

1. Legal Ad

Documents:

[PB LEGAL AD 9-27-16.PDF](#)

2. Agenda

Documents:

[PB AGENDA 9-27-16.DOCX](#)

3. 1190 Brighton Avenue

3.I. Report

Documents:

[1190 BRIGHTON AVE. \(REPORT\).PDF](#)

3.II. Report Attachments

Documents:

[1190 BRIGHTON AVE. \(REPORT ATTACHMENTS\).PDF](#)

3.III. Applicants Submittal

Documents:

[1190 BRIGHTON AVE. \(APPLICANTS SUBMITTAL\).PDF](#)

3.IV. Plans

Documents:

[1190 BRIGHTON AVE. \(PLANS\).PDF](#)

4. 70 Anderson Street

4.I. Report

Documents:

[70 ANDERSON ST. \(REPORT\).PDF](#)

4.II. Report Attachments

Documents:

[70 ANDERSON ST. \(REPORT ATTACHMENTS\).PDF](#)

4.III. Applicants Submittal

Documents:

[70 ANDERSON ST. \(APPLICANTS SUBMISSION\).PDF](#)

4.IV. Plans

Documents:

[70 ANDERSON ST. \(PLANS\).PDF](#)

5. 415 Cumberland Avenue

5.I. Report

Documents:

[415 CUMBERLAND AVE. \(REPORT\).PDF](#)

5.II. Report Attachments

Documents:

[415 CUMBERLAND AVE.\(REPORT ATTACHMENTS\).PDF](#)

5.III. Applicants Submittal

Documents:

[415 CUMBERLAND AVE. \(APPLICANTS SUBMITTAL\).PDF](#)

5.IV. Plans

Documents:

[415 CUMBERLAND AVE. \(PLANS\).PDF](#)

6. Solar Energy

6.I. Report And Attachments

Documents:

[SOLAR ENERGY \(REPORT AND ATTACHMENT\).PDF](#)

**LEGAL ADVERTISEMENT
PORTLAND PLANNING BOARD MEETING**

The Portland Planning Board will hold a meeting on Tuesday, September 27, 2016, Council Chambers, 2nd Floor, City Hall, 389 Congress Street. **Public comments will be taken at this meeting.**

Workshop - 4:30 p.m.

- i. Subdivision Review – Dirigo Plaza; 1190 Brighton Avenue (58 and 80 Main Street, Westbrook), Jones and Beach Engineers, Inc. on behalf of J & J Gove Development, LLC, Applicant. The Board will hold a workshop on a 495,915 sq. ft. regional retail shopping center. The applicant has a Purchase and Sale with Pike Industries. Tax Map: 42B Lots: 9, 10, 11, & 14. Zone: Gateway Commercial. This is a subdivision that crosses municipal boundaries; however, no development is proposed within Portland. This project will be reviewed under the subdivision standards with a focus on traffic and stormwater.

Public Hearing – 7:00 p.m.

- i. Level III Subdivision; Townhouses; 70 Anderson Street (currently 1 East Lancaster Street); Jonathan Culley, representing Redfern Properties, Applicant. (7:00 – 7:45 p.m. estimated time) The Board will hold a public hearing on a proposal for ten townhouses at 70 Anderson Street. The proposal includes demolishing one single family home and constructing ten 3-bedroom units on the 9,064 sq. ft. site. One affordable unit is proposed within the project to meet the Ensure Workforce Housing requirements. The property is located in the Residential R-6 zone.
- ii. Amended Level III Site Plan; 415 Cumberland Avenue; M & A Low Country Investments, LLC., Applicant. (7:45 – 8:30 p.m. estimated time) The Board will hold a public hearing on a proposed amendment to the previously approved subdivision. On July 27, 2016 the Planning Board approved the conversion of the building into office space and three (3) residential units. The amended application is to add a fourth residential unit and the site is in the B-3c zone.
- iii. Land Use Code, Solar Energy Generation, Proposed New Division 2 under Article X Alternative Energy, and Amendment to 14-430, City of Portland, Applicant. (8:30 estimated time). The Board will hold a public hearing on the proposed text amendments to the Land Use Code to create a solar energy generation ordinance. The provisions are intended to allow for the construction and operation of public or private solar energy generation systems to produce energy for use on or off-site with related standards for review. The sections of the proposal include, but are not limited to, purpose, applicability, definitions, permitting, performance standards, technical standards, submittal requirements, abandonment, and appeals. Associated text amendments to Sec. 14-430 Height Limits are also proposed.

ELIZABETH BOEPPLE, CHAIR - PORTLAND PLANNING BOARD

CITY OF PORTLAND, MAINE

PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Carol Morrisette
David Eaton
Kristien Nichols
Maggie Stanley
Lisa Whited

AGENDA PORTLAND PLANNING BOARD MEETING

The Portland Planning Board will hold a meeting on Tuesday, September 27, 2016, Council Chambers, 2nd Floor, City Hall, 389 Congress Street. **Public comments will be taken at the public hearing.**

WORKSHOP – 4:30 P.M.

- i. Subdivision Review – Dirigo Plaza; 1190 Brighton Avenue (58 and 80 Main Street, Westbrook), Jones and Beach Engineers, Inc. on behalf of Dirigo Center Developers, LLC, Applicant. The Board will hold a workshop on a 495,915 sq. ft. regional retail shopping center. The applicant has a Purchase and Sale with Pike Industries. Tax Map: 42B Lots: 9, 10, 11, & 14. Zone: Gateway Commercial. This is a subdivision that crosses municipal boundaries; however, no development is proposed within Portland. This project will be reviewed under the subdivision standards with a focus on traffic and stormwater.

PUBLIC HEARING – 7:00 p.m.

1. **ROLL CALL AND DECLARATION OF QUORUM**
2. **COMMUNICATIONS AND REPORTS**
3. **REPORT OF ATTENDANCE AT THE FOLLOWING MEETING HELD ON SEPTEMBER 20, 2016:**

Public Hearing: Dundon, Eaton, Morrisette, Nichols, Stanley, present. Whited recused. Boepple absent.
Workshop following Public Hearing: Dundon, Eaton, Morrisette, Nichols, Stanley, and Whited present. Boepple absent.

4. **REPORT OF DECISIONS AT THE MEETING HELD ON SEPTEMBER 20, 2016:**

- i. 1. Level III Site Plan and Subdivision; 1945 Congress Street; Northland Enterprises, LLC., Applicant. Morrisette moved and Eaton seconded a motion to waive the technical standard for parking spaces to allow 47% compact spaces. Vote: 5-0, Whited recused and Boepple absent. Morrisette moved and Eaton seconded a motion to waive the technical standard to reduce the average illumination to 1 at off peak times. Vote: 5-0, Whited recused and Boepple absent. Morrisette moved and Eaton seconded a motion to approve the Traffic Movement Permit with 1 condition of approval that requires a) a traffic signal timing plan for Congress and UNUM drive; b) installation of equipment for signal coordination; and 3) contribute \$11,200 toward implementation improvements Garrison and Westbrook Streets. Vote: 5-0, Whited recused and Boepple absent. Morrisette moved and Eaton seconded a motion to approve the subdivision with 3 conditions of approval. Vote: 5-0, Whited recused and Boepple absent. Morrisette moved and Eaton seconded a motion to approve the site plan with 6 conditions of approval. Vote: 5-0, Whited recused and Boepple absent.

5. NEW BUSINESS

- i. Level III Subdivision; Townhouses; 70 Anderson Street (currently 1 East Lancaster Street); Jonathan Culley, representing Redfern Properties, Applicant. (7:00 – 7:45 p.m. estimated time) The Board will hold a public hearing on a proposal for ten townhouses at 70 Anderson Street. The proposal includes demolishing one single family home and constructing ten 3-bedroom units on the 9,064 sq. ft. site. One affordable unit is proposed within the project to meet the Ensure Workforce Housing requirements. The property is located in the Residential R-6 zone.
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Memorandum
Planning and Urban Development Department
Planning Division



To: Elizabeth Boepple , Chair and Members of the Portland Planning Board

From: Barbara Barhydt, Development Review Services Manater

Date: September 23, 2016

Re: Dirigo Plaza (Main Street Westbrook, 1190 Brighton Avenue, Dirigo Center
Developers, LLC, Applicant

Project #: 2016-073 CBL: 264-A002

Meeting Date: September 27, 2016

I. INTRODUCTION

Dirigo Center Developers, LLC (previously doing business as J &J Gove Development Group) has submitted revised plans and documents for the development of a retail center in Westbrook. The land holding crosses municipal boundaries in the vicinity of 1190 Brighton Avenue, so subdivision review is required by both Westbrook and Portland Planning Boards. Dirigo Plaza is located on the former Blue Rock (Pike Industries) site, which includes a large quarry that extends into Portland. The proposed buildings and site improvements for the shopping center development do not extend into Portland, so the primary focus of the subdivision review has been on the traffic and stormwater impacts of this proposal in Portland.

The Planning Board held a joint workshop on the proposal with the Westbrook Planning Board on May 17, 2016. The September 27, 2016 workshop is being held with the Portland Planning Board and it is not a joint workshop.

A total of 72 notices were sent to property owners within 500 feet of the site and a legal ad ran in the Portland Press Herald on September 19 and 20, 2016. No public comment has been received at the time of writing this memo.

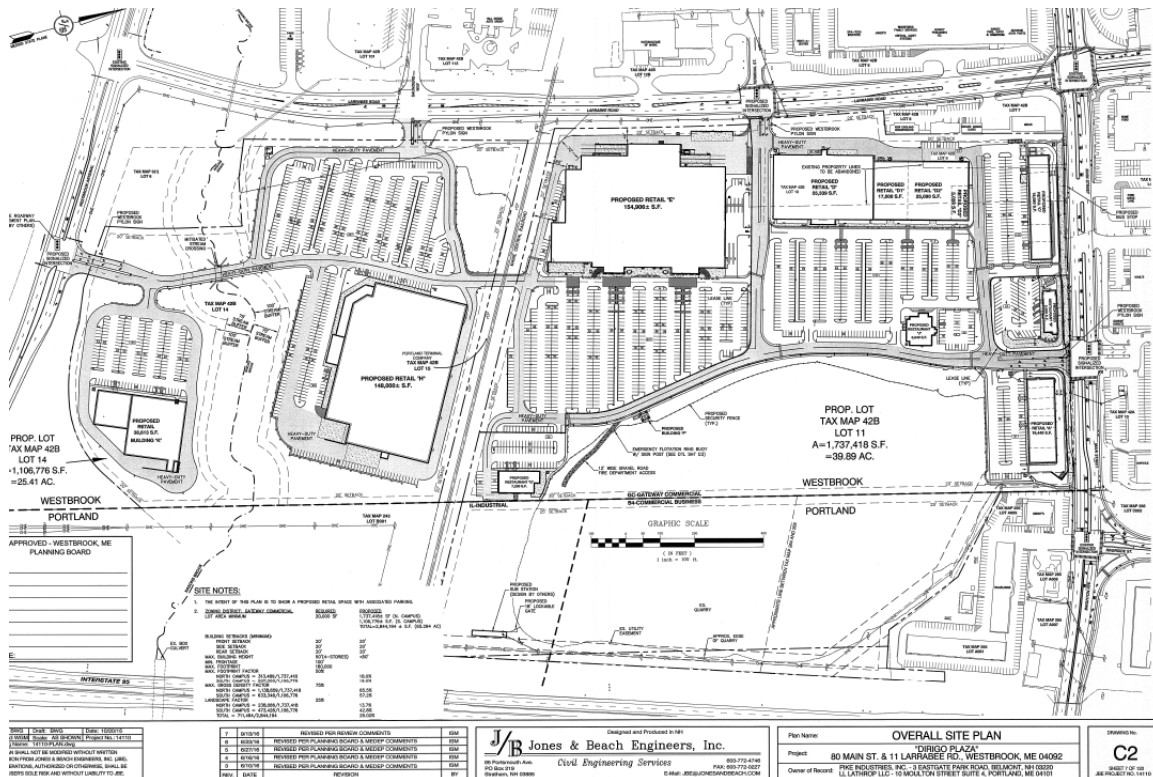
II. REQUIRED REVIEWS

<i>Waiver Requests</i>	<i>Applicable Standards</i>
None at this time	

<i>Portland Review</i>	<i>Applicable Standards</i>
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Subdivision	Section 14-497
Site Plan – (no longer applicable)	Section 14-526
Other Required Reviews	
Westbrook Subdivision Review	Pending
Maine DOT Traffic Movement Permit	Pending
DEP Site Location of Development Act, including Stormwater Management Permit	Pending
Natural Resources Protection Act Permit	Pending
Army Corps of Engineers Permit for Wetland Fill	Approved

III. PROPOSED PROJECT

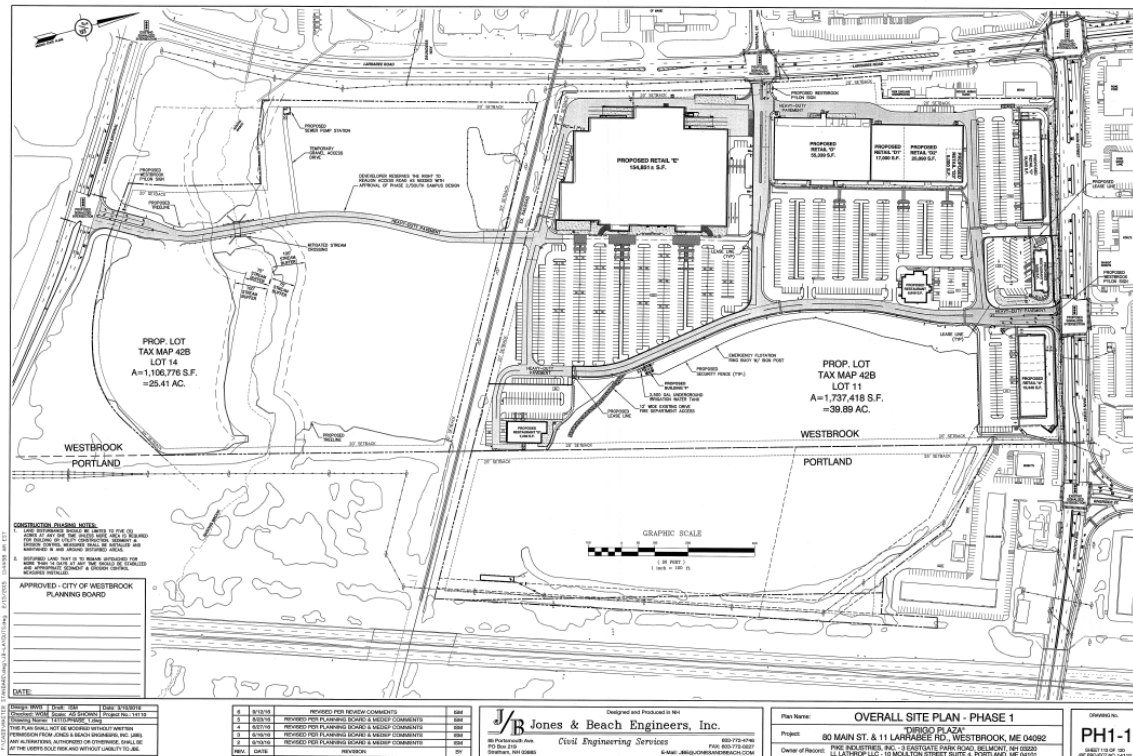


Overall Development Site Plan for Dirigo Plaza

Proposed Development

Dirigo Plaza is proposed in Westbrook at the former Pike Industries parcel with street frontage along Main Street (becomes Brighton Avenue in Portland), Larabee Road, the Westbrook Arterial, and U.S Interstate 95. The development is described as a regional retail shopping center with mixed use retail development with a total floor area of approximately 495,915 SF among about 10 buildings. Walmart has announced that they will be one of the anchor tenants. All of the buildings, parking areas, and site improvements are located entirely within Westbrook. Vehicle access into the site is from Westbrook (Main Street, Larabee Road and Westbrook Arterial). The total site area is 81.78 acres, of which a significant portion is the former quarry, and 16.48 acres of the

applicant's holdings are located in Portland. The project is proposed in phases and the Phase I is shown below.



Phase I Site Plan for Dirigo Plaza

The development is subject to subdivision review by both the Cities of Portland and Westbrook. There is a three lot subdivision proposed, which includes two long-term lease lots in Westbrook and one lot in Portland that is noted as the remaining non-leased property. Of the acreage in Portland, approximately 3.82 acres is zoned Industrial I-L and 12.66 acres is zoned Commercial Business B-4.

In the initial application, a trail was proposed around the former quarry pit. Water is no longer being pumped out of the quarry, so the intent is to have groundwater and storm water fill the quarry and become a recreational amenity. The trail was the only site improvement proposed on Lot 3 and it was subject to site plan review under the City's site plan ordinance. The trail was proposed over a CMP utility easement and CMP has not provided permission to install a trail and fencing (Applicant submission 4 b). Jamie Cough of CMP states:

Due to safety concerns and limited maintenance access, CMP is not in support of the construction of a recreational trail and 4' metallic chain link fence within the CMP easement. Additional, CMP would like the project developer to install a security fence with lockable gate on the southern side of the existing quarry to deter access to the easement and eastern side of the quarry."

The revised proposal no longer shows a trail; therefore, the project no longer requires site plan review under Portland's ordinance.

Revised plans have been submitted are listed in the applicant's submission. Please note that the applicant has submitted a full set of plans, which are part of the record. For this workshop, not all of the plans were posted on the web site. The sewer plans, road profiles, planting plan details, and utility details for the improvements in Westbrook were not posted. The consultants have responded to staff's initial comments and interim discussions. The most recent plans show concepts for the off-site transportation improvements that are being proposed as part of the Traffic Movement Permit and mitigation measures in Portland, including improvements on Riverside Street, Brighton Avenue, and Exits 47 and 48.

IV. RIGHT TITLE AND INTEREST

The applicant has submitted sufficient evidence of right title and interest that is included in the Applicant's submission (Attachment 3a and Attachment 3b) . Please note that the name of the applicant has changed from J &J Gove Development Group to Dirigo Center Developers, LLC.

V. SUBDIVISION REVIEW

Below are the 15 Subdivision Review Criteria from Portland's Subdivision Ordinance with staff comments.

1. *Will not result in undue water or air pollution. In making this determination it shall at least consider the elevation of land above sea level and its relation to the flood plains, the nature of soils and subsoils and their ability to adequately support waste disposal; the slope of the land and its effect on effluents; the availability of streams for disposal of effluents; the conformity to the applicable state and local health and water resources regulations;*

Staff Comments: The stormwater management improvements for the proposed development are proposed on the two lots within Westbrook. The stormwater flows into the Nason's Brook Watershed, which is one of Portland's Urban Impaired Streams. DEP is reviewing the stormwater compliance under Chapter 500, including the urban impaired stream standards. A letter submitted to DEP and included as Applicant's Submission 6f, which quantifies the measures being taken on the development site to meet the urban impaired standards.

According to the analysis by Jones and Beach Engineers 43.36 acres (minus the quarry) will be developed. A comparison of the existing conditions and proposed area as follows:

	Existing Conditions	Proposed
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Developed Area	43.46 ac. (minus quarry)	55.41 ac.
Total Impervious Area	34.72 ac.	41.63 ac.
Roof Area	0.56 ac.	11.49 ac.
Paved Road/ Parking	3.86 ac.	30.14 ac.
Compacted Gravel	30.30 ac.	
Existing Vegetation in Developed Area	8.74 ac.	13.78 ac.

Under the Chapter 500 regulations, development within an urban impaired stream watershed, the applicant must provide additional mitigation or a pay fee into a Compensation Fee Utilization Fee Plan. Under the Chapter 500 rules, there are exemptions for impervious areas that predate the Stormwater Law. The engineer's analysis states proposal is to "treat 96.2% of the proposed impervious including the existing impervious to be replaced and therefore exceeds the requirement of Section 4,E, (3)." In the correspondence to DEP, the consultants are arguing that the proposed treatment measures on the site exceed the mitigation requirements and therefore the project earns more mitigation credits than is required by the proposed development. At the time of preparing this memo, the city is waiting for DEP's decision on the stormwater permit. In general, the City prefers to have extra mitigation measures employed on development sites to treat stormwater, where feasible.

There is a proposed crossing of the stream on the site. The proposed details for the stream crossing are shown on the applicant's plans (Attachment P53) along with the Grading and Drainage plans (P17-P22) and other stormwater detail plans (P47-52).

2. *Has sufficient water available for the reasonably foreseeable needs of the subdivision; and*
3. *Will not cause unreasonable burden on an existing water supply;*

Staff Comment: The water for the project is being provided in Westbrook.

4. *Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;*

Staff Comment: The recreational trail that was proposed in Portland was being reviewed under the City's site plan standards, but that feature has been removed. CMP would not grant permission for the trail to be located on their easement. There are not site improvements or site disturbance proposed in Portland.

The applicant has submitted grading and drainage plans (P17-23, P47-53) and soil erosion control plans (P54-61) for the development of the site.

5. *Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed;*

Following Section on Transportation Written by Bruce Hyman, Transportation Program Manager, and reflects comments of Jeremiah Bartlett, Transportation Systems Engineer

The Planning Board's review of the Dirigo Plaza project can be parsed into two primary sets of criteria: those provided under the city's Subdivision Ordinance (cited above) and those under the MaineDOT-administered Traffic Movement Permit process.

At the end of this report there is a comprehensive list of the submissions by the applicant that comprises the transportation analysis and proposed mitigation plans.

Traffic Movement Permit Process

In response to the applicant's transportation analysis, the MaineDOT State Traffic Engineer issued an initial draft Traffic Movement Permit on August 23, 2016. Subsequent to a meeting and conference call with the applicant (with the MaineDOT and the City of Westbrook also participating) an amended draft TMP was issued September 20, 2016.

There are no on-site mitigation actions in Portland. The September 20, 2016, MaineDOT draft off-site mitigation proposed within Portland includes the items listed below. In several locations a *Portland Staff Note*: is provided.

Proposed MaineDOT Draft TMP-required Off-site Improvements

Riverside Street

Intersection of Riverside St / Larrabee Rd (Exit 48) (see Conceptual Improvement Plan: Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 1 of 2)

Construct a second dedicated left-turn lane on the Riverside southbound approach to Exit 48. Restripe the southbound approach to include two dedicated left-turn lanes, a dedicated thru lane and a share thru-right lane. Lane widths shall be a minimum of 11 feet.

Install appropriate overhead lane-usage signs for the Riverside southbound approach both in advance of the intersection and at the intersection. Install appropriate lane-use signs at the intersection for the other intersection approaches.

Construct a second left-turn lane on Larrabee.

Portland Staff Comment: at the City of Portland's request, the need for this second left turn lane is being evaluated for its necessity and impacts to LOS if not required. Its presence greatly impacts the size of the intersection, degrading pedestrian crossings and impacting traffic signal timing. City staff also urges the consideration of Lead Pedestrian Interval phasing to improve the safety and comfort of pedestrian crossings.]

Remove channelizing island for the right-turn movements from the Riverside Street northbound approach and the I-95 exit ramp. Construct a right turn lane with appropriate length and Taper.

Reconstruct the traffic signal system to accommodate the new geometry and interconnect to the toll plaza. Provide overlap phasing when possible.

Design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire interconnect to the signal at Main and Larrabee Rd.

Note: Work on Maine Turnpike Authority (MTA) property requires an MTA work permit and MTA review.

Intersection of Riverside St / Forest Ave (not shown on plans provided)

Design and implement an optimal traffic signal timing, phasing and coordination plan.

Intersection of Riverside St / Warren Ave (see Proposed Off-Site Improvements)

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Portland Staff Note: The applicant, in subsequent comments to the MaineDOT, suggests a wireless or hardwire interconnect at this location. City staff urges hardwire interconnect be provided due to the problems/maintenance issues that can be associated with wireless systems. Also, the optimal timing plan should include adjustment of the westbound Warren Avenue approach to consist of two left turn lanes, and a shared through/right turn lane, as well as related signal head adjustments (if needed). This is described more fully in non-TMP-related items further below.]

Intersection of Riverside St / Home Depot (see Proposed Off-Site Improvements)

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Portland Staff Note: The applicant, in subsequent comments to the MaineDOT, suggests a wireless or hardwire interconnect at this location. City staff urges hardwire interconnect be provided due to the problems/maintenance issues that can be associated with wireless systems. Also, the TMP should require design plans for minor geometric and traffic signal improvements, which include updates to pedestrian equipment and ADA accommodations. The applicant suggests “partnering” with the City to provide these upgrades. See “Proposed Off-Site Improvement” graphic.]

Intersection of Riverside St / Brighton Ave / Main St (see Figure 14 Conceptual Improvement Plan, Sheet 4 of 5)

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

[*Portland Staff Note:* The TMP should require updated signal heads with reflective back plates (as proposed on the applicant's Conceptual Improvement Plan, Sheet 4 of 5), and updated thermal (not video) detection to the City's standard.]

Segment between Riverside Court (Berlin City) and Exit 48 (see Conceptual Improvement Plan: Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 1 of 2)

Restripe to provide a two-way left-turn lane.

Construct sidewalk along the west side of Riverside, eliminating existing sidewalk gaps.

Segment between Exit 48 / Brighton Ave (see Conceptual Improvement Plan: Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheets 1 & 2 of 2)

Construct sidewalk along the east side of Riverside, eliminating existing sidewalk gaps.

Intersection of Rand Rd / Westbrook Arterial (Exit 47) (see Rand Road at I-95 Exit 47 Ramps Conceptual Improvement Plan)

Widen I-95 ramp to provide a second left-turn lane to the Westbrook Arterial. Widen Rand Road to accept the dual-left turn lanes.

Install raised medians along Rand Road approaching the intersection.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire or wireless interconnect to the adjacent intersection at the site entrance at Westbrook Arterial.

[*Portland Staff Note:* City staff strongly prefers hardwire interconnects where they are feasible to be provided.]

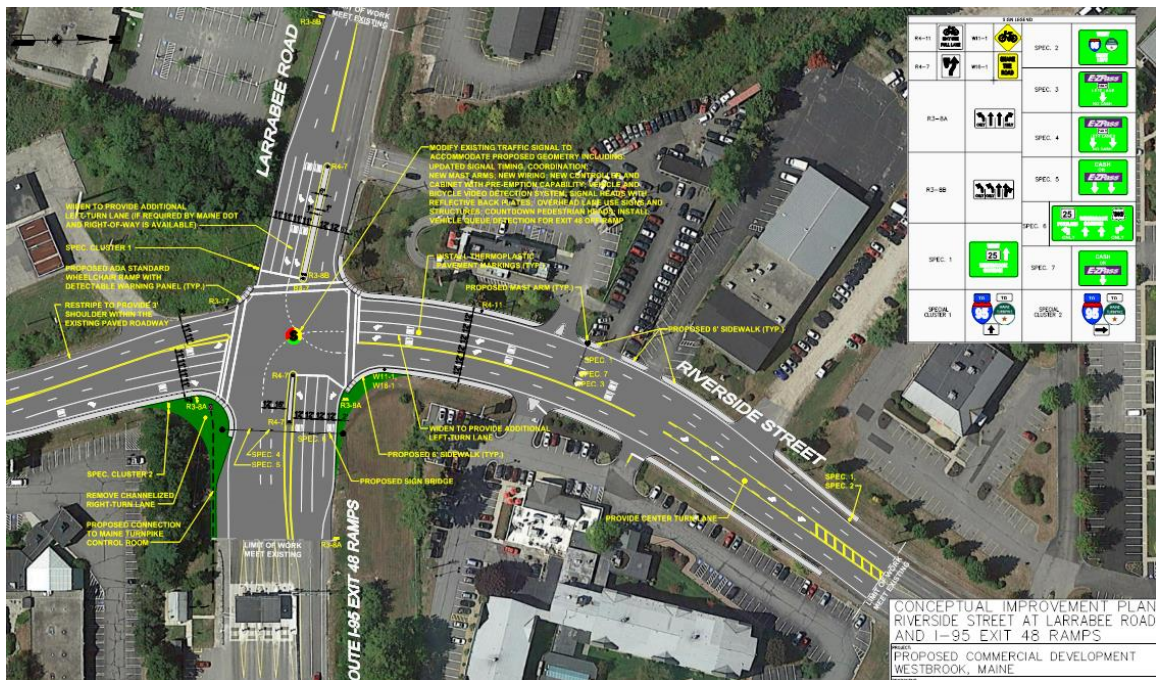
Subdivision Ordinance Compliance/Non-TMP Off-site Improvements (see Proposed Off-Site Improvements)

Several items requested by the City to be investigated and potentially mitigated by the applicant are not included in revised draft TMP (dated September 20, 2016) but have been proposed to be addressed in various forms by the applicant.

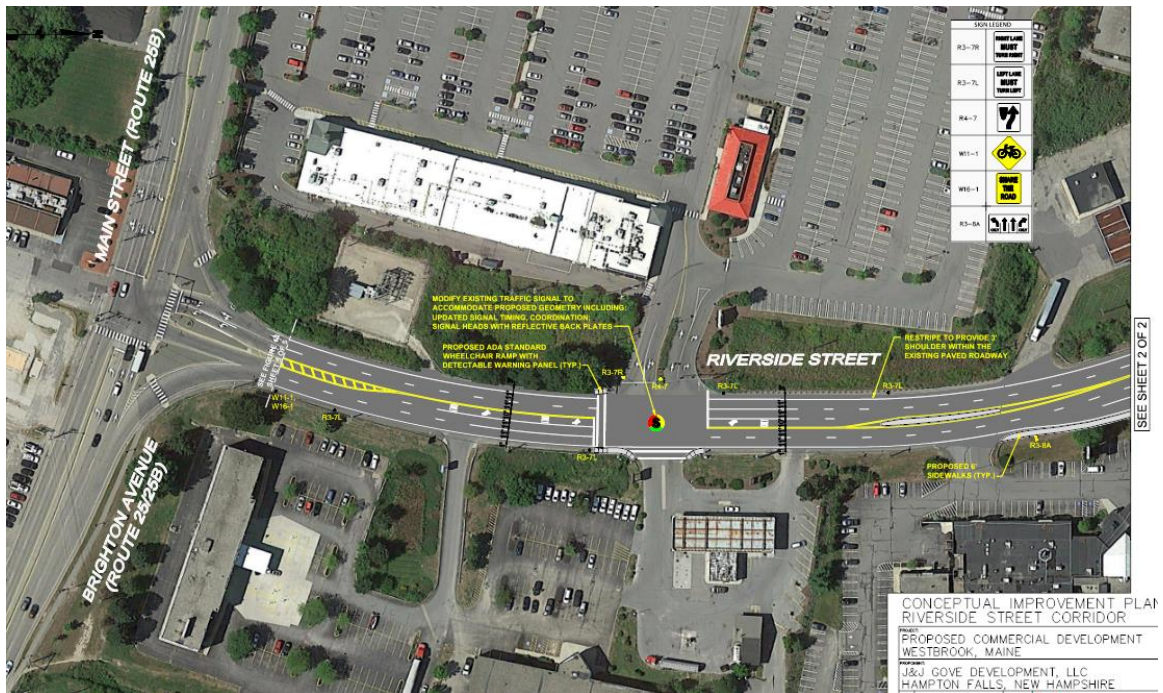
These items include:

1. Provision of bicycle facility accommodations on Brighton Avenue
2. Provision of sidewalk and curb ramp/accessibility improvements along Brighton Avenue
3. Mitigation of turn movements that degrade below LOS D in the Build 2021 traffic condition.

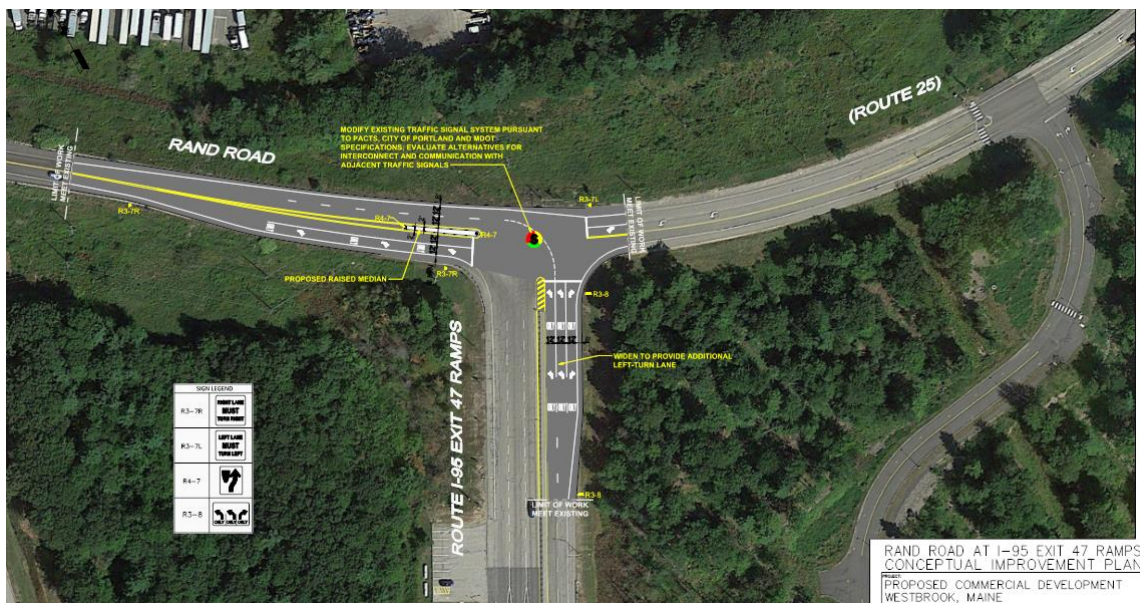
Prior to the issuance of the initial draft TMP, the City enlisted the services of an engineering firm to assess the existing vehicle, pedestrian and bicycle conditions on Brighton Avenue to supplement the applicant's assessment. For items not included in the TMP, the applicant has preliminarily agreed to an infrastructure account contribution in the amount of \$220,000 to mitigate the above items (see letter dated September 7, 2016 to Barbara Barhydt from Jim Katsiaficas). There have been no total construction values yet associated with these items but staff concurs that this is a reasonable amount. Should the city wish to proceed in this fashion, the applicant has further agreed conceptually to partner with the city on the construction of these (to be determined) improvements using their infrastructure contribution as well as other contributions within a defined project area (preliminarily Riverside Street at the Warren Avenue and Home Depot intersections and on Brighton Avenue from Riverside Street to Albion Street). The city, in most instances, would be required to provide construction documents to the applicant's contractor to accomplish the Brighton Avenue improvements.



Conceptual Improvement Plan: Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 1 of 2



Conceptual Improvement Plan: Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 1 of 2



Rand Road at I-95 Exit 47 Ramp Conceptual Improvement Plan

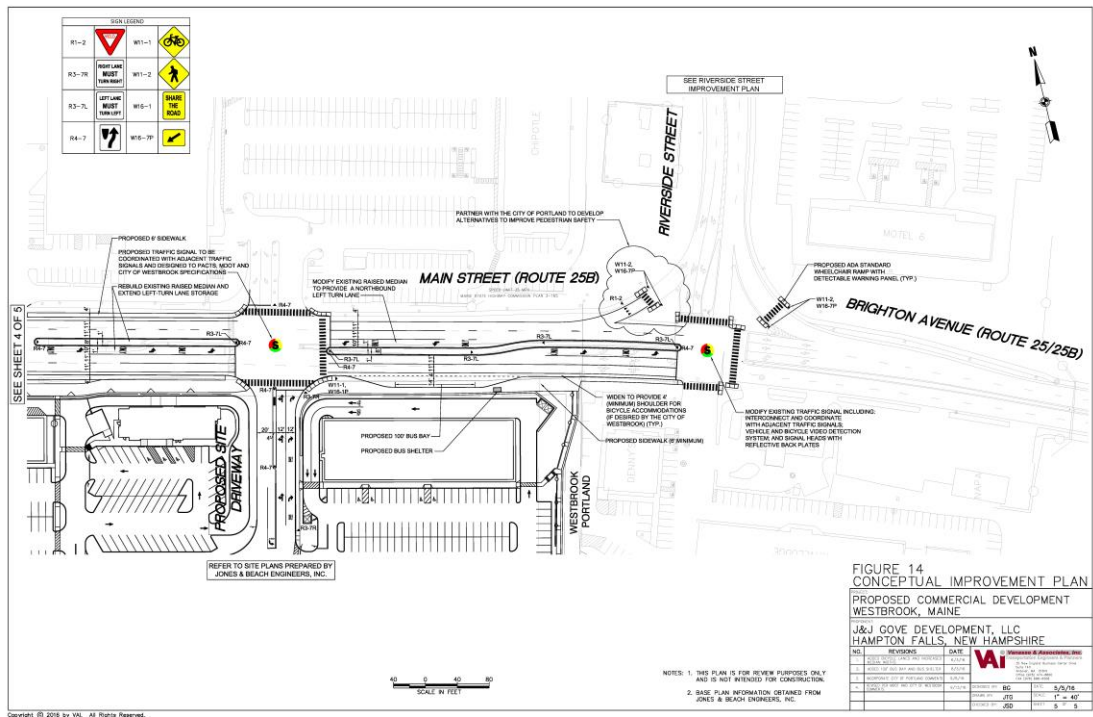
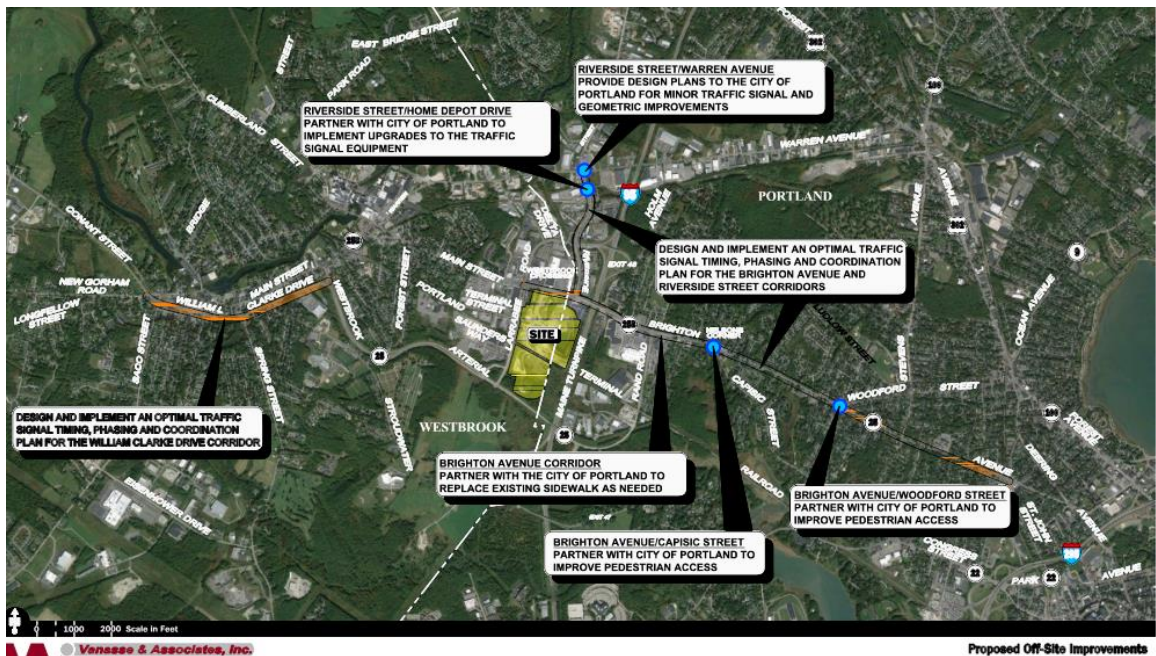


Figure 14 Conceptual Improvement Plan, Brighton-Riverside Intersection, Sheet 4 of 5



Proposed Off-Site Improvements (non-TMP related)

6. *Will provide for adequate sanitary waste and storm water disposal and will not cause an unreasonable burden on municipal services if they are utilized;*

Staff Comment: The sanitary waste is being handled by the City of Westbrook's system.

The proposed stormwater management system for the developed site is proposed to treat 96.2% of the total impervious area. The majority of the stormwater from the North campus will be collected in a closed system, which includes treatment measures, and then is directed to the existing quarry. The proposed treatment measures include Grassed Underdrained Soil Filters, Underground Sand Filters, and/or Gravel Wetlands. The quarry discharge flows to the existing wetlands on the South Campus. North Campus stormwater that is not directed to the quarry will be treated with Grassed Underdrained Soil Filters and/or Underground Sand Filters and discharged into systems within Westbrook's Main Street or Larabee Road. These systems discharge into the existing stream on the South Campus, which is part of the Nason's Brook system. Drainage from the South campus will also be treated and directed to the existing wetland. Criteria number one addresses the treatment and mitigation for Nason's Brook, which is an Urban Impaired Stream.

Lauren Swett, P.E with Woodard and Curran, and Portland's consulting civil engineer, has reviewed the plan and her comments are included as Attachment A of this report. She revised her comments on September 22, 2016 and she continues to cite the need for stormwater management for impervious surface related to the trail; however it is the Planning Staff's understanding that no impervious surface area is being added. This point will be clarified at the workshop.

In addition, there is a note on the overall plan site plans that there is a proposed sub-station to be proposed by others. The specifics for that substation must be submitted for review, which can be included in this review or accomplished with a separate site plan application.

7. *Will not cause an unreasonable burden on the ability of the city to dispose of solid waste and sewage if municipal services are to be utilized;*

Staff Comment: Municipal services for Dirigo Plaza will be managed by the City of Westbrook.

