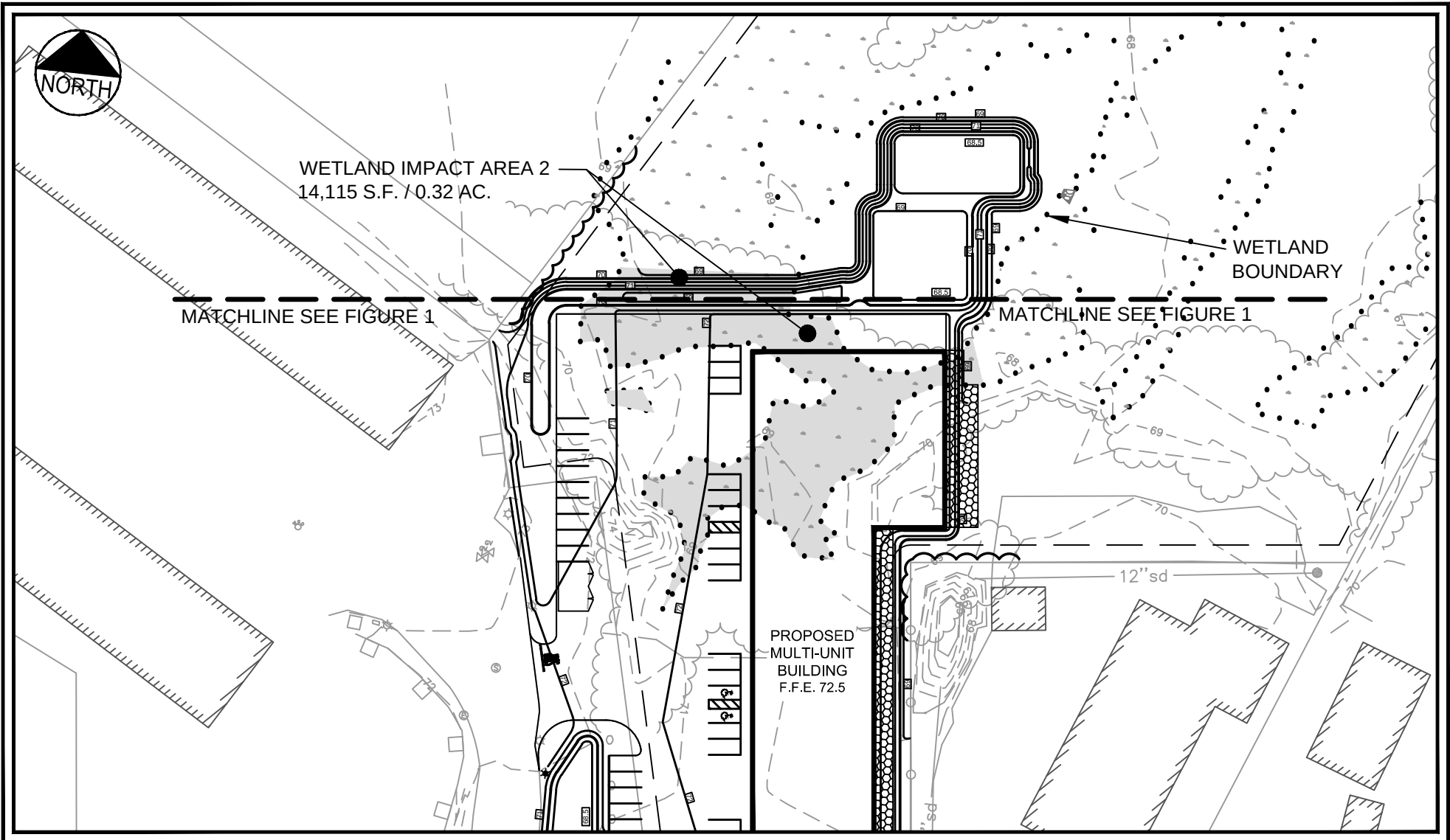
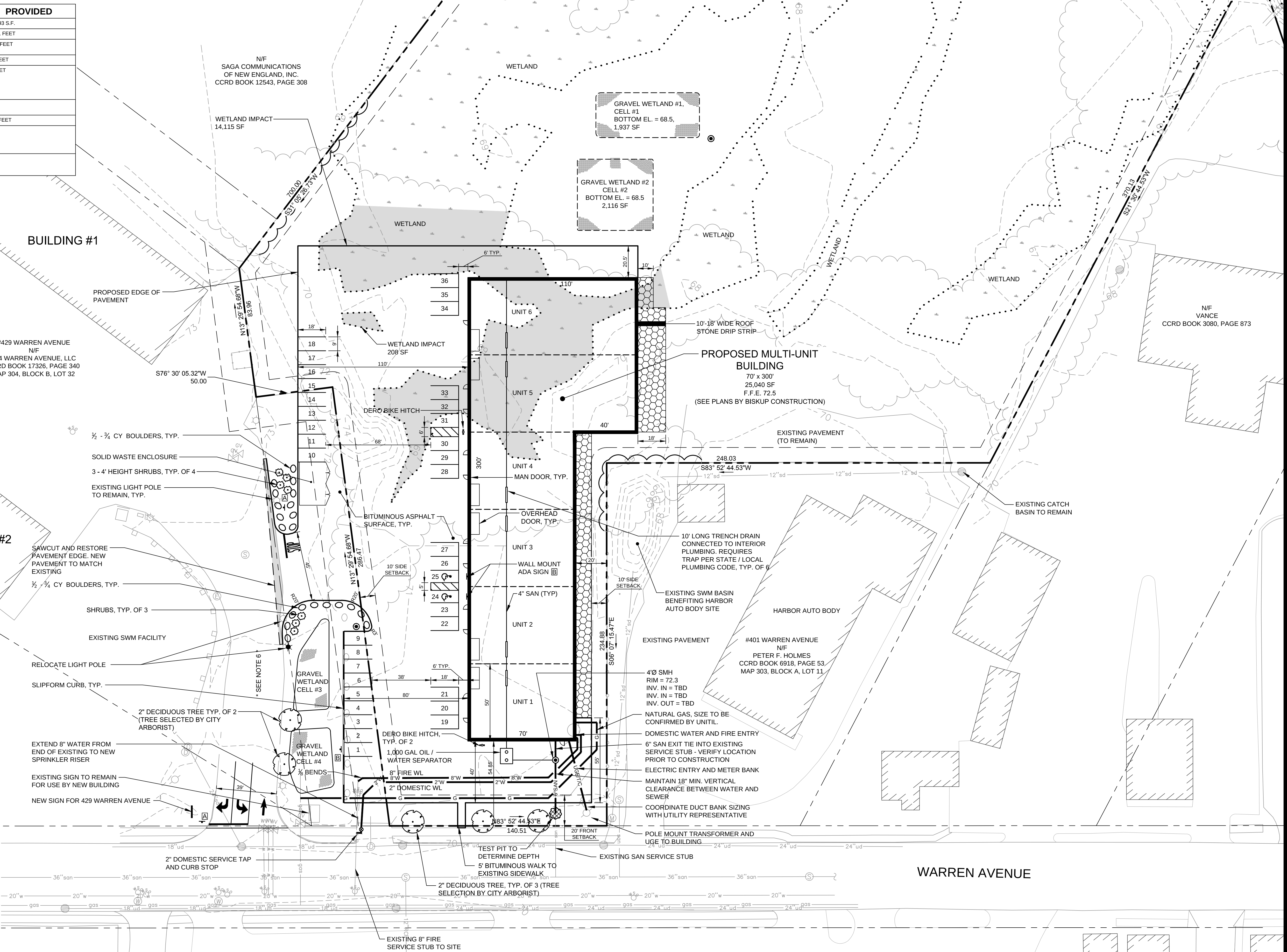


FIGURE: 2	BOOK: PAGE: REFER TO PLANS IN SLDA APPLICATION	LOCATION: PORTLAND, ME WARREN AVE	PROPOSED ACTIVITY: -	PROJECT APPLICANT: PETER F HOLMES
	LEGAL DESCRIPTION: REFER TO PLANS IN SLDA APPLICATION	WATER BODY: -	ABUTTERS: SEE EXHIBIT 25 OF SLDA APPLICATION	SCALE: 1" = 80' DATUM: NAD 83 DATE: 04.16.14 FAY, SPOFFORD & THORNDIKE, INC.

DIMENSIONAL STANDARD	REQUIRED DIMENSION - B4	PROVIDED
MINIMUM LOT SIZE	10,000 SF	418,393 S.F.
MINIMUM STREET FRONTAGE	60 FEET	140.51 FEET
MINIMUM FRONT YARD	20 FEET OR THE AVERAGE DEPTH OF THE FRONT YARDS ON EITHER SIDE. AVERAGE DEPTH = 1 FOOT	54.85 FEET
MINIMUM REAR YARD	20 FEET	>20 FEET
MINIMUM SIDE YARD	1 OR 2 STORIES = 10 FEET 3 OR MORE STORIES = 12 FEET	20 FEET
MAXIMUM LOT COVERAGE	40% FOR LOTS CONTAINING 20 OR MORE UNITS; 50% FOR LOTS CONTAINING FEWER THAN 20 UNITS.	<40%
MINIMUM LOT WIDTH	60 FEET	>150 FEET
MAXIMUM STRUCTURE HEIGHT	65 FEET EXCEPT ON LOTS IN EXCESS OF 5 ACRES, 90 FEET IS PERMITTED IF EACH OF THE SETBACKS REQUIRED IS INCREASED BY 1 FOOT IN DISTANCE FOR EACH FOOT OF HEIGHT ABOVE 65 FEET	
IMPERVIOUS SURFACE RATIO	80%	<30%



PLAN NOTES

- THE SUBJECT PARCEL IS NOT LOCATED WITHIN FLOOD HAZARD ZONE AS INDICATED ON FIRM PANEL 2300510006C.
- OWNER OF RECORD:
PH WARREN AVENUE, LLC
C/O 401 WARREN AVENUE
PORTLAND, MAINE 04103
CCRD BOOK 30781, PAGE 74
- SEE FULL PLAN SET TITLED "SITE DEVELOPMENT PLANS FOR MULTI-UNIT COMMERCIAL BUILDING" BY FAY, SPOFFORD & THORNDIKE, INC. DATED APRIL, 2014.
- SEE COVER SHEET FOR TAX MAP AND LOT REFERENCES. THIS SITE IS LOCATED IN THE B4 ZONE PER THE CITY OF PORTLAND ZONING MAP.
- SOLID WASTE REMOVAL SHALL BE BY PRIVATE WASTE HAULER UNDER DIRECT CONTRACT TO THE OWNER.
- ACCESS AND UTILITY RIGHTS SUBJECT TO SHARED ACCESS AND UTILITY AGREEMENT BETWEEN 424 WARREN AVENUE LLC AND P H WARREN AVE, LLC (PROPERTIES ARE CURRENTLY UNDER COMMON OWNERSHIP).
- TOTAL WETLAND IMPACT = 14,323 SF

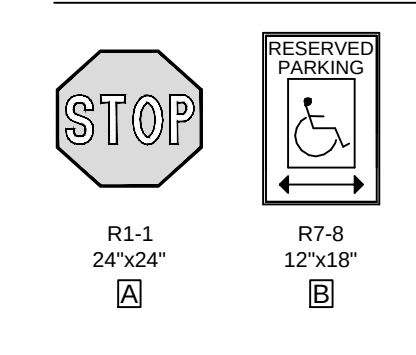
PLAN REFERENCES

- BOUNDARY SURVEY, WARREN AVENUE, PREPARED FOR REALTY RESOURCES CHARTERED, ALFRED J. WAXLER, BY SURVEY, INC. (JOB NO. 04-131) DATED DECEMBER 2004. THE VERSION OF THE PLAN REFERENCED BY FST, INC. WAS UNSIGNED.
- PLAN DEPICTING THE RESULTS OF A PARTIAL BOUNDARY SURVEY, EXISTING CONDITIONS AND PROPOSED LOT DIVISION MADE FOR P H WARREN AVE, LLC BY NADEAU LAND SURVEYS DATE 01.07.2014 (JOB #2131442BT).

WAIVERS REQUESTED

- WAIVER FROM SECTION 14-526(4)(b)(i)(b) BICYCLE PARKING SPACES.

SIGN LEGEND



PRELIMINARY - NOT FOR CONSTRUCTION

ATTACHMENT 5
EXISTING SITE PHOTOGRAPHS

5.0 Overview

The following photographs depict the existing conditions at the project site.



PHOTO 1



PHOTO 2



**FAY, SPOFFORD &
THORNDIKE**
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896

**421 Warren Ave – Portland, Maine
Existing Site Photographs
(FST JN SP-M104)**



PHOTO 3



PHOTO 4



FAY, SPOFFORD &
THORNDIKE
778 Main Street, Suite 8
South Portland, ME 04106
Toll Free: 800.835.8666
Main: 207.775.1121
Fax: 207.879.0896

**421 Warren Ave – Portland, Maine
Existing Site Photographs
(FST JN SP-M104)**

ATTACHMENT 6

STATEMENT OF AVOIDANCE & MINIMIZATION

6.0 Overview

The proposed building and associated site work creates 14,323 SF of wetland fill. The site is currently undeveloped except for some minor fill placement along the Warren Avenue frontage that did not involve previous wetland filling.

There are two locations where wetland fill is proposed. The larger wetland fill accounts for nearly 14,115 SF of scrub-shrub wetland impact. This area is towards the north end of the proposed development layout and it involves both building and parking area fill placement. A second smaller fill placement of 208 SF impacts an isolated pocket of wetland. This impact is unavoidable. The fill to the larger wetlands have been minimized to the greatest extent possible while meeting the development needs of the Owner as well as satisfying the City of Portland Planning and Public Safety requirements.

During the course of preliminary design, the design team evaluated multiple building configurations and layouts. Initially the applicant was considering a building size of greater than 35,000 SF based on their understanding of market demand. These layouts generally involved wetland impact greater than 25,000 SF, as it is nearly impossible to avoid impacts to the fingered wetlands towards the rear of the proposed development area. These impacts would generally include provisions for sufficient parking and stormwater systems to support the development. The team also evaluated an L-shaped building configuration to verify whether impacts could be reduced to the Tier I threshold of 15,000 SF. This too, resulted in impacts greater than 25,000 SF. We confirmed that in order to reduce the wetland impact to a Tier I level, it is necessary to reduce the overall building footprint to less than 26,000 SF. Consequently, the building size now proposed is 25,040 SF.

The parcel size is 48.71 acres. The proposed building and pavement will add approximately 2 acres of impervious area to the site. This impervious area represents approximately 4% of the site area. By inspection one can conclude that the overall development footprint proposed is well within reasonable limits for the site's size and zoning capacity. The applicant has carefully considered the site's wetland resources and the potential for larger development and they have concluded that the proposed development program, as now depicted on the supporting plans, meets their minimum needs to economically support the project.

The first and larger area with proposed wetland fill is in a scrub-shrub wetland. This wetland comprises the northerly core area of the development footprint. This wetland drains towards the north and is characterized by very flat terrain that has exhibited historical disturbance including topsoil removal many years ago. The wetland fill is approximately 14,115 SF. The fill of wetland is necessary to accommodate the building

placement as well as the paved drive for access of the building, as required by prospective tenants as well as emergency services. This wetland fill area is depicted on Figure W-1 in Attachment 4 of this submission. The applicant has proposed a 2:1 slope along the outside edge of the drainage swale that will convey runoff from a portion of the developed area to a gravel wetland system. The 2:1 slope will minimize wetland impact. The placement of the gravel wetland systems for the site's stormwater management has also been positioned in the upland area between wetland fingers, thus avoiding possible additional impacts. We note that the current construction proposal includes reuse of the impacted wetland area hydric soils, within the proposed gravel wetlands. We propose to salvage the wetland sod and soils by cutting the sod in a similar manner as traditional lawn sod. The wetland sod will be rolled and maintained prior to placement within the gravel wetland cells.

ATTACHMENT 7

CORRESPONDENCE TO MAINE HISTORIC PRESERVATION COMMISSION

7.0 Overview

A copy of this application is being submitted to the Maine State Historic Preservation Commission with a request for a receipt of this permit application. The application request letter is included with this attachment. Copies of the receipt from the MHPC will be provided to the Corps of Engineers and MaineDEP upon receipt.



April 21, 2014

Mr. Earle Shettleworth, Jr.
Maine Historic Preservation Commission
55 Capitol Street
State House Station 65
Augusta, Maine 04333

**Subject: Proposed Commercial Development
421 Warren Avenue, Portland, Maine**

Dear Mr. Shettleworth:

Fay, Spofford & Thorndike (FST) has been retained to assist with the design and permitting of a proposed 25,040 SF multi-unit commercial building at 421 Warren Avenue in Portland, Maine. The development site is currently undeveloped but is bordered by similar developments to each side, both of which are owned by the applicant. The applicant is seeking to construct a single commercial structure to meet demand for small business space and operations in the City of Portland. The development site is part of a larger 48.71 acre undeveloped parcel that has been evaluated for larger development proposals in the past. The site is depicted on the enclosed USGS Location Map (see Figure 1).

The proposed project will fill approximately 14,430 SF of wetland to accommodate the building and associated parking/paved area. A Site Layout Plan (C-2.0) is enclosed. This wetland impact requires a Tier I NRPA approval from the Maine DEP. The Tier I application requires notice to MHPO, for which we are seeking your prompt response.

Our office anticipates there are no areas on or adjacent to the site with historical, architectural, or archeological significance as defined by the Natural Preservation Act of 1966; however, as a requirement of the MeDEP NRPA Tier I Wetland Alteration Permit application we are submitting this letter along with a copy of permit application and supporting documents. Please let me know if you have any questions or require further information.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen Bushey".

Stephen Bushey, P.E.
Senior Principal Engineer

SRB/smk

Enclosures

c: Bill Bullard, MEDEP
Rod Howe, USACOE

R:\SP-M104 Portland, ME Harbor Auto Body - Peter Holmes\Admin\Permitting\NRPA\2014.04.21-Shettleworth-NRPA.doc



May 21, 2014

Ms. Jean Fraser, Planner
Planning and Development Department
City of Portland
389 Congress Street
Portland, Maine 04101-3509

Subject: 421 Warren Avenue
Final Site Plan Application/Delegated Review Stormwater
Comment Response #2

Dear Jean:

We have received comments sent via email on May 14, 2014 outlined below and we offer some brief responses for staff and Planning Board consideration.

Comment 1: Why is the 20 feet alongside the building needed? (north side)

Response: The applicant intends to use this area for snow plowing and parking of a snowplow during the winter. Having operated the property at 429 Warren Avenue, it is the applicant's experience that having this small paved area adjacent the building is beneficial.

Comment 2: What do trucks do if cars are parked in parking spaces?

Response: The applicant has experience with operations of a similar facility at 429 Warren Avenue, thus they know that the majority of larger semi-trailer truck visits are made when the parking area is empty or partially occupied. On occasion they may cone off sections for deliveries. The applicant has considered the layout closely with their experience and operational needs of similar sites he owns in Portland and previously owned in Lewiston. Based on the anticipated tenant uses for the building, the applicant is firmly of the opinion that the proposed layout is required and will be satisfactory for the intended use.

Comment 3: Is applicant aware of the impervious surface fee that the City is introducing?

Response: The applicant is aware of the upcoming impervious area fees being established by the City and as a property owner of other developed property in the City will be a likely participant in the fee collection. The applicant is certainly interested in the fee structure and opportunities for credits to be applied for existing stormwater treatment systems.

Ms. Jean Fraser
May 21, 2014
Page 2

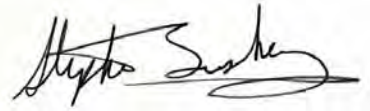
Comment 4: All of these questions relate to the strong staff view that the shape and extent of the paved area is not necessarily supporting the proposed industrial/commercial function intended and that the paved area in the corner and along the north side (where it takes the trees/wetland) is un-necessary as its not used for parking nor truck maneuvering.

Response: The applicant's site development layout has undergone a series of revisions and cut backs to meet natural resource impact thresholds among other things. On this basis we are satisfied as to the layout and will present to the Planning Board the layout as currently submitted, despite possible continued staff reservation on size and impervious area. We note that the site still only constitutes less than a 10% development area of the 48 acres owned by the applicant. This, along with the design measures for stormwater being fully compliant with local and State regulations, seems sufficient evidence to support the applicant's goal of site plan approval on the plan as designed.

If you have any questions regarding these materials please contact this office.

Sincerely,

FAY, SPOFFORD & THORNDIKE

A handwritten signature in black ink, appearing to read "Stephen R. Bushey", is written over a light yellow rectangular background.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/smk

c: Peter Holmes
Jim Biskup, Biskup Construction

From: Maria Kerley <maria4solutions@msn.com>
To: Jean Fraser <jf@portlandmaine.gov>
CC: melissa carpenter <joelmissy@yahoo.com>
Date: 5/22/2014 3:49 PM
Subject: RE: 421 Warren and applicants sale of nearby land to the city

To: Jean Fraser : Thank you for forwarding this to the Planning Board and the City Council Members - Maria Kerley

May 22, 2014 The Planning Board

The City Council Members

RE: 421 Warren Avenue Development

Please consider the
short term and long term impact of this development to the neighborhood :

.

We would like
to continue to enjoy the peace and security within our neighborhood. This development will increase
traffic (vehicular
and foot) and noise in our neighborhood –
not directly at first but over time – there will be sizeable increase growth of activities due to this
development.

.

We would like to continue to protect the
children attending the nearby Riverton School. We are concerned that this development brings
with it the possibility of getting access via Iffley Street and Verril Street. This will threaten the current
peace and
security we have. Please protect our children and ensure fire safety.

.

We are concerned about the effect of this
development to the future with possibility of other similar project development
which would impair our environment in terms of air quality. This development would certainly add to
some
pollution.

.

We are concerned about the effect on the wetlands

and wildlife. There always is an effect on the flow of water and wildlife every time there is disturbance in the soil and that happens during construction. We would lose the wildlife. The pheasants and the deer are soon to be gone.

.
We are concerned about not knowing what future development might happen as in relation to this project. What happens if the City purchase part of the property – Are we looking at the possibility green space, Portland trails access, parks, ball fields, lights, wetlands, low income housing, big parking lots....all of which threatens our quality of life.

I trust that the Planning Board and the City Council will help us maintain our quality of life. We believe there is no need to change/waive/substitute and or compromise any policy/requirement or regulation (i.e. number of parking spaces, building size, easements and other burdens) to accommodate this project should this project be passed and approved.

Maria KerleyProperty : 56 Iffley Street Portland Mainemaria4solutions@msn.com

Date: Wed, 14 May 2014 17:36:52 -0400
From: JF@portlandmaine.gov
To: maria4solutions@msn.com
CC: DAR@portlandmaine.gov
Subject: 421 Warren and applicants sale of nearby land to the city

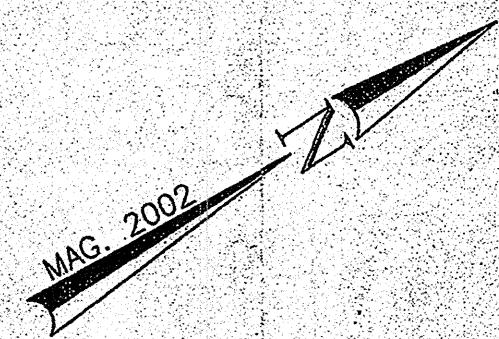
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BOUNDARY SURVEY
WARREN AVENUE
PORTLAND, ME

FOR:
REALTY RESOURCES, CHARTERED
247 COMMERCIAL STREET
ROCKPORT, ME 04856

ALFRED J. WAXLER
P.O. BOX 6681
PORTLAND, MAINE 04103
(OWNER OF RECORD)



N/F
SAGA COMMUNICATIONS OF
NEW ENGLAND, INC.
12543/308

N/F
SAGA COMMUNICATIONS OF
NEW ENGLAND, INC.
12543/308

N/F
424 WARREN AVENUE, LLC
17326/340
TAX MAP 304, BLOCK B, LOT 32
PLAN REF. 3(B)

N/F
PETER F. HOLMES
6918/53
TAX MAP 303, BLOCK A, LOT 11
PLAN REF. 3(D)

N/F
VANCE
3080/873, 3205/559, 2833/190
2595/255, 2755/1
TAX MAP 303, BLOCK A, LOTS 1-7, 9
TAX MAP 303, BLOCK B, LOTS 1, 6-8
PLAN REF. 3(C)

N/F
JOHN P. BENNETT
15814/87
TAX MAP 304, BLOCK C, LOTS 1-14-16
PLAN REF. 3(E)

N/F
GROUX
3070/828 & 3798/15
TAX MAP 303, BLOCK C, LOTS 1-14-16
TAX MAP 303, BLOCK D, LOT 15
PLAN REF. 3(F)

N/F
PORTLAND RINK REALTY
7031/126
TAX MAP 296, BLOCK A, LOT 7
TAX MAP, BLOCK D, LOT 15
PLAN REF. 3(A)

N/F
LEAD MT. LLC,
17401/180
TAX MAP 296, BLOCK A, LOT 1
PLAN REF. 3(N)

N/F
MT. SINAI CEMETERY
ASSOCIATION
1219/386 (LOT I)
TAX MAP 301, BLOCK 1, LOT 13

N/F
MT. SINAI CEMETERY
ASSOCIATION
610/424
TAX MAP 301, BLOCK 1, LOT 4

N/F
MT. SINAI CEMETERY
ASSOCIATION
1219/386 (LOT II)
TAX MAP 297, BLOCK C, LOT 28

N/F
HANSON
2185/195
TAX MAP 301, BLOCK J, LOT 8

N/F
VIERRA
10204/210
TAX MAP 300, BLOCK E, LOT 24
TAX MAP 301, BLOCK D, LOTS 1-4

N/F
FRANKLIN
15675/154
TAX MAP 301, BLOCK F, LOTS 7-9

N/F
STANDISH
1379/15
TAX MAP 301, BLOCK E, LOTS 10-13

N/F
BAREHUR
3859/6
TAX MAP 301, BLOCK F, LOTS 14-15

N/F
HUYNH
28907/40
TAX MAP 301, BLOCK F, LOTS 1-3

N/F
KERLEY
11010/136
TAX MAP 301, BLOCK E, LOT 1

N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

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11010/136
TAX MAP 301, BLOCK E, LOT 1

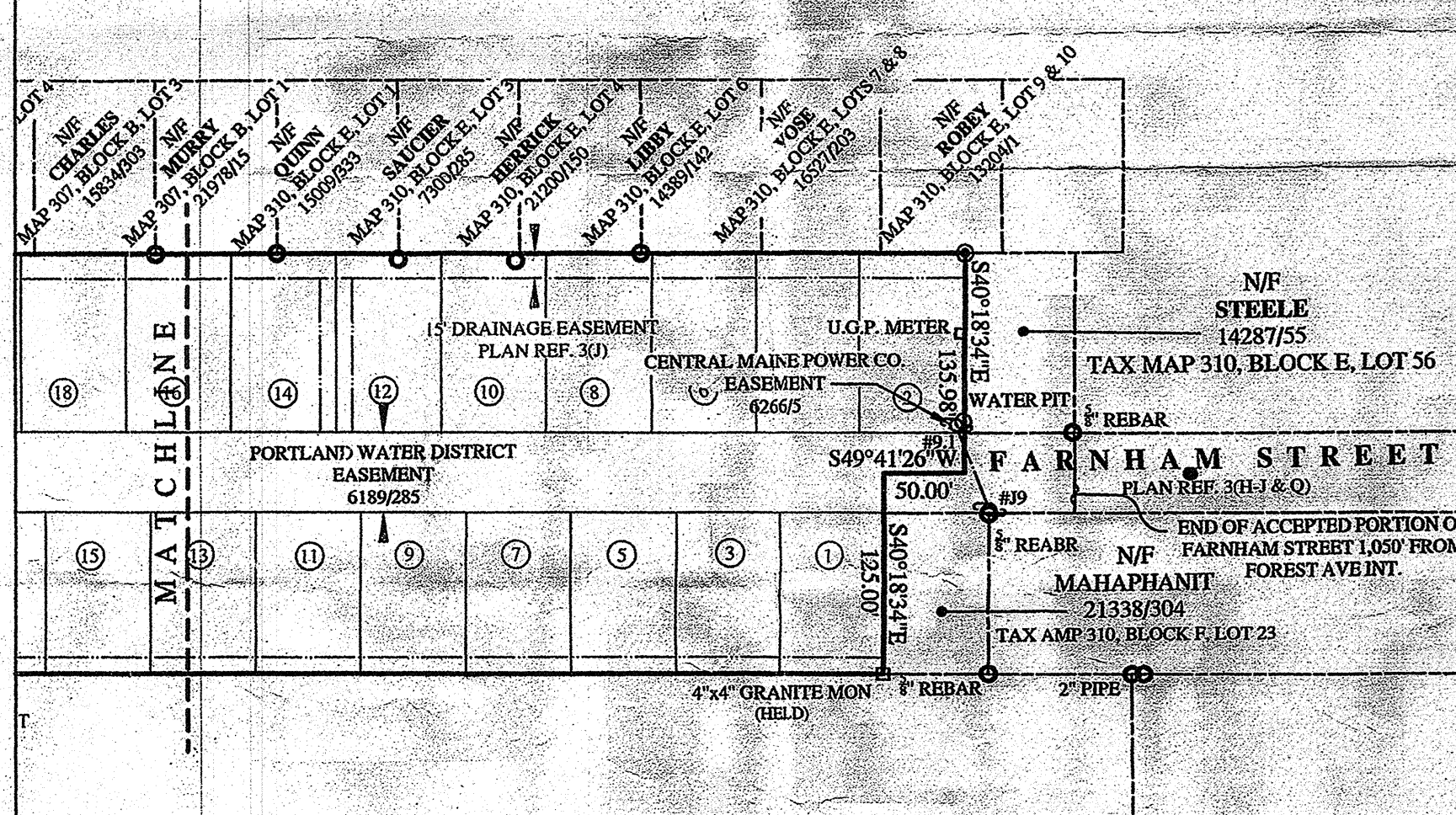
N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

N/F
KIRBY
11010/136
TAX MAP 301, BLOCK E, LOT 1

MATCHLINE DETAIL



LOCATION MAP
(NOT TO SCALE)

1. DEED REFERENCES:
(A) DEED BOOK 8261, PAGE 269
(B) DEED BOOK 8261, PAGE 273
(C) DEED BOOK 2358, PAGE 131
CUMBERLAND COUNTY REGISTRY OF DEEDS (C.C.R.D.)
2. TAX MAP REFERENCES:
(A) TAX MAP 296 - BLOCK A, LOT 6
(B) TAX MAP 301 - BLOCK F, LOTS 4-6 & BLOCK 1, LOT 10
(C) TAX MAP 302 - BLOCK A, LOT 1
(D) TAX MAP 303 - BLOCK A, LOTS 8-10
(E) TAX MAP 304 - BLOCK B, LOT 28
(F) TAX MAP 305 - BLOCK C, LOT 1
(G) TAX MAP 307 - BLOCK E, LOT 19 & BLOCK 1, LOT 1
(H) TAX MAP 308 - BLOCK B, LOT 1 & BLOCK C, LOT 1
(I) TAX MAP 310 - BLOCK E, LOT 35 & BLOCK F, LOT 1
3. PLAN REFERENCES:
(A) PLAN OF PROPERTY
FOR: WILLIAM H. FAULKINGHAM
BY: H. & C. JORDAN
DATED: FEB. 26, 1973
(B) STANDARD BOUNDARY AND SITE PLAN
FOR: GIBBY OIL
BY: SEBAGO TECHNIQUES, INC.
DATED: 7/6/87
(C) SITE PLAN
FOR: JOY VANCE
BY: SEBAGO TECHNIQUES, INC.
DATED: 9/17/94
(D) SITE PLAN
FOR: HARBOR AUTO BODY
BY: SEBAGO TECHNIQUES, INC.
DATED: 1/31/90
(E) STANDARD BOUNDARY & TOPOGRAPHIC SURVEY
FOR: DANIEL MORTON, INC.
BY: LEWIS & WASSON, INC.
DATED: 8/15/00
(F) STANDARD BOUNDARY SURVEY
FOR: EUGENIE AMBLER ASSOCIATES
BY: D.A. MARTEL, JR.
DATED: FEB. 1988
(G) STANDARD BOUNDARY SURVEY
FOR: EUGENIE AMBLER ASSOC.
BY: D.A. MARTEL, JR.
DATED: JAN. 1986
RECORDED: PLAN BOOK 154, PAGE 57 (C.C.R.D.)
(H) PLAN OF LOTS
FOR: MRS. E.L. CUSHMAN
BY: E.C. JORDAN & CO.
DATED: SEPT. 1916
RECORDED: PLAN BOOK 13, PAGE 61 (C.C.R.D.)
(I) EXISTING CONDITIONS SURVEY
FOR: 422 FARNHAM STREET
BY: PUBLIC WORKS DEPT., CITY OF PORTLAND
DATED: OCT. 1997
(J) FINAL SUBDIVISION PLAN
FOR: YOUR HOME, INC.
BY: BH24
DATED: JULY 1979
(K) HARKS DEPT. SURVEY PLAN
FOR: RIVINGTON SCHOOL SITE
(L) SUBDIVISION PLAN
FOR: VERRILL & WITT STREETS
BY: LAND USE CONSULTANTS
DATED: JULY 10, 1986
RECORDED: PLAN BOOK 184, PAGE 15 (C.C.R.D.)
(M) PORTLAND VILLA SITES
FOR: J.W. WILBER CO. INC.
BY: ERNEST W. BRANCH CIVIL ENGINEER
DATED: JULY 9, 1918
RECORDED: PLAN BOOK 14, PAGE 7 (C.C.R.D.)
(N) BOUNDARY & EXISTING CONDITIONS PLAN
FOR: NORTHEAST CIVIL SOLUTIONS
DATED: JULY 1, 2002
(O) FARNHAM STREET PUMPING STATION, FORCE MAIN,
GRAVITY SEWER & FUTURE STORM DRAIN RIGHT-OF-WAY
(P) PLAN OF HOMESTEAD ACRES EXTENSION
FOR: CHARLES H. HANSON
DATED: REVISED, MAY 1955
RECORDED: PLAN BOOK 44, PAGE 14 (C.C.R.D.)
(Q) PLAN OF LAND
FOR: MRS. C.S. FARNHAM
BY: E.C. JORDAN & CO.
DATED: JUNE 1910
RECORDED: PLAN BOOK 12, PAGE 16 (C.C.R.D.)
4. PARCEL DELINEATED ON CITY OF PORTLAND TAX ASSESSORS
MAP 301, BLOCK X. 20' WIDE RIGHT-OF-WAY DESCRIBED IN
DEED 1995/566. RIGHT-OF-WAY SHOWN AS PER ASSESSOR'S MAP.
5. PROPERTY IS SUBJECT TO EASEMENTS AND/OR
RIGHT-OF-WAYS OF RECORD.