8. *Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the department of inland fisheries and wildlife or by the city, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline. For subdivisions within historic districts designated pursuant to article IX of this chapter, the Planning Board shall apply the standards of section 14-651(c) of article IX. The Planning*

Board may request that the historic preservation committee prepare an evaluation of the proposed subdivision based upon the standards of section 14-651(c);

Staff Comment: The former use of the site was a quarry. The proposed lot within Portland is not being developed, so there is no disturbance of any scenic or natural beauty of the area. A letter dated June 1, 2015 from the Department of Agriculture, Conservation & Forestry (Applicant's Submission Att. 7) indicates that there are no rare botanical features documented for the project site. The site is not a designated historic site nor within an historic district. Attachment 12 of the applicant's submittal is the Corps of Engineers permit for the permanent filling of 1.47 acres of wetland. The proposal does not impede physical or visual access to a shoreline. The quarry is being filled with ground water and stormwater water with the intent that it will become a significant natural water resource for the plaza.

9. Is in conformance with the land development plan or its successor;

Staff Comment: Portland's Comprehensive Plan identifies the area along Brighton Avenue as a growth area. The land is split between two zones, B-4 and I-L, so these zones permit a range of commercial development and light industrial uses. Again, no development is proposed within Portland, so there are no uses to consider at this time. The proposed lot in Portland conforms with the City's Comprehensive Plan.

10. The subdivider has adequate financial and technical capacity to meet the standards of this section;

Staff Comment: The applicant has submitted Attachment 5 of their written documents that addresses the financial and technical capacity of the developer and consulting team.

11. Whenever situated, in whole or in part, within the watershed of any pond or lake or within two hundred fifty (250) feet of any wetland, great pond or river as defined in Title 38, chapter 3, subchapter I, article 2-B, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water;

Staff Comment: The site is not located within the watershed of any pond or lake or within 250 feet of any wetland, great pond or river as defined in the State's Mandatory Shoreland Zoning.

12. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;

Staff comment: The proposed project is relying on municipal services for water and sewer and they are not proposing any wells or subsurface systems. No adverse affects on the quality or quantity of groundwater are expected.

13. *Is or is not in a flood-prone area, based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one (1) foot above the 100-year flood elevation;*

Staff comment: The Portland lot is not within a flood zone.

14. *All potential wetlands within the proposed subdivision shall be identified on any maps submitted as part of the application, regardless of the size of those wetlands. Any mapping of wetlands may be done with the help of the local soil and water conservation district; and*

Staff comment: Wetlands are shown on the Subdivision Lot Consolidation Plan and the majority of the wetlands are in Westbrook in the area proposed for the South Campus. There is a portion of one wetland that crosses into Portland on the southerly side of the railroad line and is associated with a stream. No wetland disturbance is proposed within Portland.

15. *Any river, stream or brook within or abutting the proposed subdivision shall be identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in Title 38 M.R.S.A. Section 480-B, subsection 9.*

Staff comment: Nason's Brook is shown on the plan. The brook, starting at the confluence of two streams, is included in the City's Stream Protection Zone per the requirements of the State's Mandatory Shoreland Zoning is shown on the plan.

VI. NEXT STEPS

- Address any staff and Planning Board Comments
- Schedule a Public Hearing

Attachments:

Report Attachments

- A. Lauren Swett, P.E. (Development Review Engineer) dated September 22, 2016
- B. September 7, 2016 letter from Jim Katsifcas to Barbara Barhydt
- C. Draft Traffic Movement Permit – MDOT Sept 20, 2016
- D. Proposed Off-Site Improvements
- E. Revised Exit 47 Plan (1)
- F. Revised Exit 48 Plan (1)
- G. Revised Project Site Access Improvement Plans (1)
- H. Revised Riverside Street Plan (1)

Applicants Submittal

1. Application
2. Project Description
- 3 a Title, Right and Interest
- 3.b Letter from J. Katsifcas regarding Title, Right and Interest
- 4 a Easements, Covenants, Public or Private Right-of-Way
- 4 b CMP Comments on Easement Request
5. Financial Capacity
- 6 a Stormwater & Drainage Summary
- 6 b PreDevelopment Summary
- 6 c Post Development- Summary
- 6 d Response Letter to DEP – Site Location
- 6 e Response Letter to DEP Land & Water
- 6 f Urban Impaired Stream Letter
- 6 g Response letter to Portland after Workshop
- 6 h Response Letter to Woodard and Curran Comment
- 6 i O& M Manual
- 7 Construction Management and Natural Features (8 &9)
- 10 Abutters
- 11 a Traffic Movement Permit- Draft Mitigation
- 11 b Amended TIS Executive Summary
- 11 c Response to MDOT Comments
- 12 Army Corps of Engineers Permit

Plans - (Please note that the sewer plans, road profiles, planting plan details, and utility details for work in Westbrook were submitted as part of the submission; however those plans are not posted on the web site.

- P1 CS Cover Sheet
- P2 A1 Existing Conditions Plan
- P3 Existing Conditions Notes
- P4 A3 Subdivision – Lot Consolidation Plat
- P5 C2 Overall Site Plan
- P6 C2 Overall Site – Phase I
- P7 C2-1-Overall Site Plan – North Campus
- P8 C2-1-1 Overall Site Plan – North Campus
- P9 C2-1-2 Overall Site Plan – North Campus
- P10 C2-1-3 Overall Site Plan – North Campus
- P11 C2-1- 4 Overall Site Plan – North Campus
- P12 C2-2 Overall Site Plan – South Campus
- P13 C2-2-1 Overall Site Plan – South Campus
- P14 C2-2-2 Overall Site Plan – South Campus
- P15 Demolition Plan – North Campus
- P16 Demolition Plan – South Campus
- P17 C3-1_Grading & Drainage Plan- North Campus

P18 C3-1-1_Grading & Drainage Plan
 P19 C3-1-2_Grading & Drainage Plan
 P20 C3-1-3_Grading & Drainage Plan
 P21 C3-1-4_Grading & Drainage Plan
 P22 C3-2_Grading & Drainage Plan- South Campus
 P23 C3-2-1_Grading & Drainage Plan
 P24 C4_Overall Utility Plan
 P25 C4-1 Overall Utility Plan- North Campus
 P26 C4-1-1_Utility Plan- North Campus
 P27 C4-1-2_Utility Plan- North Campus
 P28 C4-1-4_Utility Plan
 P29 C4-2_Overall Utility Plan- South Campus
 P30 C4-2-1_Utility Plan- South Campus
 P31 L-5.3_Planting Plan- North Campus
 P32 L-5.4_Planting Plan- North Campus
 P32 L-2.0_Landscape Overall Plan
 P33 L-3.0_Hardscape Plan
 P34 L-3.1_Hardscape Plan
 P34 L-5.5_Planting Plan- North Campus
 P35 L-3.2_Hardscape Plan
 P35 L5.7_Planting Plan- North Campus
 P36 L-4.0_Hardscape Details
 P36 L-5.8_Planting Plan- North Campus
 P37 L-4.1_Hardscape Details
 P37 LP1-1_Lighting Plan- North Campus
 P38 L-5.0_Planting Plan- North Campus
 P38 LP1-2_Lighting Plan- North Campus
 P39 L-5.1_Planting Plan- North Campus
 P39 LP1-3_Lighting Plan- North Campus
 P40 L-5.2_Planting Plan- North Campus
 P40 LP1-4_Lighting Plan- North Campus
 P41 LP1-5_Lighting Plan- South Campus
 P42 LP1-7_Lighting Details
 P43 D2_Site Plan Detail Sheet
 P44 D3_Site Plan Detail Sheet
 P45 D4_Site Plan Detail Sheet
 P46 D6_Building B Detail Sheet
 P47 D8_Drainage Detail Sheet
 P48 D9_Drainage Detail Sheet
 P49 D10_Drainage Detail Sheet
 P50 D11_Drainage Detail Sheet
 P51 D12_Drainage Detail Sheet
 P52 D13_Drainage Detail Sheet
 P53 D14_Stream Crossing Detail Sheet
 P54 E1_Erosion and Sediment Control Details
 P55 E2_Erosion and Sediment Control Details

P56 EC-1_Erosion Control- North Campus- Phase 1
P57 EC-2_Erosion Control- North Campus- Phase 1
P58 EC-3_Erosion Control- South Campus- Phase 1
P59 EC-4_Erosion Control- North Campus- Phase 1
P60 EC-5_Erosion Control- South Campus- Phase 1
P61 EC-6_Erosion Control- South Campus Phase 2
P62 Proposed Exterior Elevations Building A
P63 Proposed Exterior Elevations-Building C
P64 Proposed Exterior Elevations-Building D
P65 Proposed Front Elevation and Hardscape Plan- Building E
P66 Front Perspective-Building E
P67 Vestibule Perspective-Building E
P68 Proposed Exterior Elevations and Signage Chart-Building E
P68 Proposed Exterior Elevations- Building G
P69 Proposed Exterior Elevations- Building F
P69 Proposed North Elevations- Building J

MEMORANDUM



TO: Barbara Barhydt
FROM: Lauren Swett, PE
DATE: September 22, 2016
RE: Dirigo Plaza Subdivision Application

Woodard & Curran has reviewed the Subdivision Application submitted for the Dirigo Plaza project located at 58 and 80 Main Street in Westbrook, Maine. A three lot subdivision, including retail buildings, parking and site features is proposed in Westbrook. The project crosses the Portland/Westbrook line, and includes a one-lot subdivision in Portland. The work in Portland includes primarily the construction of a paved pathway surrounding the existing quarry pit on the property.

Documents Reviewed by Woodard & Curran

- Response to comments letter and attachments, dated September 12, 2016, prepared by Jones & Beach Engineers, Inc., on behalf of Dirigo Center Developers, LLC.

Comments *(Comments repeated from previous memos are included in italics.)*

As the project's primary development area is located within the City of Westbrook, it is our understanding that the primary review will be completed by others. Our review focuses on the proposed trail feature, the pond, and the stormwater management system as it has an impact on the City of Portland's Nason's Brook Watershed.

- 1) It is noted that many of the prior comments were related to the trail proposed surrounding the quarry. This trail will not be allowed by Central Maine Power due to proximity to their right-of-way and infrastructure. The removal of the trail from the project addresses these comments
- 2) The proposed project will result in approximately 10,293 square-feet of new impervious area in the City of Portland and is located within the watershed of an Urban Impaired Stream (Nason's Brook). As such, it would be required to demonstrate compliance with the Basic, General, Urban Impaired Stream, and Flooding Standards of the MaineDEP Chapter 500 Rules in accordance with Section 5 of the City of Portland Technical Manual. We understand that this Subdivision application is for only a portion of the overall project area, and the entire project is being reviewed for stormwater compliance by the City of Westbrook and the Maine DEP. We offer the following comments with regards to the portion of the project that is located in the City of Portland:
 - a) Basic Standard: The applicant has provided plans, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices within the development area in Westbrook. With the elimination of the trail, no significant work is proposed within Portland. The proposed erosion and sedimentation control measures proposed will be in compliance with the Maine DEP Basic Standards.
 - b) General Standards: The Applicant is required to provide stormwater treatment throughout the entire project area and is proposing an extensive networks of bioretention cells, underdrained filters, and sand filters throughout the development site. The existing quarry pit will be utilized as a wet pond. This wet pond will provide treatment for the entire new impervious area added in the City of Portland.
 - c) Urban Impaired Stream Standards: As noted above, the Applicant is providing extensive stormwater treatment on the site. The Applicant has submitted a request to the Maine DEP accounting for their proposed treatment, and noting that based on their calculations, no additional mitigation fee is required. The Applicant's calculation method appears to be valid as a significant amount of treatment is proposed within the Westbrook site, providing for treatment of a greater percentage of impervious area than is required by the General Standard. The Applicant should provide a copy of the Maine DEP's response to their Urban Impaired Stream calculations, and a copy of the final permit approval for the project.



- d) Flooding Standard: The Applicant is required to provide flood control throughout the entire project area. Flood control will be provided by stormwater features throughout the site, primarily through the use of the existing quarry pit as a wet pond. Runoff from the portion of the project located in the City of Portland will be managed by the wet pond. The overall project will result in a reduction in peak discharge in all storm events based on the submitted model. The Applicant has updated their model to address the previously provided comments.
- 3) *The Applicant has noted that a Stormwater Pollution Prevention Plan will be completed. A copy should be submitted prior to issuance of a building permit. Applicant has acknowledged.*
- 4) *The project will be required to comply with the post-construction stormwater management requirements as outlined in Chapter 32 of the City of Portland Code of Ordinances for all stormwater features located in the City of Portland. Applicant has acknowledged.*

All other previous comments have been addressed at this time.

September 7, 2016

Barbara Barhydt,
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101

Re: Site Plan and Subdivision Application, Dirigo Plaza; Dirigo Center Developers, LLC; Applicant's Narrative Response to the City of Portland's Off-Site Traffic Mitigation Comments

Dear Barbara:

I am writing to provide Applicant Dirigo Center Developers, LLC's ("Applicant") response regarding the City of Portland's Off-Site Traffic Mitigation Comments for the Dirigo Plaza project ("Project") provided to us by Jeremiah Bartlett on Friday, September 2, 2016. We appreciate the efforts by the City of Portland, the Maine Department of Transportation, the City of Westbrook, and the Maine Turnpike Authority to meet with us on September 1 to review MDOT's draft Traffic Movement Permit ("draft TMP") and other traffic and development concerns, and to prepare comments on the same so promptly. We understand that the City of Portland seeks the following items for incorporation into the finalized Traffic Movement Permit to be issued by MDOT, and our response follows each item listed below. Schematic plans prepared by Vanasse & Associates, Inc. ("VAI") to illustrate the Applicant's proposed work are enclosed.

1. Riverside Street from Berlin City to Exit 48

- *Provide consistent roadway width to allow for a center left turn lane to reduce crash frequency*

We understand from our meeting on September 1 that there is sufficient roadway width to permit us to restripe this area, and so the **Applicant agrees** to restripe this area, as requested by the City of Portland (see VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2).

- *Eliminate sidewalk gap on west side of street north of Burger King (i.e. result in sidewalks on both sides of Riverside between Exit 48 and Berlin City)*

The **Applicant agrees** to construct the sidewalk to eliminate sidewalk gap on west side of street north of Burger King, as requested by the City of Portland (see VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2).

2. Riverside Street at Larrabee Road and Exit 48

More specific recommendations for this location, as related to the mitigation plan, include:

- *Updated signal timing, coordination, and new signal structures (the City's position is that this intersection is too large for span wire)*
- *Updated wiring*
- *Controller cabinet*
- *Video detection that detects and accommodates bicyclists*
- *Signal heads with reflective back plates*
- *Overhead lane use signage as per MTA comments*
- *Countdown pedestrian heads*
- *Placement of ADA compliant ramps*
- *Use of durable pavement markings to supplement overhead provisions*
- *Establish queue detection for Exit 48 off-ramp to provide pre-emption capability as per MTA comments*

The Larrabee Road approach, proposed to be widened to provide a dual left turn lane, results in a wider intersection and is a costly improvement. The City would urge the Applicant to explore the need for two left turn lanes, or utilizing an existing through lane as a left turn lane to reduce costs and intersection size.

The **Applicant agrees** to construct the Exit 48 improvements as stated in the draft TMP and with the above detail, as requested by the City of Portland, and also **agrees** to review the Larrabee Road approach to provide lanes consistent with MDOT's findings and directions, all with the understanding that this work will be coordinated with scheduled MDOT and City of Portland projects for this intersection and that the City funding for this intersection will remain in place as proposed in the City's FY2017-FY2021 Capital Improvement Plan (CIP). (See VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2.)

3. Riverside Street at Westbrook Crossing

- *Updated signal timing, coordination*
- *Provision of detectable warning panels at pedestrian ramps*
- *Signal heads with reflective back plates*

The **Applicant agrees** to provide these improvements, as requested by the City of Portland. (See VAI Conceptual Improvement Plan, Riverside Street Corridor, Sheet 2 of 2.)

4. Riverside Street from Brighton Avenue to Exit 48

- *Explore potential for provision of bicycle lanes or the width within the project limits of Exit 48 work to allow for such lanes in the future.*

Actual construction of bicycle lanes along Riverside Street is not financially viable for the Applicant, but the Applicant understands that is not what the City is seeking here; the **Applicant agrees** to provide the City of Portland with the existing conditions data that will be prepared as part of the off-site mitigation, for the City's use in the conceptual design for bicycle improvements. The Applicant does not believe that the Exit 48 improvements it is undertaking will preclude the City from later establishing bicycle lanes. Bicycles can use the full travel lane similar to the bicycle use of Main Street in Westbrook and signage can be installed to promote this full lane use.

- *Provision of continuous sidewalk along east side of Riverside Street from Brighton Avenue to Exit 48, including filling the gap at the Fireside Inn frontage (much of this sidewalk currently exists)*

The **Applicant agrees** to construct the portion of the sidewalk along the **Fireside** Inn frontage from the driveway north to the existing guardrail, as requested by the City of Portland. (See VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2.)

5. Riverside Street at Brighton Avenue

- *Examination of need for right turn slip lanes, primarily slip lane from Riverside to Brighton. City may be willing to partner financially on this aspect.*

The **Applicant does not agree** to make this a part of its mitigation plan, but would make a donation to the City for this and other Brighton Avenue improvements (see responses to Items 6 and 9 below).

- *Video detection that detects and accommodates bicyclists*
- *Signal heads with reflective back plates*
- *Up-to-date ADA provisions and corrections to immediately adjacent deficient sidewalk segments*

The **Applicant agrees** to these improvements as part of its mitigation plan, some elements of which are included in the Ransom Brighton Avenue improvements plan; the sidewalk location can be adjusted within the limits of the right of way. (See VAI Figure 14, Conceptual Improvement Plan, Sheet 5 of 5).

6. Brighton Avenue at Capisic Street

The City seeks mitigation at this location, as the TIS identifies a substandard LOS. Provision of updated ramps and pedestrian equipment may be a satisfactory outcome.

The **Applicant does not agree** to make this a part of its mitigation plan, but would make a donation to the City for this and other Brighton Avenue improvements (see responses to Item 5 above and Item 9 below).

7. Brighton Avenue at Woodford Street

The City seeks mitigation at this location, as the TIS identifies a substandard LOS. One option here would be modifications that would allow for a concurrent pedestrian crossing with a lead ped interval, which could be accomplished with ADA and signal equipment improvements. This would increase operational efficiency above and beyond the current exclusive pedestrian phase configuration. Potential implementation of Lead Pedestrian Interval walk lights to improve vehicular and pedestrian Level of Service.

The **Applicant does not agree** to make this part of its mitigation plan; this is not financially viable for this Project as the requested improvements would be located so far from the Project that they are not reasonably related to pedestrian concerns generated by the Project. This intersection was not identified in the MDOT draft TMP as traffic mitigation for the proposed Dirigo Plaza project.

8. Rand Road at Exit 47

The City understands that mitigation is likely required at this location. However, if alternative mitigation strategies can be determined, the City will be open, in consultation with Westbrook and the Turnpike Authority, to alternatives.

The **Applicant agrees**, as an alternative to the improvements at this intersection in the draft TMP, to either: 1) in conjunction with MDOT and MTA, and as a condition of the final TMP, monitor traffic conditions at this intersection following construction of the Project's North Campus and to undertake any improvements to Exit 47 deemed necessary by MDOT at the time of permitting of the South Campus of the Project; or 2) to forego constructing improvements to this intersection with the funds it would otherwise be required to expend on Exit 47 to be used for other mitigation measures as agreed upon by the City of Portland and the Applicant. (See VAI Rand Road at I-95 Exit 47 Ramps Conceptual Improvement Plan, Sheet 1 of 1 for MDOT draft TMP plan).

9. Sidewalks on Brighton Avenue

The City seeks improvements to the sidewalks on Brighton Avenue in order to encourage non-vehicular trips to and from the site. Specifically, the City requests that, where documented existing conditions are fair or poor, replacement concrete sidewalks on the west side of Brighton Avenue be provided from the site entrance south to Albion Street.

Because of the schedule for the Project and the need to complete offsite mitigation improvements before a certificate of occupancy can issue for the Project, the **Applicant agrees** to donate to the City of Portland an amount equal to the amount remaining from Lowe's payment for the Brighton Street streetscape improvements -- \$220,000 -- to fund this and the improvements described at Items 5 and 6 above as well as other improvements identified by Ransom that the City may wish to make.

10. Riverside Street at Warren Avenue (lower priority)

- *Reconfigure westbound Warren Avenue to consist of two left turn lanes and a shared through/right turn lane. This will consist primarily of restriping.*
- *Adjust phasing and timing to eliminate the split phasing structure for the Warren Avenue approaches*

The **Applicant agrees** to provide the existing conditions data that will be prepared as part of the off-site mitigation, for conceptual design of the intersection to be prepared by the City of Portland. Actual design and construction of the requested improvement is not financially viable for the Project and was not part of the MDOT draft TMP.

11. Riverside Street at Home Depot Drive (lower priority)

Signal heads with reflective back plates

- *Overhead lane use signage*
- *Countdown pedestrian heads*

The **Applicant does not agree** to the requested improvement; this was not identified by MDOT in the draft TMP and is not financially viable for the Project.

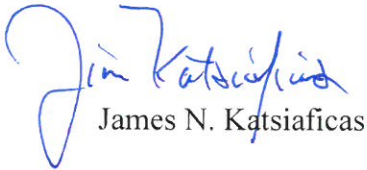
We acknowledge that the City of Portland has authority to seek off-site traffic mitigation measures through the subdivision and site plan ordinance processes to ensure that the Project will not cause unreasonable highway or public road congestion or unsafe conditions with regard to use of the public roads. Since these ordinance standards mirror the State traffic movement standards at 23 M.R.S. §704-A and Chapter 305, the improvements required by the draft TMP, which is intended to be regional in scope and which covers a two-mile radius, should form the basis for required traffic improvements for the Project. As explained during the September 1, 2016 meeting, we estimate that the total cost of traffic improvements required by the draft TMP is \$6.8 million, with \$3.365 attributable to "front door" access improvements and \$3.425 million attributable to regional off-site mitigation improvements (\$2.270 million in Portland and \$1.155 million in Westbrook).

However, in addition to carrying out the off-site mitigation tasks required by the draft TMP, we are, as noted in our responses above, agreeing to take on additional off-site traffic mitigation responsibilities as requested by the City of Portland by: 1) clarifying and amplifying the draft TMP requirements, and 2) offering to provide the additional installation, equipment, striping and

sidewalk work as stated above, to ensure that the intersections listed in the draft TMP **and** the street segments between them in the immediate Project area are improved appropriately. Also, as we have mentioned above, we agree to contribute the amount of \$220,000 to the City to match the amount of mitigation funding remaining from the Lowe's project so that the City can apply these funds towards Brighton Avenue streetscape improvements, as discussed in our responses to Items 5, 6 and 9 above.

We believe that City staff will find that these responses, and the significant contribution to the Project area's transportation infrastructure that they represent, address the reasonable off-site traffic mitigation needs generated by the Project as measured under State law and under Portland's land use ordinances.

Sincerely,



James N. Katsiaficas

cc: Jeremiah Bartlett, Transportation Systems Engineer, City of Portland
Jeff Levine, Planning & Urban Development Director, City of Portland
Jennie Franceschi, Director of Planning and Code Enforcement, City of Westbrook
Stephen Landry, Maine Department of Transportation, Traffic Engineering Division
Engineer, Maintenance and Operations Bureau, Maine Department of Transportation
Timothy Soucie, Region 1 Traffic Engineer, Maine Department of Transportation
Jeffrey Gove, Dirigo Center Developers, LLC
Wayne Morrill, Vice President, Jones & Beach Engineers, Inc.
David J. Tracy, Esq., Hinckley Allen
Philip Saucier, Esq., Bernstein Shur
Katherine Joyce, Esq., Bernstein Shur

[Staff Note: Revised and re-issued by MaineDOT on September 20, 2016]

Applicant: Dirigo Center Developments, LLC
7 Swain Drive
Hampton Falls, NH 03844
Project Location: Main Street / Larrabee Road / Westbrook Arterial, Westbrook, ME
Westbrook Tax Map #32 Lot(s) #46-47
Project: Commercial Shopping Center
Identification #: Reg. 01-00185-A-N
Permit Category: 200 Plus PCE
Traffic Engineer: Vanasse & Associates, Inc.
Attn: Jeffery S. Dirk, PE
35 New England Business Center Drive, Suite 140
Andover, MA 01810-1071

Pursuant to the provision of 23 M.R.S.A. § 704-A and Chapter 305 of the MaineDOT's Regulations, the Maine Department of Transportation has considered the application of J & J Gove Development, LLC with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

The project consists of 550,000 SF of mixed-use retail development. Access to the site is via four full movement entrances, one signalized entrance on Main Street, one signalized entrance on Larrabee Road, one stop-controlled entrance on Larrabee Road and one signalized entrance on the Westbrook Arterial. The project is estimated to generate 1,853 trip ends during a typical Saturday peak hour and 1,217 trips during a typical weekday PM peak hour.

Findings

Based on a review of the files and related information, MaineDOT approves the Traffic Movement Permit Application of J & J Gove Development, LLC subject to the following conditions:

MITIGATION

The mitigation is intended to describe that conceptually shown on the following plans provided by Vanasse & Associates, Inc. and Jones & Beach Engineers, Inc.:

1. "Conceptual Improvement Plan Riverside Street Corridor" Last Rev 6-10-16 [Rev 9-15-16 – Staff Note]
2. "Conceptual Improvement Plan Riverside Street At Larrabee Road and I-95 Exit 48 Ramps" Last Rev 6-10-16 [Rev 9-15-16 – Staff Note]
3. "Rand Road At I-95 Exit 47 Ramps Conceptual Improvement Plan" Last Rev 6-10-16
4. "Figure 14 Conceptual Improvement Plan" Sheets 1 thru 5, Last Rev 9-6-16
5. "Stroudwater Street At Forest Street Conceptual Improvement Plan" Last Rev 6-3-16
6. "Cumberland Street At Bridge Street Conceptual Improvement Plan" Last Rev 6-3-16

If the descriptions contained herein conflict with the plans, these descriptions shall take precedence over the plans. Not all of the mitigation discussed herein maybe shown on those or any plan. The following mitigation shall be constructed or implemented to MaineDOT's satisfaction prior to the opening of the facility, unless otherwise approved by MaineDOT.

All proposed traffic signals and traffic signal upgrades shall be designed and specified to be in compliance with the PACTS, City of Westbrook, City of Portland and MaineDOT traffic signal specifications. All traffic signals will be fully-functional, integrated and have full communications with the PACTS existing Streetwise ATMS.

On-Site Mitigation

Site Entrance / Main Street (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings. All markings shall be supplied, installed/painted and maintained yearly.

Modify raised median to accommodate dedicated left-turn pocket on Main Street to the site entrance with appropriate storage lengths and tapers.

Reconstruct sidewalks to meet ADA requirements.

Install new fully actuated traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire interconnect to the signal at Main and Larrabee Rd. and the signal at Main St. and Riverside St.

Site Entrance / Larrabee @ Terminal Street (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance with appropriate storage lengths and tapers.

Widen Larrabee Road to provide five-foot bicycle lanes for both directions of travel.

Provide six-foot sidewalks along both sides of Larrabee Road.

Install new fully actuated traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. The traffic signal shall be set to flash until MUTCD traffic signal warrants are met. Install a hardwire interconnect to the signal at Main and Larrabee Rd. and the signal at Larrabee Rd. and Westbrook Arterial.

Site Entrance / Larrabee @ Saunders Way (Unsignalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have a STOP bar and all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Site Entrance / Westbrook Arterial (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance with appropriate storage lengths and tapers. Construct a dedicated right-turn pocket into the site entrance with appropriate storage lengths and tapers.

Install new traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire interconnect to the signal at Westbrook Arterial and Larrabee Rd. and to the signal at Westbrook Arterial (Rand Rd.) and Exit 47 ramps.

General Requirements For All Entrances

A. The entrances shall provide overhead illumination, if not existing, to illuminate the intersections per MaineDOT standards at a minimum. Overhead lighting shall have an average of 0.6 to 1.0 foot candles, with the maximum to minimum lighting ratio of not more than 10:1 and an average to minimum light level of not more than 4:1.

Off-Site Mitigation

Optimize traffic signal timings in the coordinated system on Riverside St / Main St / Brighton Ave.

Riverside Street

Intersection of Riverside St / Larrabee Rd (Exit 48)

Construct a second dedicated left-turn lane on the Riverside southbound approach to Exit 48. Restripe the southbound approach to include two dedicated left-turn lanes, a dedicated thru lane and a share thru-right lane. Lane widths shall be a minimum of 11 feet.

Install appropriate overhead lane-usage signs for the Riverside southbound approach both in advance of the intersection and at the intersection. Install appropriate lane-use signs at the intersection for the other intersection approaches.

Construct a second left-turn lane on Larrabee. *[MaineDOT staff note: Do we need this? General consensus is to remove this item. How does this impact LOS?]*

Remove channelizing island for the right-turn movements from the Riverside Street northbound approach and the I-95 exit ramp. Construct a right turn lane with appropriate length and Taper

Reconstruct the traffic signal system to accommodate the new geometry and interconnect to the toll plaza. Provide overlap phasing when possible.

Design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire interconnect to the signal at Main and Larrabee Rd.

Note: Work on Maine Turnpike Authority (MTA) property requires an MTA work permit and MTA review.

Intersection of Riverside St / Forest Ave

Design and implement an optimal traffic signal timing, phasing and coordination plan.

Intersection of Riverside St / Warren Ave

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Intersection of Riverside St / Home Depot

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Intersection of Riverside St / Home Depot

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Intersection of Riverside St / Brighton Ave / Main St

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire interconnect between adjacent intersections.

Segment between Riverside Court (Berlin City) and Exit 48

Restripe to provide a two-way left-turn lane.

Construct sidewalk along the west side of Riverside, eliminating existing sidewalk gaps.

Segment between Exit 48 / Brighton Ave

Construct sidewalk along the east side of Riverside, eliminating existing sidewalk gaps.

Main Street

Intersection of Main St / Larrabee Rd

Remove existing raised triangular islands from Larrabee approaches to Main Street. Construct dedicated right-turn pockets on the Larrabee approaches to Main Street with appropriate storage lengths and tapers.

Provide ADA improvements to the sidewalks and signal equipment. Provide a hardwire interconnect between adjacent intersections.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan.

Westbrook Arterial

Intersection of Rand Rd / Westbrook Arterial (Exit 47)

Widen I-95 ramp to provide a second left-turn lane to the Westbrook Arterial. Widen Rand Road to accept the dual-left turn lanes.

Install raised medians along Rand Road approaching the intersection.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire or wireless interconnect to the adjacent intersection at the site entrance at Westbrook Arterial.

Note: Work on Maine Turnpike Authority (MTA) property requires an MTA work permit and MTA review.

William Clarke Drive

The applicant should design and implement an optimal traffic signal timing, phasing and coordination plan for the weekday and weekend post construction

Overall Requirements

A. Provide all necessary auxiliary signs, striping and pavement markings to implement the improvements described herein according to MaineDOT and/or National standards.

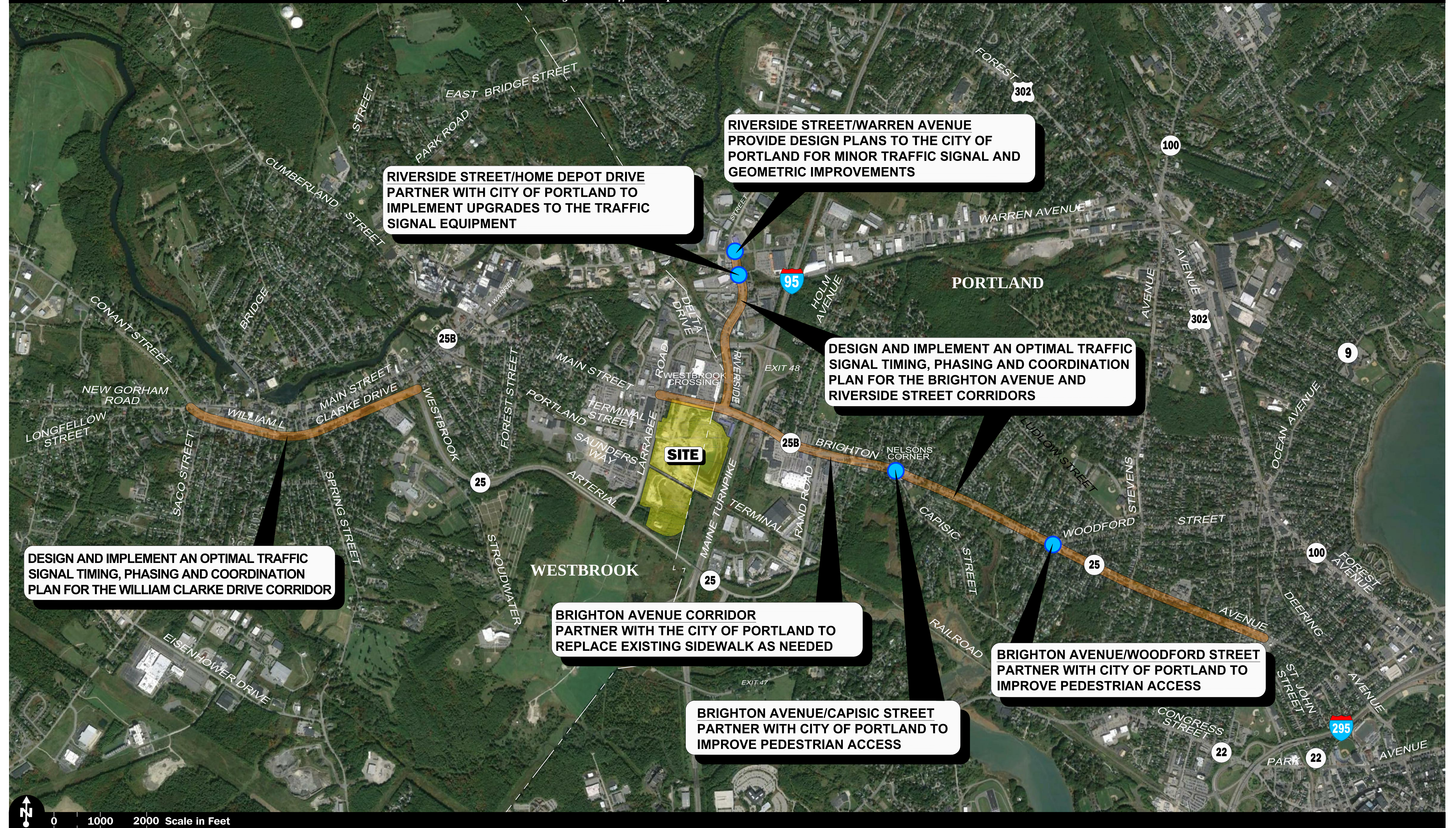
B. All plantings and signs (existing and/or proposed; permanent and/or temporary) shall be placed and maintained such that they do not block available sight distances and do not violate the State's "Installations and Obstructions" law. No signage, plantings or structures shall be allowed within the "clear zone" if they constitute a deadly fixed object as determined by MaineDOT. All signs shall meet MRSA Title 23, Chapter 21, Section 1914: "On-Premise Signs".

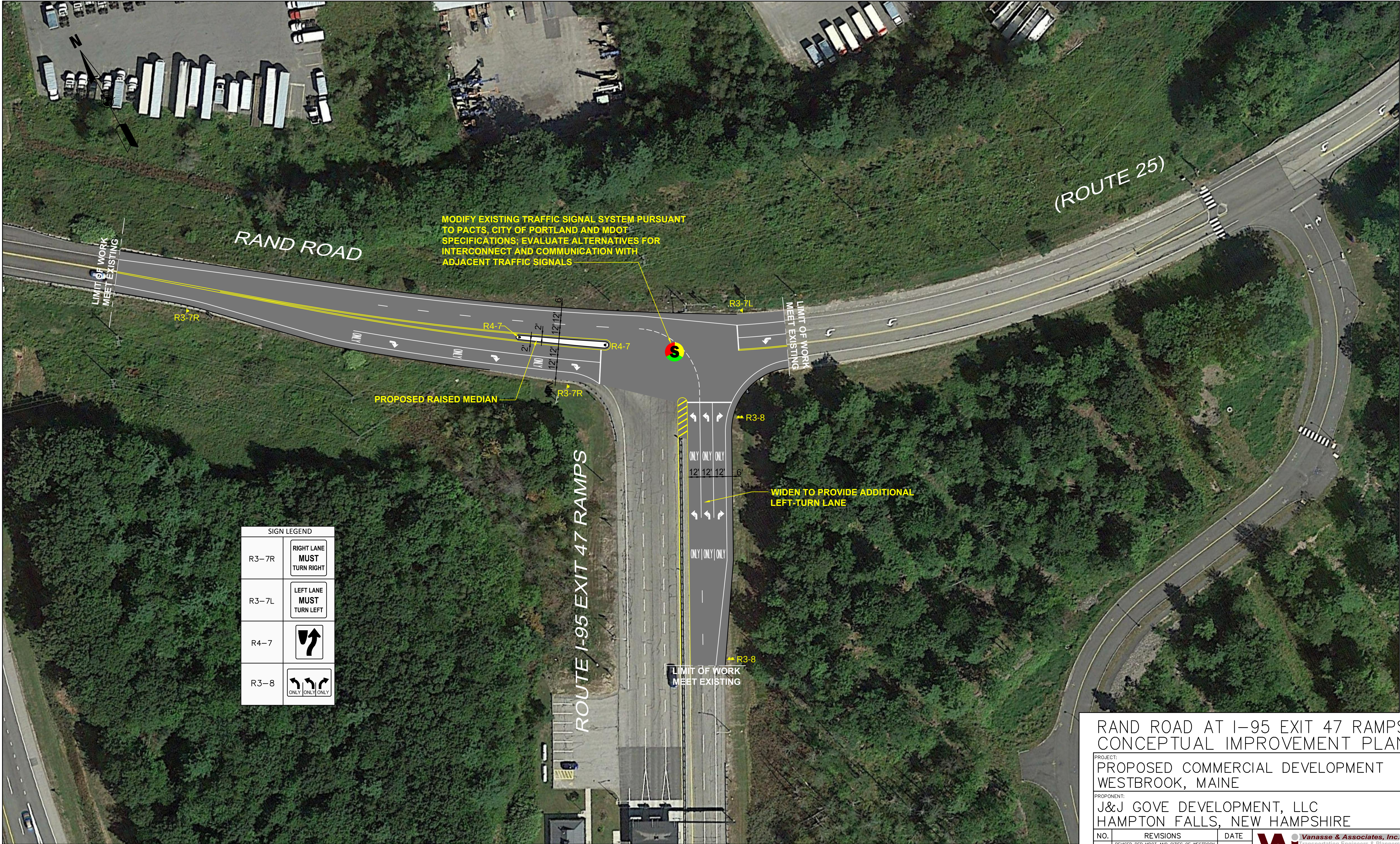
C. If any of the supporting data or representations for which this permit is based changes in any way or is found to be incorrect / inaccurate, the applicant shall request in writing from MaineDOT a decision of what impacts those changes will have on the permit. The applicant will then be required to submit those changes for review and approval and additional mitigation as a result of those changes may be required at the expense of the applicant.

By:

Stephen Landry, P.E.
State Traffic Engineer

Date: _____





SIGN LEGEND	
R3-7R	RIGHT LANE MUST TURN RIGHT
R3-7L	LEFT LANE MUST TURN LEFT
R4-7	
R3-8	



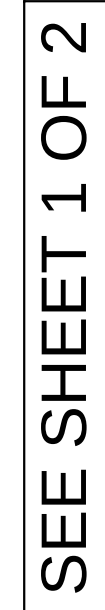
- NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION.
2. BASE PLAN INFORMATION OBTAINED FROM GOOGLE EARTH.

RAND ROAD AT I-95 EXIT 47 RAMPS CONCEPTUAL IMPROVEMENT PLAN

PROJECT:
PROPOSED COMMERCIAL DEVELOPMENT
WESTBROOK, MAINE

PROPOSER:
J&J GOVE DEVELOPMENT, LLC
HAMPTON FALLS, NEW HAMPSHIRE

NO.	REVISIONS	DATE	 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 474-8800 Fax (978) 688-6508	
1.	REVISED PER MDOT AND CITIES OF WESTBROOK AND PORTLAND COMMENTS	9/13/16		
			DESIGNED BY: BG	DATE: 6/10/16
			DRAWN BY: JTG	SCALE: 1" = 40'
			CHECKED BY: JSD	SHEET 1 OF 1



2. BASE PLAN INFORMATION OBTAINED FROM GOOGLE EARTH.

SIGN LEGEND					
R4-11		W11-1		SPEC. 2	
R4-7		W16-1			
R3-8A				SPEC. 3	
				SPEC. 4	
R3-8B				SPEC. 5	
				SPEC. 6	
SPEC. 1				SPEC. 7	
SPECIAL CLUSTER 1				SPECIAL CLUSTER 2	

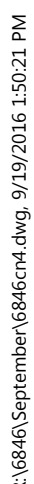
CONCEPTUAL IMPROVEMENT PLAN RIVERSIDE STREET AT LARRABEE ROAD AND I-95 EXIT 48 RAMPS

PROJECT: PROPOSED COMMERCIAL DEVELOPMENT
WESTBROOK, MAINE

PROPOSITOR:
J&J GOVE DEVELOPMENT, LLC
HAMPTON FALLS, NEW HAMPSHIRE

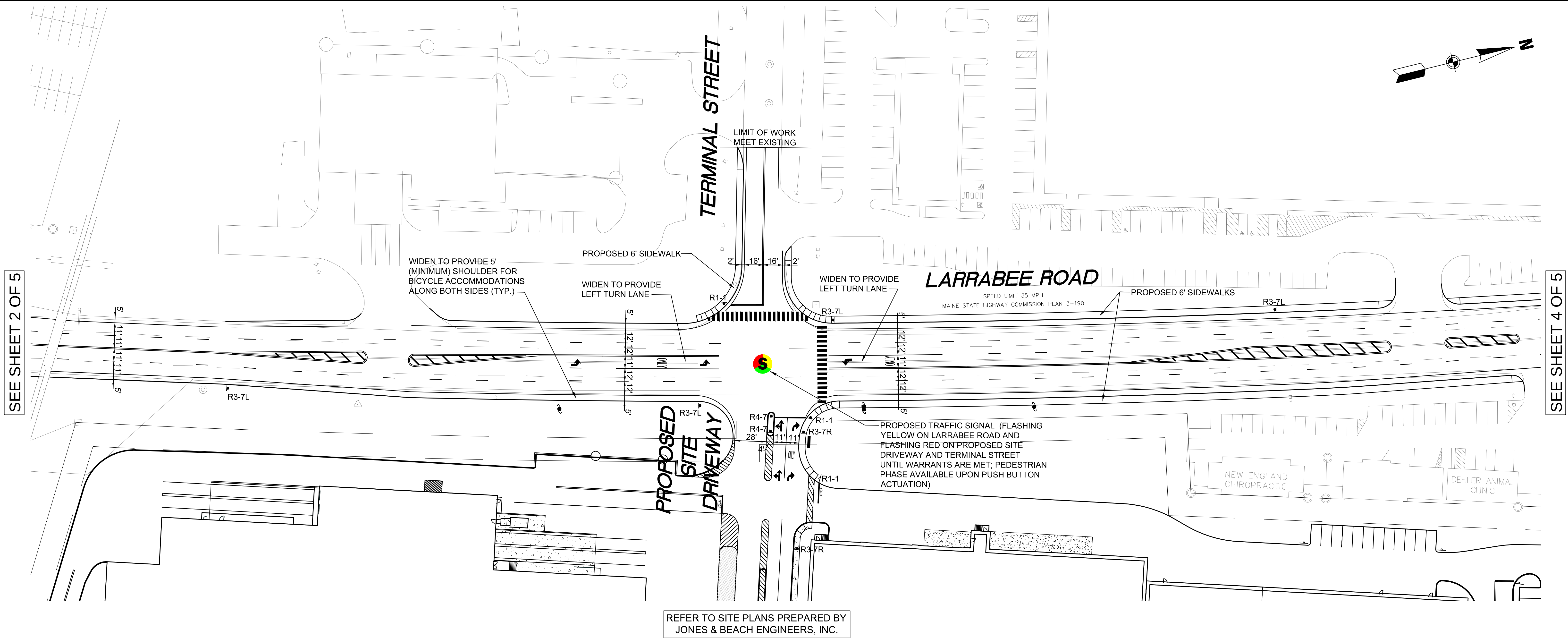
NO.	REVISIONS	DATE	 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 474-8800 FAX (978) 688-6508
1.	INCORPORATE CITY OF PORTLAND COMMENTS.	9/6/16	
2.	INCORPORATE MDOT CITY OF PORTLAND COMMENTS.	9/15/16	
		DESIGNED BY: BG	DATE: 6/10/16
		DRAWN BY: JTG	SCALE: 1" = 40'
		CHECKED BY: JSD	SHEET 2 OF 2





SEE SHEET 2 OF 5

SEE SHEET 4 OF 5



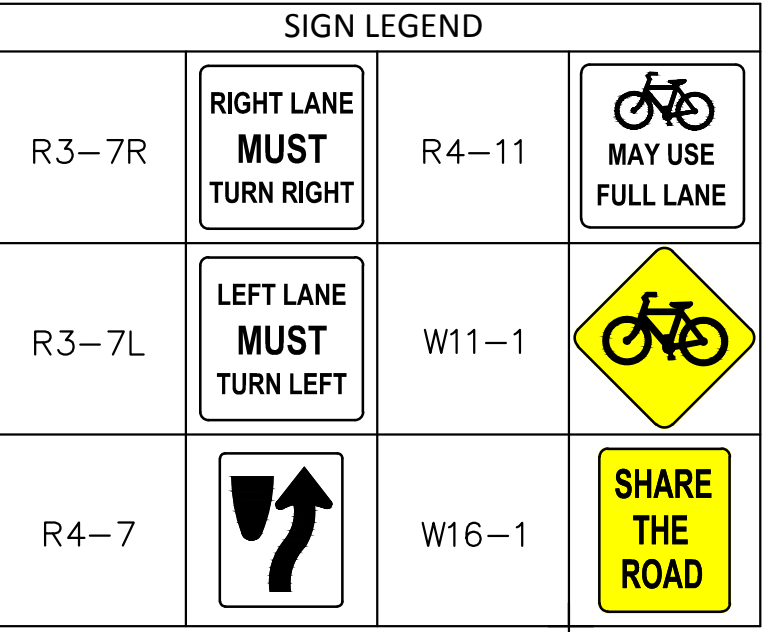
SIGN LEGEND	
R1-1	
R4-7	
R3-7R	RIGHT LANE MUST TURN RIGHT
R3-7L	LEFT LANE MUST TURN LEFT



- NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION.
2. BASE PLAN INFORMATION OBTAINED FROM JONES & BEACH ENGINEERS, INC.

FIGURE 14
CONCEPTUAL IMPROVEMENT PLAN

PROJECT: PROPOSED COMMERCIAL DEVELOPMENT WESTBROOK, MAINE		
PROPOSER: J&J GOVE DEVELOPMENT, LLC HAMPTON FALLS, NEW HAMPSHIRE		
NO.	REVISIONS	DATE
1.	ADDED SIDEWALKS AND INCREASED SHOULDER WIDTHS TO 5' MINIMUM.	6/3/16
2.	REVISED PER MDT AND CITY OF WESTBROOK COMMENTS	9/13/16
 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 474-8800 FAX (978) 688-6508		
DESIGNED BY:	BG	DATE: 5/5/16
DRAWN BY:	JTG	SCALE: 1" = 40'
CHECKED BY:	JSD	SHEET 3 OF 5



NO.	REVISIONS	DATE	 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 474-8800 Fax (978) 658-6508
1.	ADDED BICYCLE LANES AND INCREASED MEDIAN WIDTHS	6/3/16	
2.	REVISED PER MDOT AND CITY OF WESTBROOK COMMENTS	9/13/16	
	DESIGNED BY: BG	DATE: 5/5/16	
	DRAWN BY: JTG	SCALE: 1" = 40'	
	CHECKED BY: JSD	SHEET 4 OF 5	

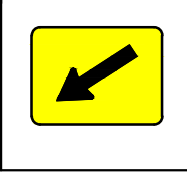
2. BASE PLAN INFORMATION OBTAINED FROM JONES & BEACH ENGINEERS, INC.

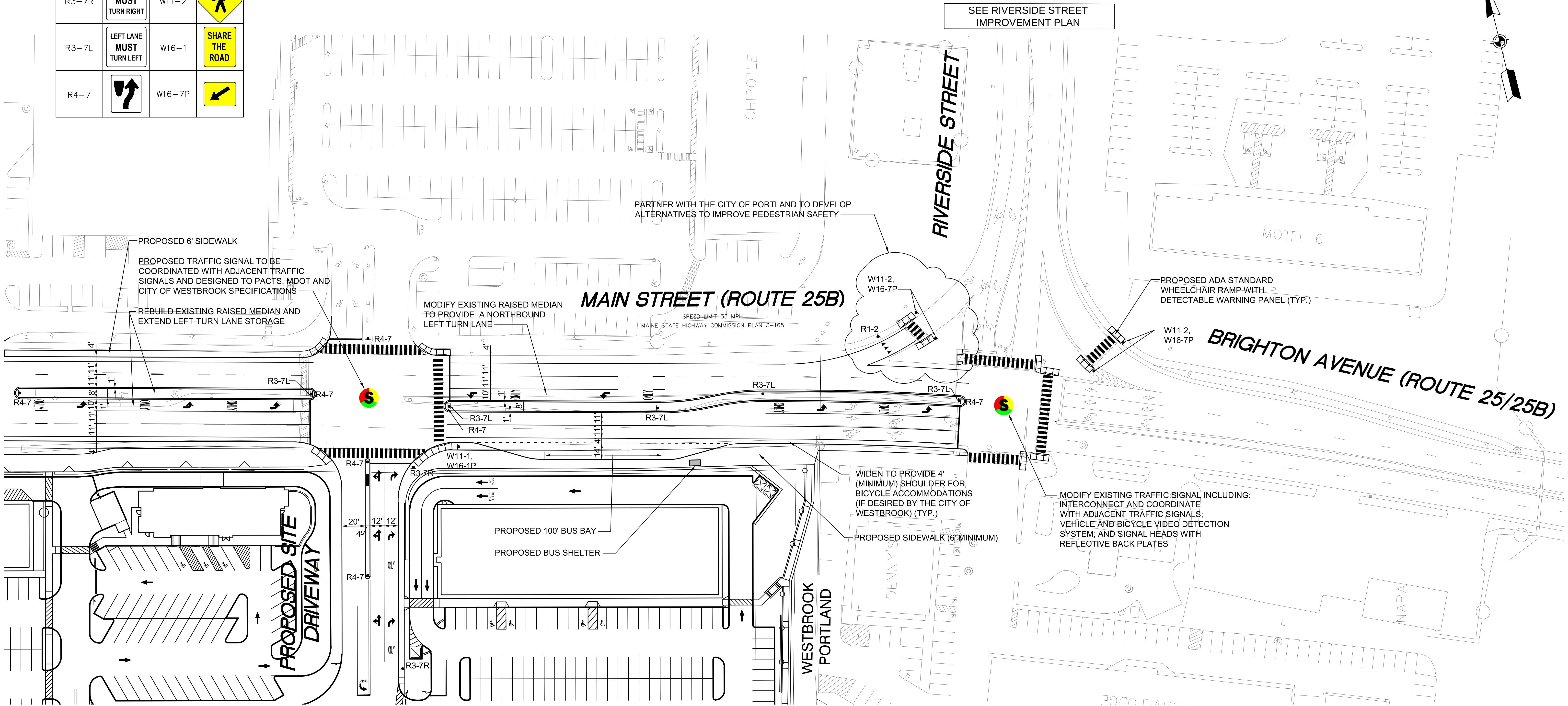
40 0 40 80

SCALE IN FEET

REFER TO SITE PLANS PREPARED BY
JONES & BEACH ENGINEERS, INC.

SEE SHEET 4 OF 5

SIGN LEGEND			
R1-2		W11-1	
R3-7R		W11-2	
R3-7L		W16-1	
R4-7		W16-7P	



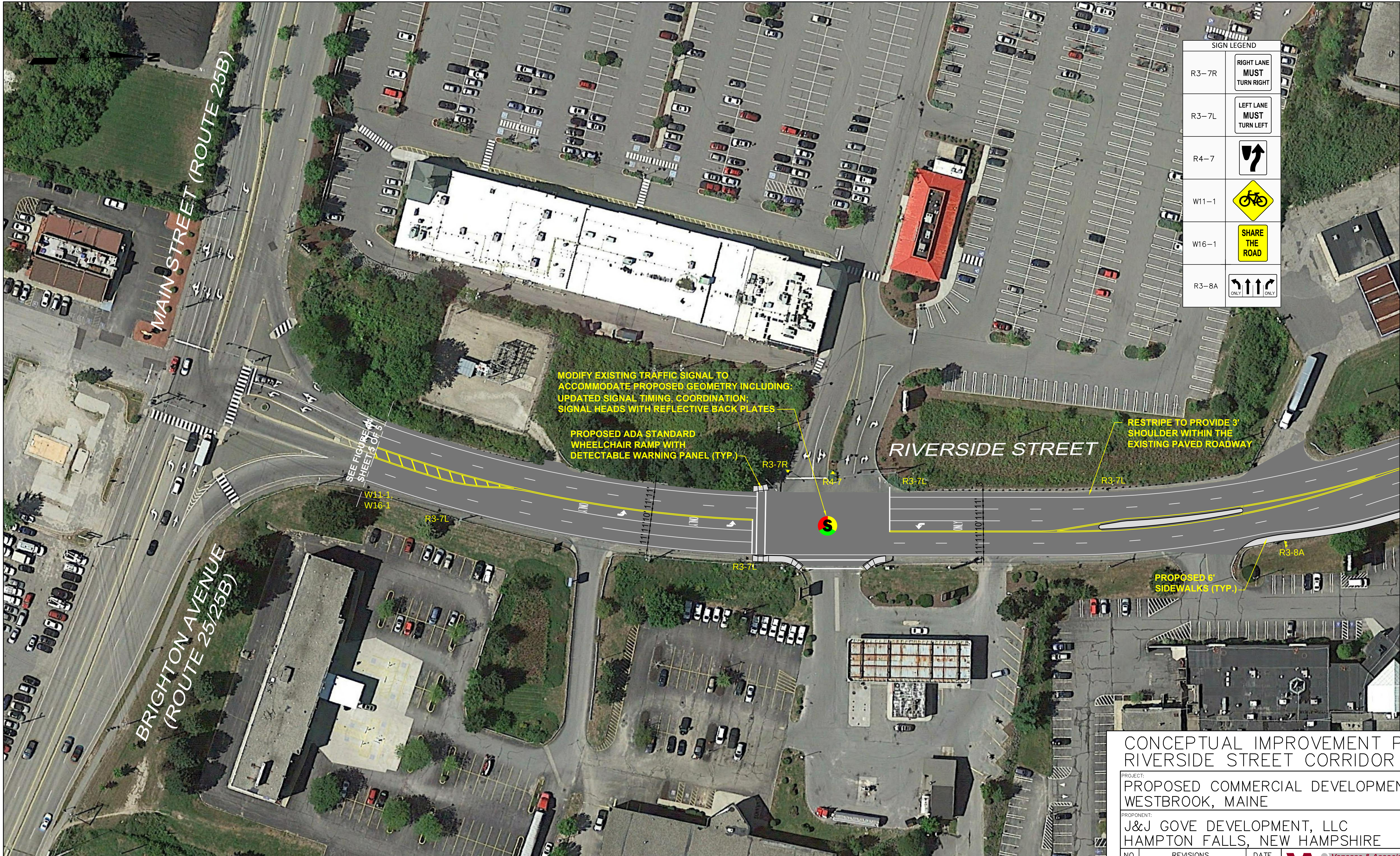
REFER TO SITE PLANS PREPARED BY
JONES & BEACH ENGINEERS, INC.



- NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY
AND IS NOT INTENDED FOR CONSTRUCTION.
2. BASE PLAN INFORMATION OBTAINED FROM
JONES & BEACH ENGINEERS, INC.

FIGURE 14
CONCEPTUAL IMPROVEMENT PLAN

PROJECT: PROPOSED COMMERCIAL DEVELOPMENT WESTBROOK, MAINE			
PROPOSER: J&J GOVE DEVELOPMENT, LLC HAMPTON FALLS, NEW HAMPSHIRE			
NO.	REVISIONS	DATE	 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 474-8800 FAX (978) 688-6508
1.	ADDED BICYCLE LANES AND INCREASED MEDIAN WIDTHS	6/3/16	
2.	ADDED 100' BUS BAY AND BUS SHELTER	8/3/16	
3.	INCORPORATE CITY OF PORTLAND COMMENTS	9/6/16	
4.	REVISED PER MDOT AND CITY OF WESTBROOK COMMENTS	9/13/16	DESIGNED BY: BG DATE: 5/5/16 DRAWN BY: JTG SCALE: 1" = 40' CHECKED BY: JSD SHEET 5 OF 5



SIGN LEGEND	
R3-7R	RIGHT LANE MUST TURN RIGHT
R3-7L	LEFT LANE MUST TURN LEFT
R4-7	
W11-1	
W16-1	SHARE THE ROAD
R3-8A	

MODIFY EXISTING TRAFFIC SIGNAL TO
ACCOMMODATE PROPOSED GEOMETRY INCLUDING:
UPDATED SIGNAL TIMING, COORDINATION;
SIGNAL HEADS WITH REFLECTIVE BACK PLATES

PROPOSED ADA STANDARD
WHEELCHAIR RAMP WITH
DETECTABLE WARNING PANEL (TYP.)

RESTRIPE TO PROVIDE 3'
SHOULDER WITHIN THE
EXISTING PAVED ROADWAY

PROPOSED 6'
SIDEWALKS (TYP.)

CONCEPTUAL IMPROVEMENT PLAN RIVERSIDE STREET CORRIDOR

PROJECT:
PROPOSED COMMERCIAL DEVELOPMENT
WESTBROOK, MAINE

PROPOSER:
J&J GOVE DEVELOPMENT, LLC
HAMPTON FALLS, NEW HAMPSHIRE

NO.	REVISIONS	DATE
1.	INCORPORATE CITY OF PORTLAND COMMENTS.	9/6/16
2.	INCORPORATE MDOT CITY OF PORTLAND COMMENTS.	9/15/16

Vai Vanasse & Associates, Inc.
Transportation Engineers & Planners
35 New England Business Center Drive
Suite 140
Andover, MA 01810
Office (978) 474-8800
Fax (978) 688-6508

DESIGNED BY:	BG	DATE:	6/10/16
DRAWN BY:	JTG	SCALE:	1" = 40'
CHECKED BY:	JSD	SHEET	2 OF 2



NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY
AND IS NOT INTENDED FOR CONSTRUCTION.

2. BASE PLAN INFORMATION OBTAINED FROM
GOOGLE EARTH.

Section 2 - Completed Application and Fees



Jeff Levine, AICP, Director
Planning & Urban Development Department

Electronic Signature and Fee Payment Confirmation

Notice: Your electronic signature is considered a legal signature per state law.

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a **legal signature** per Maine state law. You are also signifying your intent on paying your fees by the opportunities below.

I, the undersigned, intend and acknowledge that no Site Plan or Historic Preservation Applications can be reviewed until payment of appropriate application fees are ***paid in full*** to the Inspections Office, City of Portland Maine by method noted below:

☐

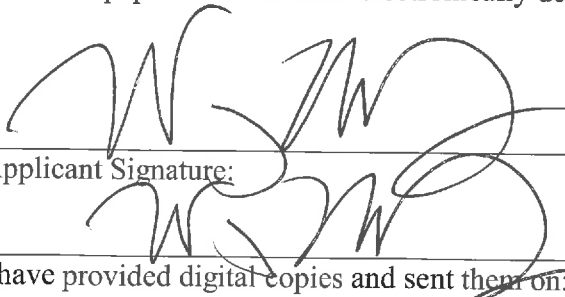
Within 24-48 hours, once my complete application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☐

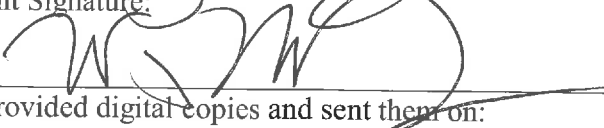
Within 24-48 hours, once my application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☒

I intend to deliver a payment method through the U.S. Postal Service mail once my application paperwork has been electronically delivered.

Applicant Signature: 

8-4-16
Date:

I have provided digital copies and sent them on: 

8-4-16
Date:

NOTE:

All electronic paperwork must be delivered to buildinginspections@portlandmaine.gov or by physical means i.e. a thumb drive or CD to the Inspections Office, City Hall, 3rd Floor, Room 315.



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

Planning and Urban Development Department
Planning Division

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

Level III: Site Plan Development includes:

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

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: <http://me-portland.civicplus.com/DocumentCenter/Home/View/1080>

Design Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2355>

Technical Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2356>

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

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

PROJECT NAME: Dirigo Plaza

PROPOSED DEVELOPMENT ADDRESS:

58 & 80 Main Street, Westbrook, ME

PROJECT DESCRIPTION:

See Attached Description

CHART/BLOCK/LOT: Tax Map 264, Lot A002

Tax Map 264, Lot A004

Tax Map 265, Lot A003

Tax Map 265, Lot A005

PRELIMINARY PLAN

____ (date)

FINAL PLAN

____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Dirigo Center Developers, LLC Business Name, if applicable: Address: 7 Swain Drive City/State : Hampton Falls, NH Zip Code: 03844	Applicant Contact Information Work # 603-926-7662 Home# Cell # Fax# e-mail: jeffreygove@yahoo.com
Owner – (if different from Applicant) Name: Pike Industries, Inc. Address: 3 Eastgate Park Road City/State : Belmont, NH Zip Code: 03220	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Wayne Morrill, Jones & Beach Engineers, Inc. Address: 85 Portsmouth Avenue City/State : Stratham, NH Zip Code: 03885	Agent/Representative Contact information Work # 603-772-4746 Cell # e-mail: wmorrell@jonesandbeach.com
Billing Information Name: J & J Gove Development, LLC Address: 7 Swain Drive City/State : Hampton Falls, NH Zip Code: 03844	Billing Information Work # 603-926-7662 Cell # Fax# e-mail: jeffreygove@yahoo.com

Engineer Name: Wayne Morrill, Jones & Beach Engineers, Inc. Address: 85 Portsmouth Avenue City/State : Stratham, NH Zip Code: 03885	Engineer Contact Information Work # 603-772-4746 Cell # Fax# e-mail: w Morrill@jonesandbeach.com
Surveyor Name: David Hislop Address: 34 Old Post Road City/State : Newington, NH Zip Code: 03801	Surveyor Contact Information Work # 603-436-1330 Cell # Fax# e-mail: dave@khlandsurveying.com
Architect Name: Phase Zero Design (attn. Tim Tobin) Address: 35 Pond Park Road, Bay 16 City/State : Hingham, MA Zip Code: 02043	Architect Contact Information Work # (781) 452-7121 Cell # Fax# e-mail: ttobin@phasezerodesign.com
Attorney Name: James Katsiaficas Address: One Canal Plaza, PO Box 426 City/State : Portland, ME Zip Code: 04112	Attorney Contact Information Work # 207-774-2635 ext. 8108 Cell # Fax# e-mail: jkatsiaficas@perkinsthompson.com

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Credit Card, 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 300,000 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>1</u> x \$25/lot = <u>\$525.00</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 thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at <http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal>
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 Building Inspections 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:

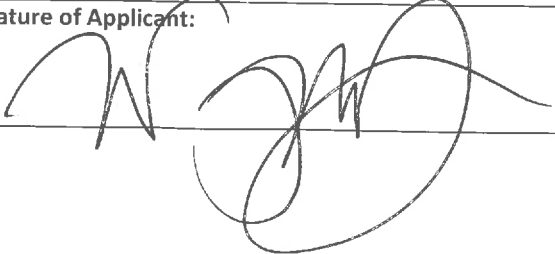
1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence 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.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

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

Signature of Applicant: 	Date: 8-4-16
--	-----------------

PROJECT DATA

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

Total Area of Site	717,869 (Portland)	sq. ft.
Proposed Total Disturbed Area of the Site	32,226 (Portland)	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)	19,166	sq. ft.
Impervious Area (Total Proposed)	29,459	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	0	sq. ft.
Building Footprint (Total Proposed)	0	sq. ft.
Building Floor Area (Total Existing)	0	sq. ft.
Building Floor Area (Total Proposed)		sq. ft.
Zoning		
Existing	Business (B4), Industrial (IL)	
Proposed, if applicable		
Land Use		
Existing	Industrial Operations	
Proposed	Recreation Area	
Residential, If applicable		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)		
# of Lots (Total Proposed)		
# of Affordable Housing Units (Total Proposed)		
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)	N/A	
# of Parking Spaces (Total Proposed)		
# of Handicapped Spaces (Total Proposed)		
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	N/A	
# of Bicycle Spaces (Total Proposed)		
Estimated Cost of Project		
	\$145,000	

WESTBROOK PROJECT DATA

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

Total Area of Site	2,844,468 (Westbrook)	sq. ft.
Proposed Total Disturbed Area of the Site	2,289,949 (Westbrook)	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)	172,933	sq. ft.
Impervious Area (Total Proposed)	1,883,534	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	21,500	sq. ft.
Building Footprint (Total Proposed)	489,500	sq. ft.
Building Floor Area (Total Existing)	21,500	sq. ft.
Building Floor Area (Total Proposed)	489,500	sq. ft.
Zoning		
Existing	Gateway Commercial District	
Proposed, if applicable		
Land Use		
Existing	Industrial Operations	
Proposed	Mixed-Use Retail	
Residential, If applicable		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)		
# of Lots (Total Proposed)		
# of Affordable Housing Units (Total Proposed)		
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)	51	
# of Parking Spaces (Total Proposed)	2,215	
# of Handicapped Spaces (Total Proposed)	65	
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	0	
# of Bicycle Spaces (Total Proposed)	5+	
Estimated Cost of Project		
	\$70,000,000	

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
X		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	SITE PLAN SUBMISSIONS CHECKLIST
		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)
			Proposed grading and contours;
			Existing structures with distances from property line;
			Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;
			Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);
			Preliminary infrastructure improvements;
			Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;
			Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);
			Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);
			Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;
			Exterior building elevations.

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

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

- Continued on next page -

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

**Subdivision Application
City of Portland, ME**

**Project:
"Dirigo Plaza"
58 & 80 Main Street
Westbrook, ME 04092**

**Applicant:
Dirigo Center Developers, LLC
7 Swain Drive
Hampton Falls, NH 03844**

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- Section 3 - Drainage Summary**
- Section 4 - Title, Right, and Interest**
- Section 5 - Financial and Technical Capacity**
- Section 6 - Easements, Covenants, and Public or Private Right-Of-Ways**
- Section 7 - Construction Management Plan**
- Section 8 - Traffic Study & Transportation Plans**
- Section 9 - Significant Natural Features**
- Section 10 - City Master Plan Compliance**
- Section 11 - Utility Service**
- Section 12 - Solid Waste**
- Section 13 - Fire Code Compliance**
- Section 14 - City of Portland Design Standards**
- Section 15 - Emissions Standards**
- Section 16 - Abutters**
- Section 17 - Plans**

Section 1 - Project Description

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 4, 2016

Barbara Barhydt, Development Review Manager
Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

**Re: Proposed Subdivision & Site Plan Application -- Dirigo Plaza, Mixed-Use Retail
and Restaurant Development, 58 & 80 Main Street, Westbrook, ME 04092
80 Main Street & 11 Larrabee Road, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Job No.: 14110**

Dear Ms. Barhydt:

Our client, Dirigo Center Developers, LLC, proposes a one-lot subdivision and construction of a recreation trail which is located partially within the City of Portland. A three-lot subdivision is proposed in the City of Westbrook, consisting of two long-term lease lots and one lot representing the remainder of the property. The lot that contains the remaining non-leased land extends over the City of Westbrook/City of Portland boundary line. The Portland portion of this lot is approximately 16.48-acres in area, and contains approximately 3.82-acres of Industrial zoned land, while the remaining 12.66-acres is zoned as Commercial Business (B4). The real property tax map and lot numbers that correspond to this Portland portion of the parcel are Tax Map 264/Lot A002, Tax Map 264/Lot A004, Tax Map 265/Lot A003, and Tax Map 265/A005.

A 5' wide asphalt recreational trail is proposed around the perimeter of the existing quarry and is shown on the attached plan titled "Overall Site Plan". The recreational trail will be sloped to direct surface runoff towards the existing pit across a grassed buffer area (see trail detail within Section 3 of this application). The proposed new impervious area in Portland is approximately 10,293 S.F. with a total land disturbance of 32,226 S.F.

There will be no new structures erected as part of the proposed trail construction. A traffic analysis has been prepared for the development in Westbrook and has been submitted to the Planning Division and Department of Public Works. The proposed construction also will not disturb any identified significant natural areas. We are in the process of obtaining several State permits will be obtained including MDEP Site Location of Development Application (SLODA) Permit, Natural Resources Protection Act (NRPA) Permit, and MDOT Traffic Movement Permit

(TMP). Included in this application is a copy of correspondence from MDEP confirming that the SLODA permit has been accepted for review.

Earlier this year, we submitted a subdivision and site plan application to begin the Portland review process, and the attached materials are submitted to supplement and complete that application. As required by Sec. 14-495 of the City of Portland Code of Ordinances ("Code"), enclosed please find a completed application form and five copies of the existing conditions plan, subdivision-lot consolidation plat and overall site plan. The plat is prepared in conformity with Sec. 14-436 of the Code. A plan titled "Subdivision – Lot Consolidation Plat" has been included with these additional application materials.

Please let us know if the planning Division requires any additional information or if you have any questions or comments regarding this submittal.

Very truly yours,
Jones & Beach Engineers, Inc.



Wayne Morrill
Vice President

cc: Jeffrey Levine, Director of Planning and Urban Development
Stuart O'Brien, Planning Director
Jon Jennings, City Manager
Dirigo Center Developers, LLC
James N. Katsiaficas, Esq.

JONES & BEACH
ENGINEERS INC.

Section 4 - Title, Right, and Interest

Dirigo Center Developers, LLC has right, title and interest in the subject property as follows:

Pike Industries Parcel. J&J Gove Development, LLC has definitive purchase/option agreement in full force and effect with Pike Industries for the following parcels in Westbrook and Portland, Maine:

Tax Map 42B Lots 10, 11 and 14 in Westbrook, ME

Tax Map 264 Lots A002 and A004 in Portland, ME

The original agreement dated August 25, 2014 has been amended by the First Addendum to Purchase and Sale with an effective date of March 1, 2015 executed by both parties and a certain letter agreement dated June 3, 2015 executed by the parties' respective counsel. The outside date to close under these documents is September 24, 2016. J&J Gove Development, LLC assigned this agreement to Dirigo Center Developers, LLC by an "Assignment and Assumption of Purchase and Sale Agreement" dated July 14, 2016.

L.L. Lathrop Parcel. J&J Gove has definitive purchase/option agreement in full force and effect with L.L. Lathrop for the following parcel in Westbrook, Maine:

Tax Map 042B Lot 9

The agreement is dated July 28, 2015 and has an outside closing date of July 28, 2016 with the option to extend to October 2016. J&J Gove Development, LLC assigned this agreement to Dirigo Center Developers, LLC by an "Assignment and Assumption of Contract for the Sale of Commercial Real Estate" dated July 14, 2016.

Portland Terminal Company. J&J Gove has a definitive purchase/option agreement with the Portland Terminal Company for a permanent easement across its property of 2,640 square feet in Westbrook, Maine, and more fully described in Exhibit A of the agreement dated February 2, 2016. The outside date for closing is September 24, 2016. J&J Gove Development, LLC nominated Dirigo Center Developers, LLC as its successor under that agreement by a "Nomination of Successor Party" dated July 14, 2016.

All of these purchase/option agreements may be extended by mutual agreement of the parties if deemed necessary.

Attachments: Purchase Option Agreements
Letter of Authorization from J&J Gove Development
Assignment and Assumption of Purchase and Sale Agreement
Assignment and Assumption of Contract for the Sale of
Commercial Real Estate
Nomination of Successor Party

**ASSIGNMENT AND ASSUMPTION OF
PURCHASE AND SALE AGREEMENT**

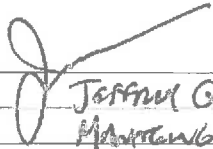
Reference is made to that certain Purchase and Sale Agreement dated as of August 25, 2014 by and between PIKE INDUSTRIES, INC., a Delaware corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Buyer**"), as amended (the "**Purchase Agreement**").

Buyer hereby assigns all of its right, title and interest in and to the Purchase Agreement to DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company ("**Assignee**"); and Assignee hereby assumes all such right, title and interest in and to the Purchase Agreement.

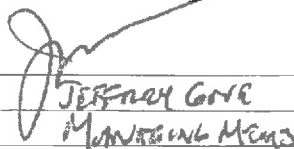
Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

Executed as a sealed instrument this 14th day of July, 2016.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

ASSIGNMENT AND ASSUMPTION OF
CONTRACT FOR THE SALE OF COMMERCIAL REAL ESTATE

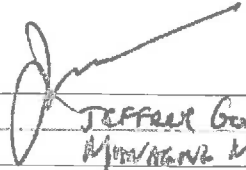
Reference is made to that certain Contract for the Sale of Commercial Real Estate dated as of August 11, 2015 by and between L.L. LATHROP, INC., a Maine corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Buyer**"), as amended (the "**Purchase Agreement**").

Buyer hereby assigns all of its right, title and interest in and to the Purchase Agreement to DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company ("**Assignee**"); and Assignee hereby assumes all such right, title and interest in and to the Purchase Agreement.

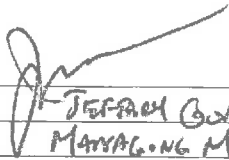
Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

Executed as a sealed instrument this 14th day of July, 2016.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

NOMINATION OF SUCCESSOR PARTY

Reference is made to that certain Purchase and Sale Agreement dated as of February 2, 2016 by and between PORTLAND TERMINAL COMPANY, a Maine corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Original Buyer**"), as may be amended (the "**Purchase Agreement**").

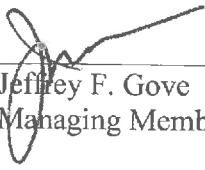
Pursuant to Section 22 of the Purchase Agreement, Buyer hereby nominates DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company, as its nominee to act in the name, place and stead of the Original Buyer and to act as successor buyer of the Premises and in order to take title to the Premises at the Closing.

Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

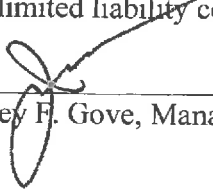
Executed as a sealed instrument this 14th day of July, 2016.

Dirigo Center Developers, LLC, a Maine limited liability company, accepts the foregoing nomination and agrees to act as the successor to the Original Buyer as aforesaid.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

By: 
Name: Jeffrey F. Gove
Title: Managing Member

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Jeffrey F. Gove, Managing Member

July 15, 2016

Barbara Barhydt,
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101

Re: Site Plan and Subdivision Application, Dirigo Plaza; Dirigo Center Developers,
LLC Documentation – Right, Title and Interest and Financial and Technical Capacity.

Dear Barbara:

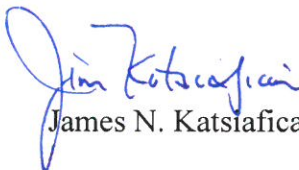
I am writing to inform you and the City of Portland Planning Department that the name of the applicant for the Dirigo Plaza project has changed from J&J Gove Development Group to Dirigo Center Developers, LLC, and to update the applicant's showing of Right, Title and Interest and of Financial and Technical Capacity to reflect this change.

Therefore, enclosed please find copies of executed "Nomination of Successor Party" and "Assignment and Assumption of Purchase and Sale Agreement" forms to transfer the rights of J&J Gove Development, LLC in the Portland Terminal Company, Pike Industries, Inc., and L. L. Lathrop, Inc. parcels, respectively, to the newly created limited liability company for the Dirigo Plaza project, Dirigo Center Developers, LLC. Also enclosed are an executed "Designation of Borrower" form to recognize Dirigo Center Developers, LLC as the to-be-formed limited liability company that will be the Borrower, and a "Letter of Authorization" authorizing third party consultants and Perkins Thompson to represent Dirigo Center Developers, LLC, and Jones & Beach Engineers, Inc. to serve as its agent in this review process.

Although the applicants' legal entity has changed from J&J Gove Development Group to Dirigo Center Developers, LLC, the identities of the individuals who are members of the new entity LLC and who are developing the parcels and the project have not changed. Those individuals remain Jeffrey Gove and Christopher Nash.

Thank you for your assistance in this matter.

Sincerely,


James N. Katsiaficas

Barbara Barhydt
July 15, 2016
Page 2

cc: Jeffrey Gove, Dirigo Center Developers, LLC
Wayne Morrill, Vice President, Jones & Beach Engineers, Inc.
David J. Tracy, Esq., Hinckley Allen
Philip Saucier, Esq., Bernstein Shur
Katherine Joyce, Esq., Bernstein Shur

NOMINATION OF SUCCESSOR PARTY

Reference is made to that certain Purchase and Sale Agreement dated as of February 2, 2016 by and between PORTLAND TERMINAL COMPANY, a Maine corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Original Buyer**"), as may be amended (the "**Purchase Agreement**").

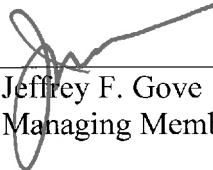
Pursuant to Section 22 of the Purchase Agreement, Buyer hereby nominates DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company, as its nominee to act in the name, place and stead of the Original Buyer and to act as successor buyer of the Premises and in order to take title to the Premises at the Closing.

Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

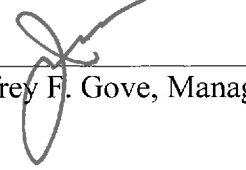
Executed as a sealed instrument this 14th day of June, 2016.

Dirigo Center Developers, LLC, a Maine limited liability company, accepts the foregoing nomination and agrees to act as the successor to the Original Buyer as aforesaid.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

By: 
Name: Jeffrey F. Gove
Title: Managing Member

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Jeffrey F. Gove, Managing Member

**ASSIGNMENT AND ASSUMPTION OF
PURCHASE AND SALE AGREEMENT**

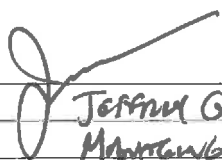
Reference is made to that certain Purchase and Sale Agreement dated as of August 25, 2014 by and between PIKE INDUSTRIES, INC., a Delaware corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Buyer**"), as amended (the "**Purchase Agreement**").

Buyer hereby assigns all of its right, title and interest in and to the Purchase Agreement to DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company ("**Assignee**"); and Assignee hereby assumes all such right, title and interest in and to the Purchase Agreement.

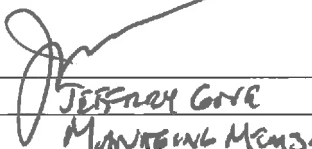
Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

Executed as a sealed instrument this 14th day of July, 2016.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

By: 
Name: Jeffrey Gove
Title: Managing Member

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Name: Jeffrey Gove
Title: Managing Member

**ASSIGNMENT AND ASSUMPTION OF
CONTRACT FOR THE SALE OF COMMERCIAL REAL ESTATE**

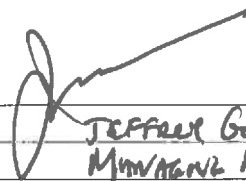
Reference is made to that certain Contract for the Sale of Commercial Real Estate dated as of August 11, 2015 by and between L.L. LATHROP, INC., a Maine corporation ("**Seller**"), and J&J GOVE DEVELOPMENT, LLC, a New Hampshire limited liability company ("**Buyer**"), as amended (the "**Purchase Agreement**").

Buyer hereby assigns all of its right, title and interest in and to the Purchase Agreement to DIRIGO CENTER DEVELOPERS, LLC, a Maine limited liability company ("**Assignee**"); and Assignee hereby assumes all such right, title and interest in and to the Purchase Agreement.

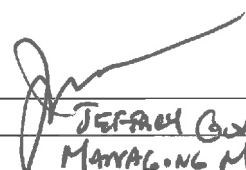
Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Purchase Agreement.

Executed as a sealed instrument this 14th day of July, 2016.

J&J GOVE DEVELOPMENT, LLC,
a New Hampshire limited liability company

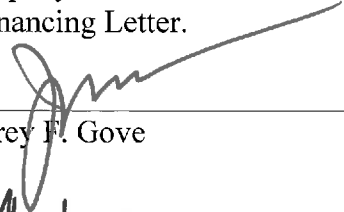
By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

DIRIGO CENTER DEVELOPERS, LLC,
a Maine limited liability company

By: 
Name: JEFFREY GOVE
Title: MANAGING MEMBER

DESIGNATION OF BORROWER

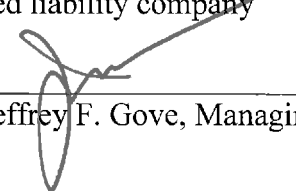
Reference is hereby made to that certain financing letter (the "**Financing Letter**") issued by The Washington Trust Company (the "**Lender**") to the undersigned in connection with the project commonly known as Dirigo Center and located at Larrabee Road and Main Street in Westbrook, Maine, dated August 20, 2015. The undersigned hereby acknowledge and agree that Dirigo Center Developers, LLC, a Maine limited liability company, shall be the limited liability company controlled by Jeffrey Gove and Christopher Nash which was referenced in the Financing Letter as the to be formed limited liability company which will act as the Borrower in connection with the loan transaction referenced in the Financing Letter.



Jeffrey F. Gove

Christopher F. Nash

Dirigo Center Developers, LLC, a Maine
limited liability company


By: _____
Jeffrey F. Gove, Managing Member

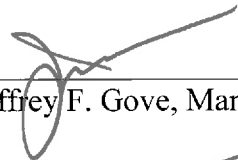
July 14, 2016

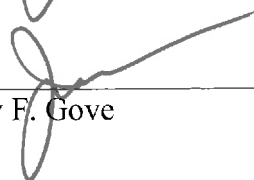
LETTER OF AUTHORIZATION

This is a supplemental Letter of Authorization to the Original Letter of Authorization provided by Jeffrey F. Gove and J & J Gove Development, LLC dated July 1, 2014.