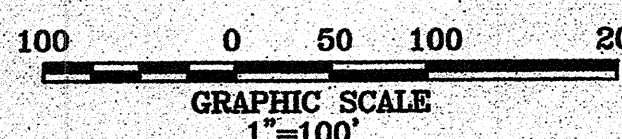
Survey, Inc.
P.O. Box 210
Winthrop, Maine 04092
Phone: 207/882-2266
Fax: 207/882-2267
Survey, Inc. Vermont

I CERTIFY THAT THIS SURVEY CONFORMS TO THE
STANDARDS OF THE MAINE BOARD OF LICENSED SURVEYORS
AND IS CORRECT TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL
OPINION.

ROBERT N. FARRINGHAM FLS. 586

DRAWN BY: KLD JOB NAME: REALTY
RESOURCES PORTLAND
DATE: DECEMBER 2004 JOB NO. 04-131

- LEGEND:
○ IRON PIN FOUND
● NO. 5 REBAR SET
○ UTILITY POLE
N/F NOW OR FORMERLY
123/45 DEED BOOK/PAGE
EXISTING STRUCTURE
P.O.B. POINT OF BEGINNING
○ MAN HOLE
WETLANDS



PROJECT PARCEL SITE CITY OF PORTLAND TAX MAP-BLOCK-LOT (ADDRESS)	
MAP-BLOCK-LOT	ADDRESS
296-A-6	421 WARREN AVE
303-A-8	421 WARREN AVE
302-A-1	421 WARREN AVE
303-A-10	421 WARREN AVE
301-J-10	421 WARREN AVE
304-B-28	421 WARREN AVE
305-D-1	421 WARREN AVE
299A-A-1	1592 FOREST AVE
310-E-35	0 FARNHAM ST
307-B-19	0 FARNHAM ST
308-B-2	0 FARNHAM ST
310-F-1	0 FARNHAM ST
307-J-1	0 FARNHAM ST
308-C-1	0 FARNHAM ST

OWNER

PH WARREN AVENUE, LLC C/O
PETER F HOLMES
12 WILDWOOD LANE
SCARBOROUGH, MAINE 04074
ATTN: PETER HOLMES

APPLICANT

PH WARREN AVENUE, LLC C/O
PETER F HOLMES
12 WILDWOOD LANE
SCARBOROUGH, MAINE 04074
ATTN: PETER HOLMES

SITE DEVELOPMENT PLANS

FOR

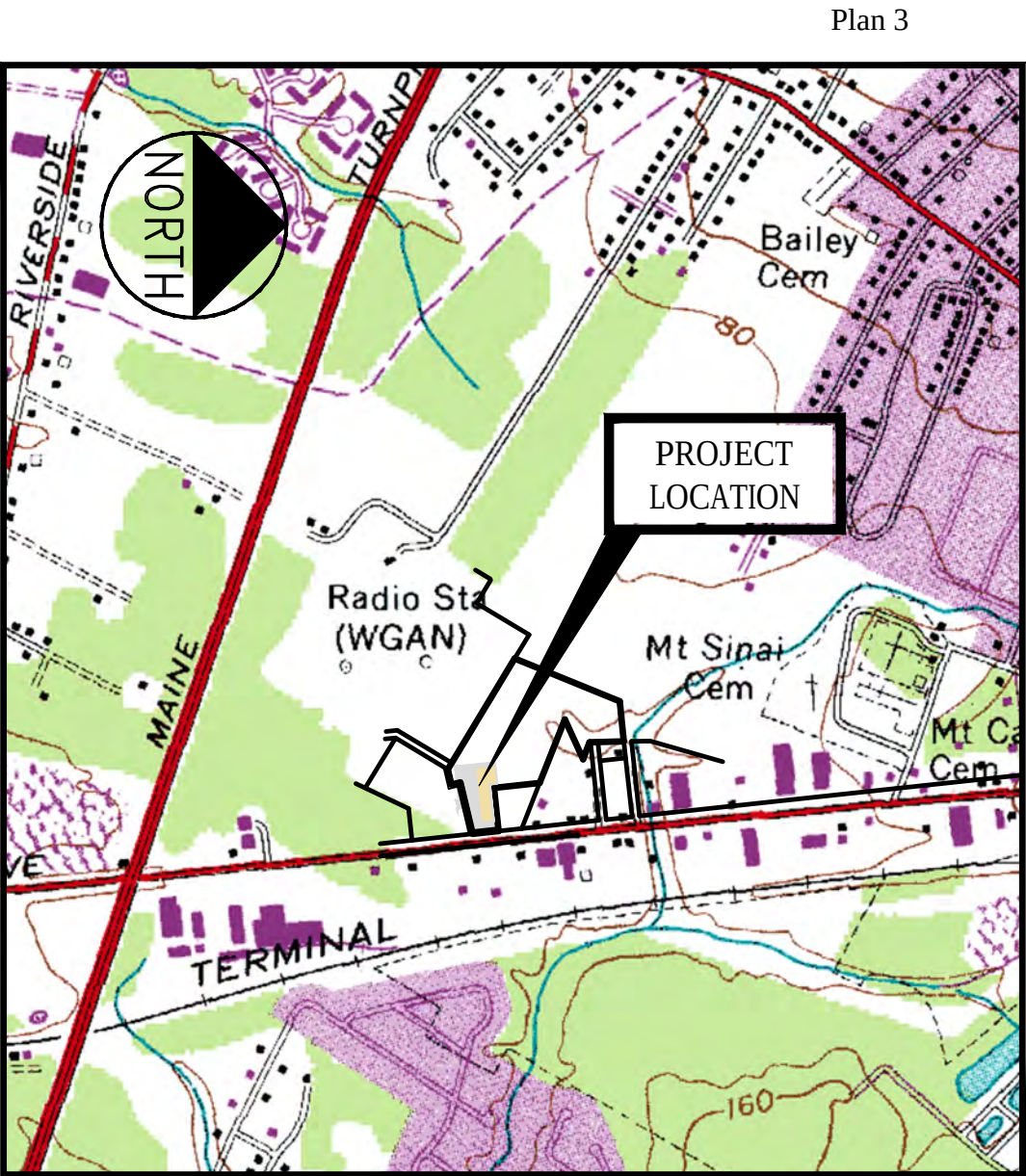
MULTI-UNIT COMMERCIAL BUILDING

421 WARREN AVENUE

PORTLAND, MAINE

PERMITTING DOCUMENTS

APRIL, 2014



LOCATION MAP
N.T.S.

PREPARED BY

CIVIL ENGINEER
FAY, SPOFFORD & THORNDIKE, INC.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
207.775.1121
ATTN: STEPHEN BUSHEY, P.E.
EMAIL: sbushey@fstinc.com

SURVEYOR

NADEAU LAND SURVEYS
918 BRIGHTON AVENUE
PORTLAND, MAINE 04102
207.878.7870
ATTN: JIM NADEAU
EMAIL: jim@nadeaulandsurveys.com

NATURAL RESOURCES

ALBERT FRICK ASSOCIATES
95A COUNTY ROAD
GORHAM, MAINE 04038
207.839.5563
ATTN: JIM LOGAN
EMAIL: afajames@maine.rr.com

DESIGN - BUILDER

BISKUP CONSTRUCTION
16 DANIELLE DRIVE
WINDHAM, MAINE 04062
207.892.9800
ATTN: JIM BISKUP
EMAIL: jim@biskupconstruction.com

GEOTECHNICAL ENGINEER

S.W. COLE ENGINEERING, INC.
286 PORTLAND ROAD
GRAY, MAINE 04039
207.657.2866
ATTN: TIM BOYCE, P.E.
EMAIL: tboyce@swcole.com

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UTILITIES

SEWER
CITY OF PORTLAND
PUBLIC SERVICES ENGINEERING DEPARTMENT
55 PORTLAND STREET
PORTLAND, MAINE 04102
207.874.8840
ATTN: DAVID MARGOLIS-PINEO, P.E.

WATER
PORTLAND WATER DISTRICT
225 DOUGLAS STREET
P.O. BOX 3533
PORTLAND, MAINE 04104
207.761.8310
ATTN: RICO SPUGNARDI

POWER
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.791.1023
ATTN: JAMIE COUGH

TELEPHONE
FAIRPOINT COMMUNICATIONS
FIVE DAVIS FARM ROAD
PORTLAND, MAINE 04103
207.797.1842
ATTN: SUE SERRETTE

CABLE
TIME WARNER CABLE
118 JOHNSON ROAD
PORTLAND, MAINE 04102
877.546.0962
ATTN:

NATURAL GAS
UNITIL
1075 FOREST AVENUE
PORTLAND, MAINE 04103
207.797.8002 EXT 6620
ATTN: ALEX SMITH

CALL BEFORE YOU DIG
1.888.DIGSAFE
1.888.344.7233
DIG SAFE MAINE

PERMITS / APPROVALS

LOCAL

SITE PLAN SUBMISSION
APPROVAL
STORMWATER PERMIT

BUILDING PERMIT

UTILITY / STREET OPENING
PERMITS

STATE

NATURAL RESOURCES
PROTECTION ACT (NRPA) TIER I
WETLAND IMPACT PERMIT

FEDERAL
U.S. ACOE GENERAL PERMIT

GOVERNING BODY

CITY OF PORTLAND PLANNING AUTHORITY
CITY HALL
CONGRESS STREET
PORTLAND, MAINE 04103
207.874.8722
ATTN: JEAN FRASER

CITY OF PORTLAND PLANNING AUTHORITY
CITY HALL - BUILDINGS AND INSPECTIONS
CONGRESS STREET
PORTLAND, MAINE 04103

CITY OF PORTLAND PUBLIC SERVICES DIVISION
55 PORTLAND STREET
PORTLAND, MAINE 04102
207.874.8801
ATTN: CAROL MERRIT

GOVERNING BODY

MAINE DEP
312 CANCO ROAD
PORTLAND, MAINE 04103
ATTN: BILL BULLARD

U.S. ARMY CORPS OF ENGINEERS
ATTN: ROD HOWE

STATUS

PRELIMINARY SUBMISSION 02.10.14

STATUS

FILED TIER I APPLICATION 04.17.14

FILED CONCURRENT WITH TIER I
APPLICATION 04.17.14

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

PRELIMINARY - NOT FOR CONSTRUCTION

				PROJECT PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE	 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
2	04.17.14	FINAL PLAN SUBMISSION TO CITY	P.E. STEPHEN BUSHEY LIC. # 7429	SHEET TITLE COVER SHEET		
1	02.10.14	SUBMITTED TO CITY OF PORTLAND		CLIENT PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074	DRAWN: CMW DESIGNED: SRB CHECKED: SRB FILE NAME: SP-M104-COV SHEET C-1.0	DATE: NOVEMBER 2013 SCALE: AS NOTED JOB NO. SP-M104
REV	DATE	DESCRIPTION				
REVISIONS						

GENERAL NOTES

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF ALL REGULATIONS ADMINISTERED BY THE LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.
2. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCES, EXITS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS.
3. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL SERVICE CONNECTIONS.
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE (1-888-DIGSAFE). IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. AT NO EXTRA EXPENSE TO THE OWNER.
5. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE OWNER AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER OR THEIR REPRESENTATIVES AT NO ADDITIONAL COST TO THE OWNER.
6. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
7. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO PROJECT CONTRACT SPECIFICATIONS, AND THE CITY OF PORTLAND TECHNICAL STANDARDS, WHICHEVER IS MORE STRINGENT.
8. TOPOGRAPHIC AND BOUNDARY SURVEY INFORMATION WAS PROVIDED BY NADEAU LAND SURVEY, DECEMBER 2013.
9. FEMA MAP COMMUNITY PANEL NUMBER 2300510006C. THE SITE IS LOCATED IN A C ZONE.
10. THE PROPERTY SHOWN ON THIS PLAN MAY BE DEVELOPED AND USED ONLY AS DEPICTED IN THIS APPROVED PLAN. ALL ELEMENTS AND FEATURES OF THE PLAN AND ALL THE PROPERTY WHICH APPEARS IN THE RECORD OF THE PLANNING BOARD PROCEEDINGS ARE CONDITIONS OF THE APPROVAL. NO CHANGE FROM THE CONDITIONS OF APPROVALS IS PERMITTED UNLESS AN AMENDED PLAN IS FIRST SUBMITTED TO AND APPROVED BY THE PLANNING AUTHORITY.
11. ALL SIGNAGE SHALL CONFORM TO THE STANDARDS FOR SIZE, HEIGHT, LOCATION AND REFLECTIVITY SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
12. ALL CURB SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS AS NOTED ON THE PLANS:
GRANITE SLIPFORM CONCRETE AND BITUMINOUS CONCRETE CURB SHALL MEET THE REQUIREMENTS OF MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS 609.03 AND 609.04 AND CITY OF PORTLAND TECHNICAL STANDARDS.
13. ALL DIMENSIONING UNLESS OTHERWISE NOTED IS TO THE FACE OF CURB OR FACE OF BUILDING.
14. THE FACILITY WILL BE SERVICED BY PUBLIC WATER, SEWER, NATURAL GAS AND UNDERGROUND POWER.
15. THE CONTRACTOR IS REQUIRED TO NOTIFY THE CITY OF PORTLAND PUBLIC WORKS INSPECTION SERVICES DIVISION (874-8300 EXT. 8838), CODE ENFORCEMENT OFFICE AND DEVELOPMENT REVIEW COORDINATOR IN WRITING THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION. A PRECONSTRUCTION MEETING MAY BE REQUIRED TO INCLUDE THE PUBLIC WORKS AUTHORITY OR DEVELOPMENT REVIEW COORDINATOR.
16. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
17. WARNING SIGNS, MARKERS, BARRICADES OR FLAGMEN MUST BE EMPLOYED ON ADJACENT STREETS AS NECESSARY.
18. CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED AND DISPOSED OF IN ACCORDANCE WITH THE CITY OF PORTLAND'S SOLID WASTE ORDINANCE CHAPTER 12. ALL DEMOLITION MATERIAL FROM THE PROJECT SITES SHALL BE TAKEN TO THE RIVERSIDE RECYCLING FACILITY OR AS OTHERWISE DIRECTED PENDING THE RESULTS OF A HAZARDOUS BUILDING MATERIALS SURVEY AS AUTHORIZED AND COORDINATED BY THE OWNER. ALL SALVAGED MATERIAL WITHIN THE PUBLIC R.O.W.(SIDEWALKS, BRICKS, GRANITE CURB) NOT REUSED SHALL BE DISPOSED OF AS DIRECTED BY THE PORTLAND PUBLIC SERVICES DEPARTMENT AT NO EXTRA COST TO THE OWNER.
19. ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
20. PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED AT ALL TIMES DURING CONSTRUCTION TO INSURE INTEGRITY. IF DISTURBED THEY SHALL BE REPLACED BY A SURVEYOR REGISTERED IN THE STATE OF MAINE AT THE CONTRACTOR'S EXPENSE.
21. THE OWNER SHALL BE RESPONSIBLE TO COORDINATE THE PERFORMANCE OF A HAZARDOUS MATERIALS INSPECTION OF THE EXISTING PROPERTY.
22. A STREET OPENING PERMIT MUST BE OBTAINED FROM THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT PRIOR TO BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL BE COMPLETED IN CONFORMANCE TO THE CITY'S RULES AND REGULATIONS FOR EXCAVATION ACTIVITIES IN PUBLIC RIGHT OF WAYS.
23. CONTRACTOR MUST MAINTAIN THROUGH TRAFFIC ON WARREN AVENUE AT ALL TIMES.
24. ALL METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS IDENTIFIED HEREIN SHALL CONFORM TO THE CITY OF PORTLAND CONSTRUCTION AND TECHNICAL STANDARDS AND SPECIFICATIONS AND/OR CURRENT MDOT STANDARDS AND SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
25. SITE WORK FOR BUILDING SHALL INCLUDE GRADING THE BUILDING PAD AREA (DEFINED AS THE BUILDING FOOTPRINT PLUS 5'-0" BEYOND THE EXTERIOR WALL) TO A GRADE 18" BELOW THE GROUND FLOOR FINISH ELEVATION. ALL WORK SHALL INCLUDE EXCAVATION (INCLUDING ROCK REMOVAL AND EXISTING FOUNDATION DEMOLITION) AND BACKFILL OF ALL FOOTINGS AND FOUNDATIONS. INSTALLATION OF PERIMETER FOUNDATION DRAINS, EXCAVATION AND BACKFILL OF ALL UNDERSLAB UTILITIES AND PLACEMENT OF ALL AGGREGATES BELOW THE FLOOR SLAB AND ADJACENT THE FOUNDATION WALLS IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.
26. RECORD DRAWINGS REQUIRE ALL BURIED UTILITIES INCLUDING, BUT NOT LIMITED TO, BENDS, APPURTENANCES, AND OTHER FEATURES TO BE LOCATED BY COORDINATE INFORMATION TO BE RECORDED BY THE CONTRACTOR AND SUPPLIED TO THE OWNER AT THE END OF THE PROJECT.

EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE SITE.
2. PRIOR TO BEGINNING ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE STABILIZED CONSTRUCTION ENTRANCES.
3. SILT BARRIERS SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
4. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCES AS THEY BECOME SATURATED WITH MUD TO ENSURE THAT THEY WORK AS PLANNED DURING CONSTRUCTION AND SHALL KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD.
5. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO IT FOR LATER USE IN LANDSCAPING OPERATIONS.
6. CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITIES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST THREE (3) BUT NOT MORE THAN (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A.
7. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AS SPECIFIED ON PLANS.
8. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.
9. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL REQUIREMENTS, INSPECTION AND MAINTENANCE REQUIREMENTS AND GOOD HOUSEKEEPING PRACTICES IN ACCORDANCE WITH APPENDIX A, B& C OF MAINE DEP CHAPTER 500.

GRADING AND DRAINAGE NOTES

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n = 0.013 OR LESS, UNLESS A SPECIFIC PIPE MATERIAL IS CALLED FOR ON THE CONTRACT DRAWINGS. PVC PIPING SHALL NOT BE USED IN AREAS OF EXPOSED SUNLIGHT.
2. SLOPE PROTECTION IS TO BE PROVIDED PER THE DESIGN PLANS AND MAY INCLUDE RIPRAP, SOD OR MULCH.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING EARTHWORK OPERATIONS TO INSURE THAT DISTURBANCE TO ANY STEEP SLOPE AREAS ARE MINIMIZED TO THE EXTENT PRACTICABLE.
4. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY OTHERS. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
5. ALL PAVING WITHIN THE PUBLIC R.O.W. SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF PORTLAND RULES AND REGULATIONS FOR EXCAVATION ACTIVITIES IN THE PUBLIC R.O.W.
6. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.
7. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.
8. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES AND PHYSICAL FEATURES THAT ARE OUTSIDE THE SCOPE OF WORK. THE CONTRACTOR SHALL MAINTAIN SITE STABILITY DURING CONSTRUCTION TO AVOID EROSION AND SEDIMENT TRANSPORT. CONTRACTOR SHALL RESTORE ALL AREAS TO A FINAL STABILIZED CONDITION AS DIRECTED BY DESIGN DRAWINGS.
9. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
10. EXTERIOR GRADES AROUND PROPOSED STRUCTURE SHALL BE COORDINATED WITH FINAL BUILDING PLANS AND PROVIDE FOR ALL ACCESS OPENINGS.
11. SUBGRADE FILL PLACED BENEATH ALL PERMANENT PAVEMENT, SIDEWALK OR CONCRETE SURFACES EXCLUDING ANY BUILDING AREAS, SHALL BE GRANULAR BORROW. SUBGRADE FILL PLACED BENEATH ALL LANDSCAPE AREAS EXCEPT THOSE ADJACENT THE FOUNDATION SYSTEMS MAY BE A COMMON BORROW MATERIAL. SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUBGRADE CONSTRUCTION. EXCAVATED ON-SITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. EXCAVATED ONSITE MATERIALS MAY NOT BE USED AS COMPACTED STRUCTURAL FILL BENEATH THE BUILDING AREAS OR AS FOUNDATION BACKFILL. GRANULAR BORROW AND COMMON BORROW SHALL COMPLY WITH THE MDOT SPECIFICATIONS.
12. ALL FILLS SHALL BE PLACED IN LAYERS NOT MORE THAN 12" LOOSE DEPTH AND COMPACTED BY HEAVY COMPACTION EQUIPMENT. MINIMUM COMPACTION SHALL BE 95% OF MAXIMUM DENSITY ASTM 1557, MODIFIED AND FIELD DENSITY ASTM D2922 (NUCLEAR METHODS).

UTILITY NOTES

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED BETWEEN THE SITE WORK CONTRACTOR AND DIVISION 22/26 CONTRACTOR(S). THE SITE WORK CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND ALL PROPOSED UTILITIES TO WITHIN FIVE (5) FEET OF THE BUILDING TO A LOCATION COORDINATED WITH THE MECHANICAL AND ELECTRICAL SUBCONTRACTORS. THE BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITIES WITHIN FIVE (5) FEET AND INSIDE THE BUILDING OR UNDER SLAB.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH FAIRPOINT COMMUNICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.
3. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER; THE TELECOMMUNICATIONS SERVICE WITH FAIRPOINT COMMUNICATIONS AND CABLE SERVICE WITH TIME WARNER CABLE. ALL WORK SHALL CONFORM TO THE PROJECT SPECIFICATIONS OR UTILITY COMPANY STANDARDS, WHICHEVER IS MORE STRINGENT.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE AT NO ADDITIONAL EXPENSE TO THE OWNER.
5. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
6. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
7. 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.
8. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.
9. THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOBSITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.
10. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY ELECTRICAL SERVICES IN CONDUIT TO SITE LIGHTING, COMPLYING WITH APPLICABLE CODES. COORDINATE WITH OWNER, SITE ELECTRICAL, ARCHITECTURAL AND CMP PLANS.
11. ALL SANITARY SERVICES AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT. ALL SANITARY SERVICES AND APPURTENANCES TO BE ABANDONED SHALL BE PROPERLY RECORDED WITH PORTLAND PUBLIC WORKS ENGINEERING DEPARTMENT. A DIGITAL VIDEOTAPE SHALL BE MADE OF SANITARY SEWER SYSTEMS TO BE UTILIZED PRIOR TO CONSTRUCTION; UPSTREAM PIPES INTENDED FOR ABANDONMENT SHALL BE INSPECTED TO VERIFY THAT THEY NO LONGER SERVE OTHER FACILITIES.

DIMENSIONAL STANDARD	REQUIRED DIMENSION - B4	PROVIDED
MINIMUM LOT SIZE	10,000 SF	418,393 S.F.
MINIMUM STREET FRONTAGE	60 FEET	140.51 FEET
MINIMUM FRONT YARD	20 FEET OR THE AVERAGE DEPTH OF THE FRONT YARDS ON EITHER SIDE. AVERAGE DEPTH = 1 FOOT	54.85 FEET
MINIMUM REAR YARD	20 FEET	>20 FEET
MINIMUM SIDE YARD	1 OR 2 STORIES = 10 FEET 3 OR MORE STORIES = 12 FEET	20 FEET
MAXIMUM LOT COVERAGE	40% FOR LOTS CONTAINING 20 OR MORE UNITS; 50% FOR LOTS CONTAINING FEWER THAN 20 UNITS.	<40%
MINIMUM LOT WIDTH	60 FEET	>150 FEET
MAXIMUM STRUCTURE HEIGHT	65 FEET EXCEPT ON LOTS IN EXCESS OF 5 ACRES, 90 FEET IS PERMITTED IF EACH OF THE SETBACKS REQUIRED IS INCREASED BY 1 FOOT IN DISTANCE FOR EACH FOOT OF HEIGHT ABOVE 65 FEET	
IMPERVIOUS SURFACE RATIO	80%	<30%

LEGEND

PROPOSED	EXISTING
BUILDING	IRON PIN FOUND (IPF) OR CAPPED IRON ROD FOUND (CIR)
LANDSCAPING	ELECTRIC MANHOLE
WHEEL STOP	CATCH BASIN
PARKING STRIPING	SEWER MANHOLE
BARRIER FREE SYMBOL	DRAIN MANHOLE
TRAFFIC ARROW	DOWN SPOUT
EDGE OF PAVEMENT	WATER VALVE
SLIPFORM CONCRETE CURB	WATER SHUTOFF
WETLAND IMPACT	UTILITY POLE
BOULDER BARRIER	SIGN
FIRE SUPPLY LINE	LIGHT POLE
DOMESTIC WATER	ELECTRIC METER
UNDERGROUND ELECTRIC / TELEPHONE / CABLE	GAS METER
STONE DRIP STRIP	EDGE OF PAVEMENT
	CURB (GRANITE, UNLESS NOTED)
	EDGE OF GRAVEL
	VEGETATION
	STUMP
	EXISTING CONTOUR
	SPOT GRADE
	PROPERTY LINE
	RIGHT OF WAY
	EASEMENT
	STORM DRAIN
	SEWER
	UNDERGROUND WATER
	OVERHEAD UTILITY WIRES
	WOOD STOCKADE FENCE
	CHAIN LINK FENCE
	GUARD RAIL
	EXISTING BUILDING
	STONE WALL
	WETLAND

PRELIMINARY - NOT FOR CONSTRUCTION

				PROJECT PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE	 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106
2	04.17.14	FINAL PLAN SUBMISSION TO CITY		SHEET TITLE GENERAL NOTES AND LEGEND	
1	02.10.14	SUBMITTED TO CITY OF PORTLAND		CLIENT PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074	DRAWN: CMW DESIGNED: SRB CHECKED: SRB FILE NAME: SP-M104 SHEET C-1.1
REV	DATE	DESCRIPTION	P.E. STEPHEN BUSHEY		DATE: NOVEMBER 2013 SCALE: AS NOTED JOB NO. SP-M104
REVISIONS			LIC. # 7429		

PLAN REFERENCES

1. "PLAN DEPICTING THE RESULTS OF A PARTIAL BOUNDARY SURVEY, EXISTING CONDITIONS & PROPOSED LOT DIVISION MADE FOR PH WARREN AVE. LLC NORTHERLY SIDELINE OF WARREN AVENUE, SAVILLE STREET & NEWCOMB STREET PORTLAND, MAINE" DATED 01.07.2014 BY NADEAU LAND SURVEYS

BENCHMARK

VERTICAL DATUM IS NGVD29. BENCHMARK ESTABLISHED WITH GPS STATIC OBSERVATIONS TAKEN ON OCTOBER 28, 2013 BY NADEAU LAND SURVEYS

Plan 5

TP-ST-3
APPROXIMATE TESTPIT LOCATION

N/F
SAGA COMMUNICATIONS
OF NEW ENGLAND, INC.
CCRD BOOK 12543, PAGE 308

LIMIT OF WETLAND
INVESTIGATION
FLAGGING
BY ALBERT FRICK
ASSOCIATES

PROPOSED LOT
9.4 ACRES
410,031 SF

NOTE: FINAL LIMITS OF LOT BOUNDARY MAY
VARY DEPENDING ON THE THE OUTCOME OF
POTENTIAL LAND TRANSFER WITH THE CITY
OF PORTLAND.