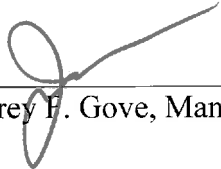
The undersigned, Jeffrey F. Gove, J & J Gove Development, LLC, a New Hampshire limited liability company, and Dirigo Center Developers, LLC, a Maine limited liability company, do hereby acknowledge and agree that said Dirigo Center Developers, LLC and the principals thereof, including Jeffrey F. Gove, do hereby authorize and empower Jones & Beach Engineers, Inc., P.O. Box 219, Stratham, New Hampshire, to act on their behalf concerning the property located in Westbrook, Maine, commonly known as Tax Map 42B, Lots 9, 10, 11 and 14. The aforesaid parcel is located on 58 and 80 Main Street in Westbrook, Maine. This Letter of Authorization also further confirms that all other third party consultants are authorized to continue to represent the undersigned parties in connection with the above-referenced property including, without limitation, James N. Katsiaficas of the firm of Perkins Thompson in Portland, Maine. Without limiting the foregoing, the undersigned do hereby appoint Jones & Beach Engineers, Inc. as our agent to act on our behalf in the review process to include any required signatures.

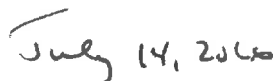
J & J Gove Development, LLC, a New
Hampshire limited liability company

By: 
Jeffrey F. Gove, Managing Member


Jeffrey F. Gove

Dirigo Center Developers, LLC, a Maine
limited liability company

By: 
Jeffrey F. Gove, Managing Member



Section 6 - Easements, Covenants, and Public or Private Right-Of-Ways

The property within Portland contains several utility easements and an existing railroad crossing easement shown on the existing conditions plan that is included with this application.

Subject properties:

Owner of Record: Pike Industries, Inc. CCRD Book 23504, Page 113, Corrected by Book 23578, Page 296

- a. Westbrook Tax Map 42B, Lot 14 (Ref. Deed BK8964/PG221, 2001/491, 2198/493)
- b. Westbrook Tax Map 42B, Lot 11 (Ref. Deed 2198/493, 1737/445)
- c. Westbrook Tax Map 42B, Lot 10 (Ref. Deed 4166/68)
- d. Portland Tax Map 264, Lot A002 (Ref. Deed 3162/899, 1921/59)
- e. Portland Tax Map 264, Lot A004 (Ref. Deed 2755/81)

Easements:

Utility Easement to Portland Pipe Line Corporation (BK2881/PG459)

Utility Easement to Central Maine Power Company (3204/758)

Petroleum Easement to Buckeye Partners (1891/16)

Railroad Crossing:

Farm crossing: Plan - "Right-Of-Way and Track Map, The Portland & Ogdensburg Ry., Owned & Operated by the Portland Terminal Company, Station 158+40 to Station 211+20" Dated: June 10, 1916. Scale 1"=100'. Office of Chief Engineer, Portland, Maine (Sheet V-2/4)

6K8964PG(221

053314

WARRANTY DEED

Maine Statutory Short Form

KNOW ALL MEN BY THESE PRESENTS,

THAT, I, Irene E. Elwell of Westbrook, County of Cumberland, State of Maine, being unmarried, for consideration paid, grant to BLUE ROCK INDUSTRIES of Westbrook, County of Cumberland, State of Maine, whose mailing address is 58 Main Street, Westbrook, Maine 04092 with warranty covenants, a certain lot or parcel of land situated southeasterly of, but not adjacent to, Larrabee Road in Westbrook, County of Cumberland and State of Maine, being more particularly bounded and described as follows:

Beginning at a 5/8" capped rebar marked RLS #1155 set on the town line between the City of Portland and the City of Westbrook and land now or formerly of the State of Maine (C.C.R.D. 3397-194) as shown on a Plan of Maine State Highway Commission Right of Way Map dated October, 1972 recorded in the Cumberland County Registry of Deeds Plan Book 127 Page 26, said iron bearing South 31-19-46 West two thousand seven hundred seventeen and fifty-four hundredths (2727.54) feet from a 6" X 6" concrete town line monument as shown on a plan of the town line between Portland and Westbrook dated January 3, 1946 per the City of Portland Department of Engineering;

Thence, South 74-29-39 West along said land of the State of Maine one hundred forty-seven and sixty-three hundredths (147.63) feet to a 6" X 6" concrete monument set at a point of curvature at Station 15+00.81 as shown on said Plan of the State Highway Commission;

Thence, southwesterly continuing along said land of the State of Maine and a curve to the left having a radius of three hundred five and no hundredths (305.00) feet an arc distance of two hundred thirty-one and sixty-six hundredths (231.66) feet to a 6" X 6" concrete monument set at a point of compound curvature at Station 18+27.415 as shown on said plan;

Thence, westerly along said land of the State of Maine and a curve to the left having a radius of five hundred ninety-five and no hundredths (595.00) feet an arc distance of two hundred thirty-seven and one hundredths (237.01) feet to a point at Station 21+14.218 on said plan;

Thence, North 50-16-41 West along said land of the State of Maine one hundred four and twenty hundredths (104.20) feet to a point at Station 71+95.56 on said plan;

Thence, North 38-07-34 West along said land of the State of Maine one hundred eighty-seven and thirty hundredths (187.30) feet to a capped 5/8" rebar and land now or formerly of Llewellyn A. Randall, Sr. (C.C. Probate Docket #61110);

MAINE REAL ESTATE TAX ROL

BK8964PG0222

Thence, North 35-19-07 East along said land of Randall and remains of a wire fence one hundred twenty-two and eighty-one hundredths (122.81) feet to a wooden fence post;

Thence, North 23-10-52 East continuing along said land of Randall and remains of a wire fence eighty-three and forty-eight hundredths (83.48) feet to a wooden fence post;

Thence, North 30-44-25 East continuing along said land of Randall and remains of a wire fence one hundred eighty-eight and fifty-three hundredths (188.53) feet to a wooden fence post;

Thence, North 43-09-19 East continuing along said land of Randall twenty-nine and seventy-seven hundredths (29.77) feet to a capped 5/8" rebar and land now or formerly of Blue Rock Industries (C.C.R.D. 2001-491);

Thence, South 47-07-02 East along said land of Blue Rock Industries eight hundred twenty and no hundredths (820.00) feet to a capped 5/8" rebar set on the town line between the City of Portland and the City of Westbrook;

Thence, South 31-19-46 West along the town line one hundred sixty-nine and ninety-one hundredths (169.91) feet to the point of beginning.

Containing 7.53 acres, more or less.

Bearings are observed Magnetic, September, 1989.

Meaning and intending to convey the same land conveyed to Grantor herein by the Estate of D. Emerson Elwell in a deed dated December 31, 1985 and recorded in the Cumberland County Registry of Deeds in Book 7029, Page 308.

WITNESS my hand and seal this 25th day of the month of October, 1989.

Signed, Sealed and Delivered
in presence of

U. Charles Remme

Irene E. Elwell
Irene E. Elwell

State of Maine, County of Cumberland, ss. October 25, 1989

Then personally appeared the above named Irene E. Elwell and acknowledged the foregoing instrument to be her free act and deed.

Before me,

RECEIVED
RECORDED REGISTRY OF DEEDS

1989 OCT 26 PM 2:27

CUMBERLAND COUNTY

Robert J. [Signature]

U. Charles Remme
Notary Public/
Attorney at Law

U. Charles Remme II
Type or print name

Know all Men by these Presents, That

491

I, George W. Hunter of Westbrook, in the County of Cumberland and State of Maine, in consideration of one dollar and other valuable considerations, paid by Blue Rock Quarry of said Westbrook, in said County and State, the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Blue Rock Quarry, its successors and assigns forever, a certain lot or parcel of land situated in said Westbrook, and bounded and described as follows, to wit: Commencing on the easterly side line of Stroudwater Street at a stone post set in the division line between Westbrook and Portland, measuring down on the division line easterly from said stone post three thousand ninety-six and seventy-two hundredths (3096.72) feet; thence from this point extending along the said division line between Westbrook and Portland a distance of forty-two (42) rods, more or less to the Railroad Right of way; thence northerly along said Railroad Right of Way a distance of of fifty-two (52) rods, more or less, to the land now or formerly owned by John W. Washburn; thence westerly by said Washburn land forty-two (42) rods, more or less, to land of Elijah P. Hunter; thence southerly by the said Elijah P. Hunter land and land of grantor to the point of beginning. Meaning and intending hereby to convey the same premises which I. purchased by warranty deed from Antonio Galli dated June 19, 1942 and recorded in Cumberland Registry of Deeds, in Book 1683, Page 8.

On ~~June 19, 1942~~ and in full the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Blue Rock Quarry its successors and assigns, to it and

U.S.I.R.
\$1.65
G.H.W.
6/20/50

said Grantee, its successors their use and behoof forever. And I do covenant with the heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said

Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In ~~Witness Whereof~~ I, the said George W. Hunter and Annetta R. Hunter wife of the said George W. Hunter joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises,

our hands and seals this sixteenth day of June have hereunto set one thousand nine hundred and fifty. in the year of our Lord

Signed, Sealed and Delivered in presence of

Grover Welch

to both

George W. Hunter Seal

Annetta R. Hunter Seal

State of Maine, CUMBERLAND, SS.

June 16th, 1950. Personally appeared

the above named George W. Hunter

and acknowledged the foregoing instrument to be his free act and deed.

Before me, Grover Welch, Justice of the Peace

Received

June 20,

19 50, at 10 o'clock 20 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

493

I, Hans N. Hansen of Westbrook, in the County of Cumberland and State of Maine, in consideration of One Dollar and other valuable considerations, paid by Blue Rock Quarry, a corporation established by law, and having a place of business at said Westbrook, in said County of Cumberland and State of Maine, the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Blue Rock Quarry, its successors and assigns forever, a certain lot or parcel of land situated southerly of Main Street, in said Westbrook, in said County of Cumberland and State of Maine, bounded and described as follows:- Said parcel is bounded on the southeast by land formerly of John Larrabee and now of the Grantee herein; on the southwest by land formerly of G. Skillins and land formerly of D. & S. Conant; on the northwest by land of Hannah Fluent set off to her in the division of the Estate of her father Benjamin Larrabee; on the northeast by the following described line; Beginning at an iron in the division line between land of the Grantor and land of the Grantee herein, said iron being distant S. 32° 11' W. 938.49' from the southwesterly side line of Main Street; thence N 59° 01' W. 417.66' to an iron in a fence marking the division line between land of the Grantor and land formerly of the said Fluent;

Said above-described courses are magnetic and of the date of 1951.

Subject to the right of way of the Maine Central Railroad Company.

Said above-described parcel being a portion of the lot of land conveyed by Bernice W. Bixby et als to Hans N. Hansen by deed dated September 2, 1926 and recorded in Cumberland County Registry of Deeds, in Book 1246, Page 89.

On this and in full the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Blue Rock Quarry its successors and assigns, to its and

said Grantee, its successors their use and behoof forever. And I do covenant with the

heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except as noted;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors

heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Hans N. Hansen and Lina M. Hansen wife of the said Hans N. Hansen joining in this deed as Grantor, and relinquishing and conveying all rights by descent and all other rights in the above described premises,

OUR hand s and seals this 22nd day of October have hereunto set one thousand nine hundred and fifty-four. in the year of our Lord

Signed, Sealed and Delivered in presence of

Roger P. Welch to both

Hans N. Hansen

Seal

Lina M. Hansen

Seal

State of Maine, CUMBERLAND, ss. October 22 1954.
the above named Hans N. Hansen

Personally appeared

and acknowledged the foregoing instrument to be his free act and deed.
Before me, Roger P. Welch Justice of the Peace

Received October 29, 1954 at 8 o'clock - m. A.M., and recorded according to the original.

U.S.I.R.
\$3.30
10/22/54
H.N.H.

Know all Men by these Presents, That

445

W. H. Hinman, Inc., a corporation organized and existing under the laws of Commonwealth of Massachusetts and located at North Anson in the County of Somerset in said State of Maine, in consideration of one dollar and other valuable considerations, paid by Blue Rock Quarry a corporation organized and existing under the Laws of the State of Maine and having a principal office at Westbrook, County of Cumberland in said State of Maine, the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Blue Rock Quarry, its successors and assigns forever, a certain lot or parcel of land situated in the City of Westbrook, County of Cumberland, and State of Maine, bounded and described as follows: Beginning at a stone hub marked "W.D." set in the Southerly side of Main Street at the division line between Westbrook and Portland; thence Westerly by said Main Street fifty (50) rods, more or less, to land now or formerly owned by John W. Washburn; thence Southerly by said Washburn's land to land owned now or formerly by Daniel Conant; thence by said Conant's land and land now or formerly belonging to Edward Chapman and land belonging to Ann Quimby heirs, in an Easterly direction, by and in various courses, to the Portland City Line; thence Northerly by that line to the point of beginning, the stone hub marked "W.D."

This land, about fifty-six (56) acres, more or less, formerly belonged to John Larrabee and was conveyed by his heirs to his son, Frederick D. Larrabee by their deed dated March 6, A. D. 1882 and recorded in Cumberland County Registry of Deeds, Book 430, Page 404, and was conveyed to John Larrabee Jones by Lydia W. J. Stevens by deed dated February 12, A. D. 1922 and recorded in said Cumberland County Registry of Deeds, Book 1095, Page 51.

This conveyance is made subject to such rights as the Portland and Ogdensburg Railroad may have in said premises.

Excepting however from the above described property, a certain lot or parcel of land which Antonio Galli conveyed to George W. Hunter under date of June 19, A. D. 1942 and recorded in said Registry, Book 1893, Page 8.

Being the same premises which were conveyed to Antonio Galli by deed of said John Larrabee Jones dated November 15, A. D. 1938 and recorded in said Registry, Book 1554, Page 484.

On ~~have~~ and in ~~hold~~ the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Blue Rock Quarry, its successors

heirs and assigns, to it and their use and behoof forever. And we do covenant with the said Grantee, its successors heirs and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our successors heirs, shall and will warrant and defend the same to the said Grantee, its successors

heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said W. H. Hinman, Inc. joining in this deed as Grantor, and relinquishing and conveying their right by descent and all other rights in the above described premises,

their hand and seal this fourteenth day of March have hereunto set one thousand nine hundred and forty-four. in the year of our Lord

Signed, Sealed and Delivered in presence of

Arlene L. Davis

Geraldine A. McCarty

W. H. HINMAN, INC. CORPORATE SEAL

G. W. Yeaton, Asst. Treas.

State of Maine, Cumberland ss. ----- 19 -- Personally appeared the above named G. W. Yeaton, Assistant Treasurer of W. H. Hinman, Inc.

and acknowledged the above instrument to be his free act and deed. ----

Before me, E. H. Wyman, Jr., Notary Public Notarial Seal of Edwin H. Wyman, Jr.

Received March 15

19 44, at 10 o'clock 45 m. A. M., and recorded according to the original.

*
X

D.B.I.R.
\$4.95
W.H.H. Inc.
3/14/44

KNOW ALL MEN BY THESE PRESENTS, THAT, We, Carl N. Hansen and Philip A. Hansen, both of Westbrook, Maine, Rudolf E. Hansen of Panacea, Florida, Richard O. Hansen of Los Angeles, California and Jeannette E. Currier of Ypsilanti, Michigan, in consideration of One Dollar (\$1.00) and other valuable considerations, paid by Blue Rock Industries, a Maine corporation, the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Blue Rock Industries, its Successors and Assigns forever, a certain lot or parcel of land, with the buidings thereon, situated on the southerly side of Main Street in Westbrook in the County of Cumberland and State of Maine, bounded and described as follows:

Beginning at an iron pipe set in the ground in said southerly side of said Main Street at the northwesterly corner of land of Blue Rock Industries; thence South twenty-eight degrees fifty-six minutes five seconds West (S 28° 56' 05" W) along said Blue Rock Industries land nine hundred thirteen (913) feet, more or less, to an iron pipe set in the ground; thence North sixty degrees four minutes thirty seconds West (N 60° 04' 30" W) along said Blue Rock Industries land two hundred fifty-five (255) feet, more or less, to an iron pipe set in the ground in the easterly side of Larrabee Road; thence northerly along said Larrabee Road five (5) feet, more or less, to a monument set in the ground; thence northwesterly along said Larrabee Road fifteen (15) feet, more or less, to an iron pipe set in the ground; thence northeasterly along said Larrabee Road three hundred eighty-eight (388) feet, more or less, to an iron pipe set in the ground at the westerly corner of land of Franz M. Hansen et al.; thence South sixty-two degrees eleven minutes thirty-three seconds East (S 62° 11' 33" E) along said land of said Franz M. Hansen et al. sixty-eight (68) feet to an iron pipe set in the ground; thence North thirty-two degrees twenty-nine minutes thirty seconds East (N 32° 29' 30" E) along said Franz M. Hansen et al. land one hundred (100) feet, more or less, to an iron pipe set in the ground; thence

continuing North thirty-two degrees twenty-nine minutes thirty seconds East (N 32° 29' 30"E) along land of Noyes Land Company four hundred twenty-eight and seventy-five hundredths (428.75) feet, more or less, to an iron pipe set in the ground in said southerly side of said Main Street; thence easterly along said southerly side of Main Street twenty-six (26) feet to an iron pipe set in the ground at the northwesterly corner of land of Carl N. Hansen et al.; thence South thirty-two degrees twenty-nine minutes thirty seconds West (S 32° 29' 30"W) along said Carl N. Hansen et al. land four hundred twenty-eight and seventy-five hundredths (428.75) feet to an iron pipe set in the ground; thence South sixty-two degrees eleven minutes thirty-three seconds East (S 62° 11' 33"E) along said Carl N. Hansen et al. land seventy-four (74) feet, more or less, to an iron pipe set in the ground; thence North thirty-two degrees twenty-nine minutes thirty seconds East (N 32° 29' 30"E) and along said Carl N. Hansen et al. land four hundred twenty-eight and seventy-five hundredths (428.75) feet to an iron pipe set in the ground in said southerly side of said Main Street; thence easterly along said Main Street one hundred (100) feet to the point of beginning.

Being a part of the same premises conveyed by Bernice W. Bixby et als. to Hans N. Hansen by deed dated September 2, 1926 and recorded in the Cumberland County Registry of Deeds in Book 1246, Page 89. The interest of the Grantors herein was acquired under the will of the said Hans N. Hansen which has been duly probated in Probate Court for Cumberland County, Docket No. 65511.

References also made to a deed from Franz M. Hansen to the Grantors herein dated August 28, 1975 and recorded in the Cumberland County Registry of Deeds, Book 3737, Page 131.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Blue Rock Industries, its Successors and Assigns, to it and its use and behoof forever.

AND we do covenant with the said Grantee, its Successors and Assigns, that we are lawfully seized in free of the premises; that they are free of all incumbrances; that we have good right

to sell and convey the same to the said Grantee to hold as afore-said; and that we and our Heirs, shall and will Warrant and Defend the same to the said Grantee, its Successors and Assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, we, the said Carl N. Hansen and Theresa E. Hansen, wife of the said Carl N. Hansen, Philip A. Hansen and Doris Hansen, wife of the said Philip A. Hansen, Rudolf E. Hansen and Helen Hansen, wife of the said Rudolf E. Hansen, Richard O. Hansen and Gladys Hansen, wife of the said Richard O. Hansen and Jeannette E. Currier and George Currier, husband of the said Jeannette E. Currier, joining in this deed as Grantors, and relinquishing and conveying our rights by decent of all other rights in the above described premises, have hereunto set our hands and seals this 3rd day of October in the year of our Lord one thousand nine hundred and seventy-seven.

Signed, Sealed and Delivered
in presence of

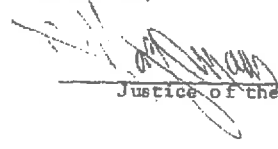
<u>Robert E. Hansen</u>	<u>Carl N. Hansen</u> Carl N. Hansen
<u>Richard T. Brown</u>	<u>Theresa E. Hansen</u> Theresa E. Hansen
<u>Agapitos Papacalodemias</u>	<u>Philip A. Hansen</u> Philip A. Hansen
<u>Jeannette E. Hansen</u>	<u>Doris E. Hansen</u> Doris Hansen
<u>Agapitos Papacalodemias</u>	<u>Rudolf E. Hansen</u> Rudolf E. Hansen
<u>Agapitos Papacalodemias</u>	<u>Helen Hansen</u> Helen Hansen
<u>John Berns</u>	<u>Richard O. Hansen</u> Richard O. Hansen
<u>John Berns</u>	<u>Gladys Hansen</u> Gladys Hansen
<u>Jeannette E. Currier</u>	<u>Jeannette E. Currier</u> Jeannette E. Currier
<u>George Currier</u>	<u>George Currier</u> George Currier

STATE OF MAINE
Cumberland, ss

October 3, 1977

Personally appeared the above named Carl N. Hansen and
acknowledged the above instrument to be his free act and deed.

Before me,

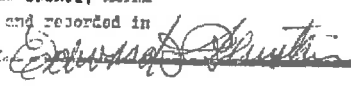

Justice of the Peace

JAN 24 1978

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Recorded at 3 11 25 A.M. and recorded in

BOOK 4166 PAGE 108


Registrar

36-19
Know All Men by These Presents.

896
That the CITY OF PORTLAND, a body politic and corporate, located in the County of Cumberland and State of Maine,

~~has hereunto come by and under the laws of the State~~

of

~~and State of~~

~~in another County~~

~~and State of~~

in consideration of One Dollar (\$1.00) and other good and valuable considerations

paid by BLUE ROCK INDUSTRIES, a corporation organized and existing under the laws of the State of Maine and having a place of business in the City of Westbrook, County of Cumberland and State of Maine, the receipt whereof it does hereby acknowledge, does hereby remit, release, bargain, sell and convey and Surrender Quit-Claim unto the said

Blue Rock Industries, its successors

being and assigns forever,

a certain lot or parcel of land situate in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point in the boundary line running between Portland and Westbrook; said point being distant two hundred sixteen and thirty two one-hundredths (216.32) feet Southerly along the said Portland/Westbrook boundary line from the Southerly street line of Brighton Avenue; thence Southeasterly from said point of beginning, making an included angle of one hundred seventeen degrees and fifty five minutes (117° 55') through the East, with the Northerly direction of the said Portland/Westbrook boundary line, a distance of two hundred seventy three and seventy five one-hundredths (273.75) feet, more or less, to a point; thence Southeasterly, making a deflection angle of twenty five degrees, fourteen and one-half minutes (25° 14-1/2') to the right, a distance of fifty two feet (52) to a point and an intersection with the Northerly line of land owned by Blue Rock Industries; thence Westerly, along the said Northerly line of Blue Rock Industries land and making an included angle of fifty three degrees, nine and one-half minutes (53° 09-1/2') through the Northwest with the Northwesterly direction of the last described course, a distance of two hundred seventy three and seventeen one-hundredths (273.17) feet to a point and an intersection with the boundary line running between Portland and Westbrook; thence Northerly, along the said boundary line, making an angle of ninety degrees (90°) with the last described course, a distance of one hundred and seventy (170) feet to the point of beginning.

The above described lot or parcel of land contains 26,274 square feet or 0.60 acres.

Being a portion of the premises conveyed to the Grantor by George Warren and Lewis P. Warren by deed, dated July 3, 1871, and recorded in the Cumberland County Registry of Deeds in Book 386, Page 393.

500

to have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said Blue Rock Industries, its successors

~~MEANS~~ and Assigns forever.

And the said Grantor Corporation does covenant with the said Blue Rock Industries, its successors

~~MEANS~~ and Assigns, that it will Warrant and ~~Warrant~~ defend the premises to it the said Grantee, its successors ~~MEANS~~ and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In ~~Witness Whereof~~, the said CITY OF PORTLAND

has caused this instrument to be sealed with its corporate seal and signed in its corporate name by John G. DePalma

, its Director of Finance

thereunto duly authorized, this 20 day of November in the year one thousand nine hundred and seventy.

Signed, Sealed and Delivered
in presence of

Thomas F. Meady

CITY OF PORTLAND
By *John G. DePalma*
Director of Finance

(CORPORATE SEAL)

State of Maine, CUMBERLAND ss.

Nov 20 1970.

Personally appeared the above named JOHN G. DE PALMA,

Director of Finance of said Grantor Corporation

as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me,

Thomas F. Meady
NOTARY PUBLIC

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE MAR 18 1971

Received at 10 H 05 AM, and recorded in

BOOK 3162 PAGE 899

Ch. L. B. B. B.

Register

Know all Men by these Presents, That

59

City of Portland, a body politic and corporate, located in the County of Cumberland and State of Maine

in consideration of One dollar (\$1.00) and other valuable considerations paid by Blue Rock Quarry, a corporation organized and existing under the laws of the State of Maine and located at Westbrook in said County of Cumberland and State of Maine,

the receipt whereof it do es hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said Blue Rock Quarry its successors and assigns forever, a certain lot or parcel of land situated on the southerly side of Brighton Avenue in said Portland, being a part of the premises known as the "City Home" property, so-called, and bounded and described as follows: viz;

Beginning at a point in the division line between the City of Portland and the City of Westbrook, distant southerly along the said division line four hundred (400) feet from the southerly side line of Brighton Avenue, thence easterly and making an angle of ninety(90) degrees with the said division line between the City of Portland and the City of Westbrook a distance of four hundred and thirty-five (435) feet, thence southerly and making an angle of ninety(90) degrees with the last described line and on a line parallel to and distant four hundred and thirty-five (435) feet at right angles from the said division line between the City of Portland and the City of Westbrook to the northerly side line of the Portland Terminal Company (Mountain Division) location, thence northwesterly by the said northerly side line of the Portland Terminal Company location to the said division line between the City of Portland and the City of Westbrook, thence northerly by the said division line between the City of Portland and the City of Westbrook to the point of beginning, together with the right of passage over City land between the above described land and Brighton Avenue.

Meaning and intending to convey hereby a strip of land four hundred and thirty-five feet (435) wide, located on the westerly side of the City Farm, so-called, northerly of the Portland Terminal Company location and containing about 14.5 acres, and being part of the premises conveyed by George Warren and Lewis P. Warren to the Town of Deering by deed, dated July 3, 1871 and recorded in Cumberland County Registry of Deeds, Book 386, Page 393.

This conveyance is made subject to the rights of the Central Maine Power Company, its successors and assigns, to erect, construct, maintain, replace and repair pole lines and wires for the conduct of electricity along the westerly and southerly boundaries of the premises hereby conveyed.

--- To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said Blue Rock Quarry, its Successors heirs and assigns forever.

Corporation does And the said Grantor, covenant with the said Blue Rock Quarry, its successors heirs and assigns, that it will warrant and forever defend the premises to it the said Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons claiming by, through or under it.

In Witness Whereof, the said City of Portland has caused this instrument to be sealed with its corporate seal and signed in its corporate name by John R. Gilmartin, its Treasurer thereunto duly authorized,

have hereunto set hand and seal this thirteenth day of July in the year of our Lord one thousand nine hundred and forty-eight.

Signed, Sealed and Delivered in presence of

CITY OF PORTLAND CORPORATE SEAL

Edward T. Gignoux

By John R. Gilmartin

Its Treasurer

County of

State of Maine, Cumberland, ss. July 13th, 1948

Personally appeared the above named John R. Gilmartin, Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

BEFORE ME,

Edward T. Gignoux, Justice of the Peace

RECEIVED July 14 19 48 . at 1 o'clock - m. P.M., and recorded according to the original.

KNOW ALL MEN BY THESE PRESENTS

That, the MAINE TURNPIKE AUTHORITY, a body corporate and politic, duly created and existing by virtue of an act of the Legislature of the State of Maine, Chapter 69 of the Private and Special Laws of 1941, as amended, and having an office at Augusta, in the County of Kennebec and State of Maine,

in consideration of one (\$1.00) dollar and other valuable considerations paid by Blue Rock Quarry, a corporation duly organized and existing under the laws of the State of Maine, and having its principal place of business in the City of Westbrook, County of Cumberland and State of Maine, the receipt whereof is hereby acknowledged, does hereby remise, release, bargain, sell and convey and forever QUIT CLAIM unto the said Blue Rock Quarry, its successors and assigns, forever, a certain lot or parcel of land situate in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows, to wit:

Beginning at a point on the westerly Right of Way line of the Maine Turnpike, so-called, said point being located one hundred fifty (150) feet distant westerly from the survey base line of the Maine Turnpike, so-called, measured at right angles at Station 2379+85.02 as shown on a Property Plan entitled, "Maine Turnpike Authority, Maine Turnpike, Section 2 - Portland to Augusta," dated January 1955, revised April 1963, on file in the office of the Maine Turnpike Authority, the parcel of land herein described being shown on Portland Supplemental Sheet No. 14 of said plan;

thence, north thirteen degrees forty four minutes east (N13°-44'E) by the line of land of Blue Rock Quarry, a distance of about one thousand four hundred twenty six and twenty hundredths (1426.20) feet to a point on the line of land now or formerly of the City of Portland, said point being located two hundred fifty-eight and fifty nine hundredths (258.59) feet distant westerly from the said survey base line measured at right angles at Station 2394+07.08;

thence, south seventy six degrees sixteen minutes east (S76°-16'E) by the line of said land now or formerly of the City of Portland, a distance of about one hundred eight and ninety one hundredths (108.91) feet to a point on the westerly right of way line of the said Maine Turnpike said point being located one hundred fifty (150) feet distant westerly from the said survey base line, measured at right angles at Station 2394+15.37;

thence, south eighteen degrees six minutes west (S18°-06'W) parallel to the said survey base line and one hundred fifty (150) feet distant westerly therefrom, a distance of about one thousand four hundred thirty and thirty five hundredths (1430.35) feet to the point of beginning.

containing approximately one and seventy eight hundredths (1.78) acres

The bearings in the foregoing description are referred to the True Meridian.

Being the same premises designated as Parcel No. 13E conveyed to the Maine Turnpike Authority by the City of Portland by Quit Claim Deed dated April 8, 1955, recorded in Cumberland County Registry of Deeds in Book 2244, Page 15.

Maine
Turnpike
Authority

to

Blue
Rock
Quarry

Q C

82 This conveyance is made subject to Central Maine Power Company Easement designated as Easement No. 2 shown on the aforementioned Property Plan and more particularly described in the mentioned Quit Claim Deed dated April 8, 1955, recorded in Book 2244, Page 15.

To Have and To Hold the same, together with all the privileges and appurtenances thereunto belonging to the said Blue Rock Quarry, its successors and assigns to it and their use and behoof forever. And it does covenant with the said Grantee, Blue Rock Quarry, its successors and assigns, that it will warrant and forever defend the premises to the said Grantee, Blue Rock Quarry, its successors and assigns, against the lawful claims and demands of all persons claiming by, through or under it.

IN WITNESS WHEREOF, the MAINE TURNPIKE AUTHORITY has caused these presents to be executed in its behalf by Paul C. Thurston, its Chairman, and its corporate seal to be affixed by Lucius D. Barrows, its Secretary and Treasurer, both hereunto duly authorized this 6th day of May in the year of our Lord one thousand nine hundred and sixty three.



MAINE TURNPIKE AUTHORITY

By: Paul C. Thurston
Chairman

Attest: Lucius D. Barrows
Secretary and Treasurer

County of Cumberland ss.

May 6, 1963

Before me appeared Paul C. Thurston, to me personally known, who, being by me duly sworn did say that he is the Chairman of the MAINE TURNPIKE AUTHORITY, and that the seal affixed is the corporate seal of said MAINE TURNPIKE AUTHORITY, and that these presents were signed and sealed in behalf of and by authority of the said MAINE TURNPIKE AUTHORITY and the said Paul C. Thurston acknowledged said instrument to be the free act and deed of said MAINE TURNPIKE AUTHORITY.

Before me,



R. Leon Cary
Justice of the Peace

We hereby certify that the parcel described in the foregoing deed acquired by the Maine Turnpike Authority in the acquisition of the Right of Way, is not needed by the Maine Turnpike Authority and will serve no useful purpose in connection with the maintenance and operation of the Turnpike and the conveyance of the same by this deed is approved.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
Consulting Engineers

By: James P. Exner

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE JUN 17 1963

Received at 9 H - M C.M., and recorded in

BOOK 2755 PAGE 81 Edward R. Taylor Register

KNOW ALL MEN BY THESE PRESENTS, that BLUE ROCK QUARRY, a Maine corporation having a principal place of business in Westbrook, County of Cumberland and State of Maine

of

in consideration of

Two hundred seventy-three Dollars (\$273.00)

paid by Portland Pipe Line Corporation, a Maine corporation having an office at Portland, Maine, the receipt whereof is hereby acknowledged, do(es) hereby give, grant, bargain, sell, convey and confirm unto the said Portland Pipe Line Corporation, its successors and assigns, a right of way and easement for the purpose of constructing, maintaining, operating, altering, repairing, removing, changing the size of and replacing a line of pipe, with such valves and fittings as may be necessary or convenient, for the transportation as a common carrier for hire of oil, crude petroleum and refined petroleum products or combinations thereof or similar thereto, natural and artificial gas, casinghead and natural gasoline, and any other liquids or gasses over a route to be selected by the Grantee under, upon, over and through a strip of land thirty (30) feet in width located in Portland, in said County, lying southerly of Brighton Avenue, so-called, and bounded and described as follows: Beginning at a point in the westerly line of the Maine Turnpike right of way at the intersection of the southeasterly line of land of this Grantor with the northeasterly sideline of land of Portland Terminal Company; thence running in a northwesterly direction along said Portland Terminal Company sideline thirty (30) feet to a point; thence running in a northeasterly direction parallel with and thirty (30) feet distant from said westerly line of said Maine Turnpike Authority ninety-one (91) rods, more or less, to the southerly sideline of land of the City of Portland; thence running in an easterly direction along said southerly sideline of land of the City of Portland, a distance of thirty (30) feet to said westerly line of said Maine Turnpike right of way; thence running in a southwesterly direction along said westerly line of the Maine Turnpike right of way ninety-one (91) rods, more or less, to the point of beginning.

together with the right of ingress and egress for all purposes incident to the grants herein made.

Also the right to lay, construct, maintain, operate, alter, repair, remove and replace at any time an additional line or lines of pipe alongside of the line or lines hereinbefore mentioned, as provided, upon payment to the Grantor(s), its/their ~~has/have~~ administrators, ~~executors~~, ~~heirs~~ successors and assigns, for each additional line so laid of an amount equal to the consideration above named. Such additional line or lines shall be laid subject to the same rights and conditions as apply to the original line.

TO HAVE AND TO HOLD the said rights of way and easements with all the privileges and appurtenances thereof unto the said Portland Pipe Line Corporation, its successors and assigns, so long as a

Blue Rock
Quarry

to

Portland
Pipe Line
Corp

Ease

460

pipe line is maintained on said premises. The Grantor(s) reserve(s) for itself, ~~himself, herself, her or his~~ and its ~~his, her, his or her~~ successors and assigns, the right to fully use and enjoy said premises except as the same may be necessary or convenient for the purposes herein granted to the said Portland Pipe Line Corporation, its successors and assigns. The Grantor(s) covenant(s) to and with the Grantee, its successors and assigns, that the Grantor(s) is ~~are~~ sole owner(s) of the above described premises and has ~~have~~ good right, title and capacity to convey in the manner aforesaid the rights of way and easements hereby granted, and that said premises are free of all encumbrances.

The said Portland Pipe Line Corporation, for itself, its successors and assigns, by the acceptance hereof, agrees to pay to the Grantor(s) or its ~~his, her, his or her~~ administrators, executors, heirs, successors or assigns, any damages to grass, timber, growing crops and improvements, which may result from its acts or omissions in laying, maintaining, operating, replacing, changing or removing said pipe line(s), said damage, if any, if not mutually agreed upon to be ascertained and determined by three disinterested persons, one of whom shall be appointed by the Grantor(s) or its ~~his, her, his or her~~ administrators, executors, heirs, successors or assigns, one by Portland Pipe Line Corporation or its successors or assigns, and the third by the two so appointed; and the award of such three persons shall be final and conclusive.

Portland Pipe Line Corporation further agrees for itself, its successors and assigns, to bury and maintain all pipe lines so as not to interfere with the cultivation of said lands.

IN WITNESS WHEREOF the said Blue Rock Quarry

has caused this instrument to be sealed with its corporate seal and signed in its corporate name by P. V. Corey its President thereunto duly authorized, this 18th day of February in the year one thousand nine hundred and sixty-five.

Signed, Sealed and Delivered
in Presence of

E. G. Wilkins

By P. V. Corey
its President

(Corporate Seal)



State of Maine
Cumberland, SS.

1965.

Personally appeared the above named P. V. Corey of said Grantor as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me,

Ernest G. Wilkins
Notary Public

FEB 26 1965

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Received at 10 H 58 M A. M., and recorded in

BOOK 2881 PAGE 459

Ernest G. Wilkins Register

My Commission Expires
4-14-71

THIS INDENTURE made the 10th day of December, 1971, by and between BLUE ROCK INDUSTRIES (hereafter "Blue Rock"), a corporation organized and existing under the laws of Maine and located at Portland, in the County of Cumberland and State of Maine, and CENTRAL MAINE POWER COMPANY (hereafter "Central Maine"), a corporation organized and existing under the laws of the State of Maine and located at Augusta, in the County of Kennebec and State of Maine.

WHEREAS, Central Maine has acquired easements from the City of Portland and Blue Rock Quarry, predecessor in title to Blue Rock Industries, for the location and relocation of Central Maine's transmission line known as Section 188; and

WHEREAS, the parties desire to relocate a portion of the present transmission line as a result of an exchange of parcels of land between Blue Rock and the City of Portland; and

WHEREAS, Central Maine is willing to release a portion of its prior easement in exchange for a conveyance from Blue Rock of a new location.

NOW, THEREFORE, the Central Maine Power Company in consideration of One Dollar (\$1.00) and other valuable considerations (including the grant to it of an easement by Blue Rock, hereinafter described) paid by Blue Rock Industries, receipt whereof is hereby acknowledged, does hereby Remise, Release, Bargain, Sell and Convey and Quit Claim unto said Blue Rock Industries, its successors and assigns, forever:

All of its rights in and to a portion of a strip of land in part sixty (60) feet wide and in part seventy (70) feet wide, and being a portion of the easement conveyed to Central Maine by Blue Rock Quarry by deed dated September 20, 1963, and recorded in

Cumberland County Registry of Deeds in Book 2783, Page 216, said portion lying northerly, westerly and northeasterly of Central Maine's Pole Number 58 on its Section 188 to the southerly sideline of Brighton Avenue, the center of which pole is located One Thousand One Hundred and Fifty-Nine (1,159) feet on a true course of North 18° 06' East from land of the Portland Terminal Company and the point of beginning of said Central Maine easement, dated October 21, 1963.

TO HAVE AND TO HOLD, the aforementioned and bargained premises with all the privileges and appurtenances thereof to the Blue Rock Industries, its successors and assigns, to its

and their use and behoof forever.

And the Central Maine Power Company does Covenant with the said Blue Rock Industries, its successors and assigns, that it will warrant and defend the premises to the said Blue Rock Industries, its successors and assigns, forever against the lawful claims and demands of all persons claiming through or under it.

AND FURTHERMORE, the Blue Rock Industries in consideration of One Dollar (\$1.00) and other valuable considerations (including the above release to it of rights by Central Maine Power Company) paid by Central Maine Power Company, the receipt whereof is hereby acknowledged, does hereby Remise, Release, Bargain, Sell and Convey, and forever Quit Claim unto the said Central Maine Power Company, its successors and assigns forever, the perpetual right and easement to erect, construct, maintain, repair, rebuild, respace, replace, operate, patrol and remove electric transmission, distribution and communication lines consisting of suitable and sufficient poles and towers with sufficient foundations together with wires strung upon and extending between the same for the transmission of electric energy and intelligence, together with all necessary fixtures, anchors, guys, crossarms, and other electrical equipment and

appurtenances, over and across its land located partly in the City of Portland and partly in the City of Westbrook, County of Cumberland, State of Maine. The location of said easement is more particularly bounded and described as follows:

A strip of land so much of which lies thirty-five (35) feet westerly and thirty-five (35) feet easterly of the Central Maine Power Company survey base line and its projection at both ends as now staked out across land of said Blue Rock Industries. Said survey base line is more particularly described as follows: Beginning at a point which is the center of Central Maine Power Company's pole number 58 on its Section 188, said point being One Thousand One Hundred Fifty-Nine (1,159) feet on a true course of North 18° 36' East from land of the Portland Terminal Company and the point of beginning of said Central Maine easement, dated October 21, 1963; thence from said point of beginning North 21° 46' West, Four Hundred Thirty-Seven (437) feet to a point; thence North 45° 28' West, Two Hundred Ninety-One (291) feet to a point; thence North 13° 50' East, Two Hundred Fourteen (214) feet, more or less, to Brighton Avenue.

The above bearings refer to the true meridian.

Also any right, title and interest which Blue Rock may have, reversionary or otherwise, in and to said Brighton Avenue for the purpose of projecting the rights and easements herein conveyed across said Brighton Avenue to land of abutting owners adjoining the opposite side thereof.

Also the right and easement at any and all times to clear and keep clear said strip of all trees, timber and bushes growing on said strip by such means as Central Maine Power Company, its successors and assigns, may select; and the right to keep said strip free from any excavation (except as hereinafter expressly reserved to Blue Rock) and unoccupied by any buildings, structures or other material which in the opinion of the Central Maine Power Company, its successors and assigns, would interfere with or endanger the safe and convenient operation and maintenance of said transmission lines as now or hereinafter constructed over,

along and across said strip substantially along the location of the above-described survey base line.

RESERVING, however, to said Blue Rock Industries, its successors and assigns, the right to excavate earth and rock from the westerly side of that part of the above-described seventy (70) foot strip; provided, however, that said removal of earth and rock shall be restricted to the following conditions, viz: No earth or over burden shall be removed from the above-described seventy (70) foot strip nearer than five (5) feet distant westerly of the survey base line described herein and a one and one-quarter to one ($1 \frac{1}{4}$ to 1) slope to the west shall be left from said five (5) foot distance westerly of said survey base line and no rock shall be removed nearer than twenty-five (25) feet distant westerly of the said survey base line; provided always, that the removal of rock shall not disturb said one and one-quarter to one ($1 \frac{1}{4}$ to 1) slope.

FURTHER RESERVING, however, to said Blue Rock Industries / ^{its Successors and} Assigns the use of the most westerly ten (10) feet of the above-described strip provided that no structure of any kind except paving may be constructed on said ten (10) foot strip and provided further, that Blue Rock Industries' use of said ten (10) foot strip in no way interferes with Central Maine Power Company's use of said strip in connection with its operations of a public utility.

TO HAVE AND TO HOLD the aforegranted rights and easements with all the privileges and appurtenances thereof to the said Central Maine Power Company, its successors and assigns, to its and their use and behoof forever, and the said Blue Rock Industries does Covenant with the said Central Maine Power Company, its successors and assigns, that it and its successors and assigns, shall and will warrant and defend the same to the said Central Maine Power Company, its successors and assigns forever, against the lawful claims and demands of all persons or corporations

-4-

claiming by, through or under it.

IN WITNESS WHEREOF, the Blue Rock Industries has caused this instrument to be sealed with its corporate seal and signed in its corporate name by E. H. Wyman, Jr., its Vice President thereunto duly authorized and the said Central Maine Power Company has caused this instrument to be sealed with its corporate seal and signed in its corporate name by G. G. Beverage, its Assistant Treasurer, thereunto duly authorized, as of the day and year first above written.

Signed, Sealed and Delivered
in presence of

BLUE ROCK INDUSTRIES

By E. H. Wyman, Jr.
Its Vice President

CENTRAL MAINE POWER COMPANY

By G. G. Beverage
Its Assistant Treasurer

STATE OF MAINE

COUNTY OF CUMBERLAND

December 3, 1970

Then personally appeared the above named E. H. Wyman, Jr. Vice President of said Blue Rock Industries as aforesaid, and acknowledged the foregoing instrument to be his free act and

NOTARY PUBLIC
NEW HAMPSHIRE
1880

-5-

STATE OF MAINE
COUNTY OF KENNEBEC

December 10, 1971

Then personally appeared the above named G. G. Beverage, Assistant Treasurer of said Central Maine Power Company as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me, -

~~Justice of the Peace~~
~~Notary Public~~

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Received at 4:35 P.M., and recorded in
BOOK 21

BOOK 3207 PAGE 758

DEC 13 197

Register

-4-

THIS INSTRUMENT WITNESSETH, That

Hansnyholm Hansen & Lena Hansen
of 78 Main St. Westbrook, Maine

hereinafter called Grantor, for and in consideration of the sum of **Five Dollars** the receipt of which is hereby acknowledged, and the further consideration of a sum equal to One Dollar (\$1.00) per lineal rod of pipe line crossing the property hereinafter described, to be paid or tendered on or before December 31, 1949, and before constructing the pipe line hereinafter mentioned, do hereby grant and convey unto SOCONY-VACUUM OIL COMPANY, INCORPORATED, a New York corporation having its principal office at 26 Broadway, New York, N. Y., hereinafter called Grantee, a right of way over, under and through Grantor's lands in the **Town of Westbrook** County of **Cumberland**, State of Maine, bounded and described as follows:

On the North by lands of **Maine Street**
On the East by lands of **Himmenn Land**
On the South by lands of **---**
On the West by lands of **Lufkin Land**

containing **25** acres, more or less, for the purposes, from time to time, of constructing at a location to be designated by Grantee herein, and maintaining and operating one or more lines of pipe with such valves and fittings as may be necessary or convenient, for the transportation of petroleum, gas and petroleum products and, from time to time, altering, enlarging, replacing, repairing and removing the same, with free ingress and egress for all of the above purposes, including the right to cut and fell any brush or trees along the line of construction. Should the additional consideration not be paid or tendered, as above provided, this grant shall terminate and not be binding on either party hereto.

The Grantor herein reserves the right to fully use and enjoy the said premises except for the purposes hereinbefore granted, and the Grantee hereby agrees to pay any damages which may arise to crops or fences from the laying, maintaining, operating or removing of said pipe lines; said damages, if not mutually agreed upon, to be ascertained and determined by three disinterested persons, one thereof to be appointed by the said Grantor, his heirs or assigns; one by the said Grantee, its successors or assigns, and the third by the two so appointed as aforesaid, and the written award of such three persons shall be final and conclusive.

Should more than one pipe line be laid under this grant, a sum equal to One Dollar per lineal rod of pipe crossing the property above described shall be paid for each additional line so laid, as well as the damages, as above provided, and all pipe lines laid under this grant shall be buried to a sufficient depth so as not to interfere with the cultivation of the soil.

TO HAVE AND TO HOLD the above granted easement and right of way, with the appurtenances thereof, unto it the said Grantee, its successors and assigns at all times hereafter. And the Grantor warrants said title.

1. Lena Hansen wife of the aforesaid Hansnyholm Hansen

in consideration aforesaid, do hereby relinquish all right by descent in and to the rights hereinabove granted.

It is hereby understood that the party securing this grant on behalf of Grantee is without authority to make and has not made any covenant, agreement or representation not herein expressed.

IN WITNESS WHEREOF, We have hereunto set our hands and seal this **20th** day of **August, 1947.**

Signed, Sealed and Delivered in the presence of:

V. M. Chesbro

Hans Nyholm Hansen Seal
Lena Hansen Seal

STATE OF MAINE

COUNTY OF **Cumberland** ss. **Lena Hansen**

Aug. 22nd 1947.

Personally appeared the above named **her** free act and deed.

Before me, **John B. Goodwin Notary Public Notarial Seal**
My Commission Expires 6/30/49

Received **August 25**

19 47, at 10 h. 20 m. A. M., and recorded according to the original.

September 14, 2016

Barbara Barhydt,
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101

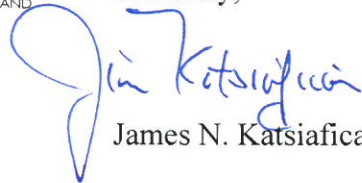
Re: Site Plan and Subdivision Application, Dirigo Plaza; Dirigo Center Developers, LLC; CMP Correspondence

Dear Barbara:

In last week's "Response Letter -- Stormwater Management Plan" from Jones & Beach Engineers Inc. to Lauren Swett of Woodard & Curran, we explained that Central Maine Power Company would not permit us to locate the proposed trail in Portland around the lake/pond to be created on this site because it would be within the power line easement and the necessary metallic safety fencing would present a safety hazard, and that we would send a copy of CMP's letter when it became available.

A copy of CMP's letter is attached. Without CMP's permission to locate the trail and associated safety fencing within the power line easement, we cannot construct this project element. Therefore, we will provide plans shortly removing the trail from the Portland portion of the project and showing the fencing CMP has requested. We believe that as a result, site plan approval no longer will be needed for this project, but we are continuing to proceed with our subdivision application and we look forward to presenting this application to the Planning Board at its September 27, 2016 workshop.

Sincerely,



James N. Katsiaficas

cc: Jeff Levine, Planning & Urban Development Director, City of Portland
Jennie Franceschi, Director of Planning and Code Enforcement, City of Westbrook

Jeffrey Gove, Dirigo Center Developers, LLC
Wayne Morrill, Vice President, Jones & Beach Engineers, Inc.
David J. Tracy, Esq., Hinckley Allen
Philip Saucier, Esq., Bernstein Shur
Katherine Joyce, Esq., Bernstein Shur

Ian MacKinnon, EIT, CPESC-IT
Project Engineer
Jones and Beach Engineers, Inc.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885

**RE: Transmission ROW request for Trail Walkway for Dirigo Plaza in Westbrook, ME
CMP Section 188 Poles 55-62 in Portland (Pike Industries/Blue Rock Quarry)**

Dear Mr. MacKinnon:

Central Maine Power (CMP) has reviewed the proposed recreational trail with 4' chain-link fence located within a 60' CMP transmission line easement located in the City of Portland and offer the following comments:

- The use of a metallic fence within the easement is a serious safety concern for CMP. Electrical elements making contact with the fence in any scenario pose a great threat to public safety. Locating the fence outside of the easement will place the fence in areas that will not prevent pedestrians from entering the quarry and in areas that fence construction is not possible. Changing the material of the fence (e.g. wood or vinyl materials) within the easement will not provide adequate security, strength, and durability compared to a metallic fence.
- Proximity to the quarry within the easement poses a safety concern due to the sudden elevation changes along the quarry perimeter. The existing right of way is at the edge of a 200' drop at the quarry boundary.
- Portions of the proposed recreational trail will traverse the very steep side of the existing quarry. Construction of the trail and associated retaining walls will inhibit access to the transmission lines and poles for maintenance activities. The existing conditions already provide limited access to portions of the transmission lines and should not be altered.

Due to safety concerns and limited maintenance access, CMP is not in support of the construction of a recreational trail and 4' metallic chain link fence within the CMP easement. Additionally, CMP would like the project developer to install a security fence with lockable gate on the southern side of the existing quarry to deter access to the easement and eastern side of the quarry. A detail is attached.

Here is a link to our CMP [Handbook of Standard Requirements](http://www.cmpco.com/MediaLibrary/3/6/Content%20Management/YourAccount/PDFs%20and%20Docs/handbook.pdf) that provide some guidance on our requirements (but is not inclusive) ([http://www.cmpco.com/MediaLibrary/3/6/Content Management/YourAccount/PDFs and Docs/handbook.pdf](http://www.cmpco.com/MediaLibrary/3/6/Content%20Management/YourAccount/PDFs%20and%20Docs/handbook.pdf)).

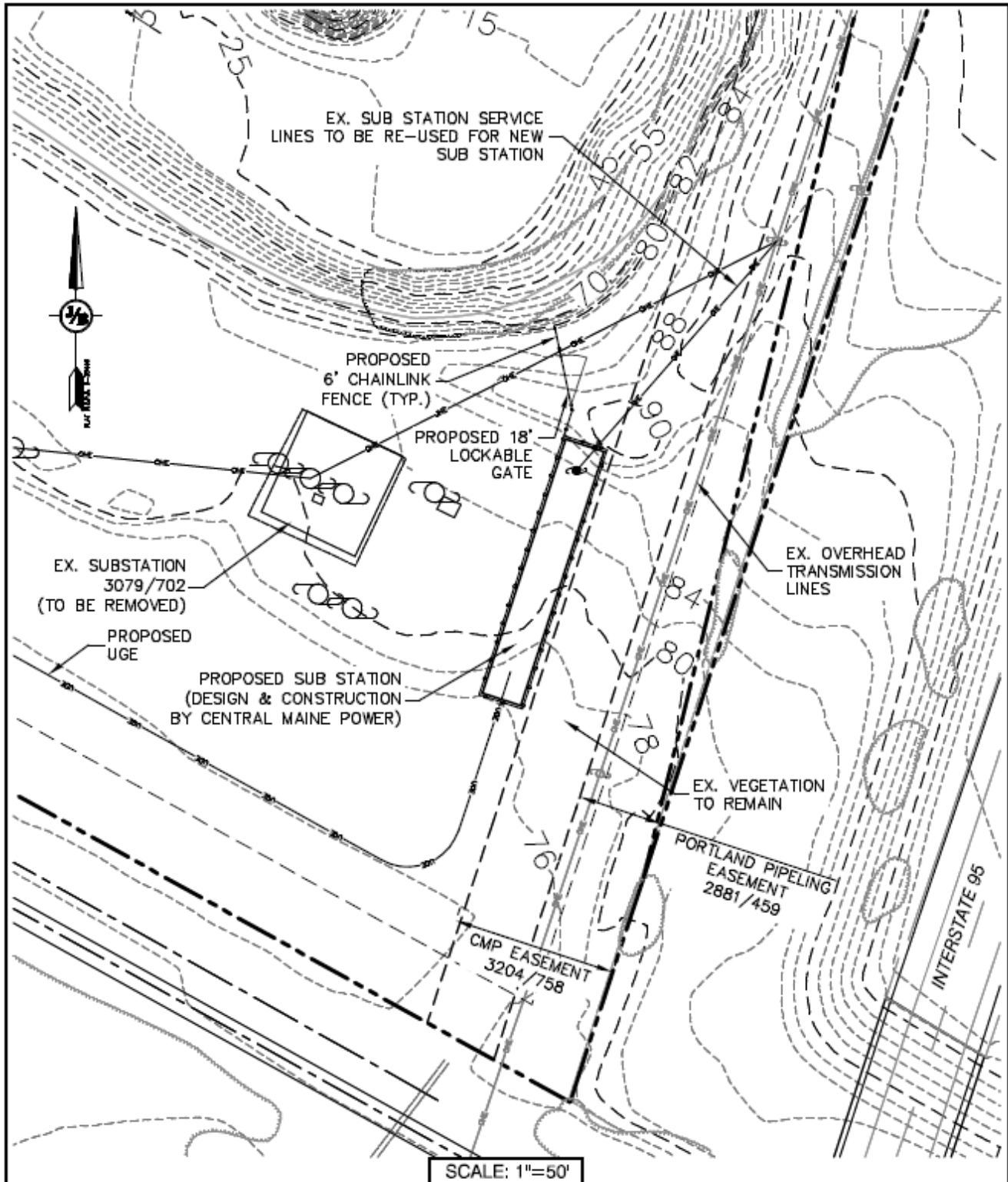
If you have any questions or concerns about the information I have provided, please contact me at (207) 842-2367.

Sincerely,



Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road
Portland, ME 04103





Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name: PROPOSED ELECTRIC DESIGN
EXHIBIT

Project: "DIRIGO PLAZA"
WESTBROOK, ME

Owner of Record:
PKE INDUSTRIES, INC., 3 EASTGATE PARK ROAD, BELMONT, NH 03220
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

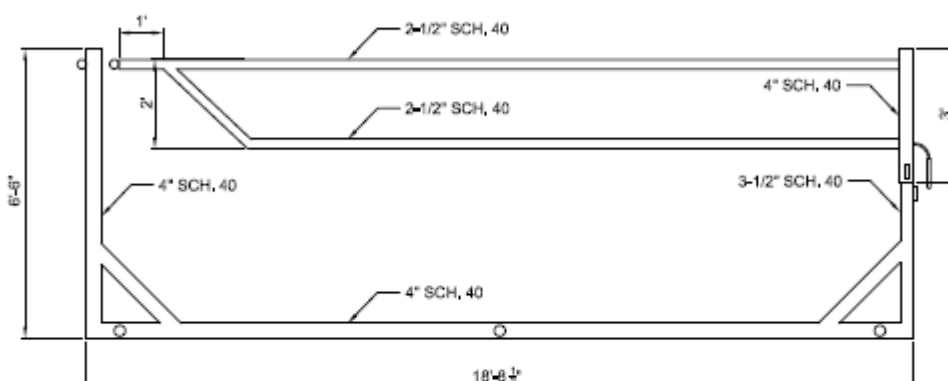
EXH-1

SHEET 1 OF 1

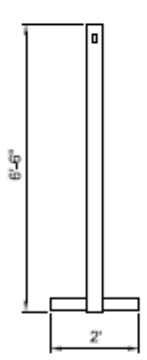
JBE PROJECT
No. 14110



CU Type: UC_XXXX				
BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TL-xxxx
1	1	ST	*	18' ACCESS ROAD GATE



FRONT VIEW



SIDE VIEW

TYPICAL DEPTH BELOW GROUND
IS BETWEEN 2' - 0" AND 2' - 6"

CU Function: U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV,
U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: NA

		IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL		TRANSMISSION STANDARDS - RIGHT-OF-WAY ACCESS ROAD GATE		Revision 00 DATE / /2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TL-05-001
C.Gauvin	3/17/2015	Best/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	Sheet 1



Section 5 -Financial and Technical Capacity

Financing:

Bank financing will be utilized for funding the desired improvements. The Washington Trust Company has provided J&J Gove Development, LLC a letter of Commitment to Fund. Numerous additional banks are eager to participate in the loan as well. As permitted under that letter, J&J Gove Development has designated Dirigo Center Developers, LLC to be the development entity that will be the borrower.

Attachment: Letter of Commitment to Fund - Washington Trust Company
Designation of Borrower

Technical Capacity.

Dirigo Center Developers, LLC – Developer

Jeffrey Gove and Christopher Nash are principals of Dirigo Center Developers, LLC, the development LLC for this project, and also are principals of J&J Gove Development, LLC, a retail development and brokerage company based in Topsfield, Massachusetts with each over 20 years of experience in retail real estate. The company develops retail properties and provides retail brokerage services throughout New England. Previous company projects in Maine include The Shops at Falmouth Village in Falmouth, Wild Oats in Portland, Maine Crossing in South Portland, OfficeMax in Auburn, and Lowe's of North Windham in North Windham.

Jones & Beach Engineers, Inc. – Civil Engineer and Surveyor - See attached

S.W. Cole Engineering, Inc. – Geotechnical/Environmental Engineer

Gove Environmental Services - Environmental Consultant

Phase Zero Design - Architect

Knight Hill Land Surveying Services, Inc. - Surveyor

Michael Cuomo - Soil Scientist

Attachment: Letter of Authorization from Dirigo Center Developers, LLC.
Jones & Beach Technical Capacity Report



August 20, 2015

Mr. Jeffrey Gove
Mr. Christopher Nash
Westbrook ME, LLC
7 Swain Drive
Hampton Falls, NH 03844

RE: Financing for a to be built multi-tenanted retail center located at Larrabee Road and Main Street, Westbrook, ME

Dear Jeff and Chris:

It was a pleasure to see you last week and to discuss your retail development planned for Westbrook, ME. We like the project, have reviewed your request for the financing, and are interested in providing financing. The Washington Trust Company (Bank) is considering the following loan structure based on what we know of the project at this time. The proposed terms and conditions contained herein are provided for discussion purposes only and in no way constitute an offer, agreement or legally binding commitment to lend. The actual terms and conditions upon which the Bank might extend credit are subject to satisfactory completion of underwriting due diligence, approval in accordance with the Bank's commercial lending policy, satisfactory review of documentation and such other terms and conditions as are determined by the Bank or its counsel in their sole discretion.

Borrower

To be formed limited liability company controlled by Jeffrey Gove and Christopher Nash.

Guarantors

The loan shall be fully guaranteed on a joint and several basis by Jeffrey Gove and Christopher Nash.

Amount

Up to 75% LTV of the stabilized value and subject to an underwriting DSC of 1.35x based on leases in place.

Use of Funds

To provide construction and permanent funds.

Term

Construction/Stabilization: Up to two years
Permanent Period: 8 years

Interest Rate Options/Term

Construction/Stabilization:
Float at the 30 day LIBOR + 2.75%.

Permanent Period:

Float at the 30 day LIBOR + 1.90%, or

Float at the 30 day LIBOR + 1.90% fixed via a swap interest rate derivative for a period of up to 8 years, or
Fix via the comparable FHLBB classic advance rate plus 1.90% for 1-7 years.

If the floating rate option is selected, Borrower may consider purchasing an interest rate cap at closing.

Repayment

Monthly payments of interest only during construction period thereafter principal and interest based upon a (25) twenty five year amortization schedule.

Commitment Fee

One half of one percent (1/2%) to be paid at closing.

Prepayment

Borrower may prepay loan at any time, however, in the event the loan is repaid during the first 36 months from closing, a 1% exit fee shall be required. If the swap rate is taken, the loan shall be subject to any swap breakage fee, if applicable. If the FHLBB rate is selected, early prepayment will be tied to a make whole provision.

Collateral

Loan to be secured by a first mortgage position on property located at Larrabee Road & Main Street, Westbrook, ME. Collateral assignment of leases and rents will be required as well as all permits, approvals, construction contracts and related documents.

Construction

Bank reserves the right to approve the contractor and/or the major subcontractors. We will request a reference from the contractor's bonding agent. The loan proceeds will be advanced in accordance with the Bank's standard construction loan advance procedures with 10% retainage held back until the project is 50% complete and the retainage is reduced to 5%. A monthly draw request budget will be requested. Interest reserve will be carved out of the construction loan to fund interest expense monthly.

Engineering

The Bank shall require a plan/budget review of the project prior to closing and periodic inspections by the Bank's inspecting engineer prior to all hard cost loan advances.

Financial Covenants

The loan will be subject to annual DSC test to support a minimum DSC of 1.15x. Testing will start at the end of the first year of stabilized occupancy. If the rate is floating and not subject to a swap, a 200bp increase over the floating rate in place as of year-end will be used to calculate DSC for the covenant test. DSC defined as gross revenue less operating expenses (net operating income) divided by the fully amortizing annual debt service. The maximum LTV covenant will be 75%.

Appraisal

Bank to obtain acceptable appraisal indicating a stabilized market value of the property to support a maximum 75% LTV ratio.

Fees

Fees incurred in connection with the closing of this transaction will be the responsibility of the Borrower and will include, but are not limited to, appraisal, environmental, construction inspection fees, review of plans and spec fees, and legal fees.

No Material Adverse Change

There shall be no material adverse change (as determined by the Bank) from the information furnished to us in the circumstances or conditions affecting the Borrower or the mortgaged property.

Annual Financial Reporting

- Copies of Borrowers independently prepared financial statements and tax returns, as available.
- Copies of Guarantors personal tax returns (two years) and current personal financial statements signed.
- Global cash flow statements for managing members' portfolio.
- Other financial reporting deemed reasonable.

Insurance

Upon approval and prior to loan closing, the Borrower will have delivered to the Bank satisfactory evidence of builders risk insurance, casualty and liability insurance on the mortgaged property, including flood insurance only if the mortgaged property is located in a flood hazard zone.

Other Underwriting Provisions

- Other terms and conditions may be imposed as the Bank completes its due diligence process.
- Sponsors to provide to Bank a global cash flow analysis relative to its real estate portfolio to demonstrate solvency and adequate cash flow.
- Guarantors shall maintain a minimum amount of liquid assets (cash, marketable securities and other cash equivalents) and a minimum net worth on an aggregate basis. The amounts are to be determined.
- Receipt and satisfactory review of leases and tenancy.
- Satisfactory underwriting of tenancy.
- Bonding agent reference for construction contractor(s).
- Satisfactory environmental reporting and review of reports.
- Satisfactory appraisal to be ordered by the Bank establishing a maximum LTV of 75% of the value.
- Satisfactory credit references for borrowers and sponsorship.
- Borrower to establish primary operating account at The Washington Trust Company.
- Subject to the Bank participating a percentage of the loan to another lender.

Special Requirements

Borrower to furnish all necessary documents pertaining to this transaction, including, but not limited to: surveys, title insurance, Certificate of Good Standing from the Secretary of State, Certificate of Good Standing from the Division of Taxation, liability and fire insurance mortgagee and loss payee. All documents in connection with this transaction are subject to review and approval by the legal counsel to The Washington Trust Company.

This term sheet briefly outlines the Bank's potential financing. It is not a commitment letter. A formal commitment may be issued upon the satisfactory completion of underwriting, as well as the approval of the Bank's Finance Committee. If these terms and conditions are satisfactory to you, please indicate by signing below and returning one signed copy to the undersigned with \$10,000 to be applied to closing and underwriting fees.

If the loan request is approved, the funds will be applied toward closing costs. If the loan request is not approved, the fee will be returned less any out-of-pocket expenses. If the transaction is approved and not closed, the fee will be considered earned by the Bank.

Please return this term sheet to my attention by September 1, 2015, otherwise this term sheet shall be deemed null and void and of no further force or effect after such date.

Very truly yours,



Laurel Bowerman, VP
Commercial Real Estate Team
The Washington Trust Company

Borrowers:

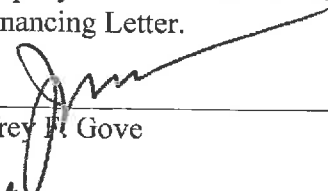
Westbrook LLC

By: _____

Date _____

DESIGNATION OF BORROWER

Reference is hereby made to that certain financing letter (the "**Financing Letter**") issued by The Washington Trust Company (the "**Lender**") to the undersigned in connection with the project commonly known as Dirigo Center and located at Larrabee Road and Main Street in Westbrook, Maine, dated August 20, 2015. The undersigned hereby acknowledge and agree that Dirigo Center Developers, LLC, a Maine limited liability company, shall be the limited liability company controlled by Jeffrey Gove and Christopher Nash which was referenced in the Financing Letter as the to be formed limited liability company which will act as the Borrower in connection with the loan transaction referenced in the Financing Letter.



Jeffrey F. Gove



Christopher F. Nash

Dirigo Center Developers, LLC, a Maine
limited liability company

By: 

Jeffrey F. Gove, Managing Member


July 14, 2016

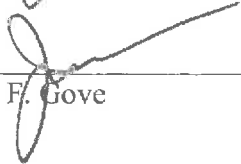
LETTER OF AUTHORIZATION

This is a supplemental Letter of Authorization to the Original Letter of Authorization provided by Jeffrey F. Gove and J & J Gove Development, LLC dated July 1, 2014.

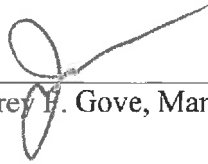
The undersigned, Jeffrey F. Gove, J & J Gove Development, LLC, a New Hampshire limited liability company, and Dirigo Center Developers, LLC, a Maine limited liability company, do hereby acknowledge and agree that said Dirigo Center Developers, LLC and the principals thereof, including Jeffrey F. Gove, do hereby authorize and empower Jones & Beach Engineers, Inc., P.O. Box 219, Stratham, New Hampshire, to act on their behalf concerning the property located in Westbrook, Maine, commonly known as Tax Map 42B, Lots 9, 10, 11 and 14. The aforesaid parcel is located on 58 and 80 Main Street in Westbrook, Maine. This Letter of Authorization also further confirms that all other third party consultants are authorized to continue to represent the undersigned parties in connection with the above-referenced property including, without limitation, James N. Katsiaficas of the firm of Perkins Thompson in Portland, Maine. Without limiting the foregoing, the undersigned do hereby appoint Jones & Beach Engineers, Inc. as our agent to act on our behalf in the review process to include any required signatures.

J & J Gove Development, LLC, a New
Hampshire limited liability company

By: 
Jeffrey F. Gove, Managing Member


Jeffrey F. Gove

Dirigo Center Developers, LLC, a Maine
limited liability company

By: 
Jeffrey F. Gove, Managing Member


July 14, 2014



Request for Qualifications

Site Plan Design
Westbrook, Maine

Jones & Beach Engineers, Inc.
Civil Engineers & Land Surveyors

Statement of Qualifications

December 30, 2015

JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885

PO BOX 484
ALTON, NH 03809

jbe@jonesandbeach.com
www.jonesandbeach.com

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 - Bradford A. Jones, Vice President, Senior Construction Services Manager
 - Wayne G. Morrill, Jr., Vice President, Senior Project Manager
 - Barry W. Gier, PE, Vice President, Senior Project Manager
 - David M. Collier, LLS, Survey Manager
 - Christopher S. Albert, Certified Wetland Scientist (CWS), Certified Professional in Erosion and Sediment Control (CPESC), Certified Professional in Stormwater Quality (CPSWQ), Licensed Septic System Designer (LSSD), Senior Project Manager

I. COMPANY INTRODUCTION

Since 1977, Jones & Beach Engineers, Inc. (JBE) has provided a wide variety of Engineering and Surveying services to industrial, municipal, commercial, and residential clients throughout New England. The company is a full-service civil engineering design firm with in-house survey. We have valuable experience with residential, commercial, and industrial projects throughout New England. The owners of JBE are working design engineers and will be participating in the project.

With four employee owners, the firm has been able to expand not only its ability to serve clients, but its range of services as well. We have years of extensive experience with Municipal Zoning Ordinances, Site Plan and Subdivision Regulations, Stormwater design and management, surface water quality, wetland resource protection, innovative design (such as bioretention features and porous pavement), constructability, and inspecting contractor work. In the design realm, the company has continued to cultivate its design capabilities through in-house seminars and off-site training.

We have served since 1994 as Town Engineer for Hampton Falls, NH, and we provided consulting and peer review services for the Town of Derry, NH, from June 2008-2011. We also serve as Engineer for the Epping Water and Sewer Commission.

We look forward to consulting with you to assess your professional needs and to explore the ways in which we might be of service. Specific project experience and resumés for key personnel are included for reference.

II. SITE/CIVIL ENGINEERING EXPERIENCE

• SITE PLANS

Epping, NH – Brickyard Square

Located at the intersection of Route 101 and Route 125, this 48.67-acre parcel was developed with 277,000 S.F. of retail space and a 5,200 S.F. restaurant. The proposed retail development impacted 7.31-acres of forested wetlands within 29-acres of on-site disturbance; mitigation included a 12.87-acre conservation easement on-site and off-site mitigation of 109-acres. Two detention ponds totaling 90,000 S.F. in size were designed for stormwater management which incorporated the use of Multi-Stage Discharge Structures (MSDS). Jones & Beach Engineers, Inc. (JBE) handled the Federal 401 Water Quality Certificate (WQC), Town Planning Board and Zoning Board of Adjustment Approvals, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey, Construction Survey and Construction Supervision.

Reference: Waterstone Retail Development, Inc.
Douglas Richardson
145 Rosemary Street, Suite B
Needham, MA 02494
(781) 559-3301 Ext. 112

Seabrook, NH – Lowe's Home Improvement Warehouse

Located on Lafayette Road (Route 1), this 17.45-acre parcel was developed for a 130,000 S.F. Lowe's Home Improvement Warehouse and a 5,000 S.F. restaurant pad. The parcel was adjacent to Mary's Brook, which is a tributary river to the Cains Mill watershed. Mitigation for the project included preservation of a one acre lot on Cains Mill Pond and river sampling/monitoring before, during and after construction. Jones & Beach Engineers, Inc. (JBE) was responsible for Town Planning Board and Zoning Board of Adjustment approvals, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey, Construction Survey and Construction Supervision.

Seabrook, NH – The Home Depot

This 135,000 S.F. Home Depot was designed on a 21-acre parcel on the southerly end of Lafayette Road (Route 1). The project was adjacent to Mill Pond and Boston and Maine Railroad, mitigation for the project included an on-site constructed wetland, wet pond, design of a town park for access to Mill Pond and Route 1 box culvert design with a fish ladder. Jones & Beach Engineers, Inc. (JBE) responsibilities included town Planning Board and Zoning Board of Adjustment Approvals, NHDOT Roadway Design, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey and Construction Survey and Construction Supervision.

Epping, NH – New England Dragway

New England Dragway is located on a 300+ acre site on the north side of Route 27. Jones & Beach Engineers, Inc. (JBE) has been the site engineer for the track since 1977. Past approvals have included NHDES Site Specific Permits and Subsurface Disposal Designs. In 2008, the track constructed a parking area on a nine-acre section of land and filled approximately two-acres of

wetlands without permits. Working in conjunction with West Environmental, Inc. JBE permitted the fill of the wetland with mitigation of a 24-acre conservation easement and 13-acre wetland mitigation area. The design of a gravel wetland and conversion of a section of the pit area to porous pavement were key components of the design that obtained a Federal 401 Water Quality Certification (WQC), Army Corps of Engineers, and NHDES Alteration of Terrain Permits.

Stratham, NH – Shaw's Supermarket

Shaw's at Stratham Crossing is an 80,000 S.F. Shaw's Supermarket that anchors this commercial development, which includes pad sites for a restaurant and bank. The stormwater detention facilities double for on-site fire protection requirements. The adjacent brook and nearby tidal river were permanently protected with conservation easements totaling 70-acres.

Epping, NH – Eppicenter

Located between Main Street and NH Route 125, the Eppicenter is situated at the hub of one of the fastest growing commercial markets in the state. Comprised of a 12,124 S.F. strip center and a detached 1,766 S.F. Starbuck's coffee shop, the project required the complete redevelopment of the highly visible 1.11-acre site. Once a local restaurant and an abandoned gas station, the location is now characterized by upscale architecture and verdant landscaping. With extensive client involvement, Jones & Beach Engineers, Inc. (JBE) worked diligently to maximize the site's yield while maintaining its functionality and appeal. The result is a valuable addition to Epping's emerging retail district and a welcome enhancement to the vitality of the local economy.

Epping, NH – Epping Crossing

Jones & Beach Engineers, Inc. (JBE) served as surveyor for the 200-acre property and site design engineer for the 220,000 S.F. four building industrial portion of the development. Working with other consultants for the retail phase, complete site and utility plans were prepared to provide municipal services from off-site. An extensive wetland mitigation package was developed by the team of consultants to impact more than 9-acres of man-created wetlands.

Developer: Realty Acquisitions
Ms. Susan J. Conway and Mr. Mark Stevens
PO Box 432
Stratham, NH 03885
(603) 778-7521

North Windham, ME – Lowe's, Home Improvement Store

North Windham Properties, LLC, proposes to construct a large-scale commercial development on a 23.75-acre parcel of land located to the west of Manchester Drive in North Windham, ME. A drainage analysis of 60.77-acres of the site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rates of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Yr. - 24 Hr. (3.0"), 10 Yr. - 24 Hr. (4.7"), and 25 Yr. - 24 Hr. (5.5") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment.

The proposed site development consists of a 138,134 S.F. building with a 31,659 S.F. garden center, accessways, parking lots, and associated drainage structures. These improvements will, together with other proposed site conditions, divide the area into forty-two subcatchments. One additional subcatchment (#73) was included in the model in order to simulate the development of three-acres of impervious surfaces in the area to the north of Landing Road. This was done so as to design the drainage infrastructure to accommodate the potential future development of the site's remaining land. The run-off from these subcatchments, increased from that of the existing conditions due to the addition of 12.61-acres of impervious surfaces, will be directed by way of curbing and grading to a drainage system consisting of culverts, catch basins with sumps and grease hoods tributary to drain manholes and a trunk line, two detention ponds (one of which is designed as a constructed wetland), and vegetated swales so as to reduce peak rates of run-off and provide proper treatment so as to minimize any potential for site-generated storm water to impact off-site areas.

Ellsworth, ME – Lowe's, Home Improvement Store

Jones & Beach Engineers, Inc. (JBE) designed the Site Plan used by Topsfield Real Estate Corporation to construct a Lowe's Home Improvement Warehouse on a 17.81-acre parcel of land located in the previously permitted "King Property Commercial Subdivision" on Kingsland Crossing off of U.S. Route 3 in Ellsworth, ME. A drainage analysis of 58.15-acres of the site and its off-site contributing watershed areas was conducted for the purpose of estimating the peak rates of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition prior to the aforementioned Commercial Subdivision, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Yr. - 24 Hr. (2.7"), 10 Yr. - 24 Hr. (4.2"), 25 Yr. - 24 Hr. (4.9"), and 50 Yr. - 24 Hr. (5.4") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of run-off is as follows:

Prior to the commencement of the Commercial Subdivision, the project site was comprised of woodland, portions of field, wetlands, and a cell tower and was bordered by U.S. Route 3, Beechland Road, forest, and a number of offsite developments that included accessways, and paved and gravel parking lots. Impervious surfaces in and around the site totaled 8.54-acres, and slopes ranged from flat to nearly 20%. Soil classifications were taken from the previous plans done by WBRC of Bangor, Maine, who obtained them from a Class B High Intensity Soils Survey performed by S.W. Cole Engineering and a Class D Hancock County Medium Intensity Soil Survey. These studies defined the majority of the site's soils as Hydrologic Soil Group (HSG) C with a few small sections of HSG D. Existing topography divided the site into eleven subcatchments, all of which drained off-site by way of overland routes or existing stormwater infrastructure. For the purposes of this analysis, it was analyzed

at four points: at Beechland Road (Reach #100), at the western property line in a forested wetland (Reach #200), at the northern property line (Reach #300), and at a culvert that crosses U.S. 3 to the east (Reach #400).

As a part of the previous plan set, WBRC prepared a drainage analysis of both the existing and proposed conditions of the subdivision, the later being a "full build-out" scenario that provided for future development (of which this proposal is a part). However, given the scale of the Lowe's proposed conditions and the complexity of its drainage system, the required modeling assumptions were vastly different than WBRC's, especially where storm sewers and associated tailwater was concerned. As such, although limited amounts of the data found in the previous document were utilized in this publication (particularly the "future" impervious surfaces credited to the site's stormwater infrastructure), the majority was discarded in favor of a new analysis for both the existing and proposed conditions.

The proposed Lowe's site development consisted of a 138,672 S.F. home improvement store with an attached 31,689 S.F. fenced-in Garden Center, and associated accessways, parking, and infrastructure. These improvements, together with other site conditions being constructed as part of the surrounding subdivision, divided the area into forty-five subcatchments. The run-off from these subcatchments, increased from that of the existing conditions due to the addition of 19.86-acres of impervious surfaces (17.08-acres of which were contemplated in the WBRC analysis), will be directed to both the subdivision's drainage system and a new system exclusively for Lowe's. The subdivision's system (currently under construction), included a drainage system comprised of swales, culverts, catch basins, and drain manholes tributary to a detention pond that was designed to handle 23.16-acres of impervious area and 12.86-acres of non-impervious area. The Lowe's system will consist of offline catch basins with sumps and grease hoods tributary to drain manholes and trunk lines, and a retention pond intended to detain and treat 219.51% of the areas that are in excess of that which was previously permitted (6.11-acres of impervious and 0.73-acres of non-impervious where only 2.78-acres of impervious and 0.50-acres of non-impervious are required to match the previous plan). Taken together, these improvements served to reduce peak rates of run-off so as to minimize any potential for site-generated storm water to impact off-site areas.

As the above table demonstrates, the proposed peak rates of run-off were decreased from those found in the existing conditions at the analysis points in all analyzed cases, thereby minimizing any potential for a negative impact on abutting properties by allowing for better control of stormwater run-off.

In addition, the potential for increased erosion and sedimentation was handled by way of erosion control blankets, swales, sedimentation sumps, grease hoods, a retention pond, riprap stabilized swales, riprap inlet and outlet protection aprons, and a number of temporary measures such as silt fence (or organic filter berms), mulching, dust control, catch basin inlet protection measures, and stabilized construction entrances. The use of Best Management Practices per the MEDEP *Maine Erosion and Sedimentation Control BMP's* handbook have been applied to the design of these structures and were observed during all stages of construction. All land disturbed during Lowe's construction was temporarily or permanently stabilized within forty-five days of groundbreaking, and existing wetlands and abutting property owners suffered minimal adversity resultant of this development.

III. COMPANY SERVICES

Jones & Beach Engineers, Inc. (JBE) is a full-service Civil Engineering and Land Surveying Company providing a wide range of services, including the following:

- Site Plan and Subdivision Approvals from Municipalities.
- Wetland Delineations and Assessments.
- State and Federal Permit Applications and Approvals for Wetland Impacts, Stormwater Design, Sanitary Sewer Discharges, State Highway Permits and USEPA Phase I and II Permits.
- Roadway and Stormwater Drainage Analysis and Design.
- Property Condition Assessment and Reports for Mobile Home Communities.
- Local and State Highway Erosion Control Inspections.
- Stormwater Management and Hydraulic Studies.
- Wastewater and Water System Design and Modeling.
- Porous Pavement and Water Quality Design.
- Town Engineer Services (Hampton Falls, NH).
- Municipal Building and School Site Design and Review Services.
- Residential and Commercial On-Site Effluent Disposal Systems.
- Grant Writing and Application Submissions.
- Phase I and II Hydrogeologic Studies, Landfill Closure Design, and Permitting.
- Boundary Surveys.
- Existing Conditions Surveys.
- GPS Control for Aerial Photography Mapping.
- ALTA/ACSM Land Title Surveys.
- As-Built Surveys.
- Utility Route Surveys.
- Robotic and Global Positioning System (GPS) Instrumentation to Sub-Centimeter Accuracy.
- Plot Plans, Flood Elevation and Foundation Certificates.

- Construction Services, Survey Layout, Inspections and Cost Estimating.
- Solicitation and Preparation of Construction Documents and Specifications.

IV. PERSONNEL QUALIFICATIONS

- **Jonathan S. Ring, PE, President**
- **Bradford A. Jones, Vice President, Senior Construction Services Manager**
- **Wayne G. Morrill, Jr., Vice President, Senior Project Manager**
- **Barry W. Gier, PE, Vice President, Senior Project Manager**
- **David M. Collier, LLS, Survey Manager**
- **Christopher S. Albert, Certified Wetland Scientist (CWS),
Certified Professional in Erosion and Sediment Control (CPESC),
Certified Professional in Stormwater Quality (CPSWQ), Licensed
Septic System Designer (LSSD), Senior Project Manager**

JONATHAN S. RING, P.E.
PRESIDENT

Mr. Ring became a Licensed Professional Civil Engineer in 1989 and practices in the states of New Hampshire, Maine, and Massachusetts. He obtained an MS Degree in Civil Engineering from the University of New Hampshire in 1985 and a BA in German from UNH in 1976. He is a NH Licensed Septic System Designer.