APPROX. LOCATION OF
EXISTING INTERCEPTOR
SEWER

#429 WARREN AVENUE
N/F
424 WARREN AVENUE, LLC
CCRD BOOK 17326, PAGE 340
MAP 304, BLOCK B, LOT 32

TP-ST-3
TEST PIT BY S.W.
COLE ENGINEERING
(TYP)

N/F
VANCE
CCRD BOOK 3080, PAGE 873

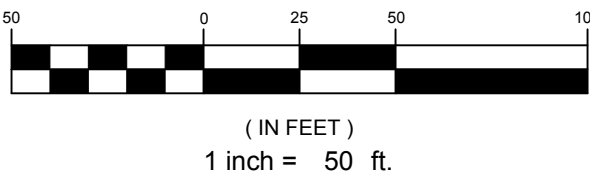
N/F
BENNETT
CCRD BOOK 15847
PAGE 257

#401 WARREN AVENUE
N/F
PETER F. HOLMES
CCRD BOOK 6918, PAGE 53
MAP 303, BLOCK A, LOT 11

SAVILLE STREET

NEWCOMB STREET

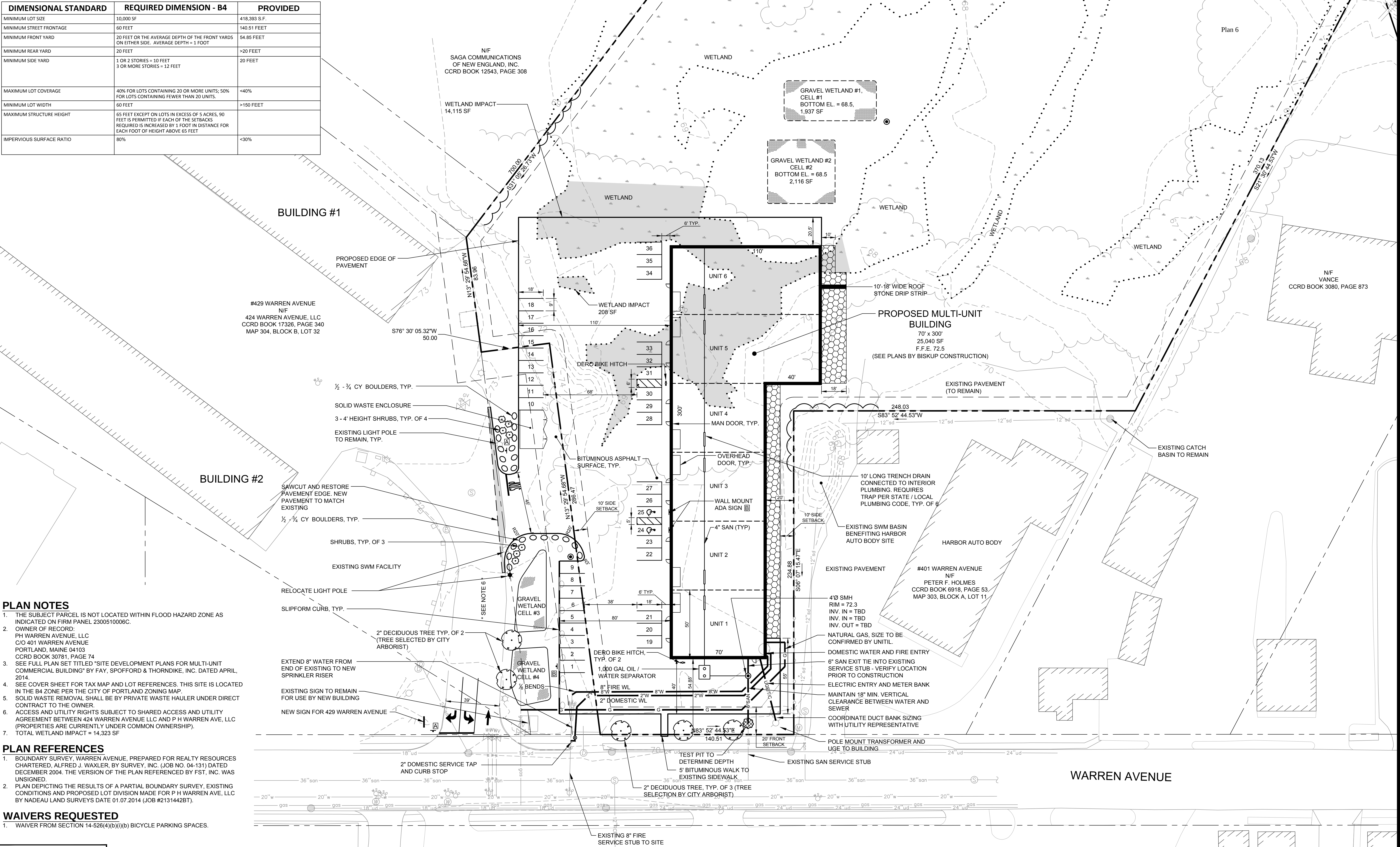
WARREN AVENUE



PRELIMINARY - NOT FOR CONSTRUCTION

					PROJECT PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE		 ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
					SHEET TITLE EXISTING CONDITIONS PLAN		DRAWN: CMW DESIGNED: SRB CHECKED: SRB FILE NAME: SP-M104-EXISTING SHEET C-2.1	
					CLIENT PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074		DATE: NOVEMBER 2013 SCALE: 1" = 50' JOB NO. SP-M104	
			P.E. STEPHEN BUSHEY LIC. # 7429					
			REVISIONS					
2	04.17.14	FINAL PLAN SUBMISSION TO CITY						
1	02.10.14	SUBMITTED TO CITY OF PORTLAND						

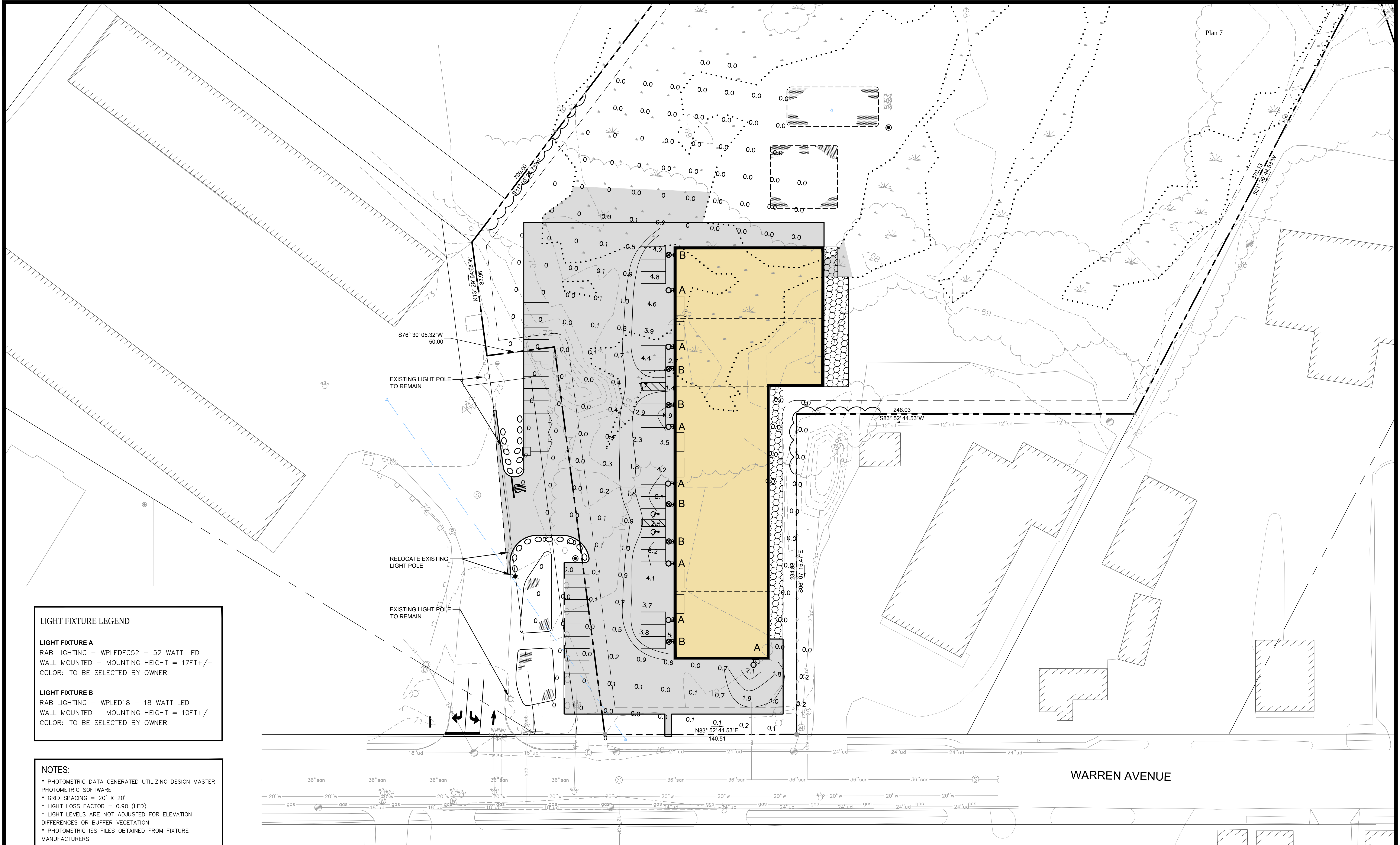
DIMENSIONAL STANDARD	REQUIRED DIMENSION - B4	PROVIDED
MINIMUM LOT SIZE	10,000 SF	418,393 S.F.
MINIMUM STREET FRONTAGE	60 FEET	140.51 FEET
MINIMUM FRONT YARD	20 FEET OR THE AVERAGE DEPTH OF THE FRONT YARDS ON EITHER SIDE. AVERAGE DEPTH = 1 FOOT	54.85 FEET
MINIMUM REAR YARD	20 FEET	>20 FEET
MINIMUM SIDE YARD	1 OR 2 STORIES = 10 FEET 3 OR MORE STORIES = 12 FEET	20 FEET
MAXIMUM LOT COVERAGE	40% FOR LOTS CONTAINING 20 OR MORE UNITS; 50% FOR LOTS CONTAINING FEWER THAN 20 UNITS.	<40%
MINIMUM LOT WIDTH	60 FEET	>150 FEET
MAXIMUM STRUCTURE HEIGHT	65 FEET EXCEPT ON LOTS IN EXCESS OF 5 ACRES, 90 FEET IS PERMITTED IF EACH OF THE SETBACKS REQUIRED IS INCREASED BY 1 FOOT IN DISTANCE FOR EACH FOOT OF HEIGHT ABOVE 65 FEET	
IMPERVIOUS SURFACE RATIO	80%	<30%



SIGN LEGEND	
 R1-1 24"x24" A	 R7-8 12"x18" B

PRELIMINARY - NOT FOR CONSTRUCTION

				PROJECT PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE		ENGINEERS FST Since 1994 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
				SHEET TITLE SITE LAYOUT AND UTILITY PLAN		DRAWN: CMW DESIGNED: SRB CHECKED: SRB FILE NAME: SP-M104-SITE	
				CLIENT PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074		DATE: NOVEMBER 2013 SCALE: 1"=30' JOB NO. SP-M104	
				REVISIONS		SHEET C-3.0	
				REV DATE DESCRIPTION			
				2 04.17.14 FINAL PLAN SUBMISSION TO CITY			
				1 02.10.14 SUBMITTED TO CITY OF PORTLAND			
				P.E. STEPHEN BUSHEY LIC. # 7429			



LIGHT FIXTURE LEGEND

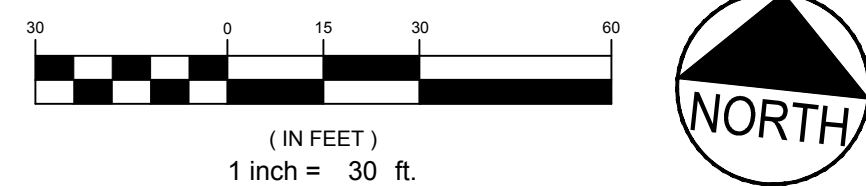
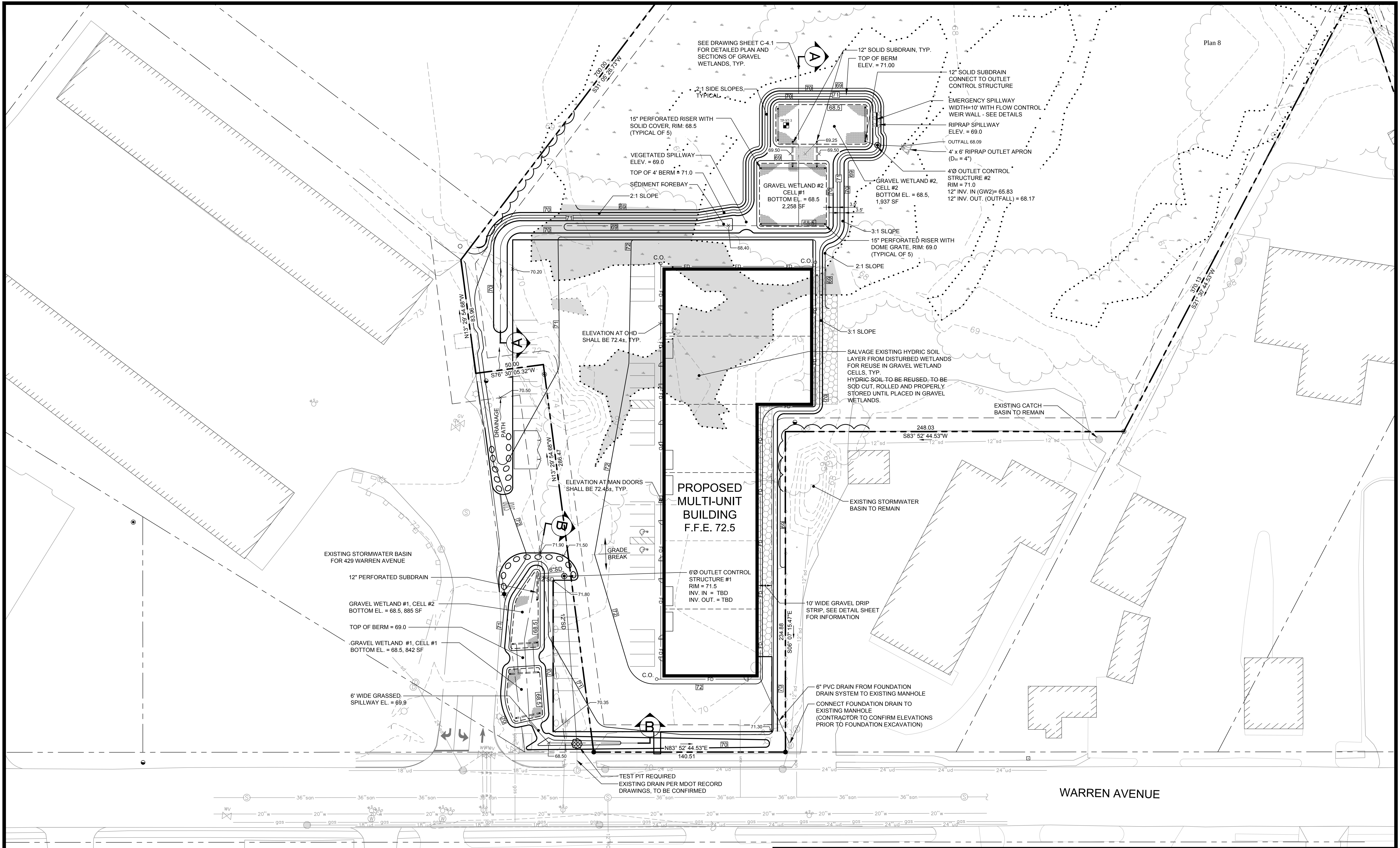
LIGHT FIXTURE A
RAB LIGHTING - WPLEDFC52 - 52 WATT LED
WALL MOUNTED - MOUNTING HEIGHT = 17FT+/-
COLOR: TO BE SELECTED BY OWNER

LIGHT FIXTURE B
RAB LIGHTING - WPLED18 - 18 WATT LED
WALL MOUNTED - MOUNTING HEIGHT = 10FT+/-
COLOR: TO BE SELECTED BY OWNER

- NOTES:**
- PHOTOMETRIC DATA GENERATED UTILIZING DESIGN MASTER PHOTOMETRIC SOFTWARE
 - GRID SPACING = 20' X 20'
 - LIGHT LOSS FACTOR = 0.90 (LED)
 - LIGHT LEVELS ARE NOT ADJUSTED FOR ELEVATION DIFFERENCES OR BUFFER VEGETATION
 - PHOTOMETRIC IES FILES OBTAINED FROM FIXTURE MANUFACTURERS
 - ALL FIXTURES TO BE FULL CUTOFF FIXTURES

PRELIMINARY - NOT FOR CONSTRUCTION

				PROJECT PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE	ENGINEERS FST Since 1974 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
				SHEET TITLE LIGHTING AND PHOTOMETRICS PLAN		
				CLIENT PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074		
2	04.15.14	FINAL PLAN SUBMISSION TO CITY	P.E. STEPHEN BUSHEY LIC. # 7429			
1	02.10.14	SUBMITTED TO CITY OF PORTLAND				
REV	DATE	DESCRIPTION				
REVISIONS						
				DRAWN: RJW		DATE: NOVEMBER 2013
				DESIGNED: SRB		SCALE: 1"=30'
				CHECKED: SRB	JOB NO. SP-M104	
				FILE NAME: SP-M104-PHOTOMETRICS		
				SHEET	C-3.1	

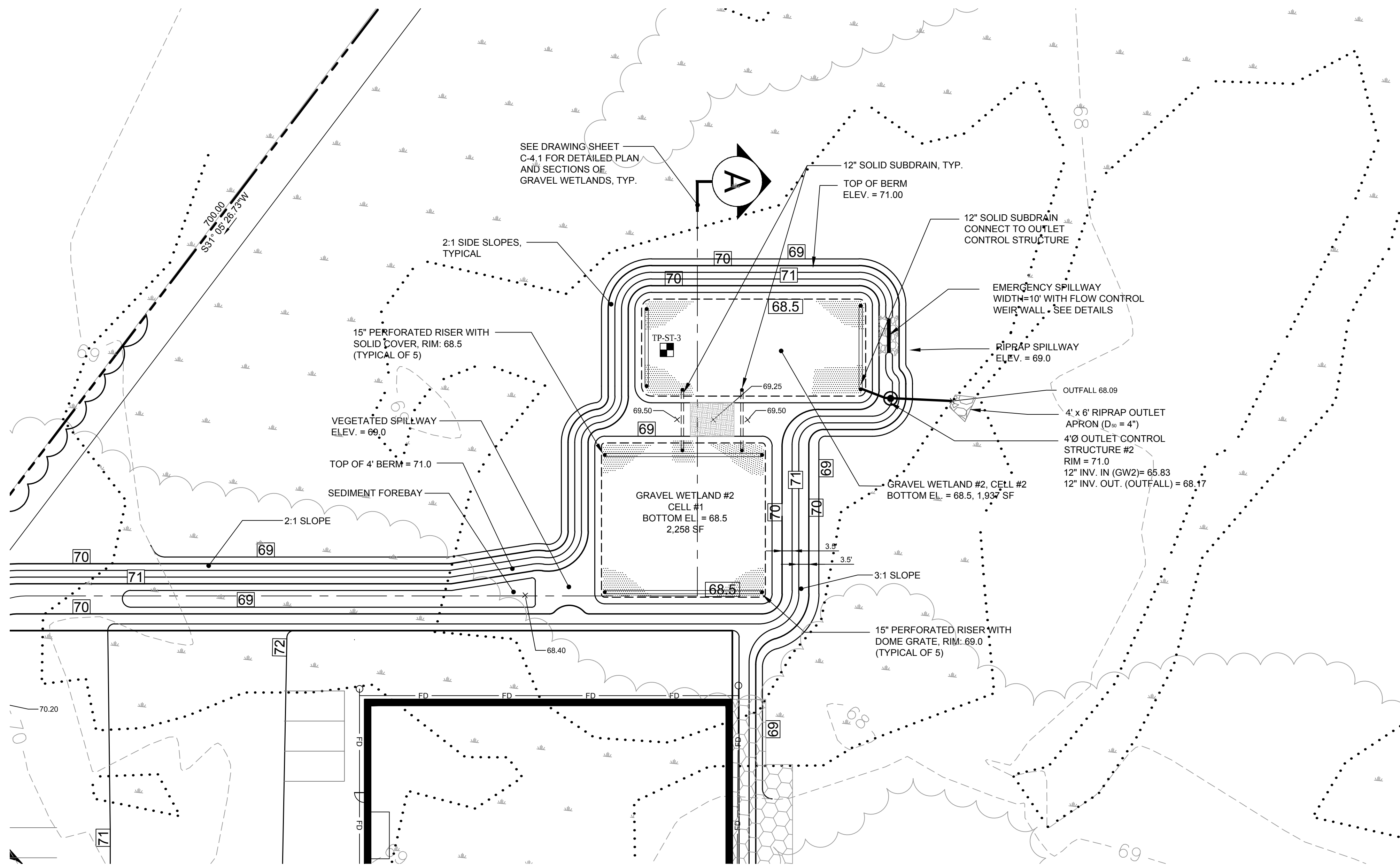


PRELIMINARY - NOT FOR CONSTRUCTION

					PROJECTPH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE SHEET TITLEGRADING AND DRAINAGE PLAN CLIENTPH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074		ENGINEERS FST Since 1964 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106 DRAWN: CMW DATE: NOVEMBER 2013 DESIGNED: SRB SCALE: 1" =30' CHECKED: SRB JOB NO. SP-M104 FILE NAME: SP-M104-GRADE SHEETC-4.0	
2	04.17.14	FINAL PLAN SUBMISSION TO CITY						
1	02.10.14	SUBMITTED TO CITY OF PORTLAND						
REV	DATE	DESCRIPTION	P.E. STEPHEN BUSHEY					
REVISIONS			LIC. # 7429					

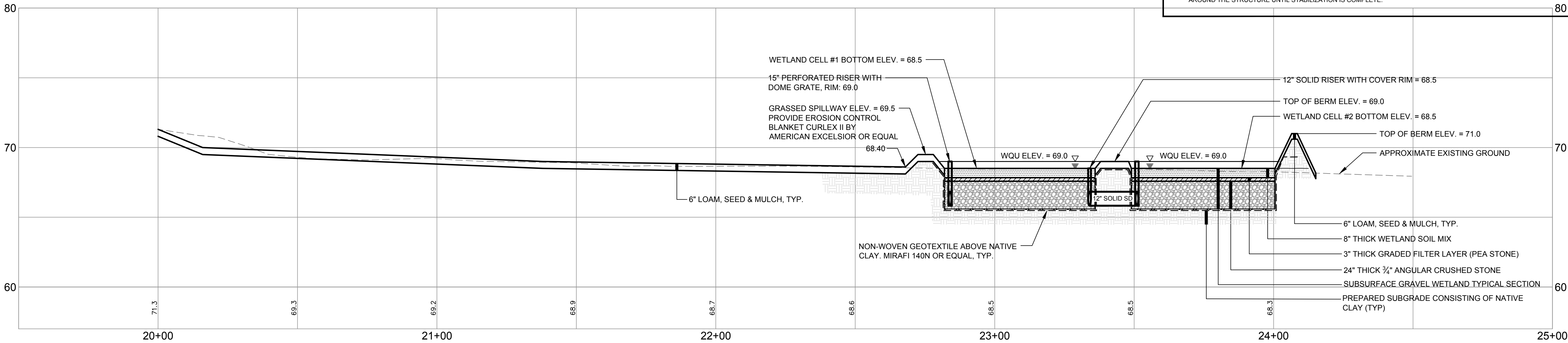
1. SUBSURFACE GRAVEL WETLANDS WERE DESIGNED PER THE UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER'S (UNHSC) DESIGN SPECIFICATIONS, DATED JUNE 2009.
2. WETLAND SOIL - THE WETLAND SOIL SHOULD BE SIMILAR TO A NATIVE WETLAND SOIL WITH LOW HYDRAULIC CONDUCTIVITY. THIS SOIL CAN BE MANUFACTURED USING COMPOST, SAND, AND SOME FINE COMS. SURFACE INFILTRATION RATES SHOULD BE BETWEEN 3.5 X 10-5 CM/SEC AND 3.5 X 10-6 CM/SEC. ORGANIC CONTENT SHOULD BE <15%, AND CLAY CONTENT SHOULD BE <1% TO PREVENT THE PRESENTING OF FINES INTO THE SUBSURFACE GRAVEL LAYER. THE EXISTING HYDRIC SOILS REMOVED FROM IMPACTED WETLAND AREAS MAY ALSO BE USED. IF USED, THE EXISTING HYDRIC SOILS SHALL BE SOD CUT AND THE MATERIAL ROLLED AND PROPERLY MAINTAINED PRIOR TO PLACEMENT IN THE GRAVEL WETLAND ZONES.
3. THE 3" THICK GRADED FILTER OR CHOKER COURSE IS INTENDED TO PREVENT THE WETLAND SOIL FROM MIGRATING DOWN INTO THE CRUSHED STONE SUB-LAYER. MATERIAL COMPATIBILITY MUST MEET THE FOLLOWING FHWA CRITERIA:
D15 (COARSE SUB-LAYER) ≤ 5 X D85 (GRADED FILTER)
D50 (COARSE SUB-LAYER) ≤ 25 X D50 (GRADED FILTER)
4. THE COARSE SUB-LAYER MATERIAL SHALL BE AN ANGULAR CRUSHED STONE MEETING THE REQUIREMENTS OF MDOT 703.22 TYPE C.
5. GEOTEXTILES SHOULD NOT BE USED BETWEEN HORIZONTAL LAYERS OF THIS SYSTEM, AS THEY MAY CLOG DUE TO FINES AND MAY RESTRICT ROOT GROWTH.
6. THE SEASONAL HIGH GROUNDWATER ELEVATION IN THE AREA OF GRAVEL WETLAND #1 IS APPROXIMATELY 67.0' BASED ON TEST PIT TP-ST-1.
7. CONSTRUCTION OVERSIGHT: THE OWNER WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE CITY IN WRITING WITHIN 30 DAYS TO STATE THAT THE SYSTEMS HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEER'S OBSERVATIONS GIVING THE DATE AND TIME OF EACH INSPECTION AND THE ITEMS INSPECTED ON EACH VISIT AND INCLUDING ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.
8. CONSTRUCTION SEQUENCE: THE SUBSURFACE GRAVEL WETLAND MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE WETLAND HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE STRUCTURE UNTIL STABILIZATION IS COMPLETE.
9. SUBSURFACE GRAVEL WETLANDS SHALL BE CONSTRUCTED TO A MINIMUM OF 90% AND 95% STANDARD PROCTOR.
10. TEST PIT TP-ST-1 REVEALED GLACIOMARINE SOILS AT DEPTHS BELOW 4.0'. A PERMEABILITY TEST CONFORMING TO ASTM D2434 MAY BE COMPLETED ON THIS MATERIAL TO DETERMINE IF IT MEETS THE REQUIREMENTS FOR LOW PERMEABILITY GLAY CLAY LINER MATERIAL. IF THE NATIVE CLAY IS FOUND TO HAVE A PERMEABILITY OF LESS THAN 1 X 10-6 CM/SEC, NO ADDITIONAL CLAY LINER IS NECESSARY.
11. CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:
AFTER THE PRELIMINARY CONSTRUCTION OF THE STRUCTURE'S GRADES AND ONCE THE SUBSURFACE DRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
AFTER THE CRUSHED STONE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE WETLAND SOIL.
AFTER THE WETLAND SOIL HAS BEEN INSTALLED AND SECEDED.
AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
12. TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE SUBSURFACE GRAVEL WETLAND SYSTEM. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:
PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES 1996a) ON EACH MATERIAL USED IN THE SUBSURFACE GRAVEL WETLAND SYSTEM.
PERFORM A HYDROMETER GRAIN SIZE ANALYSIS ON THE WETLAND SOIL.
DETERMINE ORGANIC CONTENT OF THE WETLAND SOIL PER ASTM D2974.
PERFORM A PERMEABILITY TEST ON THE WETLAND SOIL CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90% TO 95% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.
13. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL MATERIALS AND CONSTRUCTION PROCEDURES UTILIZED IN THE CONSTRUCTION OF THE SUBSURFACE GRAVEL WETLAND SYSTEM AND FOR MAINTENANCE AND PROTECTION OF THE CONSTRUCTED SYSTEM UNTIL APPROVAL AND ACCEPTANCE BY THE DESIGN ENGINEER.
14. UPON COMPLETION OF INSTALLATION OF THE SUBSURFACE GRAVEL WETLAND LAYER AND ESTABLISHMENT OF 90% OF VEGETATION WITHIN THE STRUCTURE, THE CONTRACTOR SHALL FLOOD THE BASIN TO THE WATER QUALITY ELEVATION WITH CLEAN WATER AND MONITOR THE WATER LEVEL TO CONFIRM A 24-HOUR DRAIN TIME. IF NECESSARY, THE DRAIN CONTROL ORIFICE MAY BE ADJUSTED TO ACHIEVE THE 24-HOUR DRAIN TIME.