Mr. Ring was first employed with the Kimball Chase Company in Portsmouth, NH, beginning as Site Design Engineer and quickly becoming a Project Manager of Subdivisions and Site Plans. He specialized in drainage, roadway and site design, with projects ranging from two-lot residential subdivisions to a 350-lot mobile home park with municipal water and sewer. Site Plans included the 200-unit River Woods at Exeter elderly residential community, 100,000 S.F. Rockingham County Court House, and a 371,000 S.F. retail center.

In April of 1996, Mr. Ring joined Jones & Beach Engineers, Inc. (JBE) as Senior Project Engineer, where he performed quality control plan reviews and continued his work as designer and Project Manager of various developments. Communities in which he has worked range from Kennebunkport and Wells, Maine, to Belmont, Concord, Exeter, Peterborough, Manchester, and Salem, NH, and Hyannis, Massachusetts. In 2001, he became an owner of the firm and President.

He is known for attention to detail, communication, teamwork on projects, and public presentation skills. As a six-year member and former chairman of the Exeter Planning Board, he has experienced both sides of the table. He has prepared and served as a professional witness on behalf of the Town of Hampton Falls and several private companies.

He is Chairman of the Exeter Area Chamber of Commerce Board of Directors and a member of ASCE, GSDI, NSPE, NAACP, SAACC, the NH and Rockingham County 4-H Foundations, and the Bahá'í Faith.

Project Highlights:

- Londonderry, NH: Lorden Commons – Phase 1 Conservation Subdivision with 50 single-family lots and 3,600 L.F. of roadway (total project 133-lots) ~ Project Manager
- Hampton Falls and Derry, NH: More than 30 Engineering and Plan Reviews of residential subdivisions and commercial site plans for Planning Boards.
- Stratham, NH: 150,000 S.F. Cooperative Middle School ~ Project Manager and Site Designer
- Exeter, NH: Exeter Hospital campus including the 60,000 S.F. Synergy Fitness Center, 600 vehicle Parking Garage, and 120,000 S.F. Center for Ambulatory Care and Medical Office Building ~ Project Manager
- Epping, NH: "Epping Crossing", a 4 lot, 220,000 S.F. of buildings and Industrial Park site with subdivision development off Route 125 ~ Principal-In-Charge

- Exeter, NH: Forest Ridge Open-Space Conservation Subdivision with 59 single-family lots and 36 multi-family units, including 20-units of Workforce Housing, and 10,000 L.F. of road ~ Project Manager
- Exeter, NH: St. Michael Parish Campus with a 15,500 S.F. Church and 9,300 S.F. Parish Center, and accessory structures with porous pavement and Low Impact Design (LID) ~ Principal-In-Charge
- Alton, NH: Woodlands Subdivision with 49-units on 21 residential lots and 6,200 L.F. of road ~ Project Manager

BRADFORD A. JONES

VICE PRESIDENT / SENIOR CONSTRUCTION SERVICES MANAGER

Mr. Jones attended the University of New Hampshire Thompson School for two years of Civil Engineering Technology. He holds a NH Installer's License for Septic Systems.

Mr. Jones began working in the engineering field at the age of 18 as a survey rod man, moved rapidly to crew chief, designer, and construction inspection. He spent five years at Midway Excavators gaining valuable experience in the field. In 1987, Mr. Jones began full-time employment at the family business bringing expertise in design review for constructability, cost estimation, site inspection, and field survey. In 2000, he became an owner of the firm and was named a Vice President.

Mr. Jones is extremely competent in the areas of road and site construction management and inspection, land development including roadway, drainage, fire cisterns, water and sewer systems, and subsurface disposal septic systems. Construction and contract maintenance provide invaluable tools for clients.

Project Highlights:

- Maplevale 36-lot Subdivision in East Kingston, NH, Mitchell Road Residential Subdivision in Nottingham, NH, Home Depot in Seabrook, NH, Chisholm Farms Subdivision in Stratham, NH, and Windsor Meadows Condominiums ~ Construction Manager and Inspector
- Epping, Seabrook, Hampton, Concord, NH, and Salisbury, Amesbury, Lynn, MA: CVS Pharmacy ~ Inspector for sites with parking, access drives, utilities, and drainage
- North Windham, ME: LOWE's Home Improvement Warehouse development site ~ Construction Inspector and Manager for the Developer
- Barrington, NH: 93,000 S.F. Turbo Cam International light industrial manufacturing facility with on-site and off-site improvements including access roadways, porous pavement parking, drainage, utilities and on-site sanitary sewer ~ Construction Inspector
- Epping, NH: 30,092 S.F. Exeter Hospital Medical Office Building ~ Inspector for all site work construction including porous pavement
- Seabrook, NH: Sewer Main Contracts 3, 8 and 10, and PSNH Seabrook Power Station sewer connection. This work included 6 sewage pumping stations ~ Resident Construction Inspector
- Merrimack, NH: 150,000 GPD sewage pumping station and a 200+ unit residential development located in Bedford, NH ~ Construction Inspector
- Hampton Falls, NH: Spring Hill Subdivision, Field Stone Estates, The River at Heron Landing, Starvish Lane, and Linden Road Subdivision ~ Construction Inspector

WAYNE G. MORRILL, JR.
VICE PRESIDENT / SENIOR PROJECT MANAGER

Mr. Morrill attended the New Hampshire Technical Institute in Stratham and received his Associates Degree in Electro-Mechanical Drafting in 1988. He is proficient in the use of computer programs such as AutoCAD and Land Desktop Development. He is a NH Licensed Septic System Designer, Evaluator and Installer.

In 1988, Mr. Morrill joined Jones & Beach Engineers, Inc. (JBE) as a CAD Technician. As a Project Supervisor his responsibilities include, but are not limited to, project management, cost analysis, site inspection, design of subdivisions and commercial development plans, and municipal and state presentations. In 2001, he became an owner of the firm and was named a Vice President.

Mr. Morrill is extremely competent in all areas of project management and development. He is innovative, bright, dependable and thorough, paying close attention to detail. He has excellent rapport with clients, working closely with them, and quickly gaining their trust. He acts as a representative for clients at Planning Board Meetings, Zoning Board Hearings and during project negotiations.

Project Highlights:

- Seabrook, NH: 135,318 S.F. Home Depot Retail Development on Route 1 ~ Project Manager and Site Designer
- North Windham, Ellsworth and Thomaston, ME: 165,000 S.F. Lowe's Home Improvement Stores ~ Principal-In-Charge
- Seabrook, NH: 150,000 S.F. Lowe's Home Improvement Warehouse Development on Route 1 ~ Project Manager and Site Designer
- Seabrook, NH: 12-lot Industrial Park with 1,025 L.F. of roadway on Ledge Road ~ Project Manager and Site Designer
- Seabrook, NH: 90,000 S.F. Kohl's Department Store, an attached 12,500 S.F. Retail Space, a 5,495 S.F. Restaurant, and associated access-ways and parking ~ Principal-In-Charge
- Lynn, MA: 13,013 S.F. CVS Pharmacy with associated parking, drainage and utilities ~ Principal-In-Charge
- Epping, NH: Brickyard Square of Epping was completed in three phases. Phase 1 was a 77,232 S.F. Retail Building with associated parking, drainage and utilities. Phase 2 was a total of 89,040 S.F. comprised of 20-Retail Building Units with associated parking, drainage and utilities. Phase 3 was a total of 110,676 S.F. comprised of 3 Retail Buildings and a Cinema with associated parking, drainage and utilities ~ Principal-In-Charge
- Concord, NH: 13,225 S.F. CVS Pharmacy and a 2,598 S.F. Burger King Restaurant with associated driveway, drive-thrus, parking, drainage and utilities ~ Principal-In-Charge
- Amesbury, MA: 13,225 S.F. CVS Pharmacy with associated parking, prescription drive-thru, drainage and utilities and 2,500 S.F. Mansard Mixed Use Building ~ Principal-In-Charge
- Brentwood, NH: 19,097 S.F. Tractor Supply Building and 15,000 S.F. Outdoor Fenced Merchandise Display Area, with associated parking, utilities and drainage ~ Principal-In-Charge

- Barrington, NH: 93,000 S.F. Turbo Cam International light industrial manufacturing facility with access roads, porous pavement parking lots, on-site sanitary sewer, LID features ~ Principal-In-Charge

BARRY W. GIER, P.E.
VICE PRESIDENT / SENIOR PROJECT MANAGER

Mr. Gier graduated from the University of Kansas in 1997 with a BS Degree in Civil Engineering. He is a Licensed Professional Civil Engineer in the State of New Hampshire.

Mr. Gier joined Jones & Beach Engineers, Inc. (JBE) in 2011 bringing more than fifteen years of experience with him. Given his level of expertise, accuracy and attention to detail, he is an extremely valuable resource. He began his career working with Civil Engineering firms developing site plans and subdivisions. He also worked on numerous Regional Airport projects involving Runway Designs and Construction, Safety Area Construction, and Wildlife Area Mitigation. He has extensive knowledge and experience with Roadway Design, Stormwater Design, Sanitary Sewer Design, Water Distribution System Design, Airport Design, Waste Water Treatment Plant Design, Construction Specifications and Construction Monitoring, and Stormwater Field Inspections. He has also handled Federal, State, and Local permitting for various public and private projects in addition to coordination with Regulatory Agencies, Municipal Officials, Commissions and Boards. His duties include the planning, designing and tracking of cost-estimates for building structures and facilities, including parking areas, water and sewer systems, and drainage facilities, as well as handling environmental permitting.

Project Highlights:

- Stratham, NH: MBRAUN Site Design, Engineering and Permitting of 14,000 S.F. building addition with access, parking, and drainage revisions ~ Project Engineer and Site Designer
- Barrington, NH: 93,000 S.F. Turbo Cam International Corporate Headquarters and manufacturing facility with associated parking, utilities and drainage ~ Project Manager and Engineer
- Barrington, NH: Convenience Store/Gas Station Site Design, Engineering and Permitting ~ Project Engineer and Site Designer
- Hampton, NH: 8-Lot Subdivision including a 500 L.F. roadway, municipal sewer and water, and gravel wetland stormwater system ~ Project Engineer and Site Designer
- Hampton, NH: Multi-Family Residential Development including two 9,000 S.F. buildings and parking ~ Project Engineer and Site Designer
- Exeter, NH: Exeter Hospital Site Plan Engineering of a 13,000 S.F. building addition with access, parking and drainage revisions ~ Project Engineer and Site Designer
- Seabrook, NH: Route 1 Commercial Development ~ Project Engineer and Site Designer
- Dover, NH: Exit 9 Professional Office Project including an 80,000 S.F. building, parking, and underground detention system ~ Project Manager and Site Designer
- Dover, NH: Thornwood Commons / Thornwood Village, 100-Acre Mixed-Use Development including 3,000 L.F. of roadway with Round-About, 20-acres of single-family residences, 25-acres of commercial/office use, existing dam redesign, and automotive dealership design ~ Project Manager and Site Designer

- Portsmouth, NH: Pease 153, 155 and 157 International Drive, Multi-Building Office Park including LEED Site Design ~ Project Manager and Site Designer
- Somersworth, NH: High Street Retail Center, Commercial Complex ~ Project Manager and Site Designer
- Dover, NH: 9-Lot Subdivision ~ Project Manager and Site Designer

DAVID M. COLLIER, L.L.S.
SURVEY MANAGER

Mr. Collier attended Old Dominion University-College of Engineering and Technology where he studied Land Surveying and he continued his studies at the University of New Hampshire. He became a Licensed Land Surveyor in the State of New Hampshire in 2001. His professional affiliations include the New Hampshire Land Surveyor's Association, where he has served as President, as a member of the Executive Committee, and as Liaison to New Hampshire Register of Deeds Association and the New Hampshire Planners Association. He is a member of the New Hampshire GPS Consortium, where he served as Director from 2004-2005, and of the Alton Planning Board, where he currently serves as Chairman. He also received the New Hampshire Land Surveyor's Association Survey Excellence Award in 2009.

Mr. Collier joined Jones & Beach Engineers, Inc. (JBE) in 2011 bringing with him more than twenty years of surveying experience while working at Richard D. Bartlett & Associates. While there he served as Project Manager and Vice President overseeing many different projects involving all types of surveying including Boundary Surveys, Topographic Surveys, Subdivisions, Lot Line Adjustments, Construction Layouts, and Elevation Certifications. The City of Concord exclusively used the firm as the surveyor for the City and Mr. Collier oversaw several of these projects and worked directly with City Officials to provide existing conditions plans for on-staff City Engineers to prepare designs.

Mr. Collier has first-hand experience and understanding of the Land Survey process from the initial research and field survey work, to the drafting and preparation of final documents for recording. He also has experience managing day to day field and office operations.

Project Highlights:

- Seabrook, NH: Kohl's Department Store, ALTA Land Title Survey of 13-acres ~ Project Manager, Land Surveyor
- Epping, NH: Brickyard Square at Epping, Construction Layout, Coordination of Horizontal and Vertical Control ~ Project Manager, Land Surveyor
- Hooksett, NH: Wal-Mart ACSM/ALTA Land Title Survey of 21-acres and corridor survey of 2,000 L.F. of roadway ~ Project Manager, Land Surveyor
- Concord, NH: Topographic and Right-of-Way Survey for 4-mile Roadway Improvement Project ~ Project Manager, Land Surveyor
- Isles of Shoals, White Island, NH: As-Built Survey of Piling Locations for Catwalk Restoration ~ Project Manager, Land Surveyor
- Hampton, NH: Boundary Survey of 8.56-Acre parcels on Juniper Lane ~ Land Surveyor
- Gilford, NH: Boundary and Topographic Survey of 21.56-Acre parcel and 1,700 L.F. Right-of-Way Survey ~ Land Surveyor
- Seabrook, NH: Boundary, Topographic, and ACSM/ALTA Land Title Survey of 1.08-Acre parcel along Route 1 ~ Land Surveyor

- Allenstown, NH: Boundary and Topographic Survey of 5.03-Acre NHDOT surplus parcel ~ Land Surveyor

**CHRISTOPHER S. ALBERT, CWS, LSSD, CPESC, CPSWQ
SENIOR PROJECT MANAGER**

Mr. Albert joined Jones & Beach Engineers, Inc., in 2007 bringing more than 20 years of experience in municipal design, permitting, and construction management. He is a graduate from the University of New Hampshire with a BS in Forestry Science and a minor in Soils. He is a Certified Wetland Scientist, Certified Professional in Erosion & Sediment Control and Stormwater Quality, Certified Water System Operator Grade 1A, and a NH Licensed Septic System Designer and Granite State Septic System Certified Evaluator. He is certified by OSHA for the 40 Hour Hazardous Site/Safety Trainer, confined space and is a 40-hour supervisor trainer. Mr. Albert is the former President of the New Hampshire Association of Natural Resource Scientists (NHANRS). Mr. Albert is also the Representative for the Town of Epping's Southeast Watershed Alliance (SWA) and the Chairman to the Non-point Source Advisory Committee for the Granite State Designers and Installers (GSDI). He has recently been appointed by the Governor to the NH Joint Board of Natural Resource Scientists.

Project Highlights:

- Allentown, NH: Olde Towne Homeowners Cooperative – Design Engineer and Project Manager for the installation of a second well source, new 20,000 gallon atmospheric tank, uranium and radon treatment system, and new variable speed pumps in a new mechanical room. Project funded under the 2009 ARRA DWSRF loan program.
- Candia, NH: Hillcrest Apartments Water System Upgrade – Design Engineer and Project Manager for the Pump House Upgrade. Project included a new 6,000 gallon atmospheric storage tank with a new electrical and mechanical system. Project funded by the DWSRF loan program and listed in the 2012 Report.
- Pelham, NH: Old Lawrence Road – Design Engineer and Project Manager for the Water System Upgrade. Project entailed the construction of a new well house building with a 5,000 gallon atmospheric tank, Kinetico Treatment System, new mechanical and electrical systems.
- Cambridge, MA: MIT Westgate Apartments – Water System Upgrade – Design Engineer for the design and construction of a new water system loop around Westgate Apartments.
- Exeter, NH: Exeter River Landing – Water System Upgrade – Design Engineer and Project Manager for the Well House Upgrade. Project in the early design phase for the upgrade of the existing well house with a new 20,000 gallon atmospheric tank, Green Sand Filter system with variable speed pumps, electrical MCC panel and mechanical piping.
- Evans Mobile Home Park, Epping, NH – Prepared NHDES Drinking Water Record Drawing Plans. Currently working on an Engineer's Opinion of Cost to tie into Municipal Water and Sewer abandoning the existing Public water System and on-site leachfields.
- State of NH, Mountain Top Projects – Design Engineer and Manager on four sites in New Hampshire for the design of new generators, building enclosures, telecommunication building, State and Federal FCC and FAA permitting. Generators fueled by propane. Coordinated with Mechanical and Electrical Engineers on design. Current knowledge of NFPA 37 and 58.

- Newfields, NH: Village Water and Sewer Commission and Board of Selectmen – Design Engineer for the Bald Hill Road culvert replacement. Design Engineer for the sidewalk design along NH Route 87 for the Town. Construction management on the NH Route 85 bridge waterline design and installation, coordinated work with NHDOT. Preliminary Design and well-siting report for the Goldsmith Well.
- Epping, NH: Water and Sewer Commission and Board of Selectmen: Design Engineer and construction manager for the Prescott Road culvert replacement. Construction Manager for a 500,000 gpd Wastewater Treatment System Upgrade; the WWTF entailed a Zenon bio-membrane filtration system. Formation of the Operations and Management manual for treatment plant and coordination with plant operators; Project Engineer for the Mill Street Pump Station; Project Manager and QC and QA review on-site and structural construction for the 300,000 gallon elevated steel water storage tank, managed sub-contractors and negotiated contracts for the Commission; Hoar Pond Well #2 final DES report, installation and commissioning; Project Engineer for the NH Route 125 water and sewer infrastructure improvements and construction of the NH Route 125 sanitary sewer pump station upgrade; Town engineering review for sewer and water site plan review and inspections for developmental projects in Town ~ Project Engineer, Site Designer & Construction Manager.
- Dorchester, NH, North Dorchester Road: Recently completed the topographic survey and wetland delineation. Project Manager for the replacement design of (2) 6-foot diameter CMP culverts on Rocky Brook.
- Bow, NH, Bow Bog Road: Design Engineer and Project Manager. Contract administrator and inspector for the construction phase.
- Warren, NH, Baker River Restoration: Design Engineer and Project Manager for multiple projects along the Barker River. Assisted in disaster relief and repairs to two bridges after Tropical Storm Irene. Pavement and Culvert inventory plan.
- Barrington, NH: Project Manager for the pavement and culvert inventory for the Town Roads.

Section 3 - Drainage Summary

A full drainage analysis and report has been completed and provided to the Planning Division and DPW for review. Within this section the summaries of that drainage report have been included as an overview with this application along with a recreation trail detail showing how runoff will flow towards the existing quarry.

1. EXECUTIVE SUMMARY

The purpose of this project is to construct a retail site development with associated parking, drainage, and utilities located on the existing Pike Industries parcel bounded by Maine Street, Larrabee Road, the Westbrook Arterial, and U.S. Interstate 95 in Westbrook, ME.

A drainage analysis of the development site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-development) condition, and a second for its proposed (post-development) condition. The analysis was conducted using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of runoff is as follows:

COMPONENT	PEAK DISCHARGE COMPARISON									
	1 Year		2 Year		10 Year		25 Year		100 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	104.07	87.01	136.20	116.63	238.62	207.96	258.31	255.32	309.98	309.36

The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this site. This has been accomplished through the use of underdrained grass swales, gravels wetlands, and sand filters to maintain the peak discharge and effectively treat stormwater exiting the site.

6.1 INTRODUCTION

The intent of this project is to construct a retail commercial development consisting of multiple retail buildings and restaurants totaling 491,886 sq.ft. with associated parking, drainage, and utilities on City of Westbrook Map 42B / Lots 9, 10, 11, & 14.

6.2 METHODOLOGY

The existing and proposed watersheds were modeled utilizing HydroCad stormwater software, version 9.10. The watersheds were analyzed utilizing the SCS TR-20 methodology for hydrograph development and the TR-55 methodology for Time of Concentration (Tc) determination. The Dynamic-Storage-Indicating method for reach and pond routing was utilized. Type III, 24-hour hydrographs were developed for the 1-year, 2-year, 10-year, 25-year, and 100-year storm events corresponding to rainfall events of 2.60", 3.10", 4.60", 5.80" & 8.10" respectively.

Existing topography and site features were obtained through on-ground topography and existing conditions survey completed by Jones & Beach Engineers and Aerial Photography completed by Sewall Consulting. Existing soil conditions were derived from a combination of borings performed by Jones and Beach Engineers, a Site Specific Soil Survey conducted by Michael Cuomo, CWS, PWS, CSS, CPESC, and soils information obtained from the NRCS Web Soil Survey.

6.3 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and upstream contributing area. The study area contains 212.789 acres including offsite contributing areas. The existing site was previously disturbed and is currently operated as a gravel quarry with concrete plant. The majority of the site is disturbed with multiple stockpiles located throughout.

Existing soil conditions were obtained from Site Specific Soils Mapping, on-site test pits, and NRCS Web Soil Survey. The existing soils are classified by the NRCS as a combination of Buxton, Elmwood, Hinckley, Hollis, Scantic, and Swanton soils. Areas of prior disturbance or prior fill were classified based upon the underlying soils.

One (1) Analysis Point (AP) is defined for this project.

Analysis Point #1 is defined as the culvert located under Interstate 95 located in the south-east portion of the site.

The existing site is divided into multiple watersheds. Drainage direction is generally from north to south with roadway drainage being directed to a closed drainage system along Maine Street and Larrabee Road and discharging to the existing stream located in the southern portion of the site.

Drainage collected in the existing quarry is pumped to an existing catch basin located in the eastern portion of the site and is discharged to the wetlands located in the southern portion of the site.

6.4 PROPOSED CONDITIONS ANALYSIS

The proposed site includes the construction of multiple retail buildings and restaurants totaling 491,886 sq.ft. Drainage from the proposed site is collected in a series of closed drainage systems and treatment features throughout the site.

The majority of the drainage on the North Campus is collected in closed drainage systems and directed to the existing quarry. Prior to discharge to the quarry, stormwater is treated via Grassed Underdrained Soil Filters, Underground Sand Filters, and/or Gravel Wetlands. The existing quarry has been designed to operate as a wet pond for stormwater treatment and detention. The discharge from the existing quarry has been designed to gravity drain to the existing wetlands on the South Campus.

North Campus drainage not directed to the existing quarry is treated via Grassed Underdrained Soil Filters and/or Underground Sand Filters and discharged to the existing closed drainage systems located within Maine Street and Larrabee Road. These systems are collected along Larrabee Road and discharged to the existing stream located on the South Campus.

South Campus drainage is collected within closed drainage systems. Stormwater is treated via Grassed Underdrained Soil Filters and/or Underdrained Sand Filters prior to discharge to the existing wetland system and stream located within the South Campus.

As the table in the Executive Summary demonstrates, the proposed peak rates of runoff have been maintained at the existing peak rates of runoff for the analyzed storms to the extent practicable.

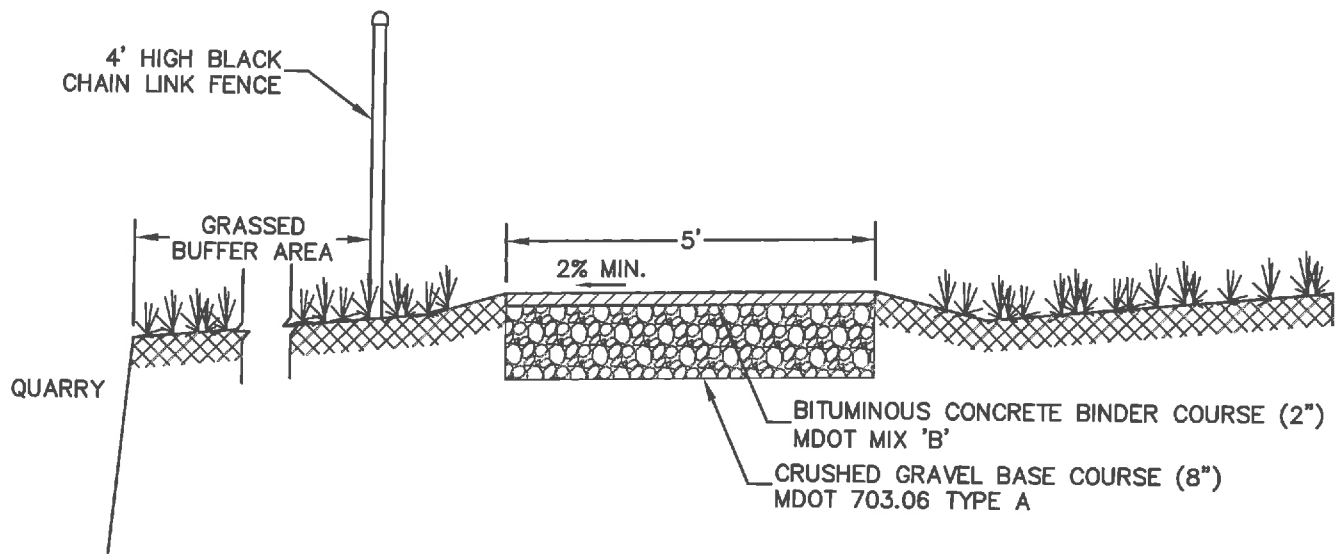
Infiltration was deemed impractical for this site due to the underlying marine clay soils throughout the site.

6.5 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation. Peak runoff rate from the proposed site has been maintained to the existing conditions peak rate to the extent practicable. Stormwater has been treated through the use of Grassed Underdrained Soil Filters, Underground Sand Filters, and/or Gravel Wetlands.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Barry W. Gier, P.E.
Senior Project Manager



RECREATION TRAIL DETAIL

NOT TO SCALE



Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
 PO Box 219
 Stratham, NH 03885

603-772-4746
 FAX: 603-772-0227
 E-Mail: JBE@jonesandbeach.com

Drawing Name: **REC. TRAIL DETAIL**

Project: **"DIRIGO PLAZA"**

Owner of Record:
 PIKE INDUSTRIES, INC. 3 EASTGATE PARK ROAD, BELMONT, NH 03220
 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

TD

SHEET 1 OF 1

JBE PROJECT
 No. 14110

14110-EXISTING

Prepared by Jones & Beach Engineers

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PRE-DEVELOPMENT

Type III 24-hr 1-YEAR Rainfall=2.60"

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Page 1

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream

Avg. Flow Depth=2.51' Max Vel=5.49 fps Inflow=82.64 cfs 621,221 cf
n=0.040 L=51.0' S=0.0137 ' / ' Capacity=273.67 cfs Outflow=82.64 cfs 621,134 cf

Link AP-1: Highway culvert

Inflow=104.01 cfs 815,162 cf
Primary=104.01 cfs 815,162 cf

14110-EXISTING

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PRE-DEVELOPMENT

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 2

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream

Avg. Flow Depth=2.83' Max Vel=5.88 fps Inflow=105.67 cfs 808,456 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=105.66 cfs 808,354 cf

Link AP-1: Highway culvert

Inflow=136.11 cfs 1,090,907 cf
Primary=136.11 cfs 1,090,907 cf

14110-EXISTING

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PRE-DEVELOPMENT

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.64' Max Vel=6.77 fps Inflow=177.54 cfs 1,399,541 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=177.53 cfs 1,399,401 cf

Link AP-1: Highway culvert

Inflow=238.47 cfs 1,948,068 cf
Primary=238.47 cfs 1,948,068 cf

14110-EXISTING

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PRE-DEVELOPMENT

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 1

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.54' Max Vel=6.67 fps Inflow=167.44 cfs 1,864,976 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=167.66 cfs 1,864,741 cf

Link AP-1: Highway culvert

Inflow=258.31 cfs 2,633,298 cf
Primary=258.31 cfs 2,633,298 cf

14110-EXISTING

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PRE-DEVELOPMENT

Type III 24-hr 25-YEAR Rainfall=5.80"

Printed 9/8/2016

Page 2

Summary for Reach 16R: Culvert to Stream

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[62] Hint: Exceeded Reach 15R OUTLET depth by 0.34' @ 13.55 hrs

Inflow Area = 5,495,687 sf, 38.37% Impervious, Inflow Depth > 4.07" for 25-YEAR event
Inflow = 167.44 cfs @ 12.25 hrs, Volume= 1,864,976 cf
Outflow = 167.66 cfs @ 12.30 hrs, Volume= 1,864,741 cf, Atten= 0%, Lag= 3.0 min

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

Max. Velocity= 6.67 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 3.70 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1,282 cf @ 12.30 hrs

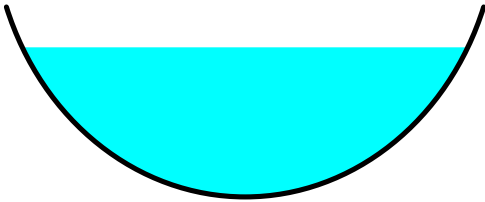
Average Depth at Peak Storage= 3.54'

Bank-Full Depth= 4.50' Flow Area= 36.0 sf, Capacity= 273.67 cfs

12.00' x 4.50' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals

Length= 51.0' Slope= 0.0137 '/'

Inlet Invert= 59.00', Outlet Invert= 58.30'



Summary for Link AP-1: Highway culvert

Inflow Area = 9,269,083 sf, 26.74% Impervious, Inflow Depth > 3.41" for 25-YEAR event
Inflow = 258.31 cfs @ 12.85 hrs, Volume= 2,633,298 cf
Primary = 258.31 cfs @ 12.85 hrs, Volume= 2,633,298 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

14110-EXISTING

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PRE-DEVELOPMENT

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 4

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.66' Max Vel=6.78 fps Inflow=179.49 cfs 2,706,919 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=178.99 cfs 2,706,647 cf

Link AP-1: Highway culvert

Inflow=309.98 cfs 3,930,409 cf
Primary=309.98 cfs 3,930,409 cf

14110-PROP

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POST-DEVELOPMENT

Type III 24-hr 1-YEAR Rainfall=2.60"

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Page 1

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream

Avg. Flow Depth=2.26' Max Vel=5.16 fps Inflow=65.91 cfs 503,992 cf
n=0.040 L=51.0' S=0.0137 ' ' Capacity=273.67 cfs Outflow=65.92 cfs 503,990 cf

Link AP-1: Highway culvert

Inflow=84.97 cfs 931,205 cf
Primary=84.97 cfs 931,205 cf

14110-PROP

Prepared by Jones & Beach Engineers

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POST-DEVELOPMENT

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 2

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream

Avg. Flow Depth=2.58' Max Vel=5.58 fps Inflow=87.31 cfs 659,427 cf
n=0.040 L=51.0' S=0.0137 ' / ' Capacity=273.67 cfs Outflow=87.31 cfs 659,425 cf

Link AP-1: Highway culvert

Inflow=114.36 cfs 1,239,536 cf
Primary=114.36 cfs 1,239,536 cf

14110-PROP

Prepared by Jones & Beach Engineers

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POST-DEVELOPMENT

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 3

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.39' Max Vel=6.51 fps Inflow=153.34 cfs 1,152,080 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=153.34 cfs 1,152,078 cf

Link AP-1: Highway culvert

Inflow=205.10 cfs 2,236,315 cf
Primary=205.10 cfs 2,236,315 cf

14110-PROP

Prepared by Jones & Beach Engineers

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POST-DEVELOPMENT

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 1

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.66' Max Vel=6.79 fps Inflow=180.20 cfs 1,561,814 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=179.50 cfs 1,561,812 cf

Link AP-1: Highway culvert

Inflow=252.41 cfs 3,078,546 cf
Primary=252.41 cfs 3,078,546 cf

14110-PROP

Prepared by Jones & Beach Engineers

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POST-DEVELOPMENT

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 2

Summary for Reach 16R: Culvert to Stream

Inflow Area = 4,351,864 sf, 47.11% Impervious, Inflow Depth > 4.31" for 25-YEAR event
Inflow = 180.20 cfs @ 12.39 hrs, Volume= 1,561,814 cf
Outflow = 179.50 cfs @ 12.39 hrs, Volume= 1,561,812 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.79 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 1.35 fps, Avg. Travel Time= 0.6 min

Peak Storage= 1,347 cf @ 12.39 hrs

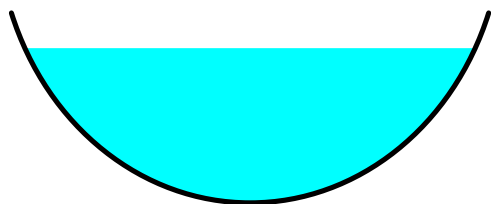
Average Depth at Peak Storage= 3.66'

Bank-Full Depth= 4.50' Flow Area= 36.0 sf, Capacity= 273.67 cfs

12.00' x 4.50' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals

Length= 51.0' Slope= 0.0137 '/'

Inlet Invert= 59.00', Outlet Invert= 58.30'



Summary for Link AP-1: Highway culvert

Inflow Area = 9,264,015 sf, 51.29% Impervious, Inflow Depth > 3.99" for 25-YEAR event
Inflow = 252.41 cfs @ 12.50 hrs, Volume= 3,078,546 cf
Primary = 252.41 cfs @ 12.50 hrs, Volume= 3,078,546 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

14110-PROP

Prepared by Jones & Beach Engineers

HydroCAD® 10.00-13 s/n 03433 © 2014 HydroCAD Software Solutions LLC

POST-DEVELOPMENT

Type III 24-hr 100-YEAR Rainfall=8.10"

Printed 9/8/2016

Page 4

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 16R: Culvert to Stream Avg. Flow Depth=3.66' Max Vel=6.79 fps Inflow=179.69 cfs 2,365,290 cf
n=0.040 L=51.0' S=0.0137 '/' Capacity=273.67 cfs Outflow=179.27 cfs 2,365,288 cf

Link AP-1: Highway culvert

Inflow=309.28 cfs 4,747,806 cf
Primary=309.28 cfs 4,747,806 cf

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 23, 2016

Maine DEP
Attn: Ben Viola, P.E.
312 Canco Road
Portland, ME 04103

RE: Site Location Response Letter 2
80 Main Street & 11 Larrabee Road, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Project No. 14110

Dear Mr. Viola:

On behalf of our client, Dirigo Center Developers, LLC, Jones & Beach Engineers, Inc., has received review comments from you dated July 28, 2016. Review comments are italicized and we offer the following responses in bold below:

1. *In response to my request for a letter from the City accepting infrastructure and responsibility for the infrastructure the applicant has submitted a letter from the City. The letter from the City only appears to "approve connection to/replacement of the existing drainage system along Larrabee Road" and makes no mention of accepting responsibility of all infrastructure. We would need a more specific acceptance of which infrastructure the City will be taking over and maintaining.*

RESPONSE: A revised letter from the City of Westbrook has been provided accepting infrastructure within the City ROW has been included with this response.

2. *On the application form line 22 the applicant uses existing impervious area of 4.41 acres, new impervious area of 43 acres, which does not match the latest submittal that states an increase in impervious area of 36.26 acres. On the same form line a total of 81.78 acres is called out. I believe the total is total impervious area not total lot acreage. The same is true for the developed area on line 21. Please correct/clarify these numbers.*

RESPONSE: A revised application form with numbers to match the numbers from Section 1 - Development Description and development areas from sheets W2-1 & W2-2 has been included with this response.

3. *The Stormwater Management Operation and Maintenance Manual names the Property Owner as the responsible party for stormwater infrastructure maintenance. Is the property owner the applicant, J&J Gove Development?*

RESPONSE: Current property owner is Pike Industries, Inc. The application 'Dirigo Center Developers, LLC' (Formerly J&J Gove Development) will purchase the property and become the owner responsible for all maintenance upon approval of all permits.

4. *Parking lot sweeping needs to be part of the maintenance requirements.*

RESPONSE: Parking lot sweeping has been included in the maintenance requirements within the O&M Manual.

5. *Some of the plans are not stamped, sign and dated. The Landscape Architects that stamped some of the plans is not licensed in Maine. We cannot accept plans stamped from professional not licensed in Maine.*

RESPONSE: The landscape architect has obtained his Maine license, see license attached. At this time, he has not obtained a Maine stamp. The Maine stamp will be included on the landscape plans prior to the Final approval.

6. *I could not locate a plan showing the location of test pits for this project in the June 16, submittal. Test pits are required in the locations of all stormwater treatment BMPs being proposed.*

RESPONSE: Plans clearly depicting the location of all test pits has been included in the back of the revised Drainage Report.

7. *Sheet D6 -*

- a. *I could not locate construction oversight notes for Grassed Underdrained Soil Filter.*

RESPONSE: This section has been added to the Construction Oversight notes as well as to the detail.

- b. *The table has the Swale# in the row at the top of the table. Does this refer to the grassed underdrained soil filters?*

RESPONSE: Yes. Swale # nomenclature has been modified to 'Soil Filter #' in the revised plans.

- c. *The HydroCad model does not match what is shown for the gravel wetland.*

RESPONSE: HydroCad model has been updated as required.

- d. *The outlet from the outlet structure appears to be too low based on UNHSC design specifications manual. Please explain or correct.*

RESPONSE: Outlet elevations have been revised as required by the design specifications manual.

8. *Whereas the site is an 80 acre parcel we would need to limit the amount of area open at any time. What is the applicant proposing for an area open at any time?*

RESPONSE: A note has been added to sheets PH1-1 thru PH1-3 and sheets EC-1 thru EC-6 limiting the area of disturbance to 5 acres or less.

9. *Sheet EC-3 - Why is a stabilized construction entrance not needed for the South Campus?*

RESPONSE: A stabilized construction entrance has been added as required.

10. *Sheet D5 -*

- a. *The sand filter table calls for 13 sand filters but I could only count 11 sand filter on sheets W2-1 and W2-2. The HydroCad model also uses 13 sand filters. Please explain or correct.*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- b. *Some of the elevations and orifices in the sand filter table do not match the HydroCAD model. Please correct.*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- c. *Is there a plan that shows the 10' long sharp-crested weir used in sand filter #1?*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- d. *The elevations in the sand filter table for sand filter #3 do not appear to work. It appears the sand filter would always be flooded. Please explain or correct.*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- e. *The Underdrained Soil Filter Section detail:*

- i. *What prevents water from draining into the common fill surrounding the sand filter?*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- ii. *Some of the outlet orifices are higher than the underdrain piping. Is this correct?*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- iii. *The note for 2 layers of geotextile needs work, the arrow points to the perimeter of the sand filter.*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

- iv. *The BMP manual states,*

"Subsurface soil filters including a detention/retention bed of chambers may only be approved as an alternative BMP design on a case-by-case basis as they generally require much more care in their design, construction and maintenance. Subsurface sand filters are viewed as having a higher risk of failure and should not be considered unless all other alternatives have been considered and deemed impracticable because of the compaction necessary for bearing strength that is usually required of subsurface systems, because there is no vegetation to insure long term permeability, to provide evapo-transpiration or a long-term

*source of organic matter; and because there is no track record on this type of system (only on sand filters)”.
I do not remember discussing or giving approval for sand filters. Based on the BMP manual discouraging the use of sand filter and the detail on sheet D5 calling for, “4” TOPSOIL SEED AND MULCH” on top of the sand filters, why can’t underdrained soil filters be used in place of the sand filters?*

RESPONSE: Underground sand filters as previously designed have been replaced with alternative BMP selections.

11. *Sheet 2-1-2 - How does the shape of the first bay of the gravel wetland function? It appears to me to be an odd shape. Perhaps a larger plan view of the gravel wetland would be helpful in understanding the shape.*

RESPONSE: Details of the gravel wetlands have been revised to include a larger scale of the gravel wetland to clarify design intent.

12. *Whereas the project involves large parking areas please explain what is planned for snow storage/snow removal? Can snow storage areas be added to a plan?*

RESPONSE: Snow storage areas are depicted on the C2 series sheets.

13. *The treatment tables use terms that are not found in chapter 500. The term and definitions are:*

- a. **Impervious area.** *“Impervious area” means the total area of a parcel covered with a low-permeability material that is highly resistant to infiltration by water, such as asphalt, concrete, or rooftop, and areas such as gravel roads and unpaved parking areas that will be compacted through design or use to reduce their permeability. Common impervious areas include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and macadam or other surfaces which similarly impede the natural infiltration of stormwater. Pervious pavement, pervious pavers, pervious concrete and underdrained artificial turf fields are all considered impervious. For the purpose of determining jurisdictional thresholds, the Department may, depending on the design, consider such facilities to provide alternative treatment as described in Section 4(B)(3)(e) of this Chapter.*
- b. **Landscaped area.** *“Landscaped area” means an area of land that has been disturbed and re-planted or covered with one or more of the following: grass or other herbaceous plants, shrubs, trees, or mulch; but not including area that has reverted to a natural, vegetated condition. An area of grass is considered landscaped if it is mowed more than twice per twelve month period.*
- c. **Developed area.** *“Developed area” means an impervious area, landscaped area, or unvegetated area. Developed area includes all disturbed areas except an area that is returned to a condition that existed prior to the disturbance and is revegetated within one calendar year of being disturbed, provided the area is not mowed more than twice per year.*

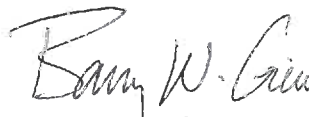
14. I am resending the sample treatment table because I cannot follow the one provided on the plans. Please make adjustments to your table.