R:\SP-M104 Portland, ME Harbor Auto Body - Peter Holmes\Cadd\Permit Set\dwg\SP-M104-GRAVEL WETLAND SECTIONS.dwg filie_p 4/18/2014 8:14 AM



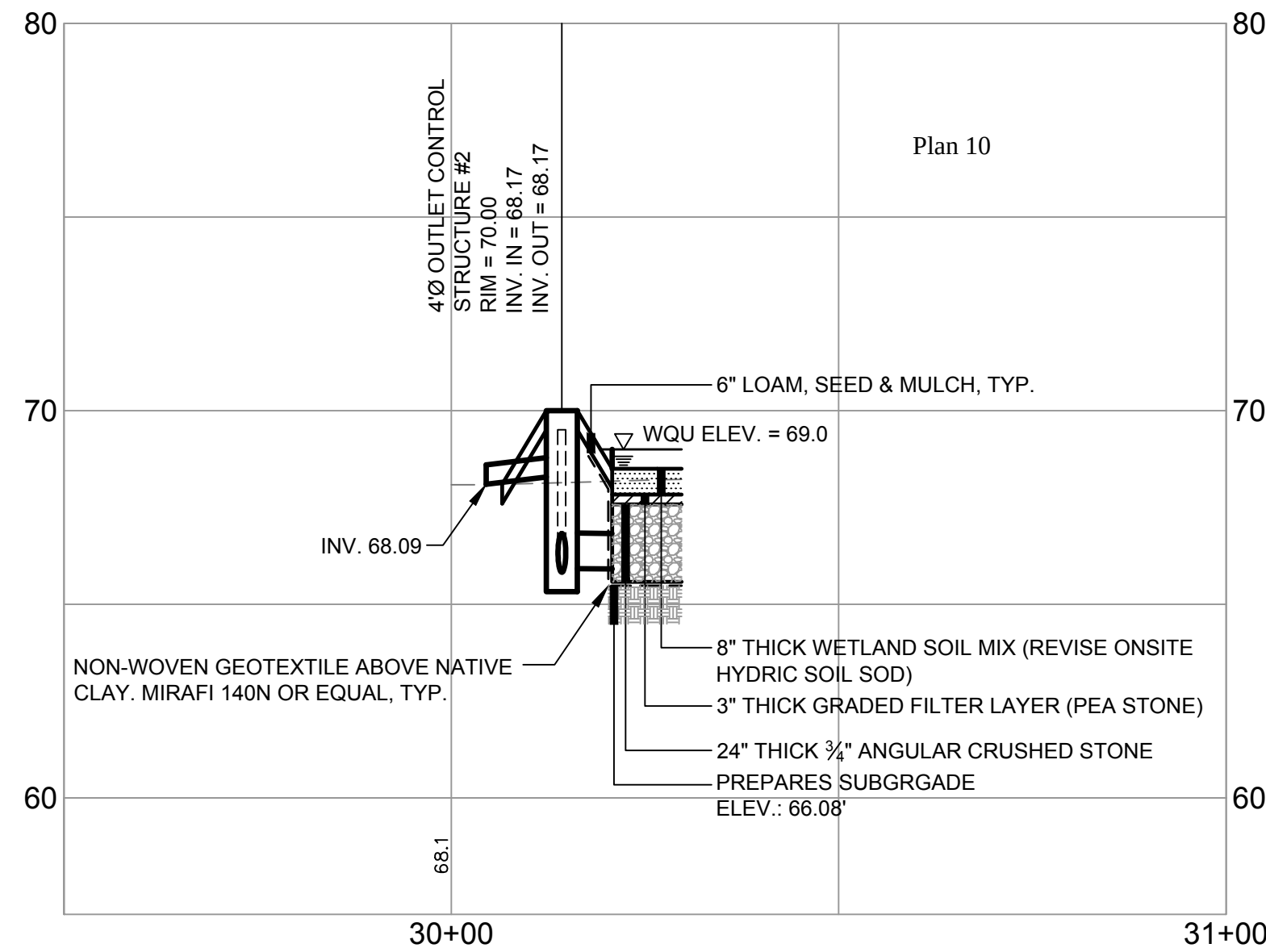
GRAVEL WETLAND #2 PLAN VIEW

SCALE: 1" = 20'



GRAVEL WETLAND #2 SECTION A-A

SCALE: H:1" = 20'; V: 1" = 4'



GRAVEL WETLAND #2 SECTION C-C

SCALE: H:1" = 20'; V: 1" = 4'

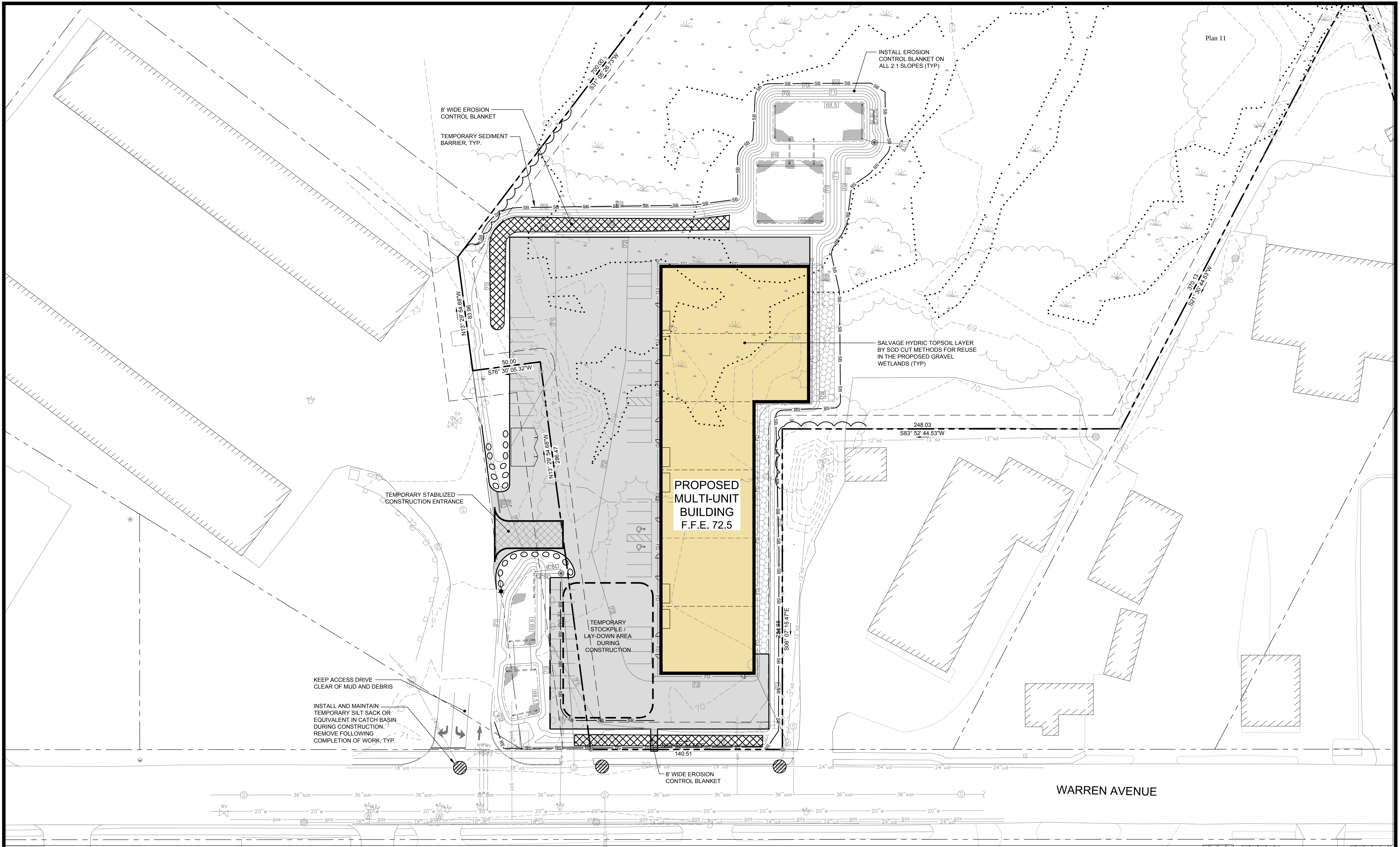
NOTES

- SUBSURFACE GRAVEL WETLANDS WERE DESIGNED PER THE UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER'S (UNHSC) DESIGN SPECIFICATIONS, DATED JUNE 2009.
- WETLAND SOIL: THE WETLAND SOIL SHOULD BE SIMILAR TO A NATIVE WETLAND SOIL WITH LOW HYDRAULIC CONDUCTIVITY. THIS SOIL CAN BE MANUFACTURED USING COMPOST, SAND, AND SOME FINE SOILS. SURFACE INFILTRATION RATES SHOULD BE BETWEEN 3.5 X 10-5 CM/SEC AND 3.5 X 10-6 CM/SEC. ORGANIC CONTENT SHOULD BE >15%, AND CLAY CONTENT SHOULD BE <15% TO PREVENT THE MIGRATION OF FINES INTO THE SUBSURFACE GRAVEL LAYER. THE EXISTING HYDRIC SOILS REMOVED FROM IMPACTED WETLAND AREAS MAY ALSO BE USED. IF USED, THE EXISTING HYDRIC SOILS SHALL BE SOD CUT AND THE MATERIAL ROLLED AND PROPERLY MAINTAINED PRIOR TO PLACEMENT IN THE GRAVEL WETLAND ZONES.
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- THE COARSE SUB-LAYER MATERIAL SHALL BE AN ANGULAR CRUSHED STONE MEETING THE REQUIREMENTS OF MDOT 703.22 TYPE C.
- GEOTEXTILES SHOULD NOT BE USED BETWEEN HORIZONTAL LAYERS OF THIS SYSTEM, AS THEY MAY CLOG DUE TO FINES AND MAY RESTRICT ROOT GROWTH
- THE SEASONAL HIGH GROUNDWATER ELEVATION IN THE AREA OF GRAVEL WETLAND #1 IS APPROXIMATELY 67.0 BASED ON TEST PIT TP-ST-1.
- CONSTRUCTION OVERSIGHT: THE OWNER WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE CITY IN WRITING WITHIN 30 DAYS TO STATE THAT THE SYSTEMS HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE AND TIME OF EACH INSPECTION AND THE ITEMS INSPECTED ON EACH VISIT AND INCLUDING ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.
- CONSTRUCTION SEQUENCE: THE SUBSURFACE GRAVEL WETLAND MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE WETLAND HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 80% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE STRUCTURE UNTIL STABILIZATION IS COMPLETE.
- COMPACTION: WETLAND SOIL AND SUBSURFACE MATERIAL MUST BE COMPACTED TO BETWEEN 90% AND 95% STANDARD PROCTOR.
- TEST PIT TP-ST-1 REVEALED GLACIOMARINE SOILS AT DEPTHS BELOW 4.0'. A PERMEABILITY TEST CONFORMING TO ASTM D2434 MAY BE COMPLETED ON THIS MATERIAL TO DETERMINE IF IT MEETS THE REQUIREMENTS FOR LOW PERMEABILITY CLAY LINER MATERIAL. IF THE NATIVE CLAY IS FOUND TO HAVE A PERMEABILITY OF LESS THAN 1 X 10-6 CM/SEC, NO ADDITIONAL CLAY LINER IS NECESSARY.
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PERFORM A HYDROMETER GRAIN SIZE ANALYSIS ON THE WETLAND SOIL.
DETERMINE ORGANIC CONTENT OF THE WETLAND SOIL PER ASTM D2974.
PERFORM A PERMEABILITY TEST ON THE WETLAND SOIL CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90% TO 95% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL MATERIALS AND CONSTRUCTION PROCEDURES UTILIZED IN THE CONSTRUCTION OF THE SUBSURFACE GRAVEL WETLAND SYSTEM AND FOR MAINTENANCE AND PROTECTION OF THE CONSTRUCTED SYSTEM UNTIL APPROVAL AND ACCEPTANCE BY THE DESIGN ENGINEER.
- UPON COMPLETION OF INSTALLATION OF THE WETLAND SOIL LAYER AND ESTABLISHMENT OF 80% OF VEGETATION WITHIN THE STRUCTURE, THE CONTRACTOR SHALL FLOOD THE BASIN TO THE WATER QUALITY ELEVATION WITH CLEAN WATER AND MONITOR THE WATER LEVEL TO CONFIRM A 24-48 HOUR DRAIN TIME. IF NECESSARY THE FLOW CONTROL ORIFICE MAY BE ADJUSTED TO ACHIEVE THE 24-48 HOUR DRAIN TIME.

2	04.17.14	FINAL PLAN SUBMISSION TO CITY			
1	02.10.14	SUBMITTED TO CITY OF PORTLAND			
REV	DATE	DESCRIPTION			
REVISIONS					
			P.E. STEPHEN BUSHEY		
			LIC. # 7429		

PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	GRAVEL WETLAND #2 PLAN VIEW AND SECTIONS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

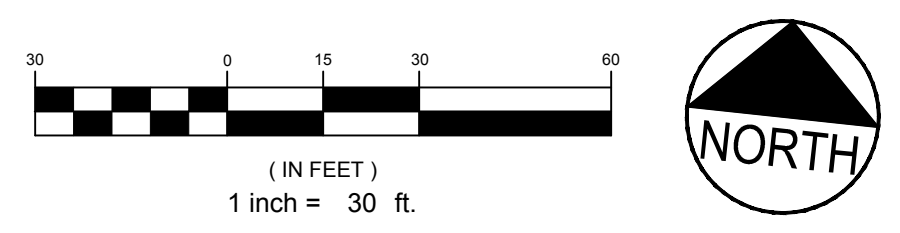
ENGINEERS FST Since 1994 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
DRAWN: CMW	DATE: NOVEMBER 2013
DESIGNED: SRB	SCALE: AS NOTED
CHECKED: SRB	JOB NO. SP-M104
FILE NAME: SP-M104-GRAVEL WETLAND SECTIONS	
SHEET	C-4.2



Plan 11

PROPOSED
MULTI-UNIT
BUILDING
F.F.E. 72.5

WARREN AVENUE



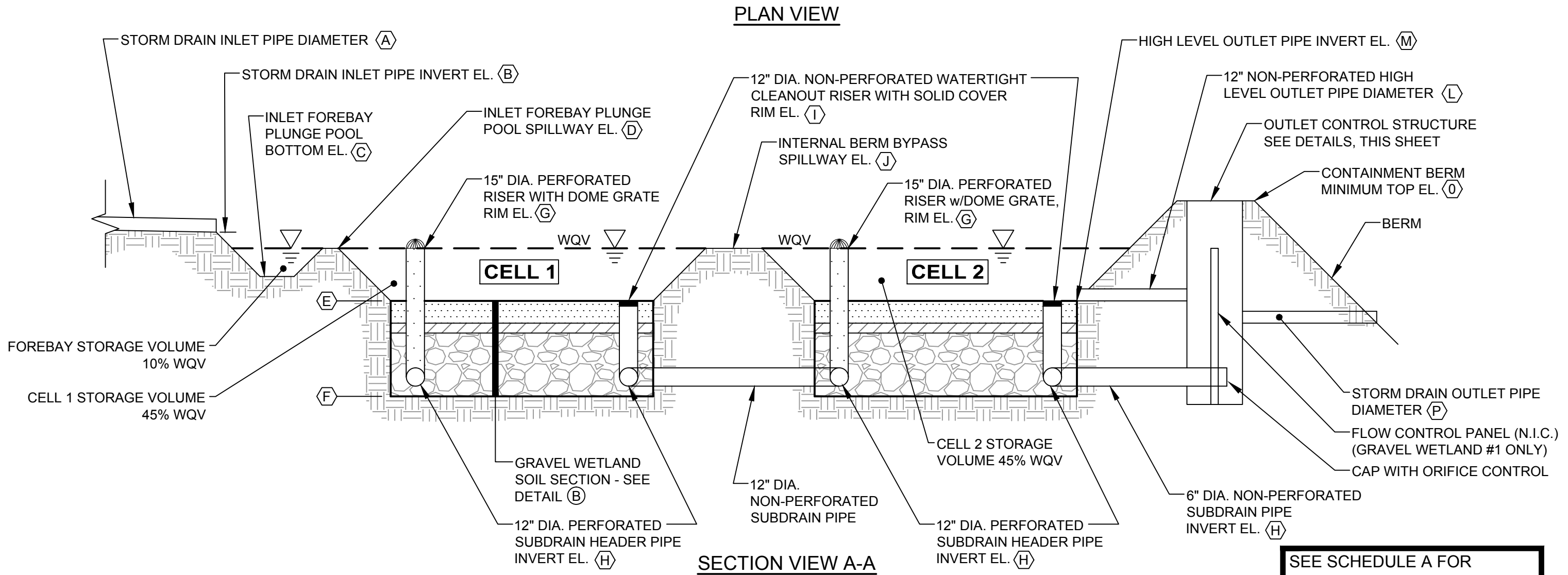
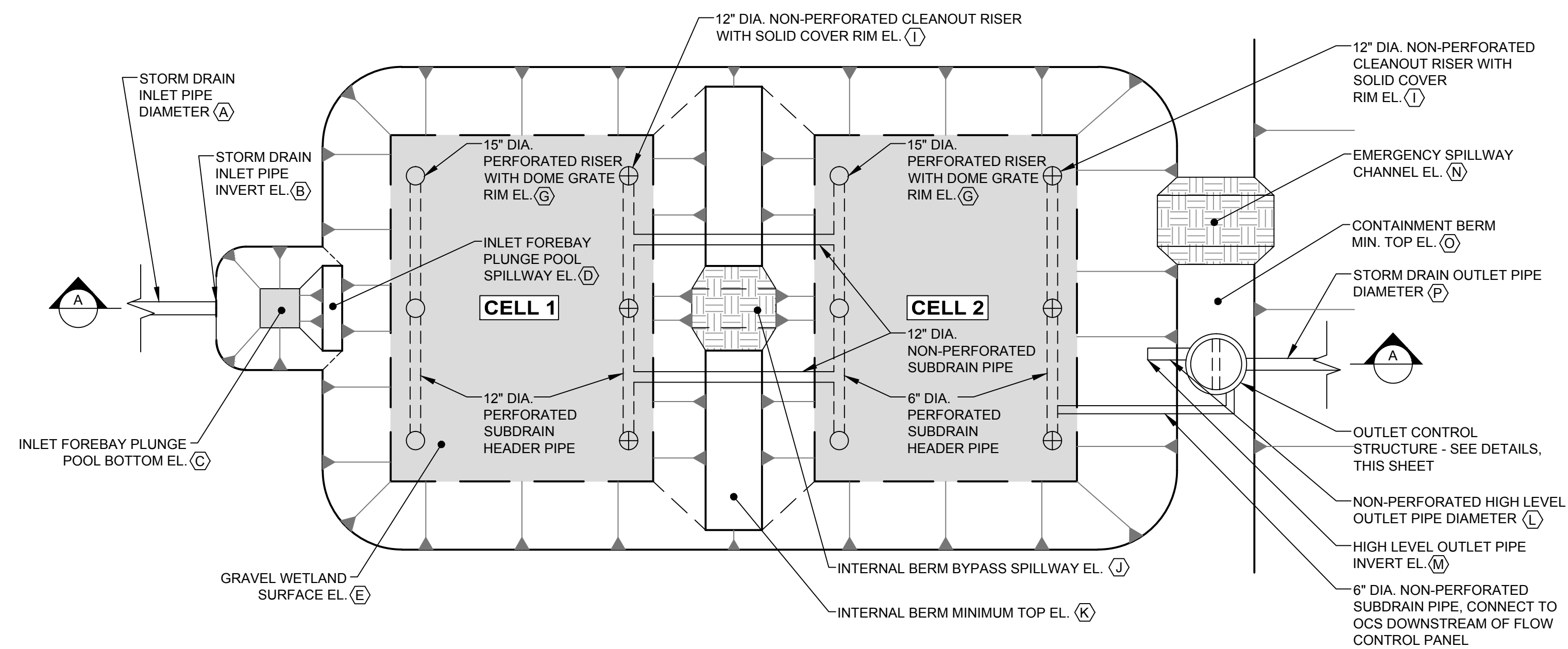
PRELIMINARY - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
2	04.17.14	FINAL PLAN SUBMISSION TO CITY
1	02.10.14	SUBMITTED TO CITY OF PORTLAND

REVISIONS
P.E. STEPHEN BUSHEY
LIC. # 7429

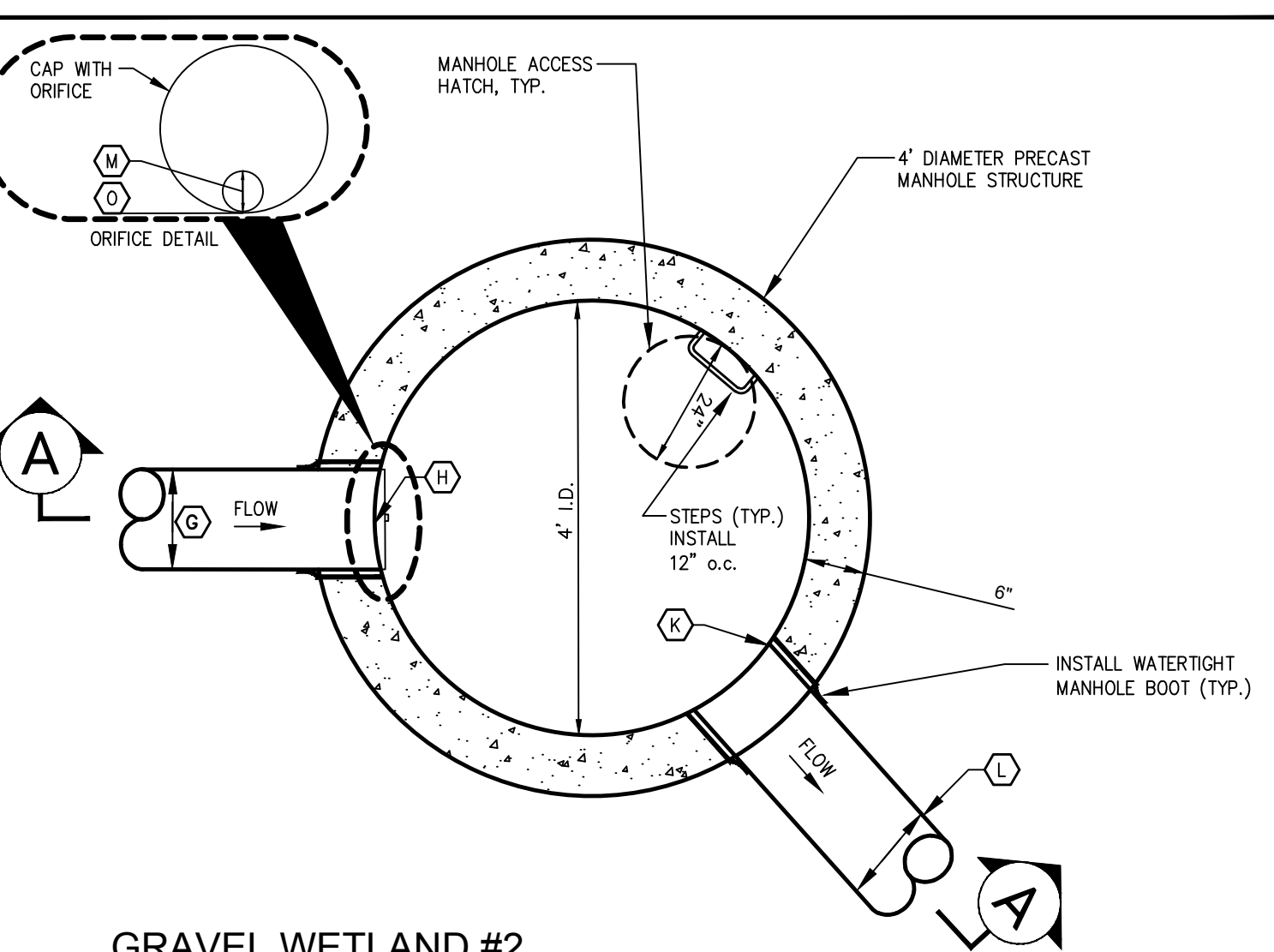
PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	EROSION AND SEDIMENT CONTROL PLAN
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

ENGINEERS FST Since 1964	FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106
DRAWN: CMW	DATE: NOVEMBER 2013
DESIGNED: SRB	SCALE: 1" = 30'
CHECKED: SRB	JOB NO. SP-M104
FILE NAME: SP-M104-EROS	
SHEET	C-5.0



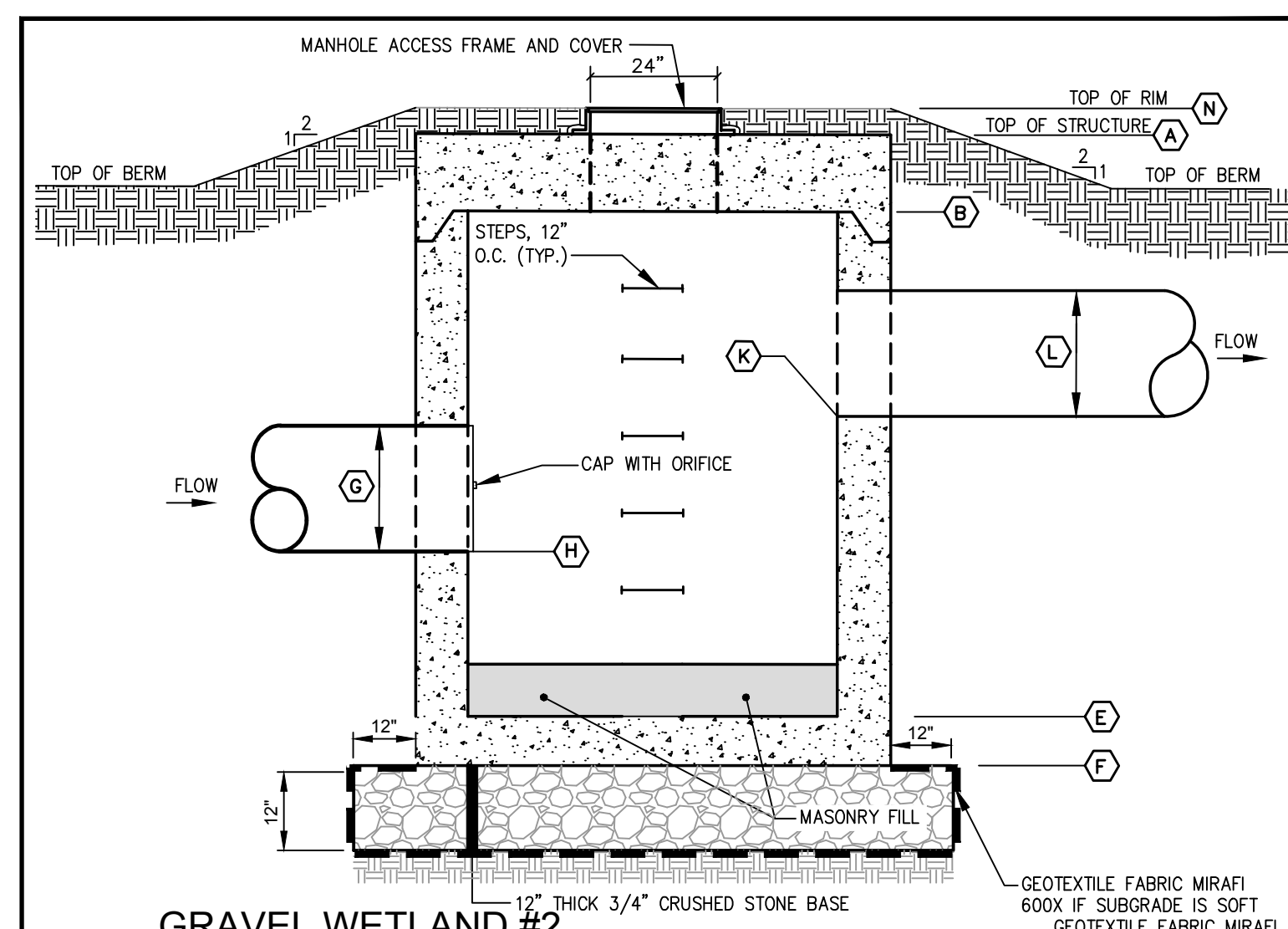
A TYPICAL GRAVEL WETLAND BASIN DETAIL
N.T.S.

SEE SCHEDULE A FOR
DIMENSIONAL INFORMATION
FOR GRAVEL WETLAND BASIN
CONSTRUCTION



B GRAVEL WETLAND #2
OUTLET CONTROL STRUCTURE PLAN VIEW
N.T.S.

SEE SCHEDULE B



C GRAVEL WETLAND #2
OUTLET CONTROL STRUCTURE SECTION A-A
N.T.S.

SEE SCHEDULE B

SCHEDULE A - SUBSURFACE GRAVEL WETLANDS			
I.D.	DESCRIPTION	GRAVEL WETLAND BASIN #1	GRAVEL WETLAND BASIN #2
(A)	STORM DRAIN INLET PIPE DIA. (IN.)	N/A	N/A
(B)	STORM DRAIN INLET PIPE INVERT EL.	N/A	N/A
(C)	INLET FOREBAY PLUNGE POOL BOTTOM EL.	68.5	68.40
(D)	INLET FOREBAY PLUNGE POOL SPILLWAY EL.	69.5	69.5
(E)	GRAVEL WETLAND SURFACE EL.	68.5	68.5
(F)	GRAVEL WETLAND BOTTOM SUBGRADE EL.	65.58	65.58
(G)	15' DIAMETER RISER RIM EL.	69.5	69.5
(H)	6" DIAMETER SUBDRAIN HEADER PIPE INVERT EL.	65.83	65.83
(I)	12" DIAMETER CLEANOUT RIM EL.	68.5	68.5
(J)	INTERNAL BERM BYPASS SPILLWAY EL.	69.0	69.0
(K)	INTERNAL BERM MINIMUM TOP EL.	70.0	70.0
(L)	HIGH LEVEL OUTLET PIPE DIAMETER (IN.)	12"	N/A
(M)	HIGH LEVEL OUTLET PIPE INVERT EL.	68.5	N/A
(N)	EMERGENCY SPILLWAY CHANNEL EL.	N/A	69.0
(O)	CONTAINMENT BERM MINIMUM TOP EL.	70.00	71.00
(P)	STORM DRAIN OUTLET PIPE DIAMETER	12"	12"

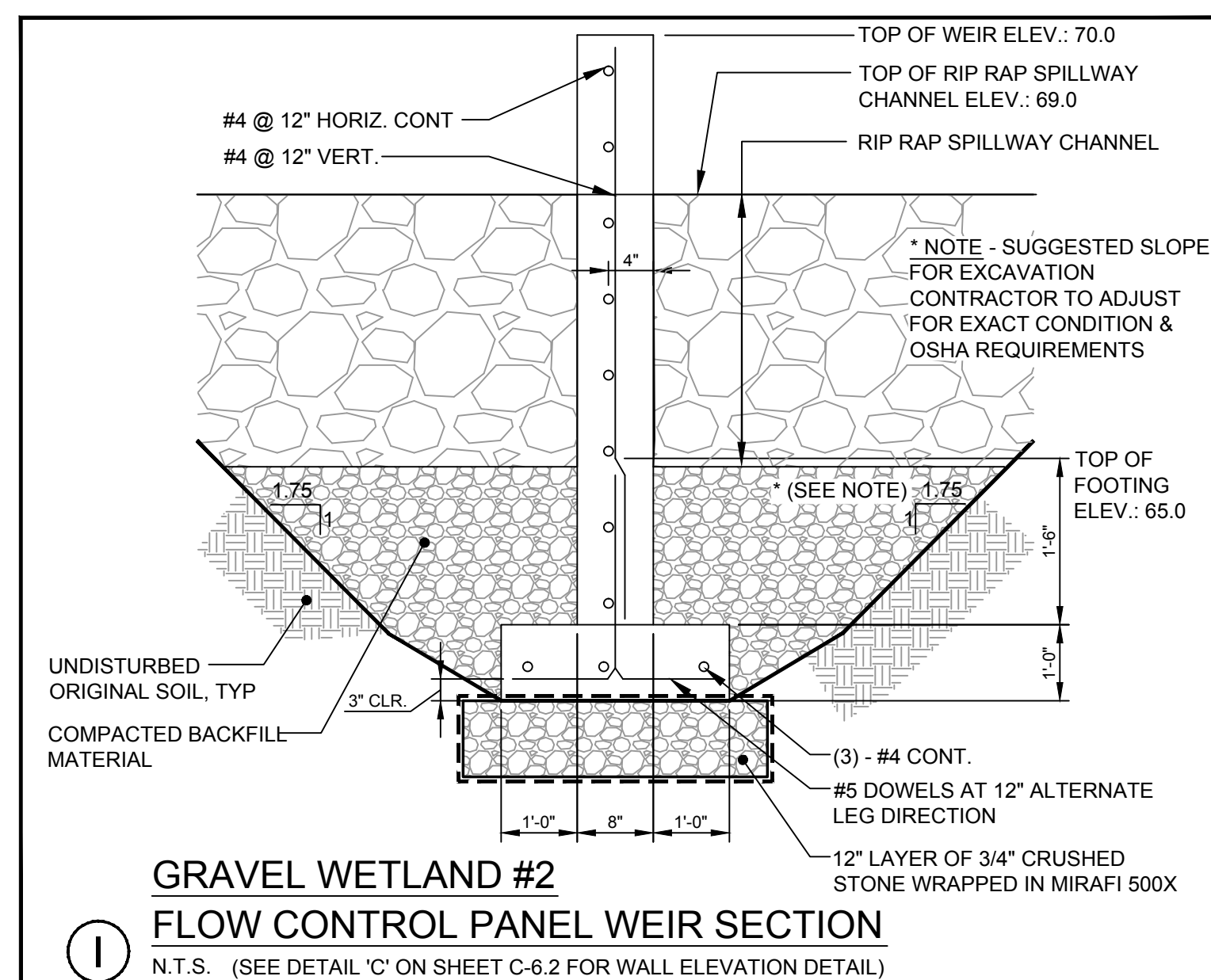
USE THIS SCHEDULE
FOR DETAIL A

D SCHEDULE A SUBSURFACE GRAVEL WETLANDS
N.T.S.

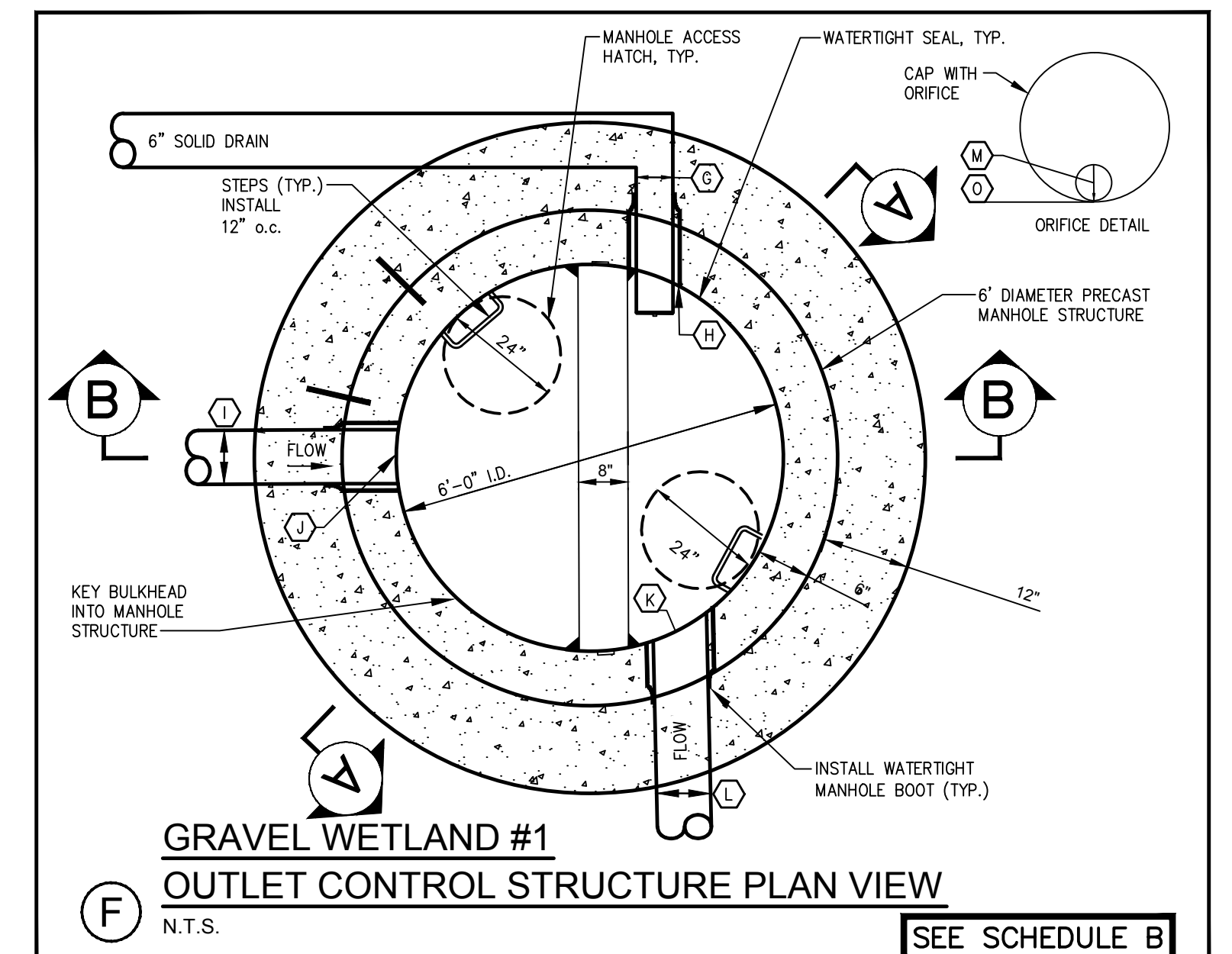
SCHEDULE B OUTLET CONTROL STRUCTURE			
ITEM DESCRIPTION	DIMENSION/ELEVATION		
	GRAVEL WETLAND #1	GRAVEL WETLAND #2	
(A)	TOP OF STRUCTURE	71.34	71.00
(B)	UNDERSIDE TOP SLAB	70.67	70.33
(C)	TOP CONCRETE BULKHEAD	69.50	N/A
(D)	WEIR ELEVATION	69.00	N/A
(E)	BOTTOM OF SUMP	65.00	65.00
(F)	BOTTOM OF STRUCTURE	64.00	64.00
(G)	UD INLET WITH ECCENTRIC ORIFICE DIA.	6"	6"
(H)	UD INLET INVERT	65.83	65.83
(I)	HIGH LEVEL INLET PIPE DIAMETER	12"	-
(J)	HIGH LEVEL OUTLET INVERT	68.50	N/A
(K)	CONTROL STRUCTURE OUTLET PIPE INV.	68.17	68.17
(L)	CONT. STR. OUTLET PIPE DIAMETER	12"	12"
(M)	ORIFICE DIAMETER	0.95"	1.4"
(N)	RIM ELEVATION	71.88	71.50
(O)	ORIFICE INVERT	65.83	65.83

USE THIS SCHEDULE
FOR DETAILS B, C, F,
G, H

E SCHEDULE B OUTLET CONTROL STRUCTURE
N.T.S.

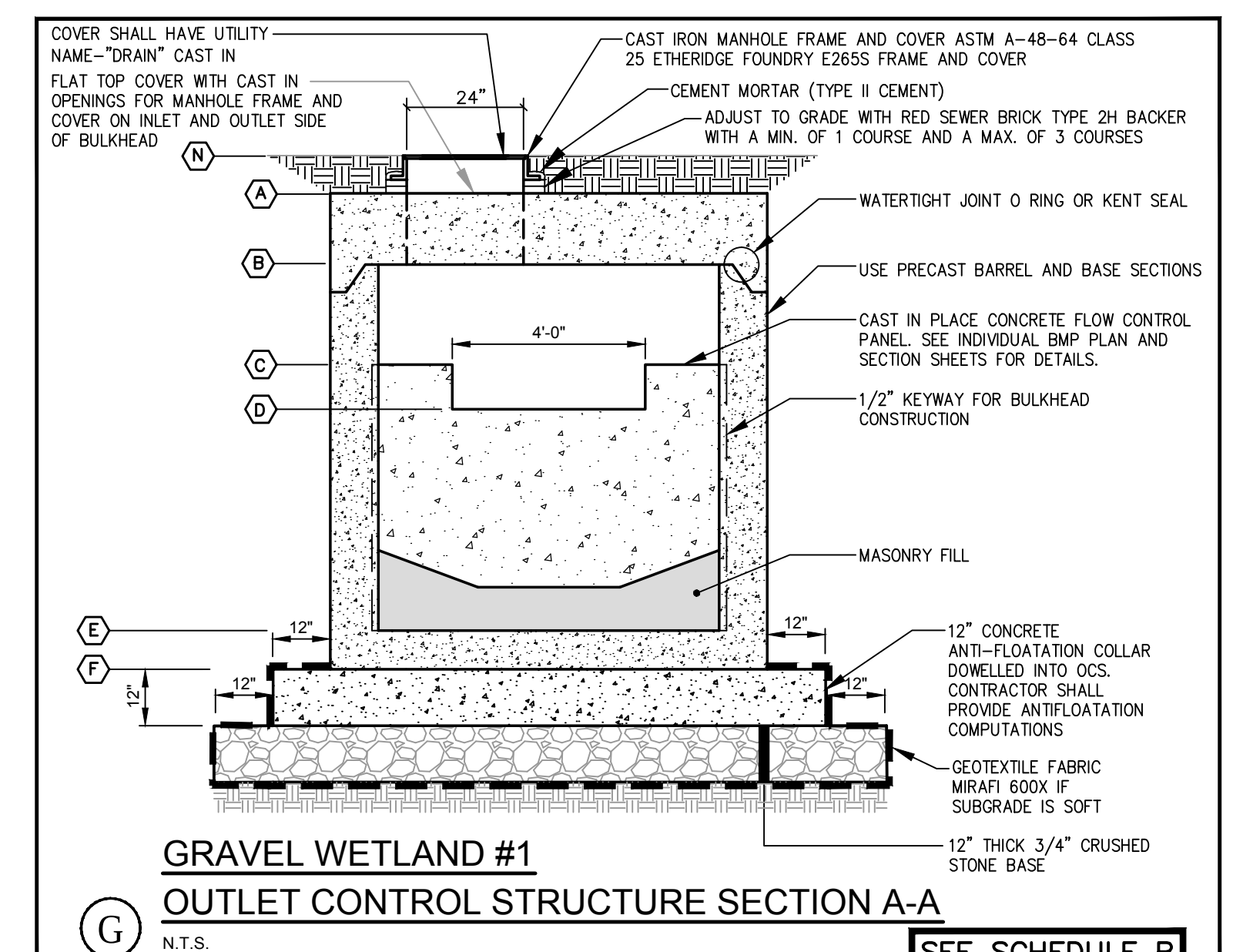


I GRAVEL WETLAND #2
FLOW CONTROL PANEL WEIR SECTION
N.T.S. (SEE DETAIL 'C' ON SHEET C-6.2 FOR WALL ELEVATION DETAIL)



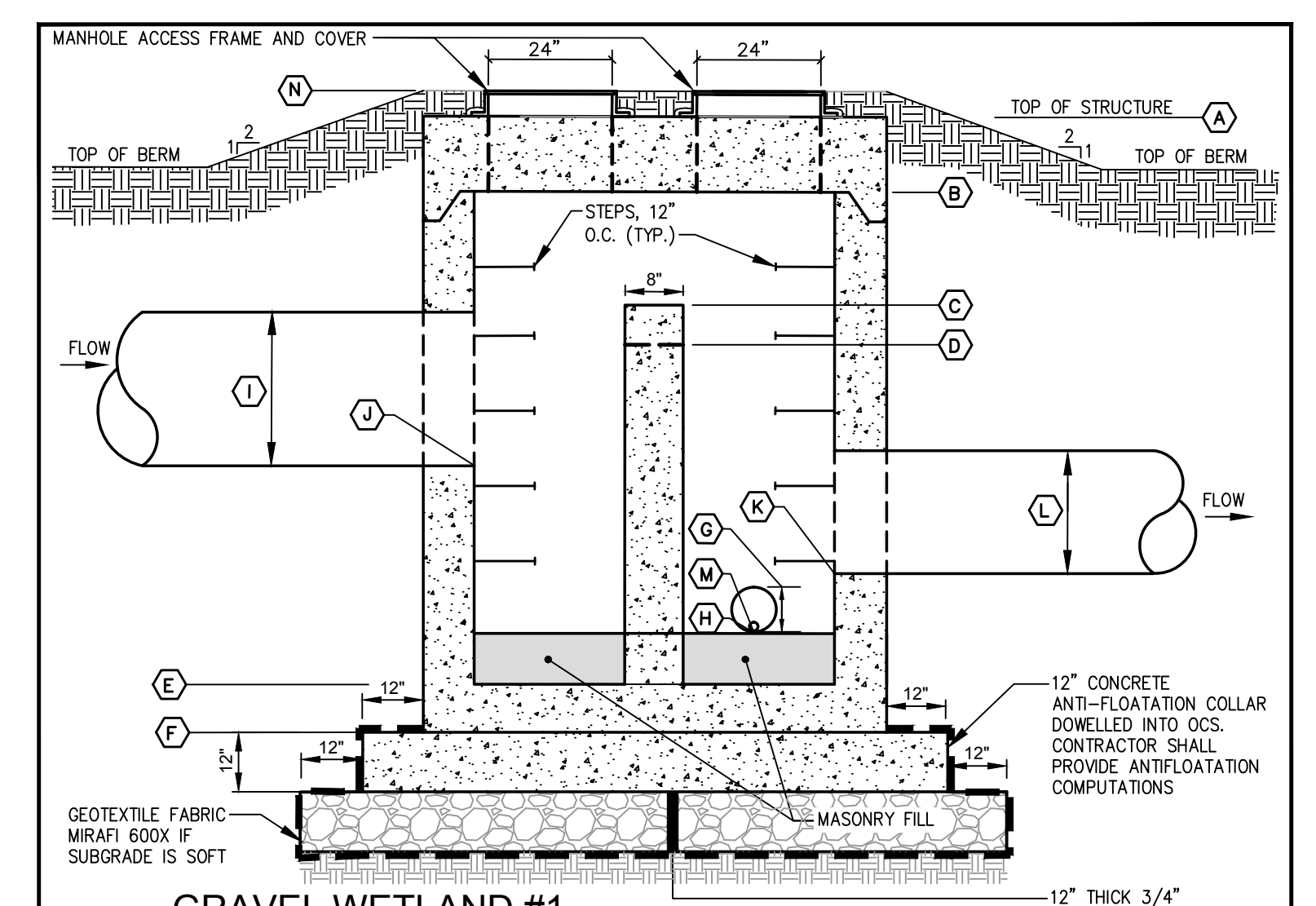
F GRAVEL WETLAND #1
OUTLET CONTROL STRUCTURE PLAN VIEW
N.T.S.

SEE SCHEDULE B



G GRAVEL WETLAND #1
OUTLET CONTROL STRUCTURE SECTION A-A
N.T.S.

SEE SCHEDULE B

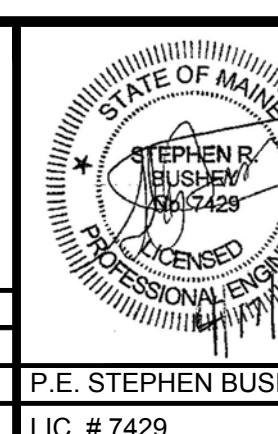


H GRAVEL WETLAND #1
OUTLET CONTROL STRUCTURE SECTION A-A
N.T.S.

SEE SCHEDULE B

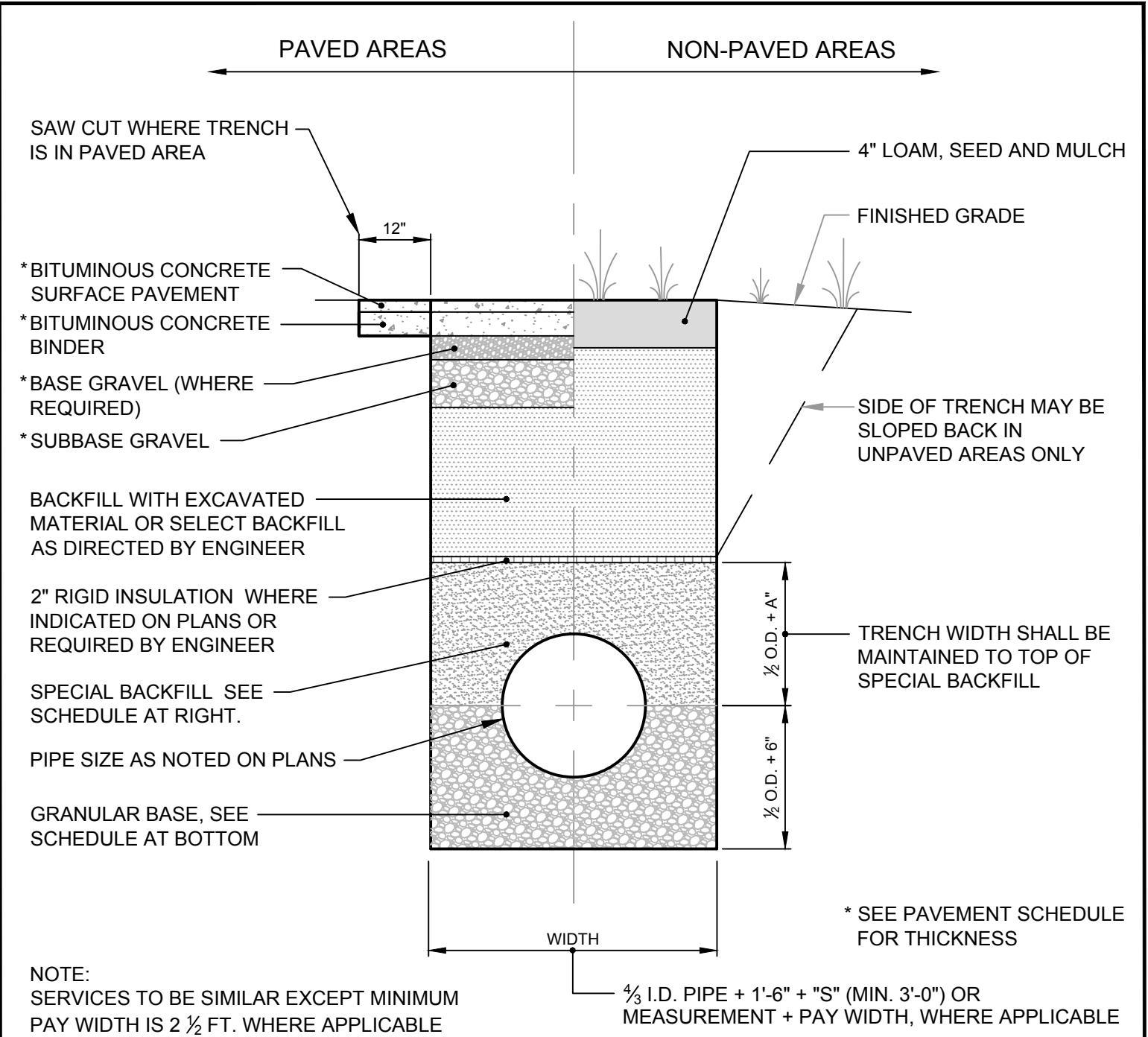
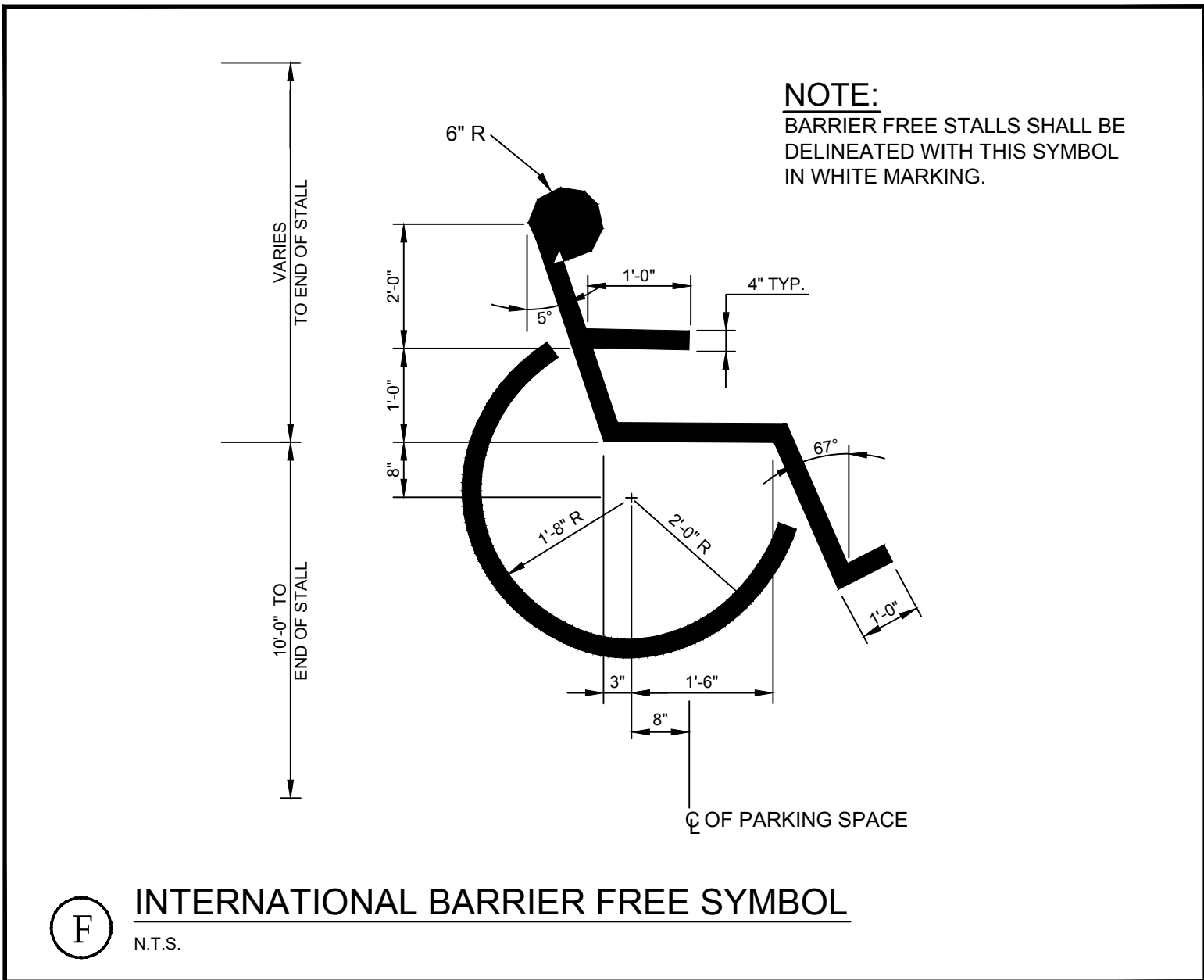
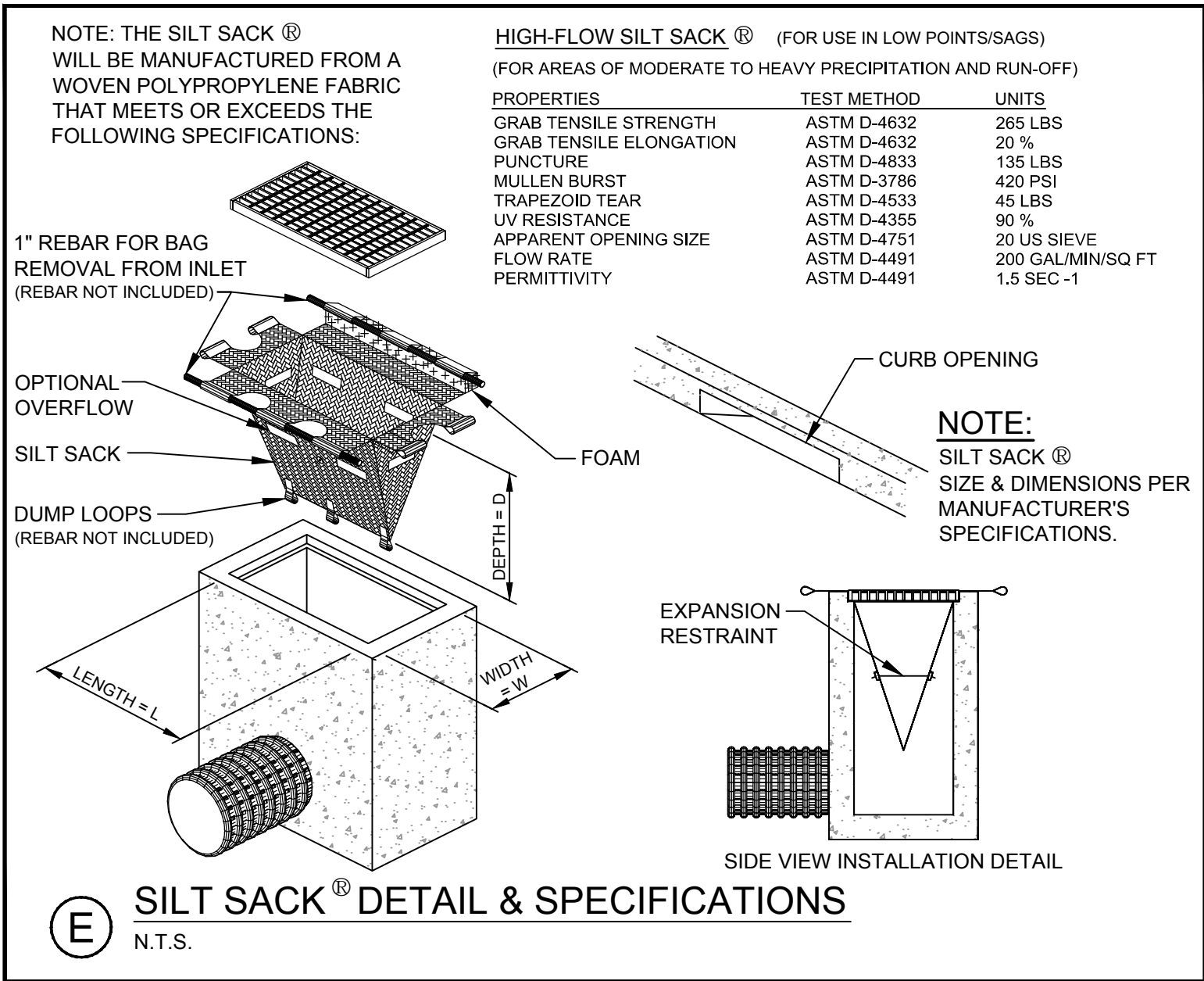
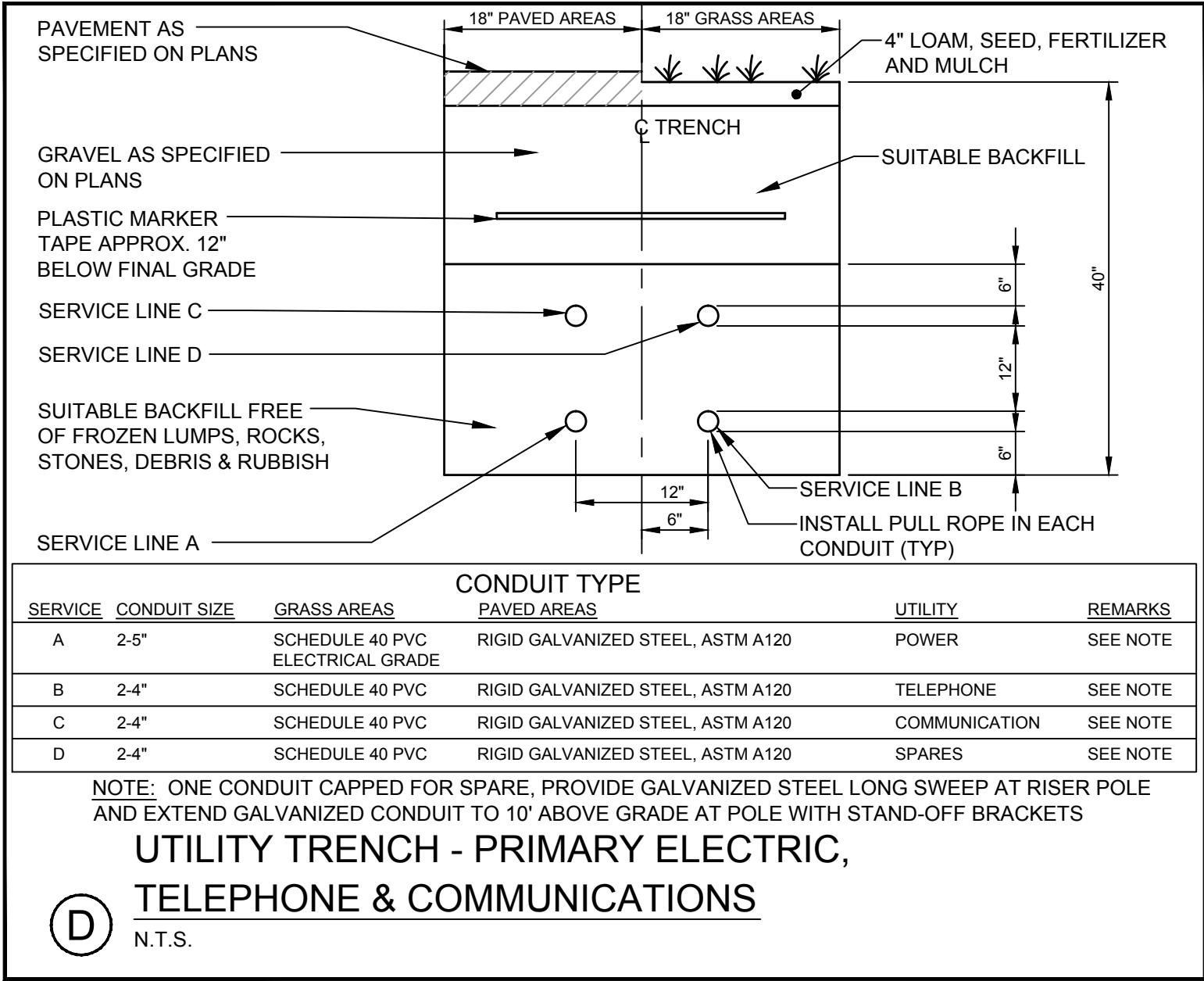
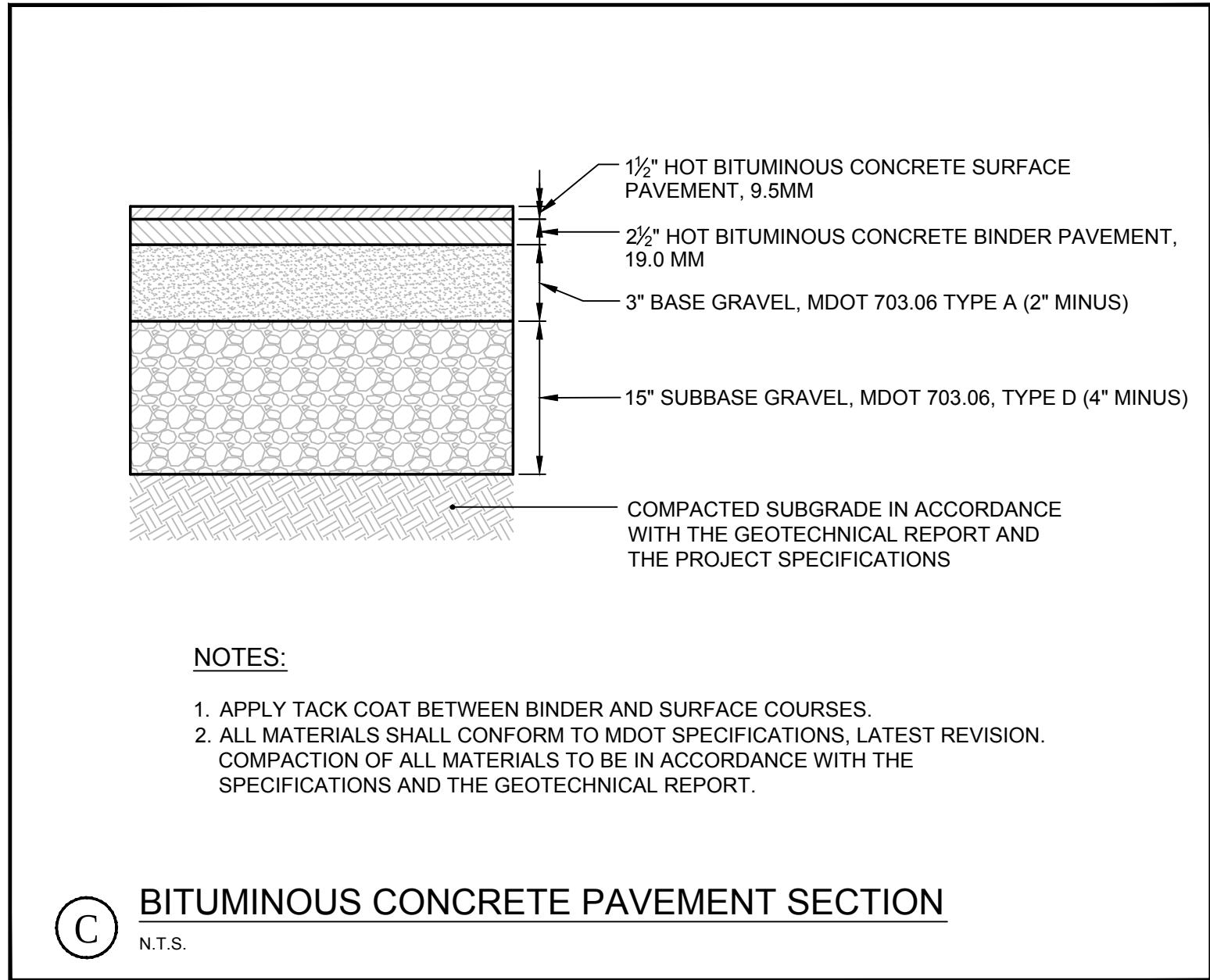
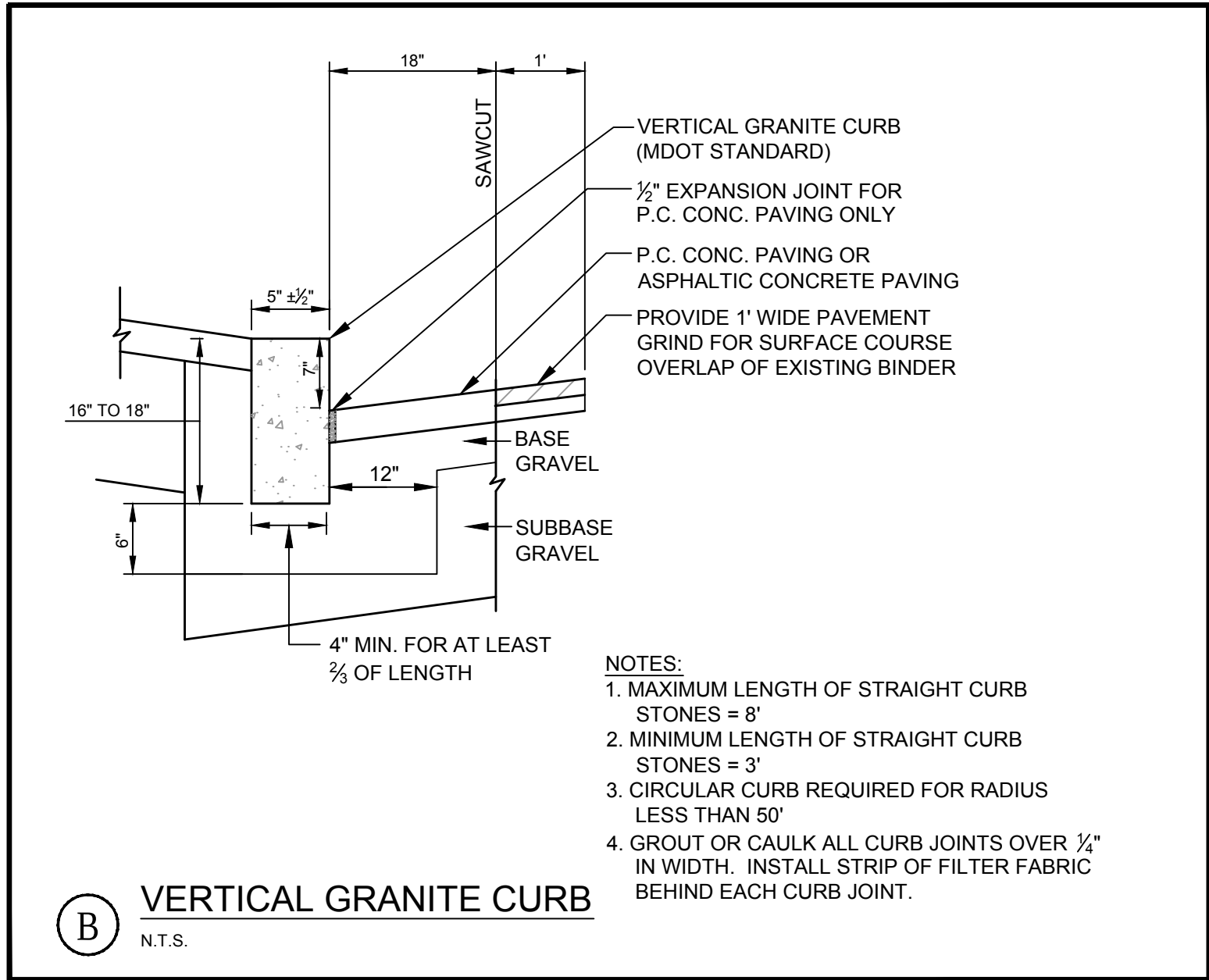
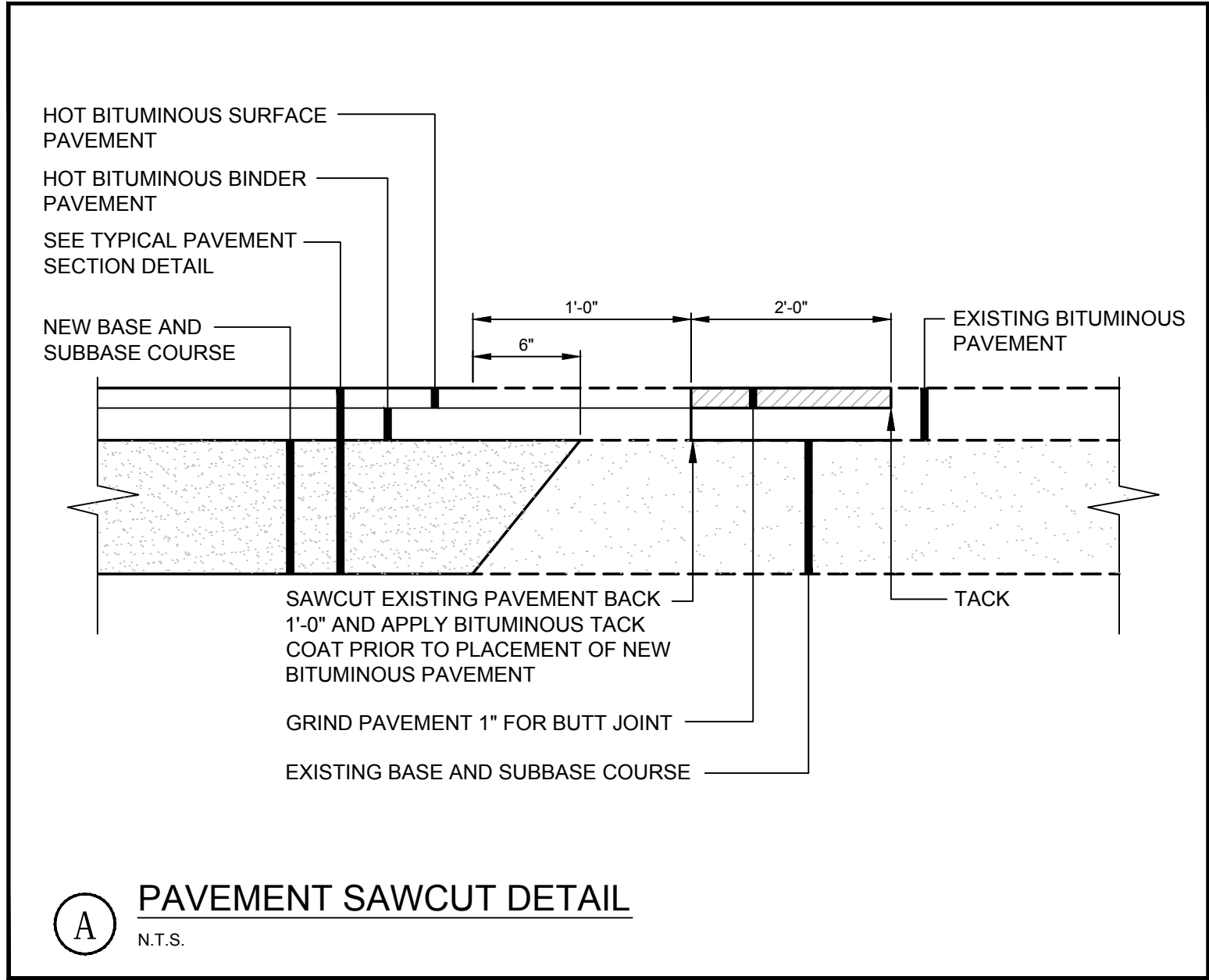
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REVISIONS		