Sub Catchment #	Total Area Sq Ft	Impervious Area Sq Ft	Impervious Area Treated Sq Ft	Landscaped Area Sq Ft	Developed Area Sq Ft	Developed Area Treated Sq Ft	Treatment BMP	Comments
Total								
Percent Treatment			%			%		

RESPONSE: Treatment tables have been updated as requested in both layout and definition.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.


 Barry W. Gier
 Vice President

cc: Dirigo Center Developers, LLC

Attachments:

- 1.) 2 copies - Site Plans "Commercial Development 'Dirigo Plaza'", latest revision 8/23/16
- 2.) 1 copy - Drainage Analysis - Dirigo Plaza, latest revision 8/23/16
- 3.) Letter signed by Eric Dudley, Director of Engineering & Public Services, City of Westbrook.
- 4.) Revised Form A, Page 1, Site Location of Development Permit Application
- 5.) Howard Snyder, State of Maine License for Landscape Architect.
- 6.) Stormwater Operations and Maintenance Manual, latest revision 8/23/16

JONES & BEACH
 ENGINEERS INC.

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 3, 2016

Eric Dudley, P.E.
Director of Engineering & Public Services
City of Westbrook
371 Saco St.
Westbrook, ME 04092

Mr. Dudley,

On behalf of our client, Dirigo Center Developers, LLC, Jones & Beach Engineers, Inc. (J&B) obtained approval from the Department of Engineering & Public Services on March 11, 2016 to connect into the existing drainage infrastructure along Larrabee Road. As part of the MaineDEP review of our project's Site Location of Development Application the state is requesting that our office confirm with the City of Westbrook that the city will be responsible for the upgraded drainage infrastructure within the right-of-way once construction is complete and approved. The property owner and operator, Dirigo Center Developers, LLC, will be responsible for maintaining all drainage infrastructure outside of the right-of-way.

J&B appreciates your cooperation on this very important project. If you have any questions or need additional information, please feel free to call.

Very truly yours,
JONES & BEACH ENGINEERS, INC.



Wayne Morrill
Vice President

cc: Dirigo Center Developers, LLC

The City of Westbrook accepts responsibility for the upgraded drainage infrastructure within the Larrabee Road right-of-way once work is complete and the City has approved all work performed.

X

Date:

8/4/16



State of Maine
DEPARTMENT OF PROFESSIONAL AND FINANCIAL REGULATION
OFFICE OF PROFESSIONAL AND OCCUPATIONAL REGULATION
ARCHITECTS, LANDSCAPE ARCHITECTS & INTERIOR DESIGNERS

License Number LAR4368

Be it known that

HOWARD AMORY SNYDER

has qualified as required by Title 32 MRSA Chapter 3A and is licensed as:

LANDSCAPE ARCHITECT

ISSUE DATE

June 27, 2016

Anne L. Head

Commissioner

EXPIRATION DATE

June 30, 2017

✂ Detach



STATE OF MAINE

DEPARTMENT OF PROFESSIONAL AND FINANCIAL REGULATION
OFFICE OF PROFESSIONAL AND OCCUPATIONAL REGULATION
ARCHITECTS, LANDSCAPE ARCHITECTS & INTERIOR DESIGNERS

License Number LAR4368

HOWARD AMORY SNYDER

LANDSCAPE ARCHITECT

ISSUED 06/27/2016

EXPIRES 06/30/2017

STATE OF MAINE

DEPARTMENT OF PROFESSIONAL AND FINANCIAL REGULATION

35 State House Station
Augusta, Maine 04333-0035
(207) 624-8603

Anne L. Head

Commissioner

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE

FORM A PAGE 1

ATS # _____
L- _____
Total Fees: _____
Date: Received _____

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.S.A. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)		☒ 20 acre development ☐ Planning Permit ☐ Metallic Mining	☐ Marine Oil Terminal ☐ Structure ☐ Subdivision	☐ Major Amendment ☐ Minor Amendment
1. Name of Applicant:	Dirigo Center Developers, LLC		6. Name of Agent (if applicable):	Jones & Beach Engineers, Inc.
2. Applicant's Mailing Address:	7 Swain Drive, Hampton Falls, NH		7. Agent's Mailing Address:	85 Portsmouth Ave., Stratham, NH
3. Applicant's Daytime Phone #:	603-926-7662		8. Agent's Daytime Phone #:	603-772-4746
4. Applicant's Fax # (if available):			9. Agent's Fax # (if available):	603-772-0227
5. Applicant's e-mail address (REQUIRED -license will be sent via: e-mail):	jeffreygove@yahoo.com		10. Agent's e-mail address (REQUIRED - license will be sent via e-mail):	wmorrell@jonesandbeach.com
PROJECT INFORMATION				
11. Name of Development:	"Dirigo Plaza"			
12. Map and Lot #'s:	Map #: 42B	Lot #: 9-11,1	13. Deed Reference #'s:	Book #: Page #:
14. Location of Project City/Town:	Westbrook, ME	15. County:	Cumberland	16. UTM Northing: 43°40'38" 17. UTM Easting: 70°19'52"
18. Brief Description of Project including total parcel size:	Mixed-use Retail, Restaurant, and Office Space Development			
19. Type of Direct Watershed: (Check all that apply)	☐ Lake not most at risk ☐ River, stream or brook ☐ Coastal wetland ☐ Lake most at risk ☒ Urban impaired stream ☐ Wellhead or public water ☐ Lake most at risk, severely blooming ☐ Freshwater wetland			
20. Name of Waterbody Project Site drains to:	Nasons Brook			
21. Amount of Developed Area:	Total 81.78 acres:	Existing Developed area:	45.7 acres	New Developed area: 7.8 acres
22. Amount of Impervious Area:	Total 81.78 acres:	Existing Impervious areas:	35.3 acres	New Impervious area: 41 acres
23. Development started prior to obtaining a license?:	☐ Yes ☒ No			
24. Development or any portion of the site subject to enforcement action?	☐ Yes ☒ No		If yes, name of enforcement staff involved?	
25. Common scheme of development?:	☒ Yes ☐ No	26. Title, Right or Interest:	☐ own ☐ lease	☒ purchase option ☐ written agreement
27. Natural Resources Protection Act permit required?:	☒ Yes ☐ No	If yes:	☐ PBR ☐ Tier 1 ☒ Full Permit ☐ Tier 2	
28. Existing DEP Permit number (if applicable):				
29. Names of DEP staff person(s) present at the pre-application meeting:	Robert Green, Ben Viola			
30. Does agent have an interest in project? If yes, what is the interest?	☐ Yes ☒ No			
CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2				

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 24, 2016

Maine DEP - Bureau of Land & Water Quality
Attn. John Hopeck, Ph.D.
17 State House Station
Augusta, ME 04333

RE: Response Letter
80 Main Street & 11 Larrabee Road, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Project No. 14110

Dear Mr. Hopeck:

On behalf of our client, Dirigo Center Developers, LLC, Jones & Beach Engineers, Inc., has received review comments from you dated March 29, 2016. Review comments are italicized and we offer the following responses in bold below:

- The information submitted for review includes a soil survey and geotechnical report, but does not include any figures locating the test pits, borings, and other explorations conducted for these investigations. (Also note that the soils map received is not signed and stamped by the investigating soils scientist; at least the record copy of this document must include – in addition to the locations of any logged explorations used in the mapping – this documentation by the soil scientist.) Drawing C3 shows several test pit locations, mostly in the locations of stormwater management structures, although many of these test pits locations and labels are illegible due to the number of contour lines and other features overlying the apparent test pit locations. In any event, the information received for review does not include logs of these explorations. Complete logs and clear, legible figures describing and showing the locations of all explorations conducted as part of exploration of this site for the proposed project must be submitted for review and approval. Changes to designs or additional information may be required following review of this information not supplied with the original application; for example, some of the sand filters and subsurface galleries may require clay or synthetic liners if they are in permeable soils or excavated to or into bedrock, and registration of these structures as injection wells may be required. Note that the geotechnical report received for review is somewhat general and does not deal with the specific requirements at any of the proposed structures (see Section 5.0 of the report); based on review of the boring logs, the geotechnical report, and other information received to date and otherwise known from the site, it is likely that significant additional information*

will be required to support Department approval of at least many of the larger proposed structures.

RESPONSE: The following documents have been provided to aid in further review:

- Soils Map stamped by Maine Soil Scientist
- Initial Geotechnical Report by S.W. Cole Engineers, dated 4/21/15
- Exploration Plans with test pits and boring locations, TP-1 & TP-2
- Test pit logs for all test pits shown on Exploration Plans.

2. *Section 15 of the application and several of the site plans refer to a fueling station or similar facility to be located at this site. From several of the site plans, this area appears to be intended for propane storage, but it is not clear if other fuels will be stored or sold from the facility. As is the case with the more detailed geotechnical information necessary for at least some structures, and noted in the previous paragraph, more specific information regarding fuel storage, leak prevention, treatment of runoff, and other relevant factors, potentially including but not limited to more complete design information and subsurface data for the facility and associated stormwater management structure, must be submitted for review and approval prior to construction of this facility in order to minimize the risk of groundwater contamination. Are the spill containment grooves shown in a detail on Drawing D2 intended for this area?*

RESPONSE: The proposed fueling station has been removed from the project design. See latest plan set dated 8/23/16.

3. *The information received for review does not include the SWPPP or any description, other than as shown on the relevant detail sheets, of measures to remove pollutants from wastewater prior to discharge to the quarry or to the subsurface Storm Tech units. A complete description of snow storage and snow removal should also be included with this material. Section 15 states that stormwater is expected to infiltrate from these units; this may not occur to any significant extent, given the soils at the site, although it is not possible to assess that at present, due to the absence of subsurface data noted in paragraph 1. However, infiltration of stormwater from large connected impervious areas, such as this development, has been shown at many locations to result in significant groundwater contamination, primarily from chloride, although mobilization of other contaminants is common as a result of gradual or rapid failure of the systems to manage incoming contaminant loads or storage of contaminants within the system. The applicant should expect that groundwater monitoring will be required for any operation using groundwater infiltration for disposal of runoff from non-roof areas at this site.*

RESPONSE: Pollutants are removed from stormwater via the use of Underdrained Grassed Soil Filters, Underground Sand Filters, and a Gravel Wetland. These systems remove pollutants from stormwater prior to discharge to the Quarry and/or wetlands. Our calculations do not anticipate infiltration due to existing soils but any infiltration that does occur will have been previously treated. Snow storage areas are depicted on sheets C2-1-1 through C2-2-2. A groundwater monitoring program is being established for long-term monitoring on-site.

A SWPPP will be provided for the project prior to start of construction.

4. *The copy of the site plan included in Section 20 of the application, apparently identifying the area of pre-survey and other features related to the blasting assessment, is not legible. A color copy, or other clear copy of this figure, should be submitted for review and approval. In addition, the proposed sound level limits and ground vibration limits are not consistent with Department requirements; the blasting plan submitted also does not include specific provisions for flyrock control. At a minimum, the following performance standards should be specifically required in the plan:*

- a) ground vibration at offsite structures not owned or controlled by the developer may not exceed the limits shown in Figure B-1 of Appendix B, U.S. Bureau of Mines Report of Investigations 8507;*
- b) air overpressure offsite may not exceed the limits provided at Department Rules Chapter 375.10(C)(4)(c) and 38 MRSA §490-Z(14)(H);*
- c) flyrock must be controlled so as to remain on the site and may not enter a protected resource unless the Department has previously approved alteration of that resource in the impacted area;*
- d) records of blasts generally consistent with the requirements of 38 MRSA §490-Z(14)(L) must be kept (note that the Department generally does not consider such records incomplete if the social security number of the blaster is not included); these records may be combined with the information required by the City of Westbrook and listed on page 5 of the submitted blast plan. To be consistent with the requirements of the city (see Section 34-20 of the Westbrook blasting ordinance), all records must be kept and be available to the Department, the city, and other parties for at least five years from the date of the last blast.*

RESPONSE: See attached Blasting Assessment (Rev. 1) by S.W. Cole Engineers addressing blasting questions and concerns.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.



Barry W. Gier
 Vice President

cc: Dirigo Center Developers, LLC

REPORT

April 21, 2015
15-0083 S

Explorations and Preliminary Geotechnical Engineering Services Proposed Retail Development Larrabee Road and Main Street Westbrook, Maine

PREPARED FOR:

J & J Gove Development, LLC
Attention: Jeff Gove
7 Swain Drive
Hampton Fall, NH 03844

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*

www.swcole.com

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Appendix B	Laboratory Test Results

15-0083 S

April 21, 2015

J & J Gove Development, LLC
Attn: Jeff Gove
7 Swain Drive
Hampton Falls, NH 03844

Subject: Explorations and Preliminary Geotechnical Engineering Services
Proposed Retail Development
Larrabee Road and Main Street
Westbrook, Maine

Dear Jeff:

In accordance with our Agreement, dated January 20, 2015, we have performed subsurface explorations for the subject project. This report summarizes our findings and preliminary geotechnical recommendations and its contents are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to provide preliminary geotechnical recommendations relative to foundations, earthwork and pavement associated with the proposed construction. Our scope of services included explorations, soils laboratory testing, a preliminary geotechnical evaluation of the findings and preparation of this report.

1.2 Proposed Construction

The site is generally located on the southeast corner of Larrabee Road and Main Street in Westbrook, Maine. The site is the former Pike Industries quarry and asphalt plant and is generally bound by Larrabee Road, Main Street, the Maine Turnpike and the Westbrook Arterial.

We understand development plans call for the construction of several retail and restaurant building pads and an automobile fueling station with associated paved parking and access drives. We understand finished floor elevation for the proposed building pads will generally be within 2 feet of existing grade and the former quarry will be used as stormwater management pond.

Proposed and existing site features are shown on the "Exploration Location Plans" attached as Sheet 1 and 2.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Subsurface explorations made at the site included twenty four, widely spaced test borings made across the proposed building pads and fueling station in February and March 2015. The borings were made by S.W.COLE Explorations, LLC and Great Works Test Boring, Inc. working under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The exploration locations were selected and established in the field by S.W.COLE using GPS methods. The approximate exploration locations are shown on the "Exploration Location Plans" attached as Sheets 1 and 2. Logs of the explorations and a key to the notes and symbols used on the logs are attached as Appendix A.

2.2 Testing

The borings were performed using a combination of hollow-stem auger, solid-stem auger, cased wash-boring and rod probing techniques. The soils in the test borings were sampled at 2 to 10 foot intervals using a split spoon sampler and Standard Penetration Test (SPT) methods. Where softer clay soils were encountered, Shelby Tube samples were obtained for laboratory testing and Vane Shear Testing (VST) was performed to measure in-situ shear strength. SPT blow counts and VST results are shown on the logs.

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. The results of soil moisture content and Atterberg Limit testing are shown on the logs attached is Appendix A.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

The explorations encountered a subsurface profile generally consisting of uncontrolled fill overlying relic organics, overlying native deposits of outwash sands, overlying glaciomarine clay, overlying marine sands, overlying glacial till and bedrock at depth. The principal strata encountered are summarized below; not all the strata were encountered at each exploration. Refer to the attached logs for more detailed subsurface information.

Uncontrolled Fill: The uncontrolled fills generally consisted of fine-grained granular materials likely generated from decades of quarrying and on-site aggregate production. The fills were generally loose to dense and ranged from about 2 to 20 feet thick at the exploration locations. Thicker layers of fill are noted on the logs where the test borings advanced through existing stockpiles of material above the ground surface.

Relic Organics: The relic organics varied from fibrous peat to sandy topsoil sporadically encountered beneath the uncontrolled fills. Where encountered, the relic organic layer ranged from about 2 to 4 feet thick.

Outwash Sands: The outwash sands generally consisted of silty sand and varied in thickness from about 3 to 5 feet where encountered.

Glaciomarine Clay: The native glaciomarine clays are typical of coastal Maine and generally consist of a relatively thin upper crust of very stiff silty clay overlying a deep deposit of soft, compressible silty clay which extends to depths exceeding 100 feet in certain borings. Based on field testing, the softer silty clay has in-situ shear strengths generally ranging from 450 to 600 psf.

Marine Sands: Below the glaciomarine clays, where penetrated, these soils generally consisted of loose to medium dense gray silty sand.

Glacial Till: Where encountered, the glacial till consisted of a dense silty gravelly sand.

Bedrock: Bedrock was encountered in B-6 at a depth of about 62 feet below the ground surface.

3.2 Groundwater

The soils were generally saturated below a depth of about 10 feet. Free groundwater was not observed during the short time that the boreholes remained open. Groundwater likely becomes perched on relatively impervious native clays. Long-term groundwater levels are likely influenced by the abandoned quarry on the site. It should be anticipated that groundwater levels will fluctuate, especially in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings and our understanding of the proposed construction, we offer the following geotechnical considerations for planning and permitting:

- The proposed construction appears feasible from a geotechnical standpoint; however, some premium costs related to geotechnical issues will be required.
- Historic filling of the site requires the use of Rammed Aggregate Piers (RAPs) to improve ground conditions for conventional spread footings and on-grade floor slabs. Where the depth of fill is less than about 7 feet, we recommend removing and replacing the uncontrolled fills and buried organics in lieu of RAPs. Buildings should also be setback from the quarry rim to meet IBC requirements. Building pad preparation recommendations are summarized on Sheets 1 and 2. Post-construction settlement will likely exceed Costco's allowable tolerance of 1 inch total and may also exceed Costco's ½ inch differential in 50 feet tolerance, careful balancing of site grades will help to reduce post-construction settlement.
- In general, we recommend finished floor elevations within 2 feet of existing grade with paved areas generally sloping away from the buildings for positive drainage. The Costco, Market Basket and Hobby Lobby finished floor elevations should be constructed within 1 foot of existing grade.
- The southernmost building pad (B-201, B-202 and B-203) should be relocated and the footprint reduced to fit within the historic stockpile limits or preloaded.
- Certain manhole and utility structures will need to be overexcavated to remove uncontrolled fills and organic materials beneath these structures.

4.2 Foundation and Floor Slab Considerations

The proposed building pads are underlain with uncontrolled fills and a sporadic relic organic layer. Ground improvement using Rammed Aggregate Piers (RAPs) is recommended in certain building pads with removal and replacement of uncontrolled fills and relic organics in other building pads. Following removal and replacement of existing uncontrolled fill and ground improvement using RAPs, conventional spread footing foundations and on-grade floor slabs appear suitable for the proposed building. Post-construction settlement will likely exceed Costco's allowable tolerance of 1 inch total and may also exceed Costco's ½ inch differential in 50 feet tolerance; establishing proposed finished floor elevations within 1 foot of existing grades will help to reduce post-construction settlement.

Building pads must be setback from the quarry rim to meet IBC requirements. Global stability of proposed development approaching the quarry rim must be evaluated during the design phase. Building pad preparation recommendations are summarized on Sheets 1 and 2.

We anticipate an allowable bearing pressure of 3 ksf for spread footings supported on subgrades improved with RAPs or backfilled with compacted granular borrow after removal of uncontrolled fills and relic organics. Similarly, a subgrade reaction modulus of 100 pci is attainable for floor slabs supported on RAPs or compacted granular borrow over properly prepared subgrades. RAPs are generally spaced 2 to 3 feet apart below footings and 6 to 9 feet below floor slabs. Additional geotechnical investigation is required to determine the depths of RAPs for support of building foundations and on-grade floor slabs.

The 100-year Air Freezing Index for the Westbrook, Maine is about 1,400-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet. Based on the subsurface findings, we interpret the site soils to correspond to Seismic Soil Site Class E, according to 2012 International Building Code/ASCE 7.

4.3 Excavation, Dewatering and Grading Considerations

Excavations will generally encounter uncontrolled fills, relic organics and native silty sands; some bedrock may also be encountered as excavations approach the former quarry. We anticipate excavation can be made with conventional equipment and blasting for bedrock removal. We recommend that excavation to subgrade be made with a smooth-edged

bucket to lessen disturbance of subgrade soils. The uncontrolled fills and native silty sands are moisture and frost susceptible and therefore, earthwork is best undertaken during the drier, non-freezing weather of Summer and Fall.

Free groundwater was not encountered within the short timeframe that the boreholes remained open. We anticipate that groundwater may seep into deeper utility excavations and that sumping and pumping through crushed stone bedding materials will likely be adequate for dewatering. Additionally, we anticipate that sump and pump dewatering techniques will be adequate for shallow foundation excavations.

In general, we recommend finished floor elevations within 2 feet of existing grade with paved areas generally sloping away from the buildings for positive drainage. The Costco, Market Basket and Hobby Lobby finished floor elevations should be constructed within 1 foot of existing grade.

4.4 Pavement Considerations

We anticipate paved areas will be subjected primarily to passenger vehicle and delivery truck traffic. Considering the site soils, and proposed usage, we offer the following pavement section for consideration. Materials are based on MaineDOT Standard Specifications.

FLEXIBLE (HMA) PAVEMENT SECTION	
Pavement Layer	Material Thickness
MaineDOT 9.5 mm Hot Mix Asphalt (50 Gyraton Design)	1 ¼ inches
MaineDOT 19.0 mm Hot Mix Asphalt (50 Gyraton Design)	2 ¼ inches
MaineDOT 703.06 Aggregate Base Type A	6 inches
MaineDOT 703.06 Aggregate Subbase Type D	12 inches
Woven Subgrade Reinforcement, Mirafi 600X	Access Drives

We recommend pavement subgrades be proof-rolled and densify with a vibratory drum roller compactor prior to installing pavement subbase gravels or geotextile fabrics. Areas that become soft or yielding should be removed and replaced with compacted granular fill prior to installing subbase gravels or geotextile fabrics.

It should be understood that frost penetration can be on the order of 4.5 feet in this area. In the absence of full depth excavation of frost susceptible soils below paved areas and subsequent replacement with non-frost susceptible compacted fill, frost penetration into the subgrade will occur and some heaving and distress of pavement must be anticipated.

4.5 Reuse of On-Site Soils

The uncontrolled fills, free from organics and deleterious material, and native silty sands are considered suitable for reuse as compacted fill to raise site grades. The relic organics are considered unsuitable for reuse. The contractor should anticipate the need to aerate or moisture condition the uncontrolled fills and native silty sands for reuse. These materials are moisture and frost susceptible and therefore best reused during Summer and Fall months; reuse in Winter and early Spring is not considered feasible.

5.0 CLOSURE

Details of the proposed construction and site grading are conceptual at this time. Details relative to structural loading are not currently available. We recommend that S.W.COLE be engaged to review the schematic designs to develop and undertake a design phase geotechnical investigation for detailed design and preparation of construction documents.

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you as the project progresses.

Sincerely,

S. W. Cole Engineering, Inc.

Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

EMW:tjb

Attachment A Limitations

This report has been prepared for the exclusive use of J & J Gove Development, LLC. for specific application to the proposed Retail Development on Larrabee Road and Main Street in Westbrook, 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.

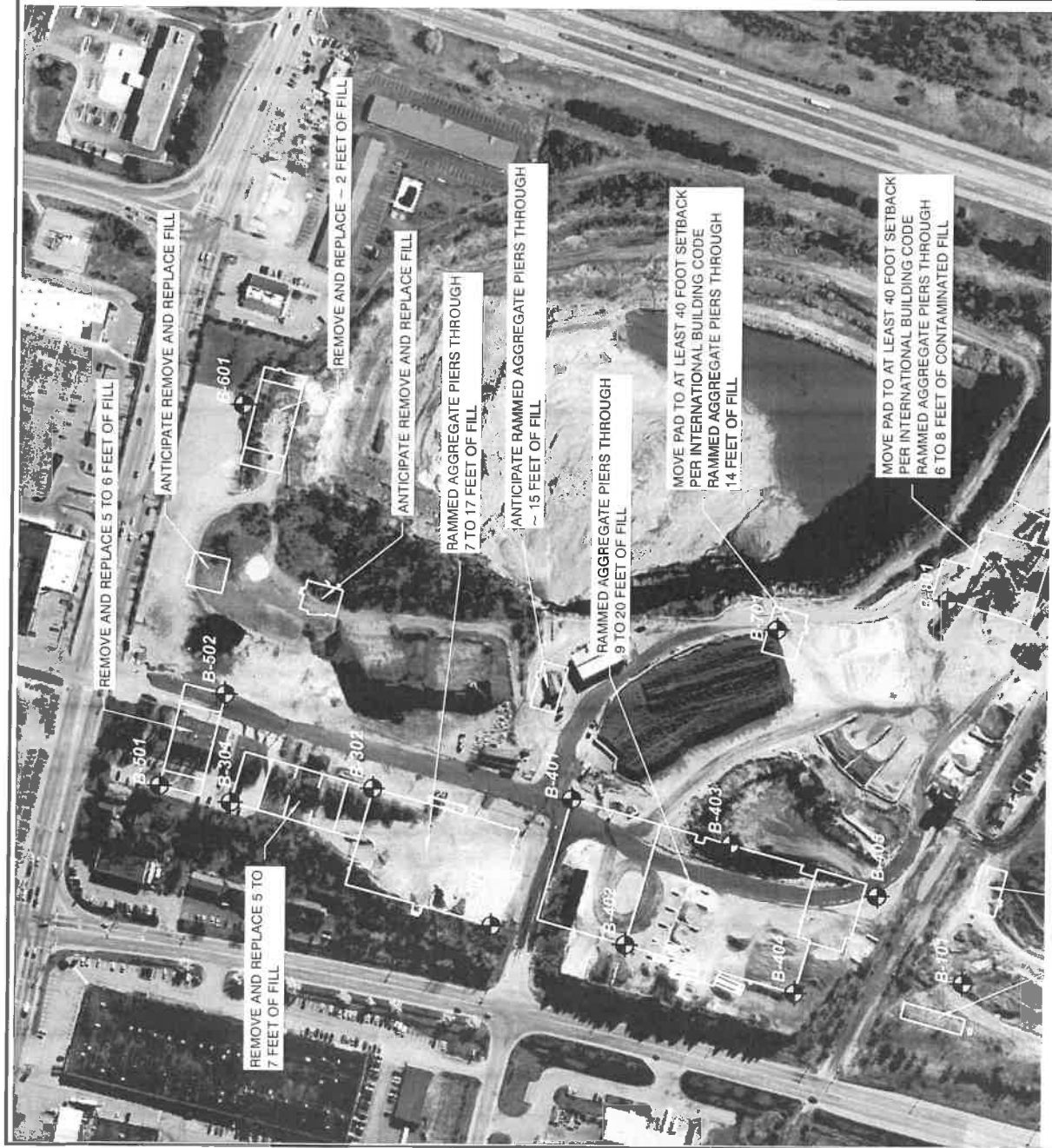
The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

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.



North Arrow



1	4/17/2015	REVISED BORINGS B-5, B-202, B-405, B-601 AND B-802, REMOVE B-602	CEM
2	3/17/2015	DRAFT SUBMISSION	CEM
NO.	DATE	DESCRIPTION	BY



J & J GOVE

EXPLORATION LOCATION SUMMARY PLAN

PROPOSED RETAIL DEVELOPMENT
LARRABEE ROAD, WESTBROOK ARTERIAL, RAILROAD
AND MAINE TURNPIKE
WESTBROOK, MAINE

Job No.	15-0083	Scale	1"=200'
Date:	03/17/2015	Sheet	1



BORING NO.: **B-1**



BORING LOG

BORING NO.: **B-1**
 SHEET: **1 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/3/2015**
 DATE FINISH: **3/3/2015**
 ELEVATION:
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
 CASING: TYPE **HW** SIZE I.D. **4"** HAMMER WT. **140 LBS.** HAMMER FALL **30"**
 SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
 CORE BARREL:

WATER LEVEL INFORMATION

SOILS WET BELOW 3' +/-

SOILS SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2.5'	ASPHALT MILLINGS (FILL)
	1D	24"	18"	4.0'	22	21	18	33	3.0'	GRAY SILTY SAND (STONE DUST - FILL)
	2D	24"	18"	6.0'	13	39	43	60	8.0'	BROWN SILTY SAND (FILL) ~ VERY DENSE ~
									9.0'	GRAY-BROWN TO BROWN GRAVELLY SILTY SAND (FILL)
	3D	24"	16"	11.0'	3	3	2	2	10.5'	GRAY CLAYEY SILT, SOME FINE SAND ~ LOOSE ~
									12.0'	BLACK ORGANICS ~ LOOSE ~
	4D	24"	18"	16.0'	6	11	14	16	21.0'	BROWN SILTY CLAY ~ HARD ~ $q_p = 9$ KSF ~ VERY STIFF ~ $q_p = 6$ KSF ~ MEDIUM ~ $q_p = 1$ KSF
	5D	24"	18"	21.0'	3	4	5	5		
	6D	24"	24"	26.0'	WOH	2	2	2		GRAY SILTY CLAY WITH FREQUENT FINE SAND PARTINGS ~ MEDIUM ~
	1C	24"	22"	31.0'	HYDRAULIC PUSH					
									39.0'	GRAY SAND SOME SILT - OBSERVATION OF WASH CUTTINGS

SAMPLES: SOIL CLASSIFIED BY:
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE
☒ DRILLER - VISUALLY
☐ SOIL TECH. - VISUALLY
☐ LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-1**



BORING LOG

BORING NO.: **B-2**
 SHEET: **1 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/3/2015**
 DATE FINISH: **3/3/2015**
 ELEVATION: _____
 SWCOLE REP.: **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
 CASING: TYPE **HSA** SIZE I.D. **2 1/4"** HAMMER WT. **HAMMER FALL**
 SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
 CORE BARREL: _____

WATER LEVEL INFORMATION

SOILS WET BELOW **4' +/-**
 SOILS SATURATED BELOW **10' +/-**

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2.2'	ASPHALT MILLINGS (FILL)
	1D	24"	18"	4.0'	9	13	13	10		
									7.0'	LIGHT BROWN SAND, SOME SILT, TRACE GRAVEL (FILL) ~ LOOSE ~
	2D	24"	4"	6.0'	5	4	3	3		
									12.0'	BROWN SILTY CLAY ~ VERY STIFF ~ $q_p = 8$ KSF
	3D	24"	22"	11.0'	5	6	9	12		
									17.0'	GRAY SILTY CLAY WITH OCCASIONAL FINE SAND PARTINGS ~ STIFF ~ $q_p = 4.5$ KSF $q_p = 3$ KSF
	4D	24"	20"	16.0'	3	4	4	6		
									33.5'	GRAY WITH BLACK STREAKING SILTY CLAY ADVANCE BY ROD PROBE BELOW 21.0' HYDRAULIC PUSH ROD PROBE 21.0 - 33.5' SAND LAYERS AND SEAMS 28.5' TO 29.5' SWITCH TO 140 LB HAMMER @ 33.5' 25 BLOWS FOR NO PENETRATION - BOUNCING PROBABLE BEDROCK OR DENSE GRANULAR SOILS BOTTOM OF EXPLORATION @ 33.5'
	5D	24"	24"	21.0'	WOH	1	1	1		

SAMPLES: _____ SOIL CLASSIFIED BY: _____
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE
☒ DRILLER - VISUALLY
☐ SOIL TECH. - VISUALLY
☐ LABORATORY TEST

REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.
 BORING NO.: **B-2**

BORING NO.: **B-3**



BORING LOG

BORING NO.: **B-3**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: _____
DATE FINISH: _____
ELEVATION: _____
SWCOLE REP: **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: TYPE **HSA** SIZE I.D. **2 1/4"** HAMMER WT. **HAMMER FALL**
SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
CORE BARREL: _____

WATER LEVEL INFORMATION
SOILS MOIST AT GROUND SURFACE
SOILS SATURATED BELOW 19' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 21.0 - 88.5'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

X

DRILLER - VISUALLY
SOIL TECH. - VISUALLY
LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE
APPROXIMATE BOUNDARY BETWEEN SOIL TYPES
AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-3**



BORING NO.:	B-3
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/2/2015
DATE FINISH:	3/2/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS MOIST AT GROUND SURFACE

SOILS SATURATED BELOW 19' +/-

[illegible]



BORING LOG

BORING NO.: **B-4**
 SHEET: **1 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/2/2015**
 DATE FINISH:
 ELEVATION:
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
 TYPE **HSA** SIZE I.D. **2 1/4"** HAMMER WT. **140 LBS.** HAMMER FALL **30"**
 CASING: **SS**
 SAMPLER: **SS**
 CORE BARREL: **SS**

WATER LEVEL INFORMATION
 SOILS SATURATED BELOW 5' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
	1D	24"	16"	2.0'	19	17	32	26	0.5'	ASPHALT MILLINGS (FILL)
									4.2'	GRAY-BROWN TO BLACK SILTY SAND, SOME GRAVEL (FILL) ~ DENSE ~
	2D	24"	18"	6.0'	2	5	4	3	5.5'	GRAY-BROWN FINE TO MEDIUM SAND, SOME SILT ~ LOOSE ~
									8.0'	GRAY SILTY CLAY $q_p = 5$ KSF ~ STIFF ~
	3D	24"	20"	11.0'	4	6	8	10	14.0'	BROWN SILTY CLAY $q_p = 8$ KSF ~ VERY STIFF ~
	4D	24"	22"	16.0'	2	2	2	3	15.0'	GRAY-BROWN SILTY CLAY ~ MEDIUM ~ $q_p = 1.5$ KSF
	5D	24"	24"	21.0'	WOR - 12" WOH - 12"					GRAY SILTY CLAY WITH SHELL FRAGMENTS @ 5D ADVANCE BY ROD PROBE BELOW 21.0' HYDRAULIC PUSH ROD PROBE 21.0 - 61.5'

SAMPLES:
 SOIL CLASSIFIED BY:
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE
 DRILLER - VISUALLY
 SOIL TECH. - VISUALLY
 LABORATORY TEST

REMARKS:
 STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-4**

BORING NO.: **B-4**



BORING NO.:	B-5
SHEET:	1 OF 3
PROJECT NO.:	15-0083
DATE START:	3/6/2015
DATE FINISH:	3/9/2015
ELEVATION:	
SWCOLE REP.	E. WALKER
PER LEVEL INFORMATION	
LS MOIST BELOW 5' +/-	
SATURATED BELOW 10' +/-	

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 LBS.	30"
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA		
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24				
									16.8	DARK BROWN TO BLACK GRAVELLY SILTY SAND WITH COBBLES, METAL, ASPHALT, PLASTIC, CONCRETE RUBBLE (FILL) ~ MEDIUM DENSE ~		
	1D	24"	18"	5.0'	11	24	10	13				
	2D	24"	16"	7.0'	14	8	6	6				
	3D	9"	8"	10.8'	WOH	50-3"						
	4D	24"	3"	17.0'	9	10	11	16				
									22.0'	GRAY-BROWN SILTY CLAY ~ MEDIUM ~ q _p = 1.5 KSF q _p = 0.5 KSF		
	5D	24"	22"	22.0'	2	2	3	3				
	1C	24"	24"	27.0'	PISTON SAMPLER							
	1V			27.8'	3 5/8" X 7" VANE							S _v = 0.5 / 0.08 KSF
	1V'			28.6'	3 5/8" X 7" VANE							S _v = 0.49 / 0.08 KSF
										GRAY WITH BLACK STREAKING SILTY CLAY w = 58.2%, W _L = 45, W _P = 23 ~ SOFT ~ S _v = 0.5 / 0.08 KSF S _v = 0.49 / 0.08 KSF		
	2C	24"	24"	37.0'	PISTON SAMPLER							
	2V			37.8'	3 5/8" X 7" VANE							S _v = 0.45 / 0.04 KSF
	2V'			38.6'	3 5/8" X 7" VANE							S _v = 0.48 / 0.07 KSF
SAMPLES:					SOIL CLASSIFIED BY:					REMARKS: CONTINUED...		
D = SPLIT SPOON					X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST					STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		BORING NO.: B-5
C = 3" SHELBY TUBE												
U = 3.5" SHELBY TUBE												



BORING LOG

BORING NO.: **B-5**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/6/2015**
DATE FINISH: **3/9/2015**
ELEVATION:
SWCOLE REP. **E. WALKER**

WATER LEVEL INFORMATION

SOILS MOIST BELOW 5' +/-
SOILS SATURATED BELOW 10' +/-

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
TYPE: **HW** SIZE I.D.: **4"** HAMMER WT.: **140 LBS.** HAMMER FALL: **30"**
SAMPLER: **SS** SIZE I.D.: **1 3/8"** HAMMER WT.: **140 LBS.** HAMMER FALL: **30"**
CORE BARREL:

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY WITH BLACK STREAKING SILTY CLAY w = 53.0%, W_L = 38, W_P = 20 S_v = 0.71 KSF / 0.03 KSF - POSSIBLE INFLUENCED BY SAND SEAMS NO VANE PENETRATION @ 3V' - PROBABLE SAND SEAM ADVANCE BY ROD PROBE BELOW 48.6' HYDRAULIC PUSH ROD PROBE 48.6' - 110.0'
	3C	24"	24"	47.0'	PISTON SAMPLER					
	3V			47.8'	3 5/8" X 7" VANE					
	3V'				3 5/8" X 7" VANE					

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

X

DRILLER - VISUALLY
SOIL TECH. - VISUALLY
LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE
APPROXIMATE BOUNDARY BETWEEN SOIL TYPES
AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-5**



BORING NO.:	B-5
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/6/2015
DATE FINISH:	3/9/2015
ELEVATION:	
SWCOLE REP.	E. WALKER
ER LEVEL INFORMATION	
LS MOIST BELOW 5' +/-	
SATURATED BELOW 10' +/-	

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 LBS.	30"
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

[illegible]

BORING NO.: B-6



BORING NO.:	B-6
SHEET:	2 OF 2
PROJECT NO.:	15-0083
DATE START:	3/2/2015
DATE FINISH:	3/2/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

ER LEVEL INFORMATION

OILS WET BELOW 4' +/-

SATURATED BELOW 19' +/-

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

[illegible]



BORING LOG

BORING NO.: **B-101**
 SHEET: 1 OF 2
 PROJECT NO.: 15-0083
 DATE START: 3/4/2015
 DATE FINISH: 3/4/2015
 ELEVATION:
 SWCOLE REP. E. WALKER

PROJECT: PROPOSED RETAIL DEVELOPMENT
 CLIENT: J & J GOVE DEVELOPMENT, LLC
 LOCATION: LARRABEE ROAD AND MAIN STREET
 DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: BOB MARCOUX
 TYPE SIZE I.D. HAMMER WT. HAMMER FALL
 CASING: HSA 2 1/4"
 SAMPLER: SS 1 3/8" 140 LBS. 30"
 CORE BARREL:

WATER LEVEL INFORMATION

SOILS WET BELOW 4' +/-
 SOILS SATURATED BELOW 20' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
	1D	24"	16"	2.0'	6	3	2	2	4.0'	GRAY-BROWN CLAYEY SILT, SOME FINE SAND WITH ORGANICS (FILL) ~ LOOSE ~	
	2D	24"	16"	6.0'	4	5	2	10	9.0'	LIGHT GRAY CLAYEY SILT, SOME FINE SAND WITH TRACE ORGANICS (FILL) ~ LOOSE TO MEDIUM DENSE ~	
	3D	24"	20"	11.0'	13	20	20	23	14.0'	GRAY SILT AND FINE SAND (FILL) ~ DENSE ~	
	4D	24"	20"	16.0'	8	10	23	27	19.0'	~ DENSE ~ GRAY AND BLACK SANDY SILT WITH ORGANICS (FILL)	
									20.0'	GRAY-BROWN SILTY SAND, TRACE ORGANICS (FILL) ~ LOOSE ~	
	5D	24"	20"	21.0'	3	2	2	2	24.0'	~ LOOSE ~ GRAY SILT AND FINE SAND WITH ROOTLETS (FILL)	
	6D	24"	10"	26.0'	4	15	10	6	29.0'	4" OF WOOD IN SAMPLER TIP @ 6D GRAY CLAYEY SILT, SOME FINE SAND ~ MEDIUM DENSE ~	
	7D	24"	22"	31.0'	2	1	2	2	34.0'	GRAY-BROWN SILTY CLAY ~ MEDIUM ~	
	8D	24"	24"	36.0'	WOH	1-12"	1			GRAY SILTY CLAY ~ MEDIUM ~ ADVANCE BY ROD PROBE BELOW 36.0' HYDRAULIC PUSH ROD PROBE 36.0 -54.5'	
SAMPLES:					SOIL CLASSIFIED BY:				REMARKS: CONTINUED...		
D = SPLIT SPOON					X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST				STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		BORING NO.: B-101
C = 3" SHELBY TUBE											
U = 3.5" SHELBY TUBE											



BORING LOG

BORING NO.: **B-101**
SHEET: **2 OF 2**
PROJECT NO.: **15-0083**
DATE START: **3/4/2015**
DATE FINISH: **3/4/2015**
ELEVATION:
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: **HSA** **2 1/4"**
SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
CORE BARREL:

WATER LEVEL INFORMATION

SOILS WET BELOW 4' +/-

SOILS SATURATED BELOW 20' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 36.0 -54.5' 54.5' SWITCH TO 140 LB HAMMER @ 54.5': 54.5' - 55.0' : 27 BLOWS 55.0' - 55.5' : 26 BLOWS 55.5' - 56.0' : 25 BLOWS 56.0' - 56.5' : 24 BLOWS - PROBABLE GRANULAR SOILS BOTTOM OF EXPLORATION @ 56.5'
SAMPLES: SOIL CLASSIFIED BY: REMARKS:										
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE										
<table border="1"><tr><td>X</td></tr></table> DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST										X
X										
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.										
BORING NO.: B-101										



BORING NO.:	B-201
SHEET:	1 OF 3
PROJECT NO.:	15-0083
DATE START:	3/9/2015
DATE FINISH:	3/9/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS WET BELOW 10'

SOILS SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									5.0'	DARK BROWN GRAVELLY SILTY SAND WITH COBBLES, BOULDERS, AND CONCRETE RUBBLE (FILL) ~ DENSE ~
	1D	24"	20"	7.0'	1	2	5	12	6.5'	DARK BROWN TO BLACK SILT AND FINE SAND WITH ORGANICS (FILL) ~ LOOSE ~
									12.0'	BROWN SILTY CLAY ~ VERY STIFF ~ q _p = 4.5 - 5 KSF
	2D	24"	18"	12.0'	3	5	6	8		
									16.0'	GRAY-BROWN SILTY CLAY ~ MEDIUM ~
	3D	24"	24"	17.0'	WOH - 18"			2		
										GRAY SILTY CLAY ~ MEDIUM TO SOFT ~ ADVANCE BY ROD PROBE BELOW 17.0' HYDRAULIC PUSH ROD PROBE 17.0' - 106.0'
SAMPLES:					SOIL CLASSIFIED BY:				REMARKS: CONTINUED...	
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE					X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST				STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.	
					BORING NO.:				B-201	



BORING LOG

BORING NO.: **B-201**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/9/2015**
DATE FINISH: **3/9/2015**
ELEVATION: _____
SWCOLE REP.: **E. WALKER**
WATER LEVEL INFORMATION
SOILS WET BELOW **10'**
SOILS SATURATED BELOW **15' +/-**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
TYPE: **SSA** SIZE I.D.: **4" O.D.** HAMMER WT.: **HAMMER FALL**
CASING: **SS** SAMPLER: **SS** 1 3/8" 140 LBS. 30"
CORE BARREL: _____

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 17.0' - 106.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

X

DRILLER - VISUALLY
SOIL TECH. - VISUALLY
LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE
APPROXIMATE BOUNDARY BETWEEN SOIL TYPES
AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-201**



BORING NO.:	B-201
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/9/2015
DATE FINISH:	3/9/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

SOILS SATURATED BELOW 15' +/-

[illegible]

BORING NO.: B-201



BORING LOG

BORING NO.: **B-202**
 SHEET: **1 OF 3**
 PROJECT NO.: **15-0083**
 DATE START: **3/9/2015**
 DATE FINISH: **3/9/2015**
 ELEVATION:
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT : **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
 TYPE **SSA** SIZE I.D. **4" O.D.** HAMMER WT. **HAMMER FALL**
 CASING: **SS** **1 3/8"** **140 LBS.** **30"**
 SAMPLER:
 CORE BARREL:

WATER LEVEL INFORMATION

SOILS MOIST BELOW 5' +/-

SOILS SATURATED BELOW 30' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY CLAYEY SILT AND FINE SAND (FILL) ~ MEDIUM DENSE ~
	1D	24"	16"	7.0'	4	6	7	10		
	2D	24"	18"	17.0'	14	14	15	23		WOOD FIBERS IN CUTTINGS 22' TO 25' +/- ~ LOOSE ~
	3D	24"	18"	22.0'	3	6	5	8		GRAY-BROWN SILTY SAND AND GRAVEL (FILL) ~ VERY DENSE ~ DARK BROWN ORGANICS IN CUTTINGS 32' - 35' +/- POSSIBLE RELIC GROUND SURFACE
	4D	24"	18"	27.0'	1	3	5	3		GRAY-BROWN SILTY CLAY WITH FREQUENT FINE SAND SEAMS ~ STIFF ~ ADVANCE BY ROD PROBE BELOW 37.0' HYDRAULIC PUSH ROD PROBE 37.0' - 109.5'
	5D	17"	10"	31.4'	46	31	50-5"			STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.
	6D	24"	18"	37.0'	8	8	5	6		BORING NO.: B-202

SAMPLES: D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY: ☒ DRILLER - VISUALLY
☒ SOIL TECH. - VISUALLY
☐ LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.