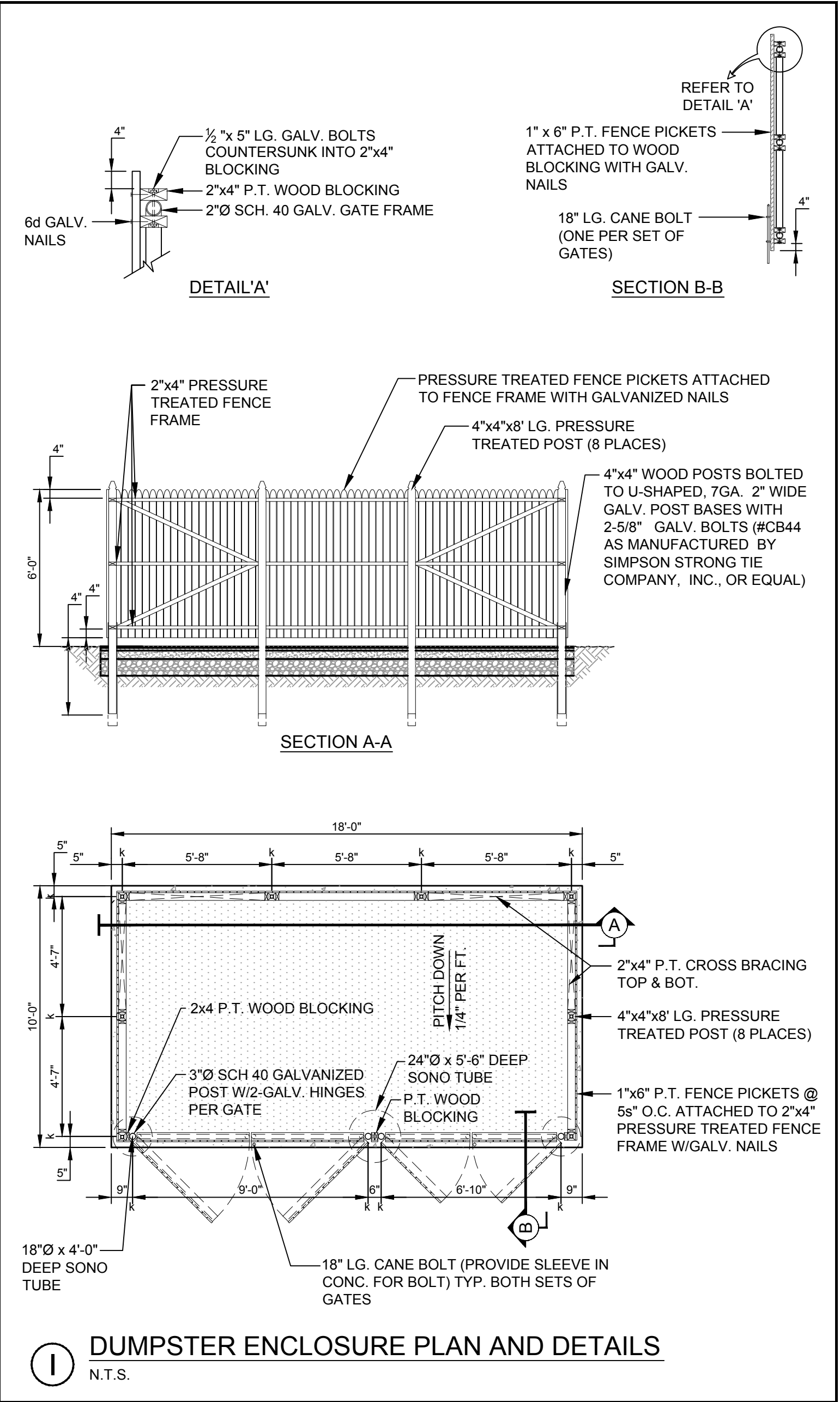
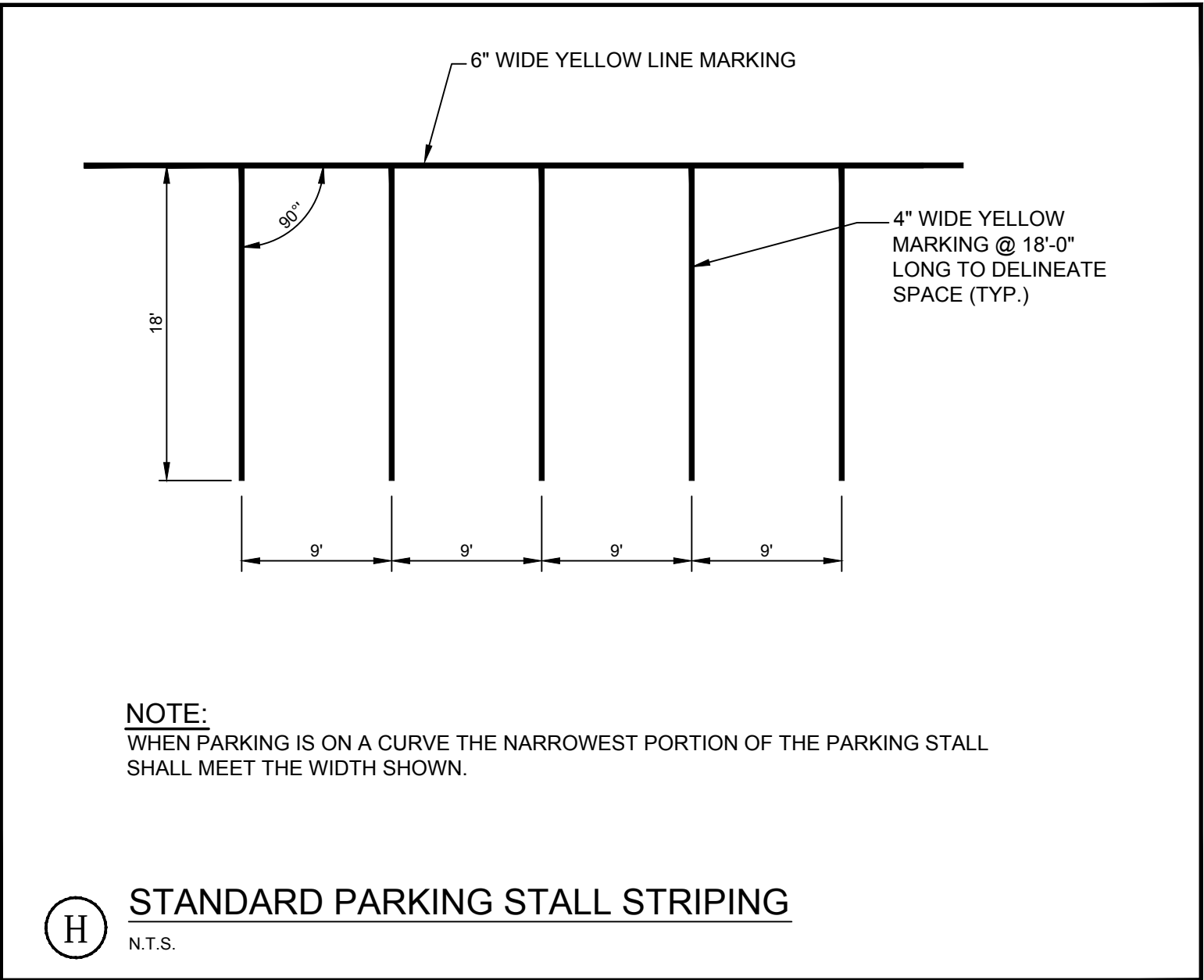
PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	GRAVEL WETLAND DETAILS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

ENGINEERS FST Since 1954	FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106
DRAWN: CMW	DATE: NOVEMBER 2013
DESIGNED: SRB	SCALE: AS NOTED
CHECKED: SRB	JOB NO. SP-M104
FILE NAME: SP-M104-DET	
SHEET	C-4.3



SCHEDULE OF BASE BACKFILL				
TYPE OF PIPE	BEDDING MATERIAL	SPECIAL BACKFILL	SPECIAL BACKFILL COVER "A" (IN)	SELECT BACKFILL
CONCRETE	GRANULAR AASHTO M145 49-A-3 OR BETTER	GRANULAR AASHTO M145 49-A-3 OR BETTER	12	GRANULAR AASHTO M145 49-A-3 OR BETTER
PVC/HDPE	3/4" CRUSHED STONE	GRANULAR AASHTO M145 49-A-3 OR BETTER	6	GRANULAR AASHTO M145 49-A-3 OR BETTER
CMP	3/4" CRUSHED STONE	GRANULAR AASHTO M145 49-A-3 OR BETTER	6	GRANULAR AASHTO M145 49-A-3 OR BETTER
D.I.	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145 49-A-3 OR BETTER	6	GRANULAR AASHTO M145 49-A-3 OR BETTER

TYPICAL TRENCH DETAIL
N.T.S.



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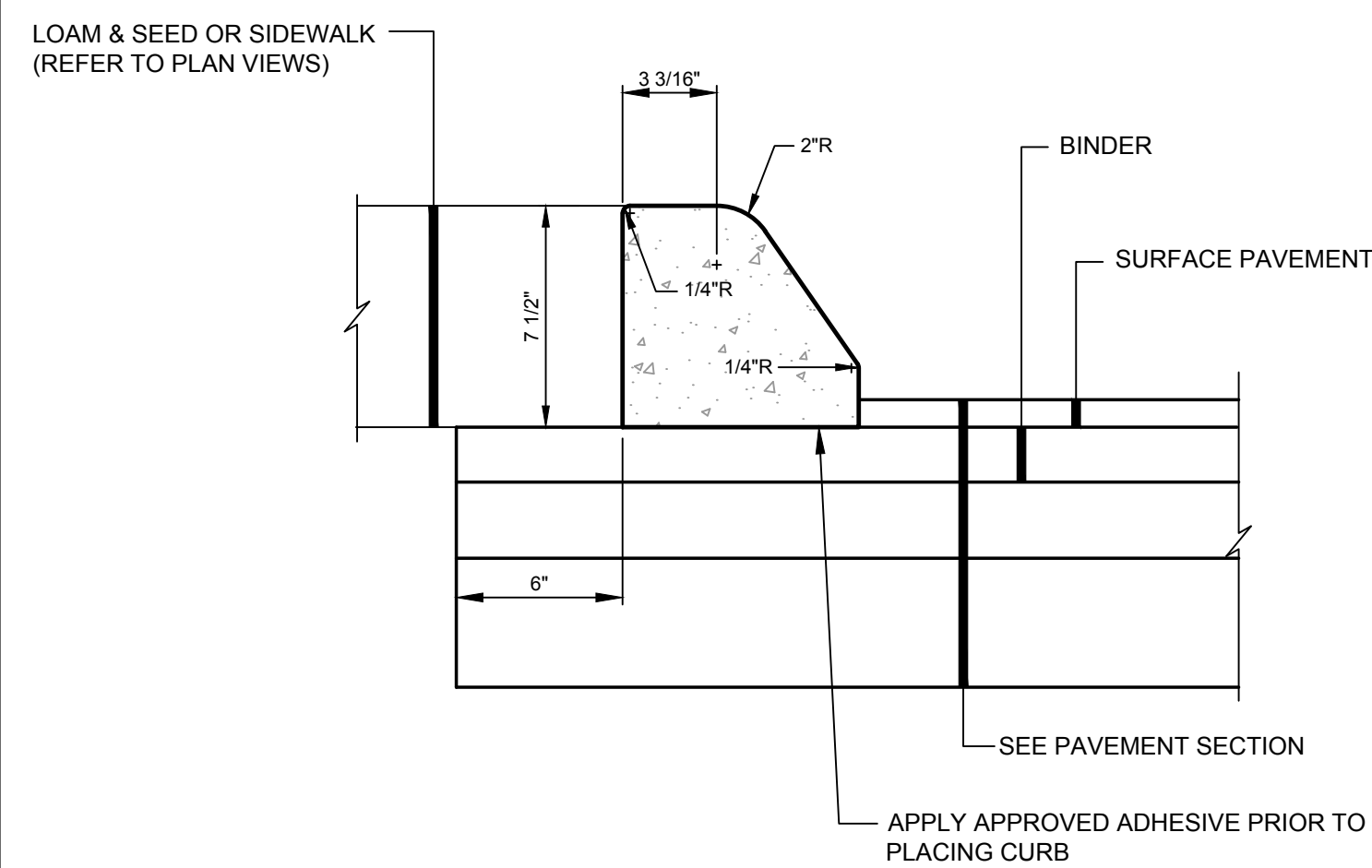
P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	DETAILS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074
DRAWN:	CMW
DESIGNED:	SRB
CHECKED:	SRB
FILE NAME:	SP-M104-DET
SHEET	C-6.0

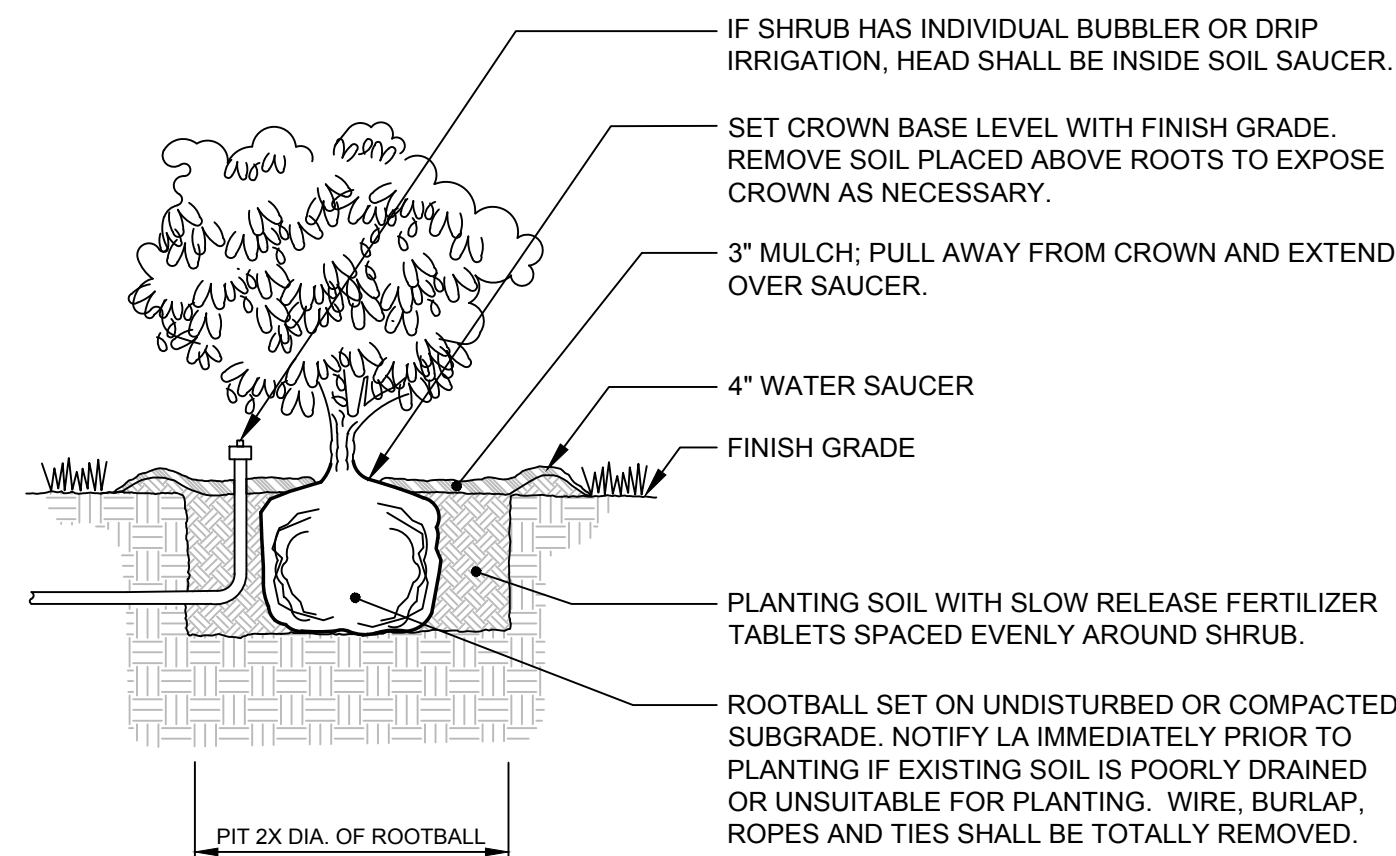
FAY, SPOFFORD & THORNDIKE, INC.
ENGINEERS • PLANNERS • SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

Since 1954

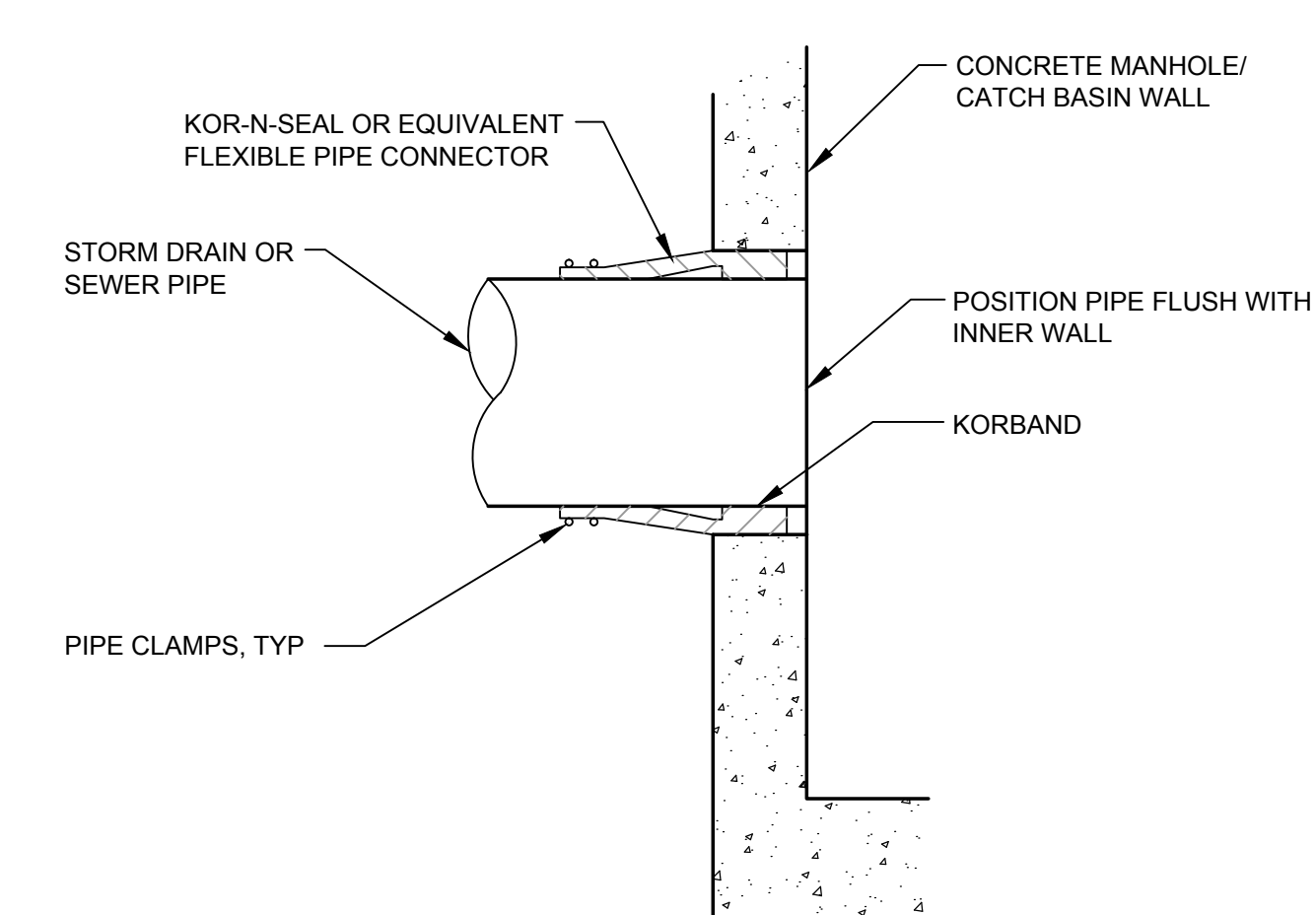
DRAWN: CMW DATE: NOVEMBER 2013
DESIGNED: SRB SCALE: AS NOTED
CHECKED: SRB JOB NO.: SP-M104
FILE NAME: SP-M104-DET
SHEET C-6.0



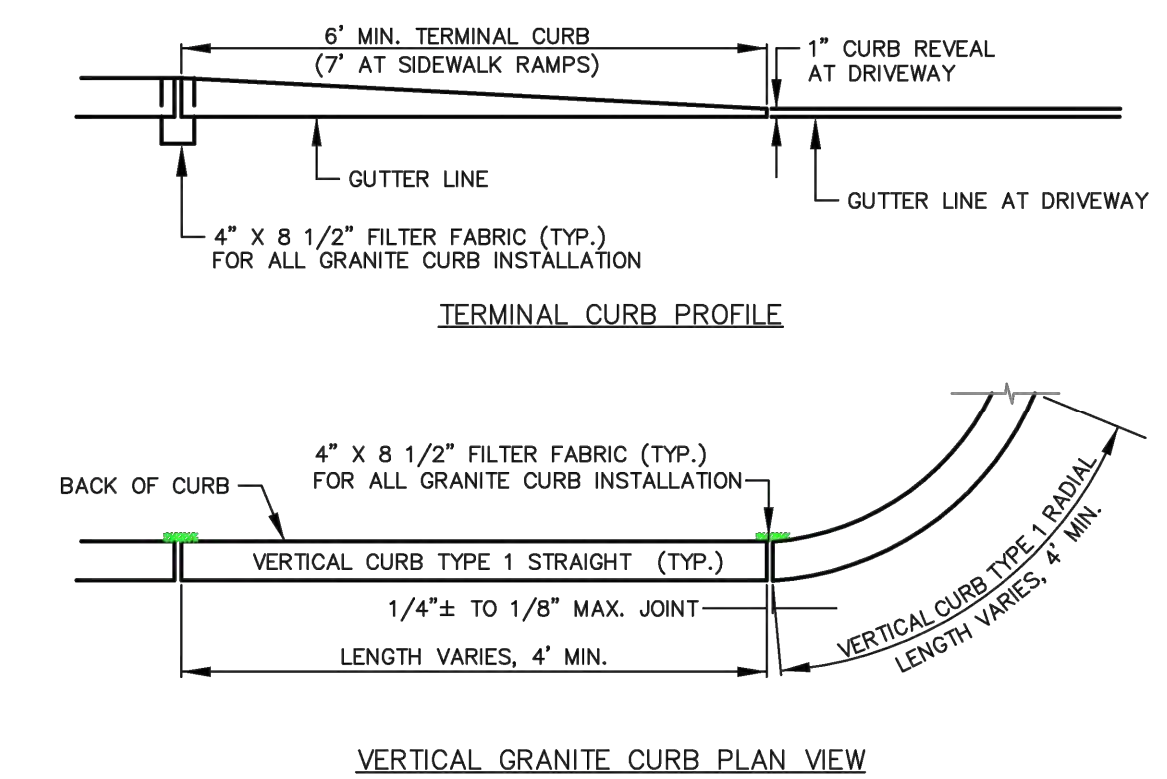
A STANDARD DUTY SLIP FORM CONCRETE CURB
N.T.S.



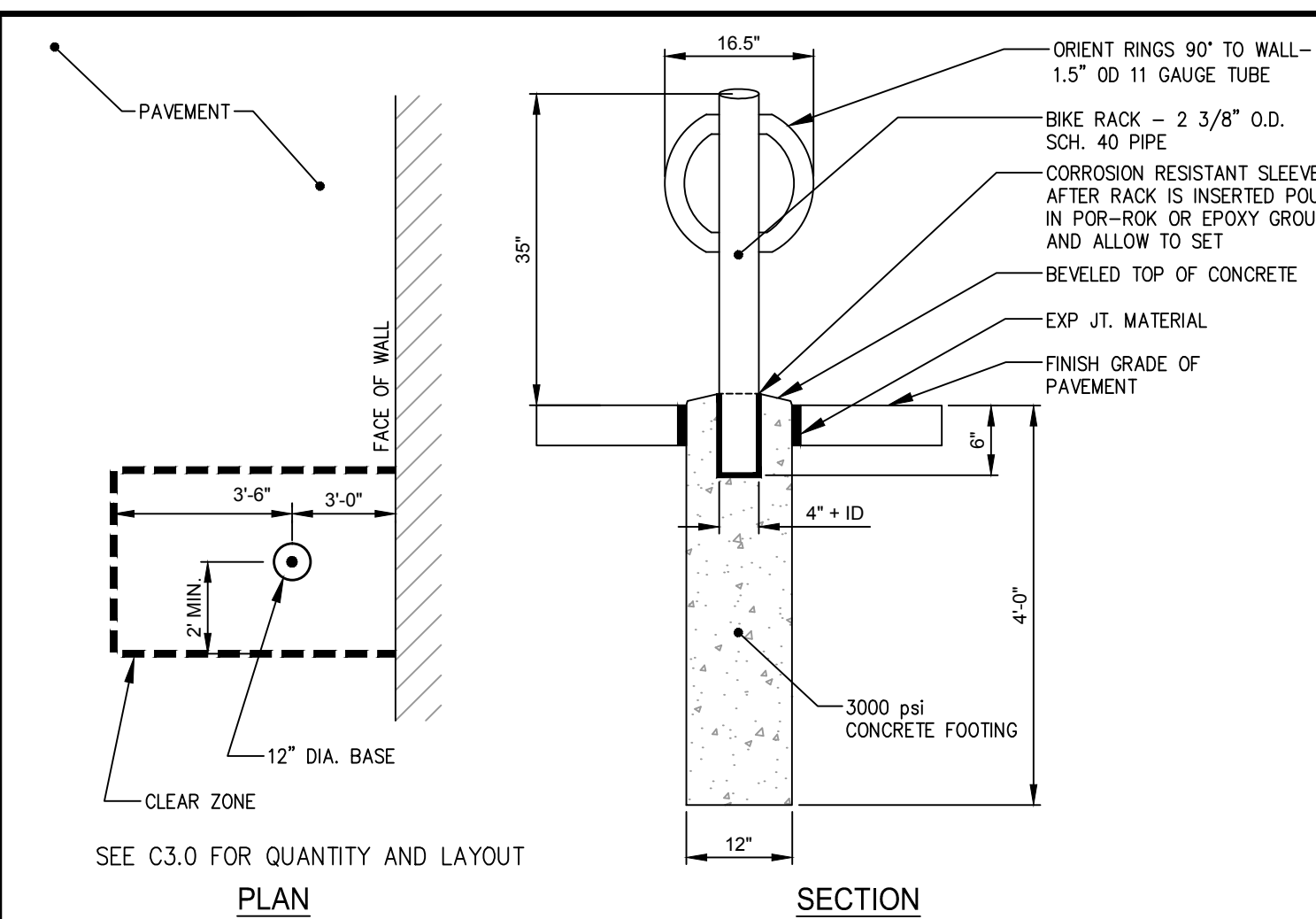
D SHRUB INSTALLATION DETAIL
N.T.S.



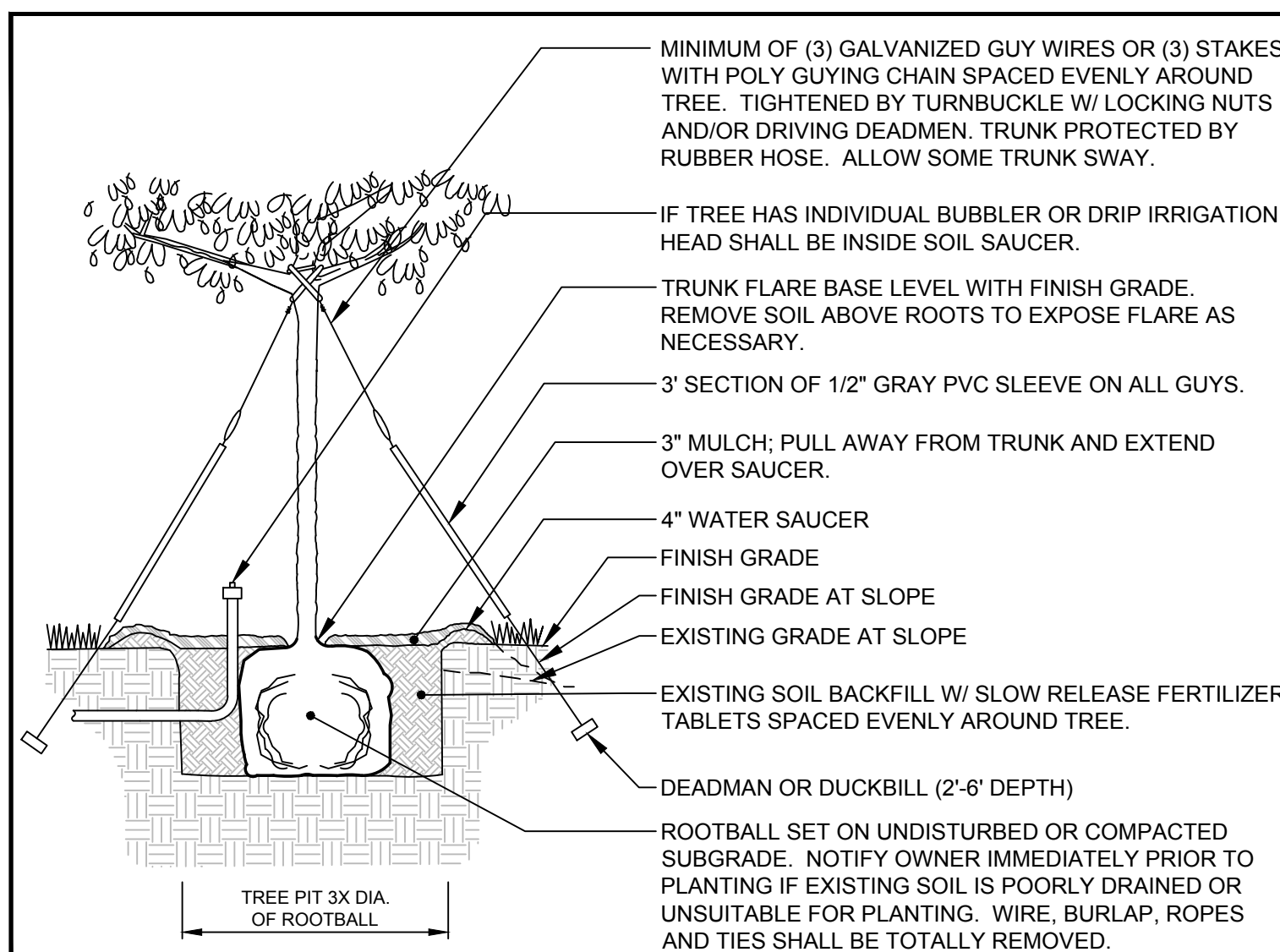
G PIPE CONNECTION TO EXISTING STRUCTURE DETAIL
N.T.S.



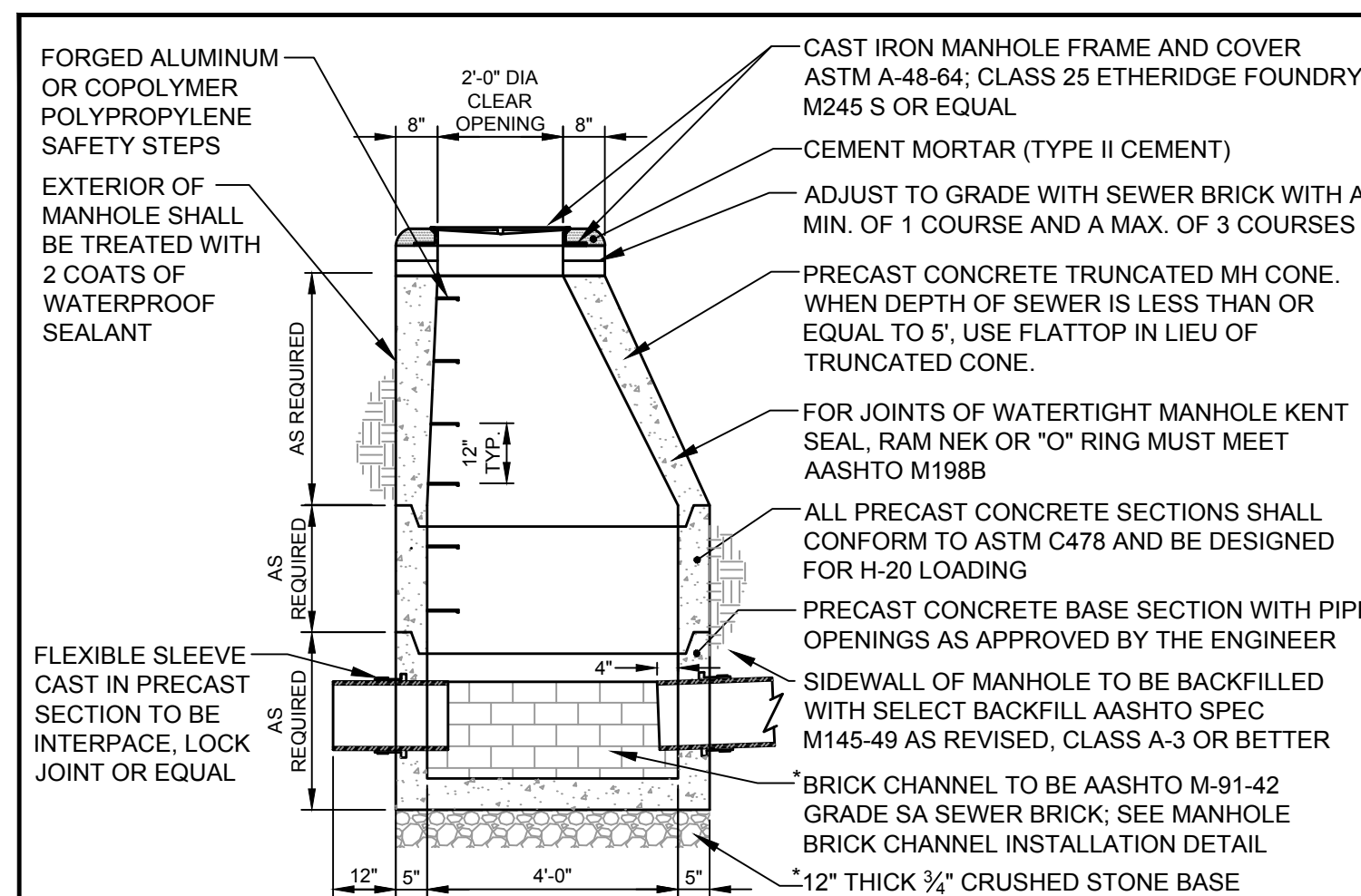
J VERTICAL GRANITE CURB
INSTALLATION IN EXISTING STREETS
N.T.S.



B BIKE HITCH MOUNTING DETAIL
N.T.S.

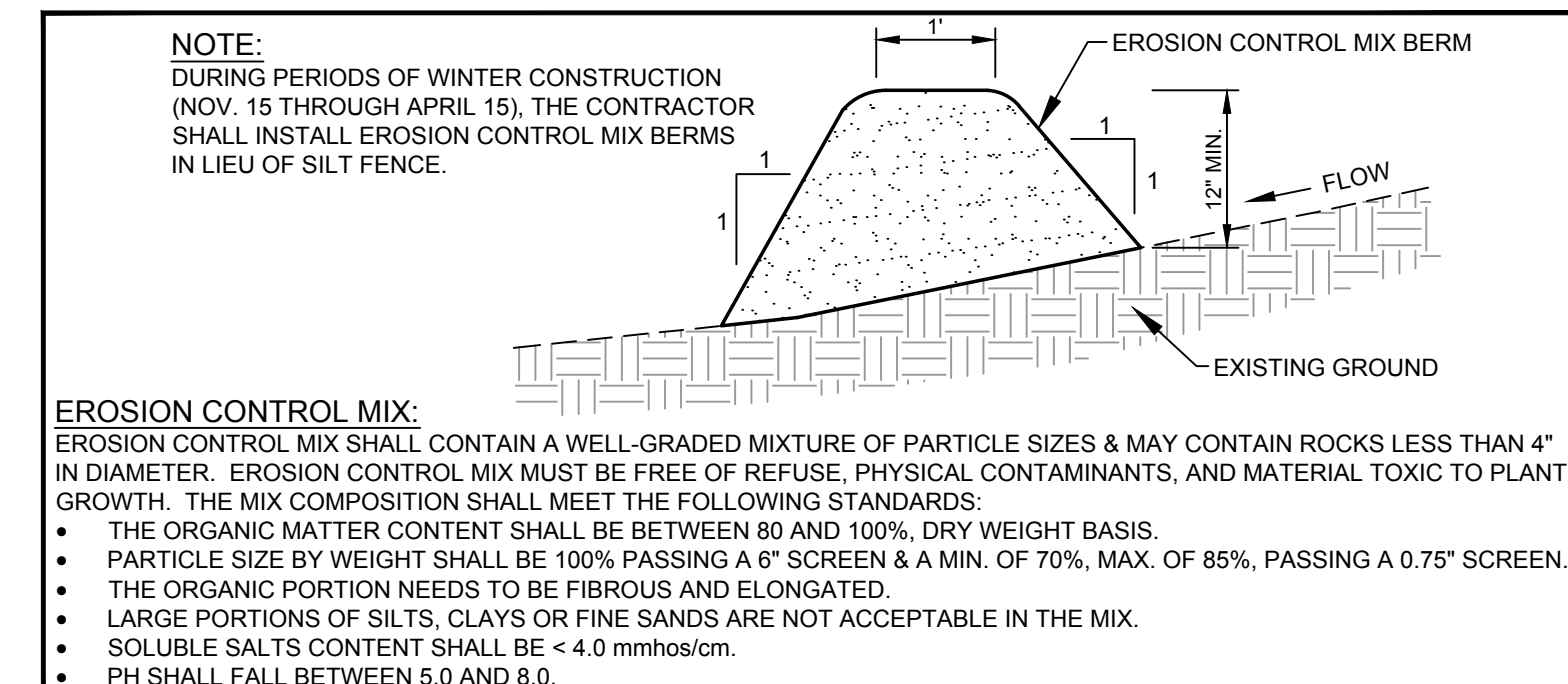


E TREE INSTALLATION DETAIL: >10' HT.
N.T.S.

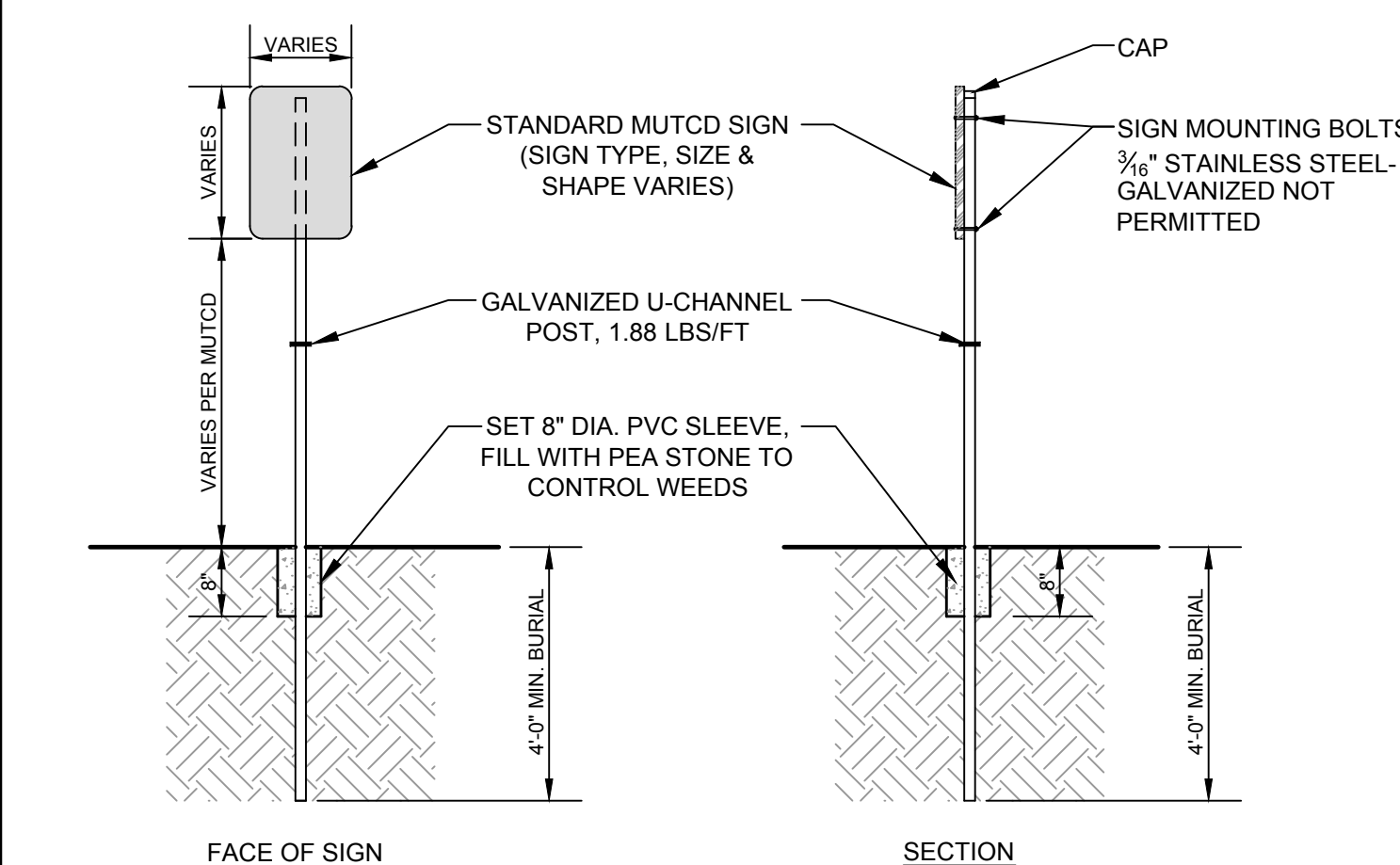


H 4'-0" DIA. PRECAST SEWER AND
STORM DRAIN MANHOLE DETAIL
N.T.S.

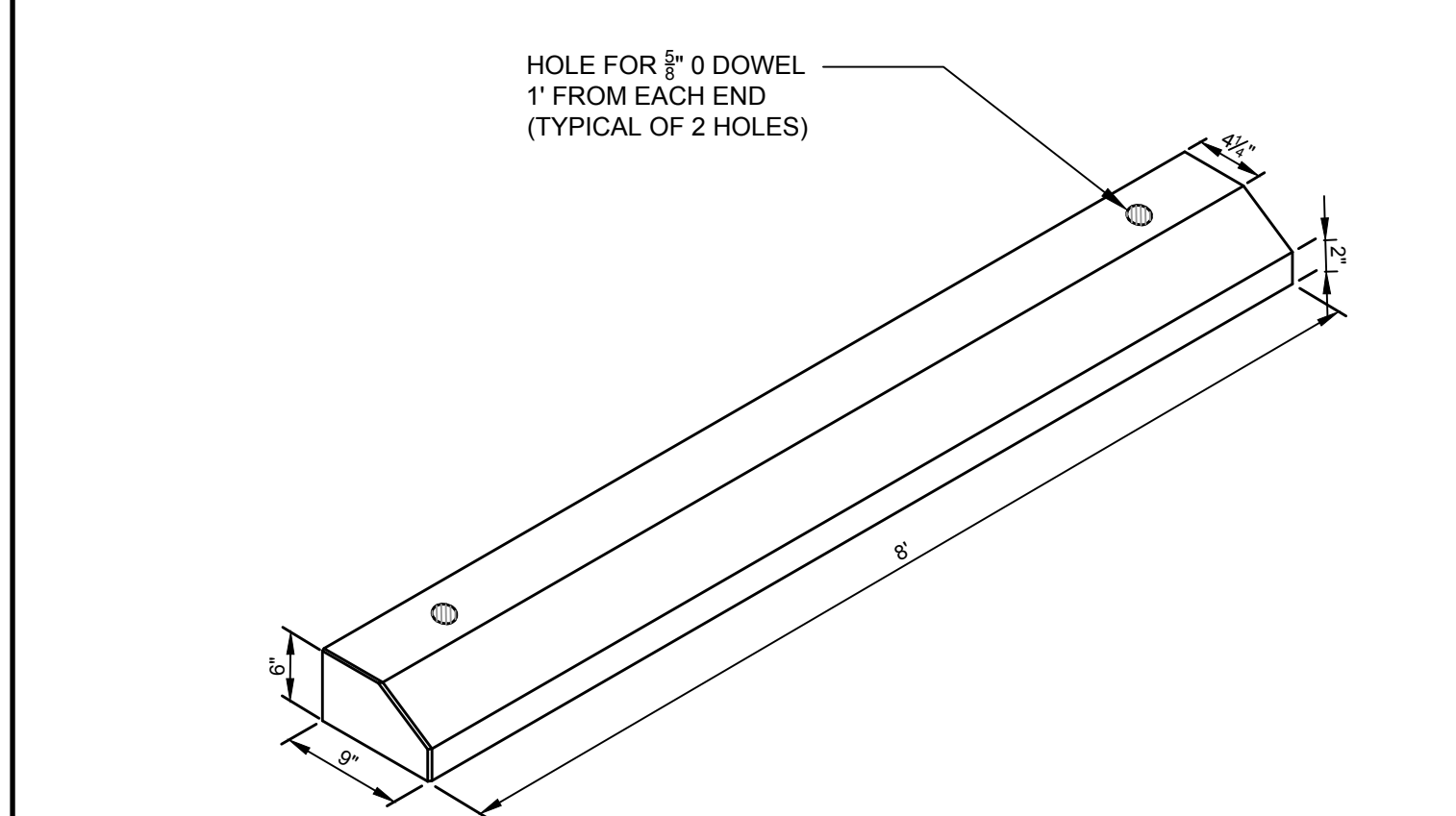
* NOTE:
CHANNEL MAY ALSO BE A
PREFABRICATED FIBERLINER 2000
CHANNEL AS FABRICATED BY GDT,
INC. OF ESSEX, CT OR EQUAL



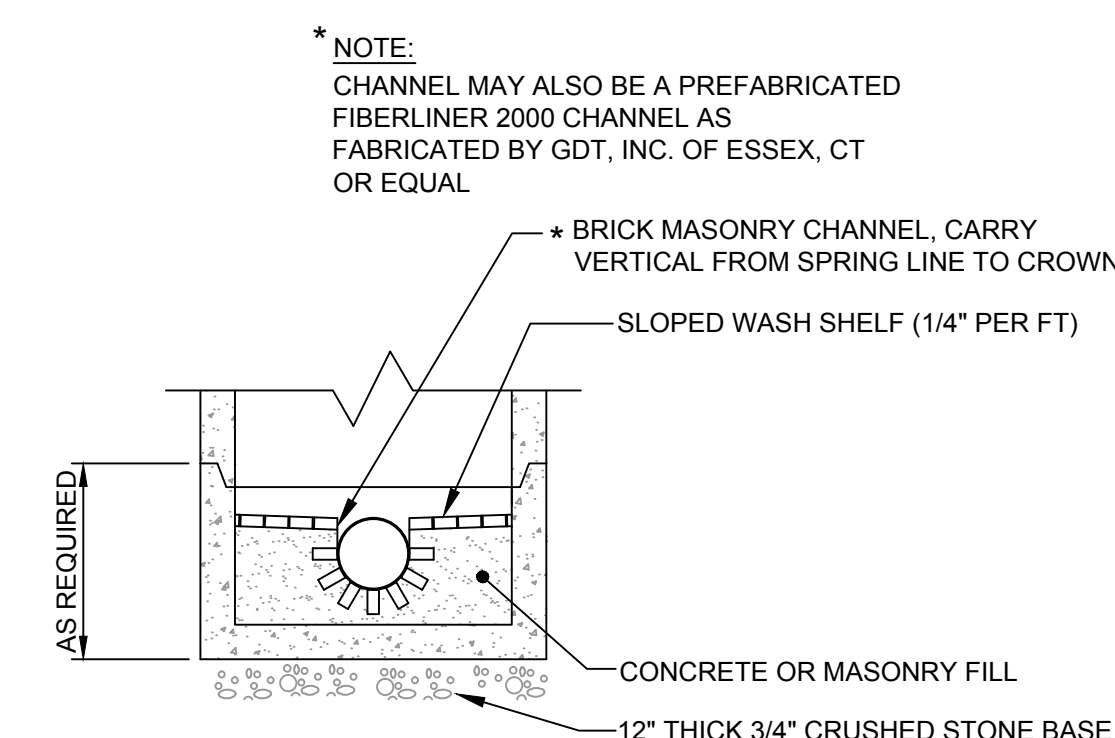
K EROSION CONTROL MIX BERM DETAIL
N.T.S.



C TRAFFIC SIGN
N.T.S.



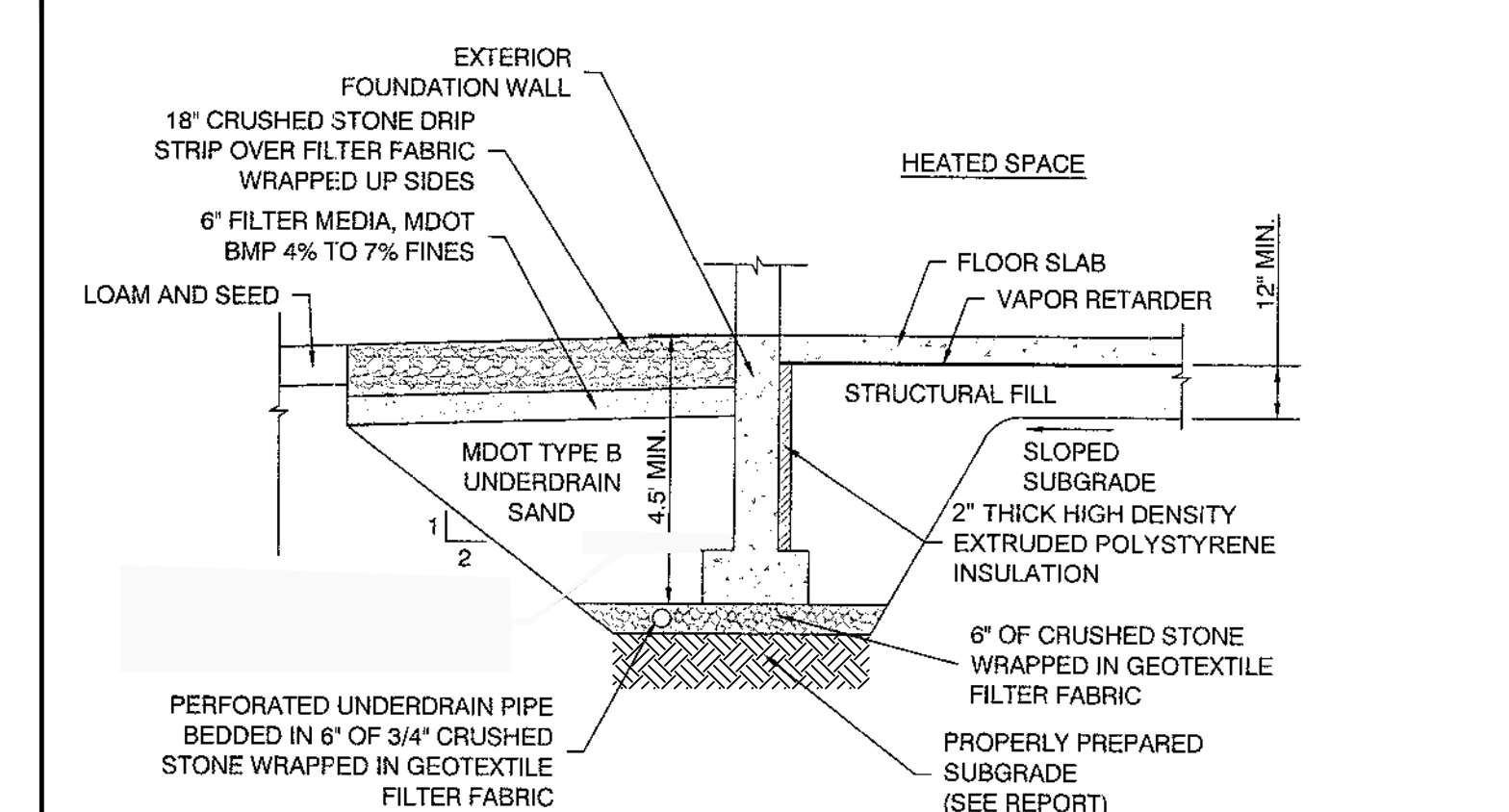
F PRECAST CURBING WHEEL STOP DETAIL
N.T.S.



NOTES:

- BRICK CHANNEL TO BE AASHTO M-91-42 GRADE SA SEWER BRICK. *
- MANHOLE TEST TO BE ACCOMPLISHED AFTER CHANNEL INSTALLATION IS COMPLETE.
- WHERE THE ALIGNMENT CHANGES OR SIDE FLOW ENTERS THE MANHOLE, CONSTRUCT CHANNEL WITH A SMOOTH RADIAL CHANNEL TO ACCOMPLISH ALL JUNCTIONAL CHANGE OF ALIGNMENT WITHIN MANHOLE.

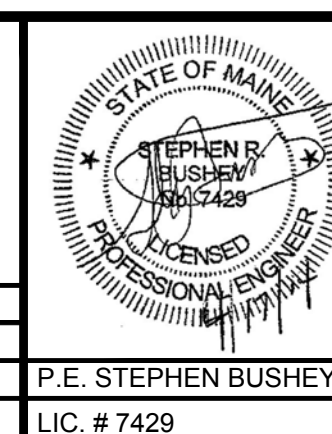
I MANHOLE BRICK CHANNEL INSTALLATION DETAIL
N.T.S.



L UNDERDRAIN DETAIL
N.T.S.

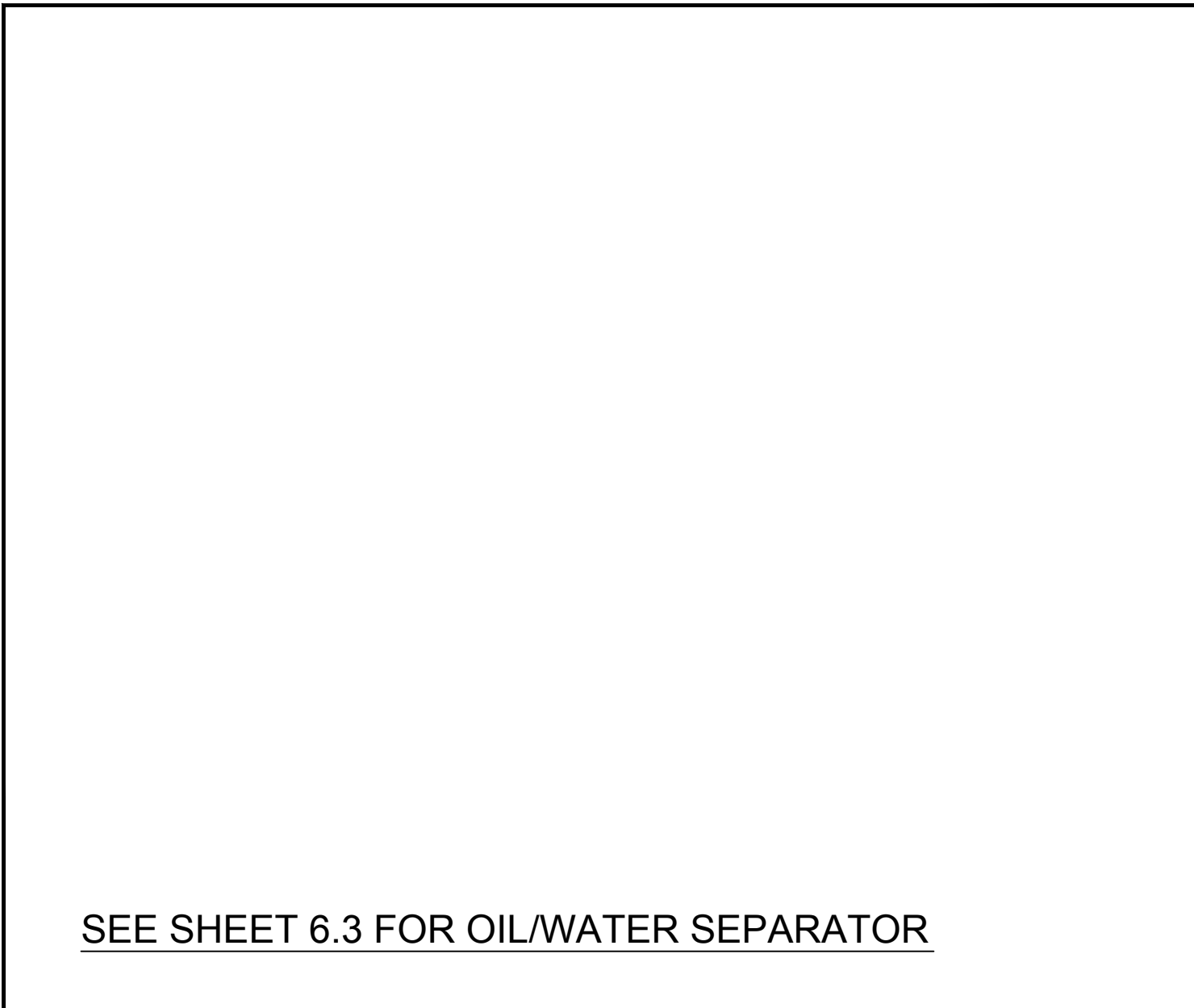
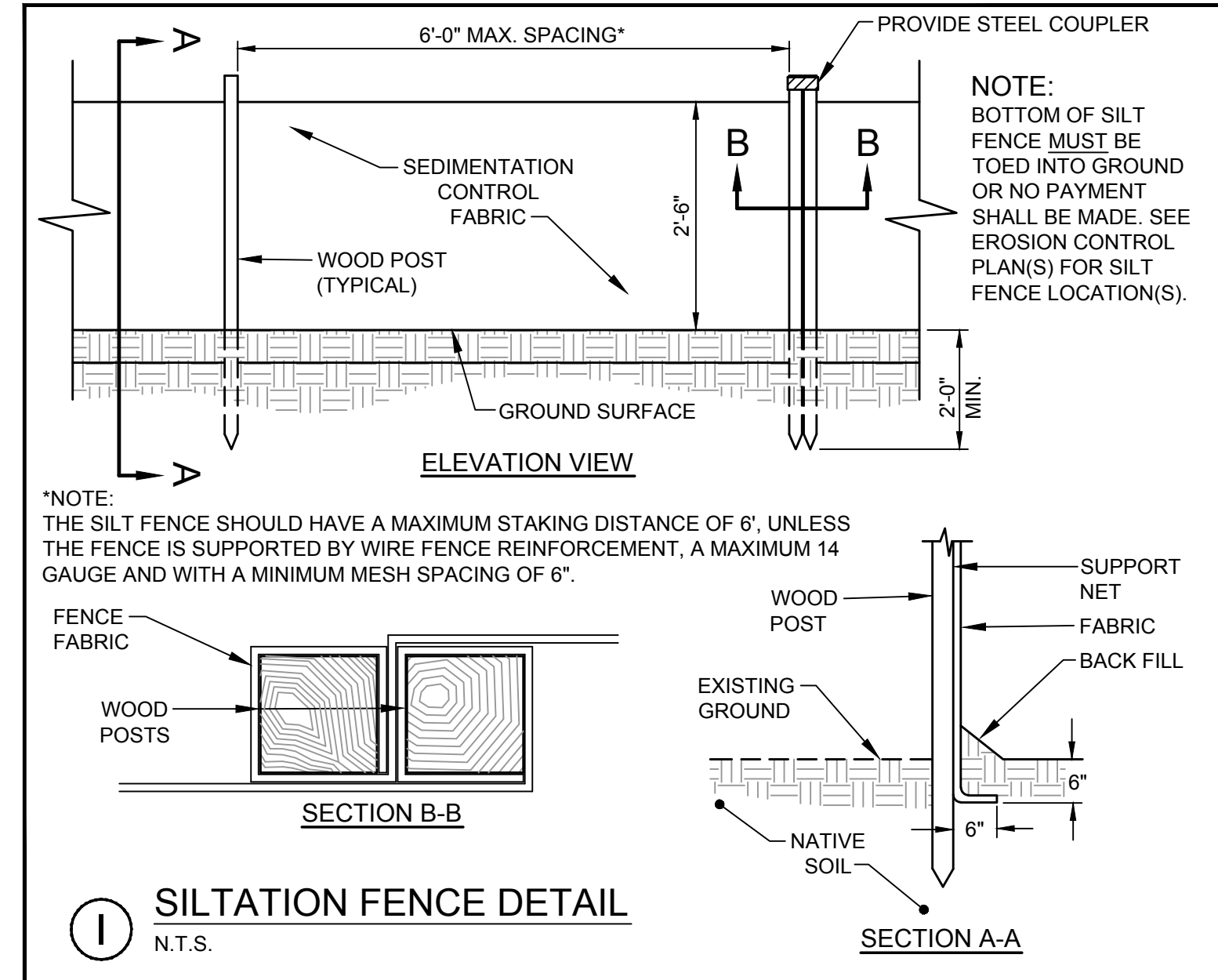
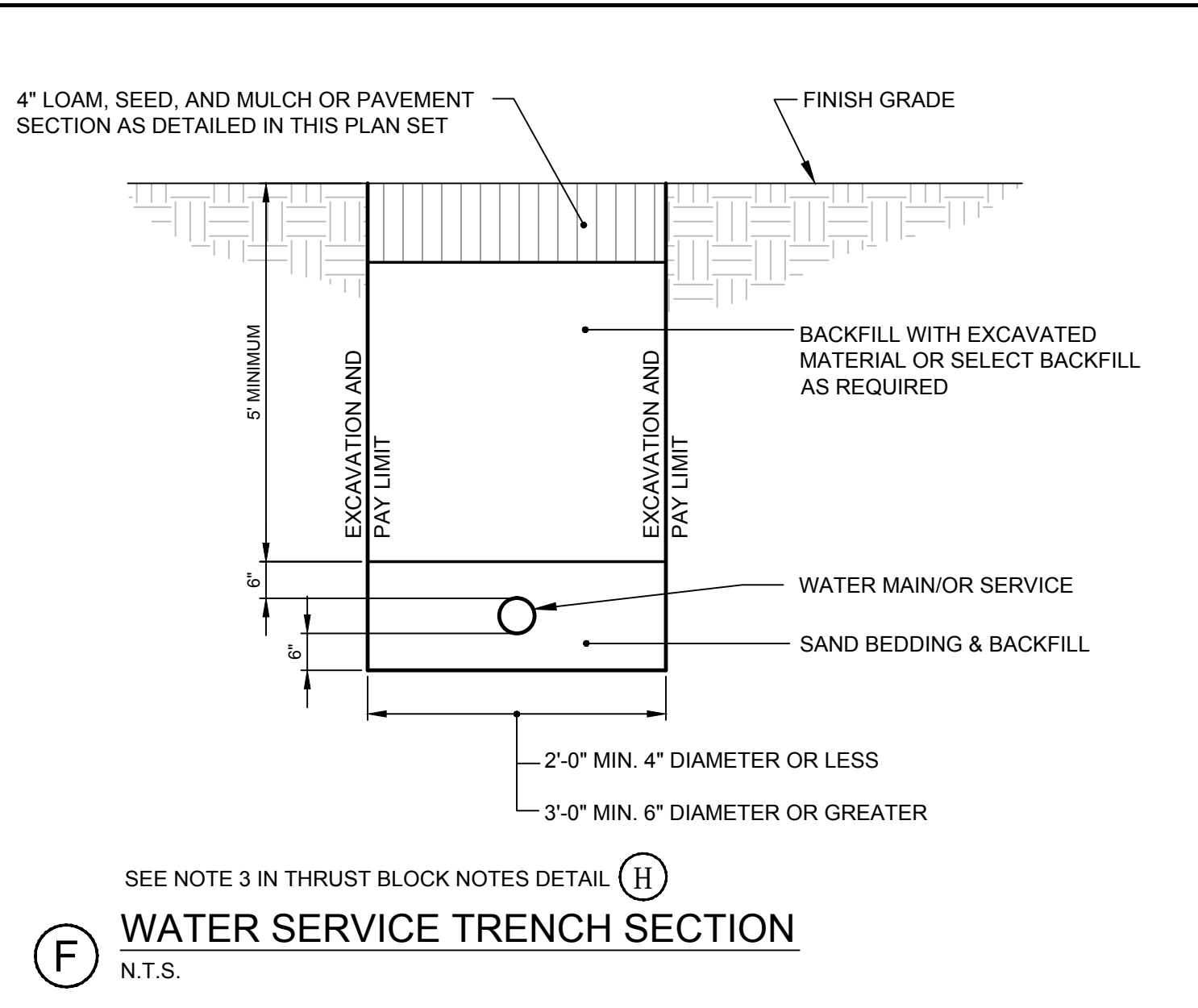
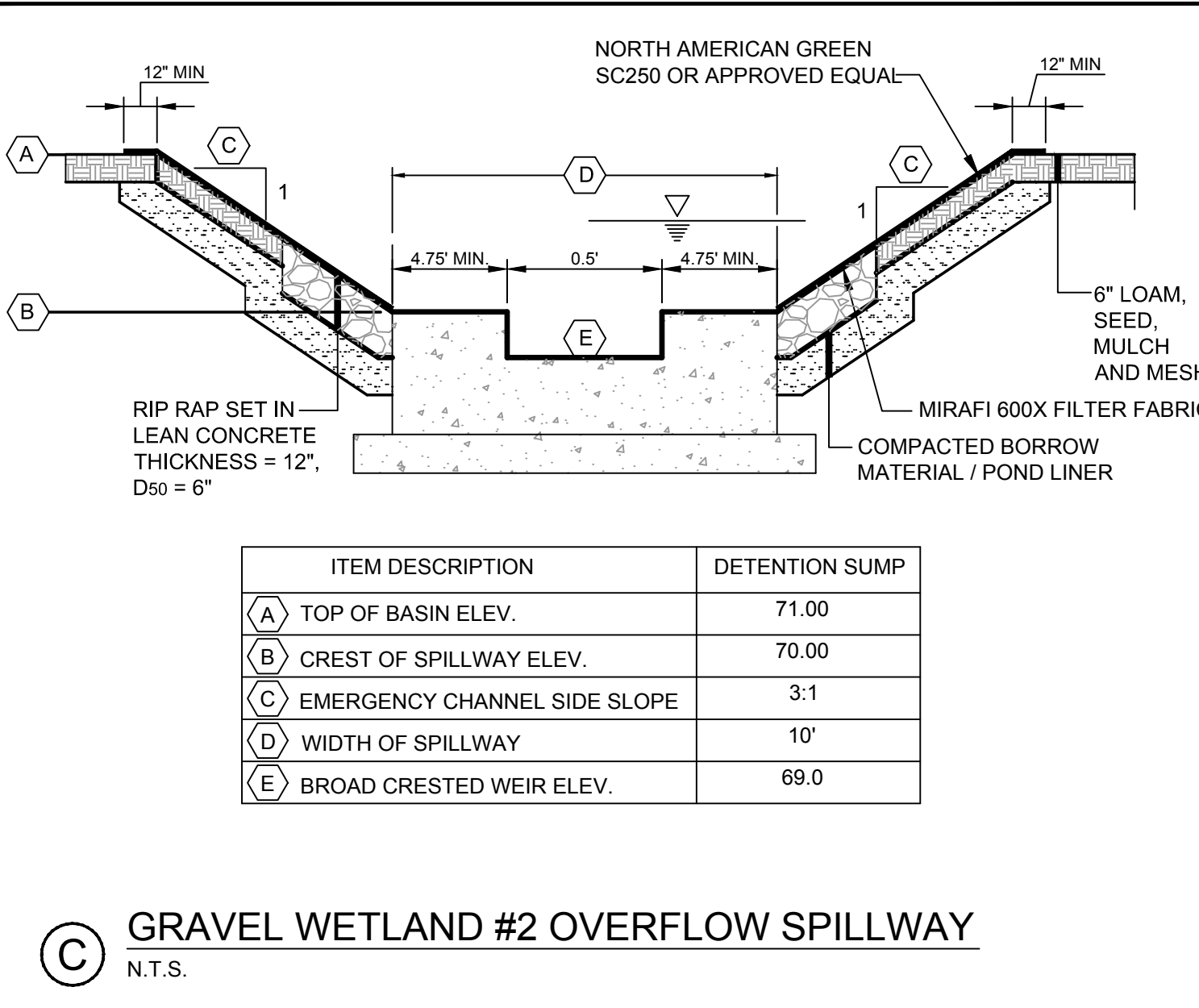
PRELIMINARY - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
2	04.17.14	FINAL PLAN SUBMISSION TO CITY
1	02.10.14	SUBMITTED TO CITY OF PORTLAND
REVISIONS		



PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	DETAILS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

ENGINEERS FST Since 1954 FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
DRAWN: CMW	DATE: NOVEMBER 2013
DESIGNED: SRB	SCALE: AS NOTED
CHECKED: SRB	JOB NO. SP-M104
FILE NAME: SP-M104-DET	
SHEET	C-6.1



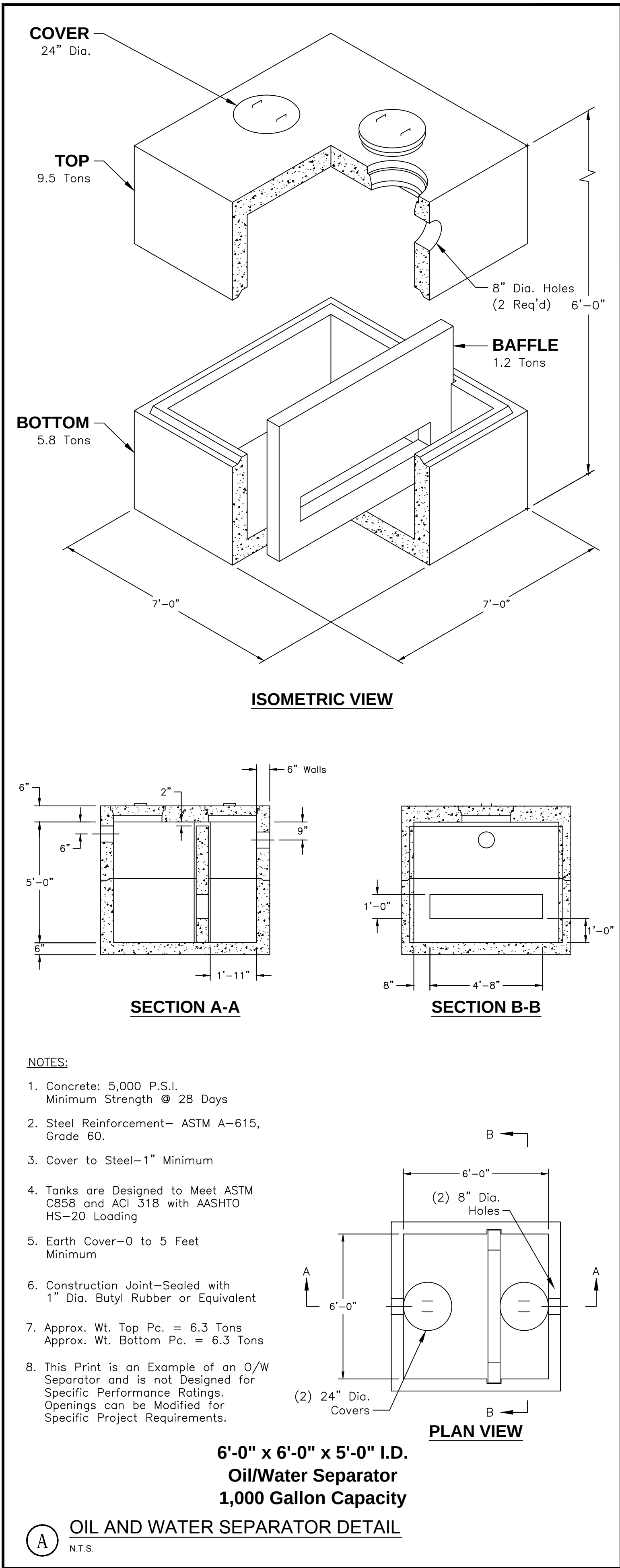
¼ BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
⅜ BEND	(45°)	THRUST BLOCK W/ GRIPRING™
⅞ BEND	(22 ½°)	THRUST BLOCK W/ GRIPRING™
½2 BEND	(11 ¼°)	THRUST BLOCK W/ GRIPRING™

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

NOTES:

1. THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
2. FOR WATER MAIN LAYOUT SEE DRAWING C-3.00
3. REFER TO SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
4. ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
5. SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

BEARING SURFACE REQUIRED IN SQUARE FEET					
PIPE SIZE	$\frac{3}{32}$ BEND	$\frac{1}{16}$ BEND	$\frac{1}{8}$ BEND	$\frac{1}{4}$ BEND	TEES/CAPS
6" / 8"	5.0	5.0	5.0	6.5	5.0
12"	11.5	11.5	11.5	20.0	22.0



Plan 16

PRELIMINARY - NOT FOR CONSTRUCTION

2	04.17.14	FINAL PLAN SUBMISSION TO CITY
1	02.10.14	SUBMITTED TO CITY OF PORTLAND
REV	DATE	DESCRIPTION
REVISIONS		

STATE OF MAINE

STEPHEN R. BUSHEY

PROFESSIONAL ENGINEER

1402429

P.E. STEPHEN BUSHEY

LIC. # 7429

PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	DETAILS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

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DRAWN: CMW	DATE: NOVEMBER 2013
DESIGNED: SRB	SCALE: AS NOTED
CHECKED: SRB	JOB NO. SP-M104
FILE NAME: SP-M104-DET	
SHEET	C-6.3

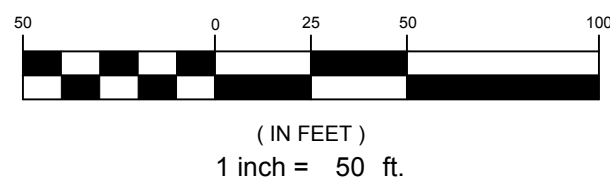
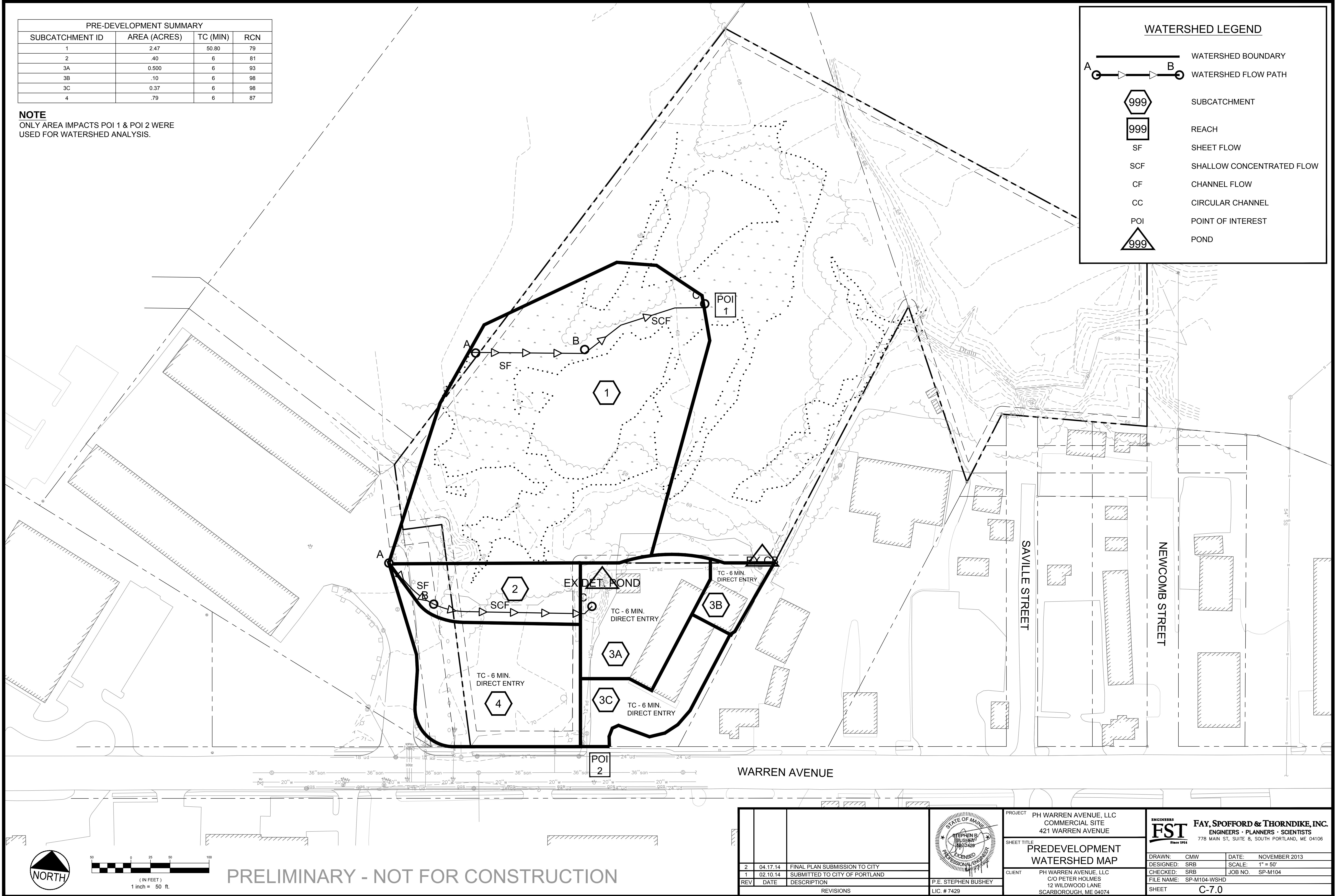
PRE-DEVELOPMENT SUMMARY			
SUBCATCHMENT ID	AREA (ACRES)	TC (MIN)	RCN
1	2.47	50.80	79
2	.40	6	81
3A	0.500	6	93
3B	.10	6	98
3C	0.37	6	98
4	.79	6	87

NOTE

ONLY AREA IMPACTS POI 1 & POI 2 WERE
USED FOR WATERSHED ANALYSIS.

WATERSHED LEGEND

	WATERSHED BOUNDARY
	WATERSHED FLOW PATH
	SUBCATCHMENT
	REACH
	SHEET FLOW
	SHALLOW CONCENTRATED FLOW
	CHANNEL FLOW
	CIRCULAR CHANNEL
	POINT OF INTEREST
	POND



PRELIMINARY - NOT FOR CONSTRUCTION

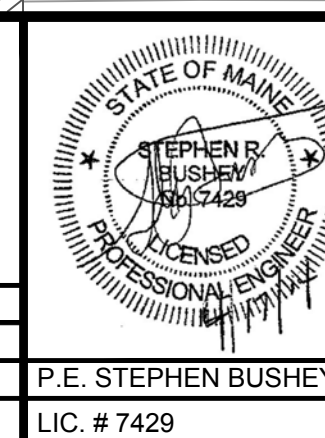
WARREN AVENUE

SAVILLE STREET

NEWCOMB STREET

REV	DATE	DESCRIPTION
2	04.17.14	FINAL PLAN SUBMISSION TO CITY
1	02.10.14	SUBMITTED TO CITY OF PORTLAND

REVISIONS



PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	PREDEVELOPMENT WATERSHED MAP
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

ENGINEERS FST Since 1954		FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS • PLANNERS • SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
DRAWN:	CMW	DATE:	NOVEMBER 2013
DESIGNED:	SRB	SCALE:	1" = 50'
CHECKED:	SRB	JOB NO.	SP-M104
FILE NAME:	SP-M104-WSHD		
SHEET	C-7.0		



BISKUP CONSTRUCTION, INC.
16 DANIELLE DRIVE
WINDHAM, MAINE 04062
TEL. (207) 892-9800
FAX. (207) 892-9895

WWW.BISKUPCONSTRUCTION.COM

STAMP

PROJECT:
CONCEPT PLAN
PETER HOLMES
PORTLAND, MAINE

REVISIONS

DATE	DESCRIPTION

DATE: 4/2/2014
SCALE: 1/16" = 1'-0"
DESIGNER: JB
CHECKED BY: JB

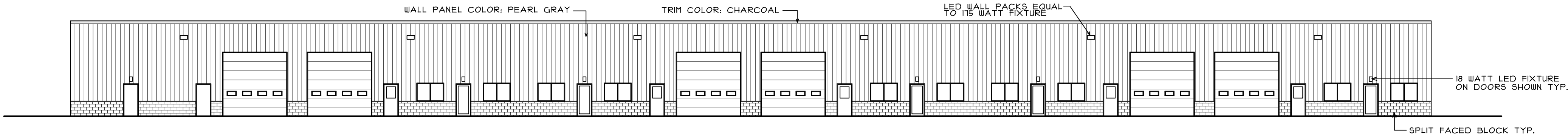
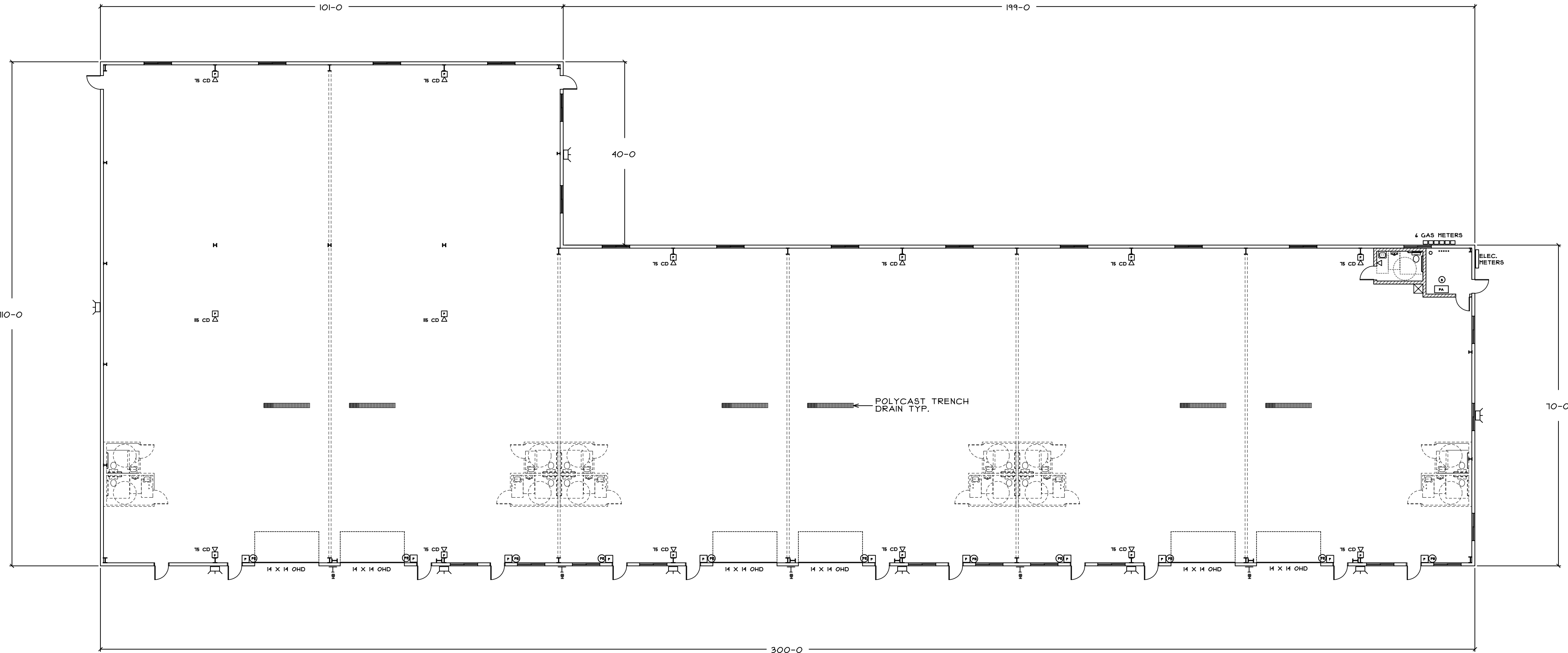
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SHEET TITLE

FLOOR PLAN
&
ELEVATIONS

SHEET NUMBER

A-1



FRONT ELEVATION
SCALE: 1/16"=1'-0"



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STAMP

CONCEPT PLAN
PETER HOLMES
PORTLAND, MAINE

PROJECT:

REVISIONS

DATE	DESCRIPTION

DATE: 4/2/2014

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

DESIGNER: JB

CHECKED BY: JB

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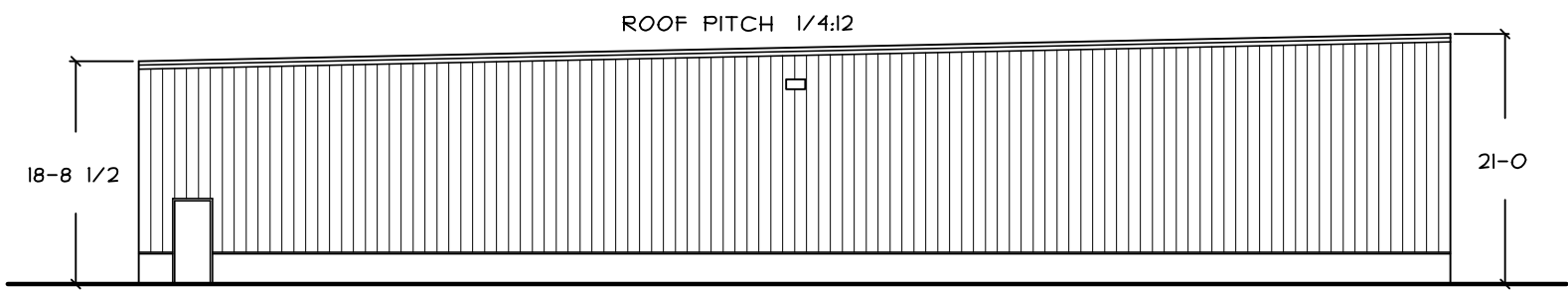
SHEET TITLE

ELEVATIONS

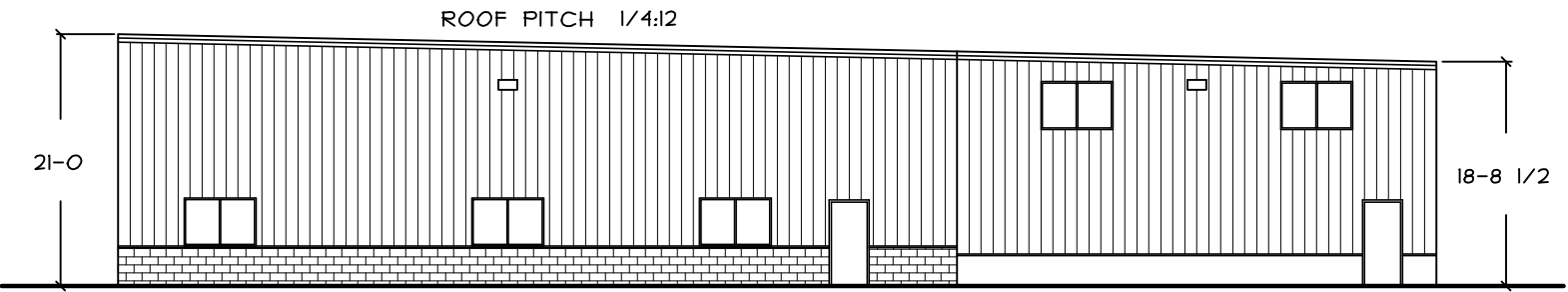
SHEET NUMBER

A-2

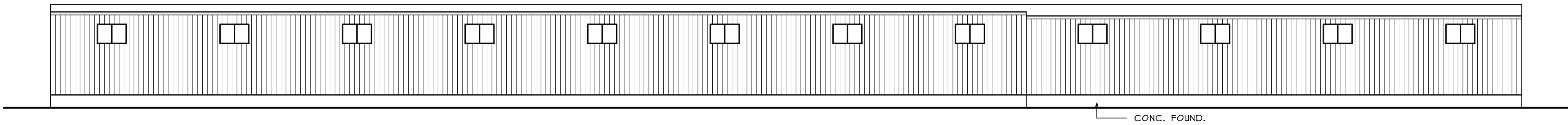
SHEET 2 OF 2



LEFT ELEVATION
SCALE: 1/16"=1'-0"



RIGHT ELEVATION
SCALE: 1/16"=1'-0"



REAR ELEVATION
SCALE: 1/16"=1'-0"