BORING LOG

BORING NO.: **B-202**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/9/2015**
DATE FINISH: **3/9/2015**
ELEVATION:
SWCOLE REP.: **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
CASING: **TYPE SIZE I.D. HAMMER WT. HAMMER FALL**
SSA 4" O.D.
SAMPLER: **SS 1 3/8" 140 LBS. 30"**
CORE BARREL:

WATER LEVEL INFORMATION

SOILS MOIST BELOW 5' +/-
SOILS SATURATED BELOW 30' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
										GRAY-BROWN TRANSITIONING TO GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 37.0' - 109.5'				
SAMPLES:					SOIL CLASSIFIED BY:					REMARKS: CONTINUED...				
D = SPLIT SPOON					☐					DRILLER - VISUALLY				
C = 3" SHELBY TUBE					☒					SOIL TECH. - VISUALLY				
U = 3.5" SHELBY TUBE					☐					LABORATORY TEST				
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.										BORING NO.: B-202				



BORING NO.:	B-202
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/9/2015
DATE FINISH:	3/9/2015
ELEVATION:	
SWCOLE REP.	E. WALKER
ER LEVEL INFORMATION	
LS MOIST BELOW 5' +/-	
SATURATED BELOW 30' +/-	

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT. HAMMER FALL	
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

[illegible]



BORING NO.:	B-203
SHEET:	1 OF 3
PROJECT NO.:	15-0083
DATE START:	3/10/2015
DATE FINISH:	3/10/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 LBS.	30"
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS MOIST AT GROUND SURFACE

SOILS SATURATED BELOW 3' +/-

[illegible]



BORING NO.:	B-203
SHEET:	2 OF 3
PROJECT NO.:	15-0083
DATE START:	3/10/2015
DATE FINISH:	3/10/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

ER LEVEL INFORMATION

MOIST AT GROUND SURFACE

SATURATED BELOW 3' +/-

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	JEFF LEE
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 LBS.	30"
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

[illegible]



BORING NO.:	B-203
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/10/2015
DATE FINISH:	3/10/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

WATER LEVEL INFORMATION
SOILS MOIST AT GROUND SURFACE
SOILS SATURATED BELOW 3' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
										GRAY SILTY CLAY	
										HYDRAULIC PUSH ROD PROBE 48.6' - 110.5'	
										FREQUENT SAND SEAMS BELOW 100' +/-	
										SWITCH TO 140 LB HAMMER @ 110.5'	
										110.5' - 111.5' : 50 BLOWS FOR 4" - BOUNCING PROBABLE BEDROCK OR DENSE GRANULAR SOILS	
										BOTTOM OF EXPLORATION @ 110.9'	

SAMPLES:

D = SPLIT SPOON

C = 3" SHELBY TUBE

U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

X

DRILLER - VISUALLY

SOIL TECH. - VISUALLY

LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.:

B-203



BORING LOG

BORING NO.: **B-301**
 SHEET: **1 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/11/2015**
 DATE FINISH: **3/11/2015**
 ELEVATION: _____
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
 CASING: TYPE **HSA** SIZE I.D. **2 1/4"** HAMMER WT. **30"**
 SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
 CORE BARREL: _____

WATER LEVEL INFORMATION

SOILS MOIST BELOW 5' +/-
 SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									3"	ASPHALT PAVEMENT
	1D	4"	4"	2.3'	50-4"				3.0'	BROWN GRAVELLY SAND, SOME SILT (FILL) ~ DENSE ~
									5.0'	GRAY SILTY GRAVEL AND SAND WITH CONCRETE (FILL) ~ DENSE ~
	2D	24"	20"	6.0'	11	14	15	11	9.0'	GRAY-BROWN SILTY FINE TO MEDIUM SAND WITH OCCASIONAL SILT PARTINGS ~ MEDIUM DENSE ~
	3D	24"	22"	11.0'	3	5	6	7	14.0'	GRAY SILTY CLAY ~ VERY STIFF ~ $q_p = 4 - 4.5 \text{ KSF}$
	4D	24"	24"	16.0'	1	1-12"	1			GRAY WITH BLACK STREAKING SILTY CLAY ~ MEDIUM ~ ADVANCE BY ROD PROBE BELOW 16.0' HYDRAULIC PUSH ROD PROBE 16.0' - 49.5'

SAMPLES: SOIL CLASSIFIED BY: REMARKS: **CONTINUED...**

D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE

☒ DRILLER - VISUALLY
☐ SOIL TECH. - VISUALLY
☐ LABORATORY TEST

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-301**

[illegible]



BORING LOG

BORING NO.: **B-302**
 SHEET: **1 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/6/2015**
 DATE FINISH: **3/6/2015**
 ELEVATION: _____
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
 TYPE SIZE I.D. HAMMER WT. HAMMER FALL
 CASING: **HW 4" 140 LBS. 30"**
 SAMPLER: **SS 1 3/8" 140 LBS. 30"**
 CORE BARREL: _____

WATER LEVEL INFORMATION
 SOILS MOIST BELOW 5', WET BELOW 10',
 SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2.0'	BROWN GRAVELLY SAND, SOME SILT (FILL)
	1D	24"	16"	5.0'	7	3	2	5	6.5'	BROWN TO BLACK SAND, SOME SILT, TRACE ORGANICS WITH BLACK SILT SEAMS (FILL) ~ LOOSE TO DENSE ~
	2D	24"	16"	7.0'	6	17	17	17		
									11.8'	LIGHT BROWN SILTY FINE TO MEDIUM SAND ~ DENSE ~
	3D	24"	18"	12.0'	3	5	5	5	15.0'	GRAY-BROWN SILTY CLAY ~ STIFF ~
	4D	24"	24"	17.0'	WOR	1 - 18"				GRAY SILTY CLAY WITH FREQUENT FINE SAND SEAMS AND SHELLS $S_v = 0.62 / 0.11$ KSF ~ MEDIUM ~ NO VANE PUSH - POSSIBLE SAND SEAM $w = 46.5\%$, $W_L = 38$, $W_P = 19$ $S_v = 0.54 / 0.08$ KSF $S_v = 0.48 / 0.08$ KSF ~ SOFT ~
	1C	24"	24"	22.0'	PISTON SAMPLER					
	1V			22.8'	3 5/8" X 7" VANE					
	1V'				3 5/8" X 7" VANE					
	2C	24"	24"	32.0'	PISTON SAMPLER					
	2V			32.8'	3 5/8" X 7" VANE					
	2V'			33.6'	3 5/8" X 7" VANE					

SAMPLES: SOIL CLASSIFIED BY: D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE		DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST	REMARKS: CONTINUED... STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.	BORING NO.: B-302
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BORING LOG

BORING NO.: **B-302**
 SHEET: **2 OF 2**
 PROJECT NO.: **15-0083**
 DATE START: **3/6/2015**
 DATE FINISH: **3/6/2015**
 ELEVATION:
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 LBS.	30"
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
 SOILS MOIST BELOW 5', WET BELOW 10',
 SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-5	6-12	12-18	18-24		
	3C	24"	24"	42.0'	PISTON SAMPLER					$w = 39.8\%$, $W_L = 42$, $W_p = 21$ $S_u = 0.76 / 0.11$ KSF $S_u = 0.65 / 0.11$ KSF ~ MEDIUM ~ GRAY SILTY CLAY ADVANCE BY ROD PROBE BELOW 43.6' HYDRAULIC PUSH ROD PROBE 43.6' - 51.5'
	3V			42.8'	3 5/8" X 7" VANE					
	3V'			43.6'	3 5/8" X 7" VANE					
									51.5'	SWITCH TO 140 LB HAMMER @ 51.5'
									56.5'	51.5' - 52.5' : 29 BLOWS 52.5' - 53.5' : 25 BLOWS 53.5' - 54.5' : 24 BLOWS 54.5' - 55.5' : 23 BLOWS 55.5' - 56.5' : 24 BLOWS - PROBABLE GRANULAR SOILS
										BOTTOM OF EXPLORATION @ 56.5'

SAMPLES: SOIL CLASSIFIED BY:
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:
 STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-302**



BORING NO.:	B-303
SHEET:	1 OF 2
PROJECT NO.:	15-0083
DATE START:	3/11/2015
DATE FINISH:	3/11/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

ER LEVEL INFORMATION

SATURATED 0' - 9', WET 9' - 11',
SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
	1D	24"	12"	2.0'	1	3	4	9	2.5'	BROWN SAND, SOME SILT, TRACE GRAVEL, WITH ORGANICS (FILL) ~ LOOSE ~
	2D	24"	16"	4.0'	5	7	6	7	4.0'	
	3D	24"	16"	6.0'	5	5	2	4	9.0'	GRAY AND WHITE SILT, SOME FINE SAND (FILL) ~ LOOSE ~
	4D	24"	18"	11.0'	12	11	11	20	14.0'	P.I.D. = 1.8 PPM GRAY AND BLACK SAND AND SILT, TRACE ORGANICS (FILL) ~ MEDIUM DENSE ~ COBBLES 12' - 14'
	5D	24"	2"	16.0'	8	5	7	6	17.0'	POOR RECOVERY @ 5D - PUSHING OBSTRUCTION DARK BROWN SILTY SAND (PROBABLE FILL OR RELIC ORGANIC LAYER)
	6D	24"	24"	21.0'	1-12"		1-12"			GRAY SILTY CLAY ~ MEDIUM ~ ADVANCE BY ROD PROBE BELOW 21.0' HYDRAULIC PUSH ROD PROBE 21.0' - 68.0'

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-303**



BORING NO.:	B-303
SHEET:	2 OF 2
PROJECT NO.:	15-0083
DATE START:	3/11/2015
DATE FINISH:	3/11/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS SATURATED 0' - 9', WET 9' - 11',
SATURATED BELOW 14' +/-

[illegible]



BORING NO.:	B-401
SHEET:	1 OF 2
PROJECT NO.:	15-0083
DATE START:	3/5/2015
DATE FINISH:	3/5/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

ER LEVEL INFORMATION

LS DAMP BELOW 5' +/-

SATURATED BELOW 10' +/-

PROJECT:	PROPOSED RETAIL DEVELOPMENT				
CLIENT :	J & J GOVE DEVELOPMENT, LLC				
LOCATION:	LARRABEE ROAD AND MAIN STREET				
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC			DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL	
CASING:	HSA	2 1/4"			
SAMPLER:	SS	1 3/8"	140 LBS.	30"	
CORE BARREL:					

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									4"	ASPHALT PAVEMENT
									4.5'	GRAY-BROWN GRAVELLY SAND, SOME SILT (FILL) ~ DENSE ~
	1D	24"	18"	6.0'	22	30	9	7		
									9.0'	BROWN SAND, SOME SILT, WITH ORGANICS (FILL) ~ DENSE ~ WOOD IN AUGER CUTTINGS 7' - 9' +/-
	2D	24"	20"	11.0'	6	8	9	8	14.0'	BROWN SILTY FINE TO MEDIUM SAND ~ MEDIUM DENSE ~
	3D	24"	22"	16.0'	2	2	2	2		<



BORING NO.:	B-401
SHEET:	2 OF 2
PROJECT NO.:	15-0083
DATE START:	3/5/2015
DATE FINISH:	3/5/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

SOILS SATURATED BELOW 10' +/-

BORING NO.: **B-401**



BORING LOG

BORING NO.: **B-402**
 SHEET: **1 OF 3**
 PROJECT NO.: **15-0083**
 DATE START: **3/10/2015**
 DATE FINISH: **3/10/2015**
 ELEVATION: _____
 SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
 CLIENT: **J & J GOVE DEVELOPMENT, LLC**
 LOCATION: **LARRABEE ROAD AND MAIN STREET**
 DRILLING FIRM: **GREAT WORKS TEST BORING, INC.** DRILLER: **JEFF LEE**
 TYPE: _____ SIZE I.D. _____ HAMMER WT. _____ HAMMER FALL _____
 HW: _____ 4" _____ 140 LBS. _____ 30"
 SS: _____ 1 3/8" _____ 140 LBS. _____ 30"
 CORE BARREL: _____

WATER LEVEL INFORMATION
 SOILS MOIST BELOW 3', WET BELOW 10',
 SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY-BROWN AND BLACK SILTY SAND WITH CONCRETE (FILL) ~ DENSE ~
	1D	14"	14"	4.2'	16	30	50-2"		5.0'	
	2D	11"	11"	5.9'	24	50-5"				LIGHT BROWN SILTY SAND, SOME GRAVEL (FILL) ~ DENSE TO LOOSE ~
									10.0'	
	3D	24"	16"	12.0'	5	5	1	1		GRAY CLAYEY SILT AND FINE SAND (FILL) ~ LOOSE ~
									15.0'	
	4D	24"	18"	17.0'	10	17	16	13		GRAY-BROWN SILTY FINE TO MEDIUM SAND WITH OCCASIONAL SILT PARTINGS ~ DENSE ~
									18.0'	
	5D	24"	22"	22.0'	3	4	5	5		GRAY-BROWN SILTY CLAY WITH OCCASIONAL SAND SEAMS ~ STIFF ~ $q_p = 4 \text{ KSF}$ $q_p = 2 \text{ KSF}$
									22.0'	
	1C	24"	24"	27.0'	PISTON SAMPLER					WASH TURNS GRAY @ 22' +/- GRAY SILTY CLAY $w = 42.1\%$, $W_L = 35$, $W_P = 19$ $S_v = 0.61 / 0.11 \text{ KSF}$ $S_v = 0.59 / 0.05 \text{ KSF}$ ~ MEDIUM ~
	1V			27.8'	3 5/8" X 7" VANE					
	1V			28.6'	3 5/8" X 7" VANE					

SAMPLES: _____ SOIL CLASSIFIED BY: _____ REMARKS: **CONTINUED...**

D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE

☒ DRILLER - VISUALLY
☐ SOIL TECH. - VISUALLY
☐ LABORATORY TEST

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-402**

BORING NO.: B-402



BORING NO.:	B-402
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/10/2015
DATE FINISH:	3/10/2015
ELEVATION:	
SWCOLE REP.	E. WALKER
ER LEVEL INFORMATION	
ST BELOW 3', WET BELOW 10',	
TURATED BELOW 15' +/-	

WATER LEVEL INFORMATION
S MOIST BELOW 3', WET BELOW 10',
SATURATED BELOW 15' +/-

[illegible]

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA		
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24				
									1.0'	ASPHALT MILLINGS (FILL)		
									18.0'	GRAY SILT AND FINE SAND (FILL) ~ MEDIUM DENSE TO DENSE ~		
	1D	24"	18"	4.0'	15	18	18	18				
	2D	24"	18"	6.0'	6	14	19	18				
	3D	24"	20"	11.0'	7	16	19	21				
	4D	24"	18"	16.0'	9	11	12	13				
									20.0'	DARK BROWN TO BROWN SAND, SOME SILT, TRACE ORGANICS (WITH ORGANIC ODOR)		
	5D	24"	20"	21.0'	5	9	9	5	24.0'	q _p = 2 KSF GRAY-BROWN TO BROWN SILTY CLAY WITH CLAYEY SILT SEAMS ~ STIFF TO MEDIUM ~		
	6D	24"	20"	26.0'	2	2	2	2			q _p = 2 KSF q _p = 1 KSF	
											GRAY SILTY CLAY	
											~ MEDIUM ~	
	7D	24"	24"	31.0'	WOH	1	1	1			ADVANCE BY ROD PROBE BELOW 31.0'	
											HYDRAULIC PUSH ROD PROBE 31.0' - 85.5'	
SAMPLES:					SOIL CLASSIFIED BY:				REMARKS: CONTINUED...			
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE					X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST				STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.			
									BORING NO.: B-403			



BORING LOG

BORING NO.: **B-403**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/6/2015**
DATE FINISH: **3/6/2015**
ELEVATION:
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: **HSA 2 1/4"**
SAMPLER: **SS 1 3/8" 140 LBS. 30"**
CORE BARREL:

WATER LEVEL INFORMATION
SOILS DAMP BELOW 4', MOIST BELOW 14',
SATURATED BELOW 16' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 31.0' - 85.5'

SAMPLES:	SOIL CLASSIFIED BY:	REMARKS:
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE	X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST	CONTINUED... STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-403**



BORING NO.:	B-403
SHEET:	3 OF 3
PROJECT NO.:	15-0083
DATE START:	3/6/2015
DATE FINISH:	3/6/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION

SOILS DAMP BELOW 4'. MOIST BELOW 14'.

SATURATED BELOW 16' +/-

[illegible]



BORING LOG

PROJECT: PROPOSED RETAIL DEVELOPMENT
 CLIENT: J & J GOVE DEVELOPMENT, LLC
 LOCATION: LARRABEE ROAD AND MAIN STREET
 DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: BOB MARCOUX
 TYPE SIZE I.D. HAMMER WT. HAMMER FALL
 CASING: HSA 2 1/4"
 SAMPLER: SS 1 3/8" 140 LBS. 30"
 CORE BARREL:

BORING NO.: B-404
 SHEET: 1 OF 3
 PROJECT NO.: 15-0083
 DATE START: 3/5/2015
 DATE FINISH: 3/5/2015
 ELEVATION:
 SWCOLE REP. E. WALKER

WATER LEVEL INFORMATION

SOILS WET BELOW 4' +/-
 SOILS SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									1.0'	CRUSHED STONE (FILL)
	1D	24"	20"	4.0'	34	28	33	31		BROWN TO GRAY GRAVELLY SILTY SAND (FILL) ~ DENSE ~ P.I.D. = 0.3 PPM
	2D	24"	22"	6.0'	16	16	16	23		
									9.0'	
	3D	24"	22"	11.0'	9	7	6	5		GRAY SILT AND FINE SAND, SOME SILTY CLAY SEAMS WITH BLACK ORGANICS (FILL) ~ MEDIUM DENSE ~ P.I.D. = 0.4 PPM
									14.0'	
									15.0'	BROWN PEAT WITH WOOD ~ LOOSE ~
	4D	24"	18"	16.0'	2	2	2	7	15.5'	GRAY-BROWN SAND, SOME SILT, WITH ORGANICS ~ LOOSE ~
									18.0'	BROWN PEAT ~ LOOSE ~
										GRAY-BROWN SILTY CLAY ~ STIFF ~ q _p = 3.5 - 4 KSF
	5D	24"	18"	21.0'	2	3	4	4	21.0'	
										GRAY SILTY CLAY ADVANCE BY ROD PROBE BELOW 26.0' HYDRAULIC PUSH ROD PROBE 26.0' - 90.0'
	6D	24"	24"	26.0'	2	2	1	2		

SAMPLES: SOIL CLASSIFIED BY:
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE
 DRILLER - VISUALLY
 SOIL TECH. - VISUALLY
 LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-404



BORING LOG

BORING NO.: **B-404**
SHEET: 2 OF 3
PROJECT NO.: 15-0083
DATE START: 3/5/2015
DATE FINISH: 3/5/2015
ELEVATION:
SWCOLE REP. E. WALKER

PROJECT: PROPOSED RETAIL DEVELOPMENT
CLIENT: J & J GOVE DEVELOPMENT, LLC
LOCATION: LARRABEE ROAD AND MAIN STREET
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: BOB MARCOUX
TYPE SIZE I.D. HAMMER WT. HAMMER FALL
CASING: HSA 2 1/4"
SAMPLER: SS 1 3/8" 140 LBS. 30"
CORE BARREL:

WATER LEVEL INFORMATION

SOILS WET BELOW 4' +/-
SOILS SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 26.0' - 90.0'

SAMPLES:	SOIL CLASSIFIED BY:	REMARKS:
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE	X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST	CONTINUED... STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.



BORING NO.: **B-404**



BORING LOG

BORING NO.: **B-404**
SHEET: **3 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/5/2015**
DATE FINISH: **3/5/2015**
ELEVATION:
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: TYPE **HSA** SIZE I.D. **2 1/4"** HAMMER WT. **140 LBS.** HAMMER FALL **30"**
SAMPLER: **SS**
CORE BARREL:

WATER LEVEL INFORMATION

SOILS WET BELOW 4' +/-
SOILS SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 26.0' - 90.0'				
										BOTTOM OF EXPLORATION @ 90.0'				
SAMPLES:					SOIL CLASSIFIED BY:					REMARKS:				
D = SPLIT SPOON					DRILLER - VISUALLY					STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
C = 3" SHELBY TUBE					SOIL TECH. - VISUALLY									
U = 3.5" SHELBY TUBE					LABORATORY TEST									



BORING NO.: **B-404**



BORING NO.:	B-405
SHEET:	1 OF 3
PROJECT NO.:	15-0083
DATE START:	3/4/2015
DATE FINISH:	3/4/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS SATURATED BELOW 9' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
	1D	6"	6"	0.5'	65				14.0'	GRAY-BROWN TO GRAY GRAVELLY SILTY SAND WITH TRACE ORGANICS (FILL) ~ MEDIUM DENSE ~ BOULDER OR RUBBLE 5.8' TO 7' +/- WOOD IN AUGER CUTTINGS 12' - 14' +/-
	2D	22"	16"	5.8'	8	9	11	50-4"		
	3D	10"	6"	9.8'	5	50-4"				
	4D	24"	16"	16.0'	6	3	3	3	19.0'	GRAY-BROWN SILTY CLAY (POSSIBLY DISTURBED / FILL) ~ MEDIUM ~
	5D	24"	20"	21.0'	2	3	4	4	24.0'	GRAY-BROWN SILTY CLAY ~ MEDIUM ~
	6D	24"	24"	26.0'	1	2	1	2		GRAY SILTY CLAY ~ MEDIUM ~ ADVANCE BY ROD PROBE BELOW 31.0' HYDRAULIC PUSH ROD PROBE 31.0' - 90.0'
	7D	24"	24"	31.0'	1	1	1	1		

SAMPLES:

D = SPLIT SPOON

C = 3" SHELBY TUBE

U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

☐

☒

☐

DRILLER - VISUALLY

SOIL TECH. - VISUALLY

LABORATORY TEST

REMARKS:

CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-405**



BORING LOG

BORING NO.: **B-405**
SHEET: **2 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/4/2015**
DATE FINISH: **3/4/2015**
ELEVATION: _____
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: **HSA** **2 1/4"**
SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
CORE BARREL: _____

WATER LEVEL INFORMATION
SOILS SATURATED BELOW 9' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 31.0' - 90.0'

SAMPLES:	SOIL CLASSIFIED BY:	REMARKS:
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE	☒ DRILLER - VISUALLY ☐ SOIL TECH. - VISUALLY ☐ LABORATORY TEST	CONTINUED... STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.



BORING NO.: **B-405**



BORING LOG

BORING NO.: **B-405**
SHEET: **3 OF 3**
PROJECT NO.: **15-0083**
DATE START: **3/4/2015**
DATE FINISH: **3/4/2015**
ELEVATION:
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: **HSA 2 1/4"**
SAMPLER: **SS 1 3/8" 140 LBS. 30"**
CORE BARREL:

WATER LEVEL INFORMATION
SOILS SATURATED BELOW 9' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										GRAY SILTY CLAY HYDRAULIC PUSH ROD PROBE 31.0' - 90.0'
										BOTTOM OF EXPLORATION @ 90.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

X

DRILLER - VISUALLY
SOIL TECH. - VISUALLY
LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE
APPROXIMATE BOUNDARY BETWEEN SOIL TYPES
AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-405**



BORING NO.:	B-501
SHEET:	1 OF 1
PROJECT NO.:	15-0083
DATE START:	3/12/2015
DATE FINISH:	3/12/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

ER LEVEL INFORMATION

ILS WET BELOW 5' +/-

URATED BELOW 12' +/-

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

[illegible]

BORING NO.: B-502



BORING LOG

BORING NO.: **B-601**
SHEET: **1 OF 1**
PROJECT NO.: **15-0083**
DATE START: **3/11/2015**
DATE FINISH: **3/11/2015**
ELEVATION: _____
SWCOLE REP. **E. WALKER**

PROJECT: **PROPOSED RETAIL DEVELOPMENT**
CLIENT: **J & J GOVE DEVELOPMENT, LLC**
LOCATION: **LARRABEE ROAD AND MAIN STREET**
DRILLING FIRM: **S.W. COLE EXPLORATIONS, LLC** DRILLER: **BOB MARCOUX**
CASING: **HSA** **2 1/4"**
SAMPLER: **SS** **1 3/8"** **140 LBS.** **30"**
CORE BARREL: _____

WATER LEVEL INFORMATION
SOILS MOIST BELOW 9', WET BELOW 14'
SATURATED BELOW 19' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2"	ASPHALT PAVEMENT
									2.0'	BROWN GRAVELLY SAND, SOME SILT, WITH COBBLES (FILL)
	1D	24"	20"	4.0'	21	25	24	20		BROWN GRAVELLY SILTY SAND ~ DENSE ~
	2D	24"	14"	6.0'	12	18	19	25		
									9.0'	
	3D	24"	16"	11.0'	11	22	24	25		LIGHT GRAY-BROWN SILTY SAND, SOME GRAVEL, WITH COBBLES (GLACIAL TILL) ~ DENSE ~
									14.0'	
	4D	24"	14"	16.0'	14	32	11	10		LIGHT GRAY GRAVELLY SILT AND SAND (GLACIAL TILL) ~ DENSE ~
	5D	24"	16"	21.0'	15	21	17	18	21.0'	
										BOTTOM OF EXPLORATION @ 21.0'
SAMPLES:					SOIL CLASSIFIED BY:				REMARKS:	
D = SPLIT SPOON					☐				STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.	
C = 3" SHELBY TUBE					☒					
U = 3.5" SHELBY TUBE					☐					
					DRILLER - VISUALLY					
					SOIL TECH. - VISUALLY					
					LABORATORY TEST				BORING NO.: B-601	

BORING NO.: B-701

BORING LOG

BORING NO.:	B-801
SHEET:	1 OF 1
PROJECT NO.:	15-0083
DATE START:	3/11/2015
DATE FINISH:	3/11/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT				
CLIENT :	J & J GOVE DEVELOPMENT, LLC				
LOCATION:	LARRABEE ROAD AND MAIN STREET				
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC			DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL	
CASING:	HSA	2 1/4"			
SAMPLER:	SS	1 3/8"	140 LBS.	30"	
CORE BARREL:					

WATER LEVEL INFORMATION

SOILS WET @ GROUND SURFACE
SOILS SATURATED BELOW 9' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2"	ASPHALT MILLINGS
	1D	17"	17"	1.4'	12	30	50-5"		4.0'	BROWN TO GRAY SILTY SAND (FILL) ~ DENSE ~
									5.5'	GRAY TO BLACK SILTY SAND, SOME GRAVEL (FILL) ~ DENSE ~
	2D	24"	24"	6.0'	11	27	29	24	9.5'	LIGHT BROWN SILTY SAND ~ DENSE ~
									13.0'	BROWN SILTY CLAY ~ VERY STIFF ~
	3D	24"	20"	11.0'	3	4	4	5		GRAY WITH BLACK STREAKING SILTY CLAY ~ MEDIUM ~
										ADVANCE BY ROD PROBE BELOW 16.0"
	4D	24"	24"	16.0'	WOR-12"	WOH-12"				HYDRAULIC PUSH ROD PROBE 16.0' - 24.0'
										SWITCH TO 140 LB HAMMER @ 24.0'
										24.0' - 24.5' : 24 BLOWS
										24.5' - 25.0' : 20 BLOWS
										25.0' - 25.5' : 18 BLOWS
										BOTTOM OF EXPLORATION @ 25.5'

SAMPLES:

D = SPLIT SPOON

C = 3" SHELBY TUBE

U = 3.5" SHELBY TUBE

X

DRILLER - VISUALLY

SOIL TECH. - VISUALLY

LABORATORY TEST

SOIL CLASSIFIED BY:

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.:

B-801



BORING NO.:	B-802
SHEET:	1 OF 1
PROJECT NO.:	15-0083
DATE START:	3/12/2015
DATE FINISH:	3/12/2015
ELEVATION:	
SWCOLE REP.	E. WALKER

PROJECT:	PROPOSED RETAIL DEVELOPMENT			
CLIENT :	J & J GOVE DEVELOPMENT, LLC			
LOCATION:	LARRABEE ROAD AND MAIN STREET			
DRILLING FIRM:	S.W. COLE EXPLORATIONS, LLC		DRILLER:	BOB MARCOUX
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS WET BELOW 14',
SATURATED BELOW 18' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2"	ASPHALT PAVEMENT
	1D	16"	16"	1.5'	15	37	50-4"		8.0'	P.I.D. = 2.1 PPM P.I.D. = 21 PPM DARK GRAY-BROWN GRAVELLY SAND, SOME SILT WITH METAL AND TRACE ORGANICS (FILL) <FUEL ODOR 1D, 2D, AND 3D> P.I.D. = 10.8 PPM ~ MEDIUM DENSE ~
	2D	9"	9"	2.8'	48	50-3"				
	3D	24"	18"	6.0'	13	12	15	11		
									14.0'	BROWN SILTY CLAY q _p = 6.5 - 7 KSF ~ VERY STIFF ~
	4D	24"	18"	11.0'	3	5	6	9		
	5D	24"	20"	16.0'	2	3	4	3	19.0'	~ STIFF ~ q _p = 3 KSF ~ MEDIUM ~ GRAY SILTY CLAY
	6D	24"	24"	21.0'	WOR	WOR	1	1	21.0'	GRAY WITH BLACK STREAKING SILTY CLAY ~ MEDIUM ~
										BOTTOM OF EXPLORATION @ 21.0'

SAMPLES:	SOIL CLASSIFIED BY:	REMARKS:
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE	X DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST	STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-802

KEY TO THE NOTES & SYMBOLS

Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	1/2" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.



APPENDIX B
LABORATORY TESTING

DRAFT

Consolidation Test

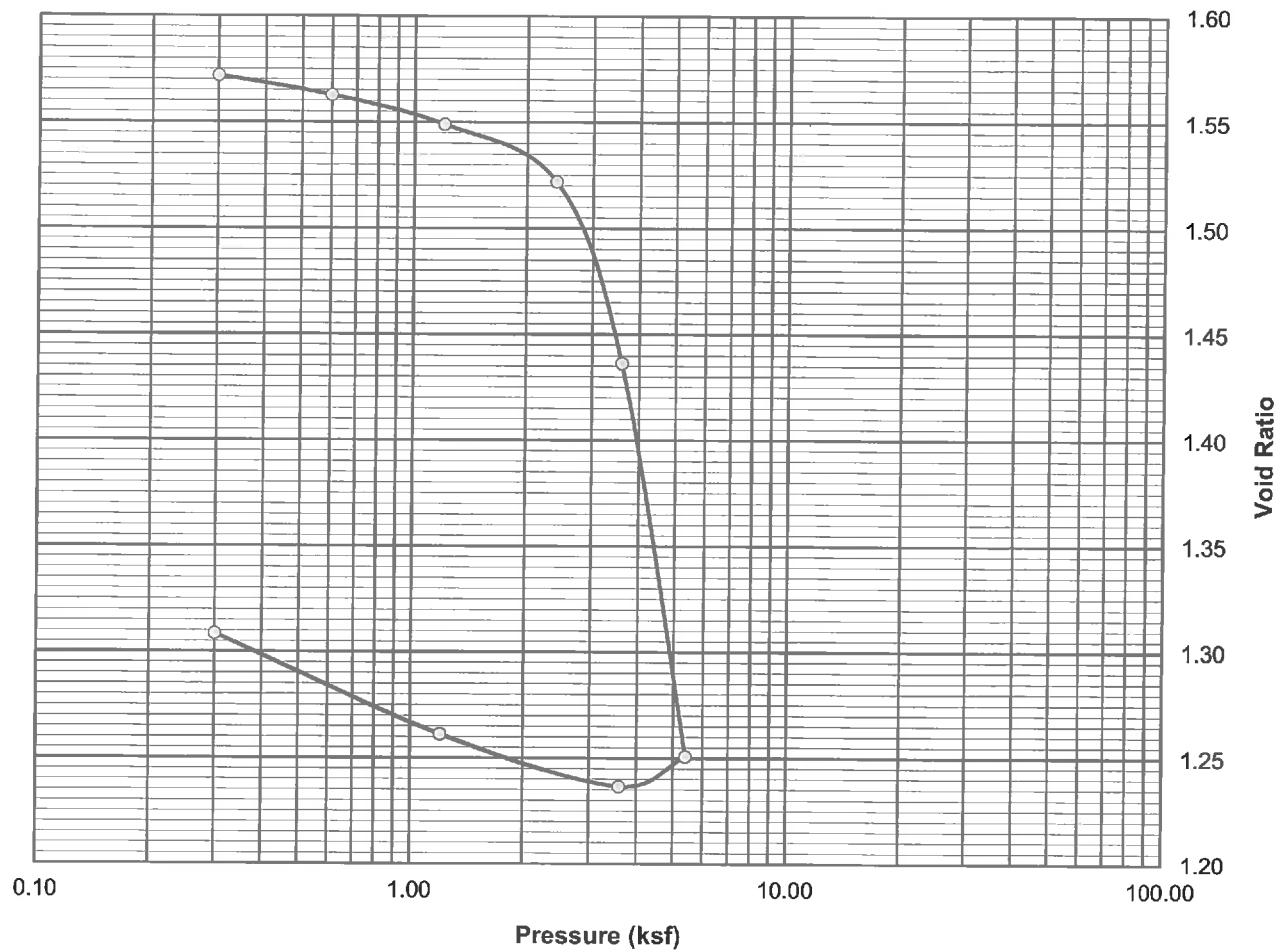
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18215B
Date: 3/12/2015

Boring: B-5
Sample: 1C
Depth: 25-27'

P_C	=	3.0 KSF
C_C	=	1.05
C_R	=	0.05
w	=	58.2%
W_L	=	45
W_P	=	23



Comments:

EMW

Reviewed By



Consolidation Test

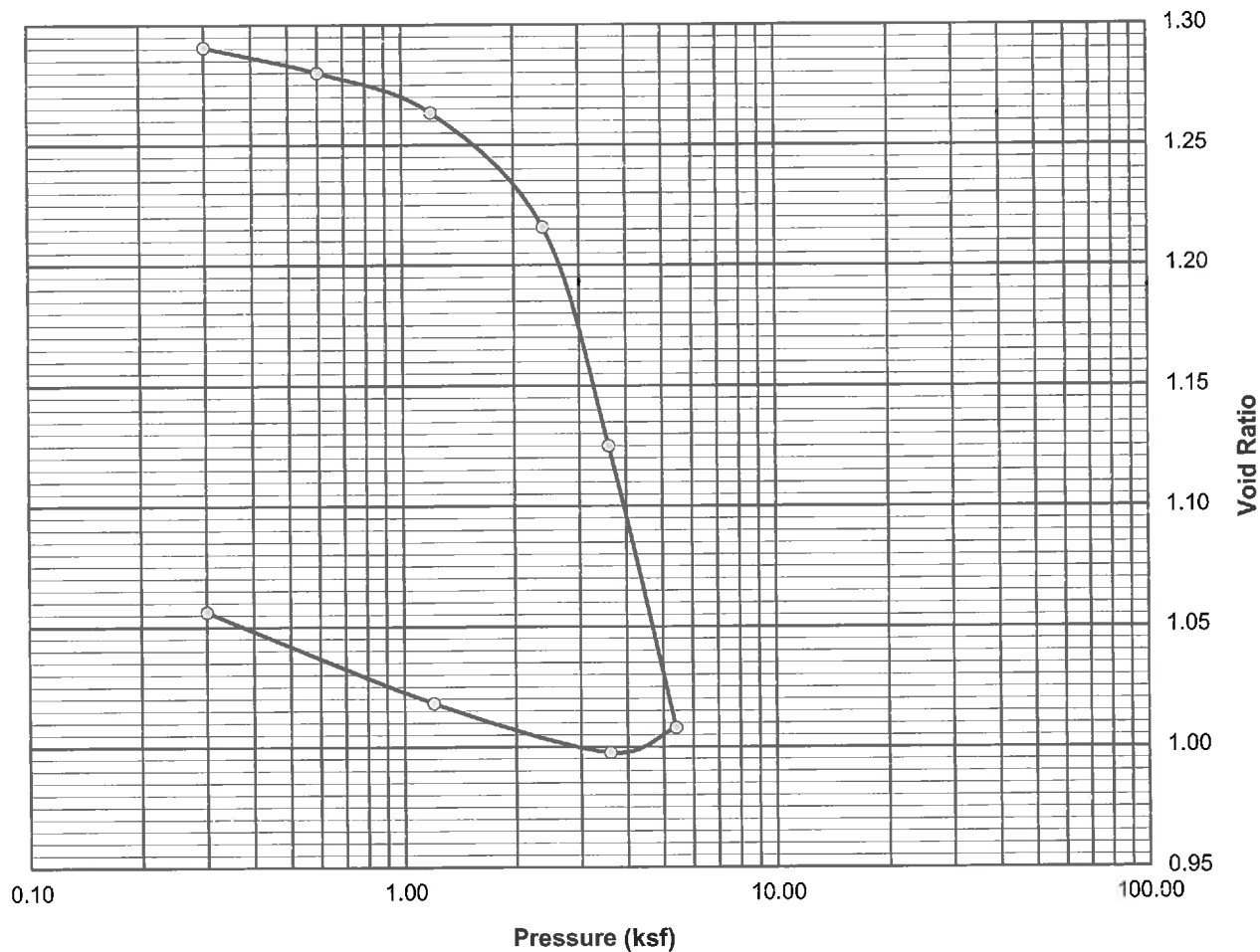
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18216B
Date: 3/12/2015

Boring: B-5
Sample: 2C
Depth: 35-37'

P_C	=	2.6 KSF
C_C	=	0.66
C_R	=	0.04
w	=	48.8%
W_L	=	37
W_P	=	22



Comments:

EMW

Reviewed By



Consolidation Test

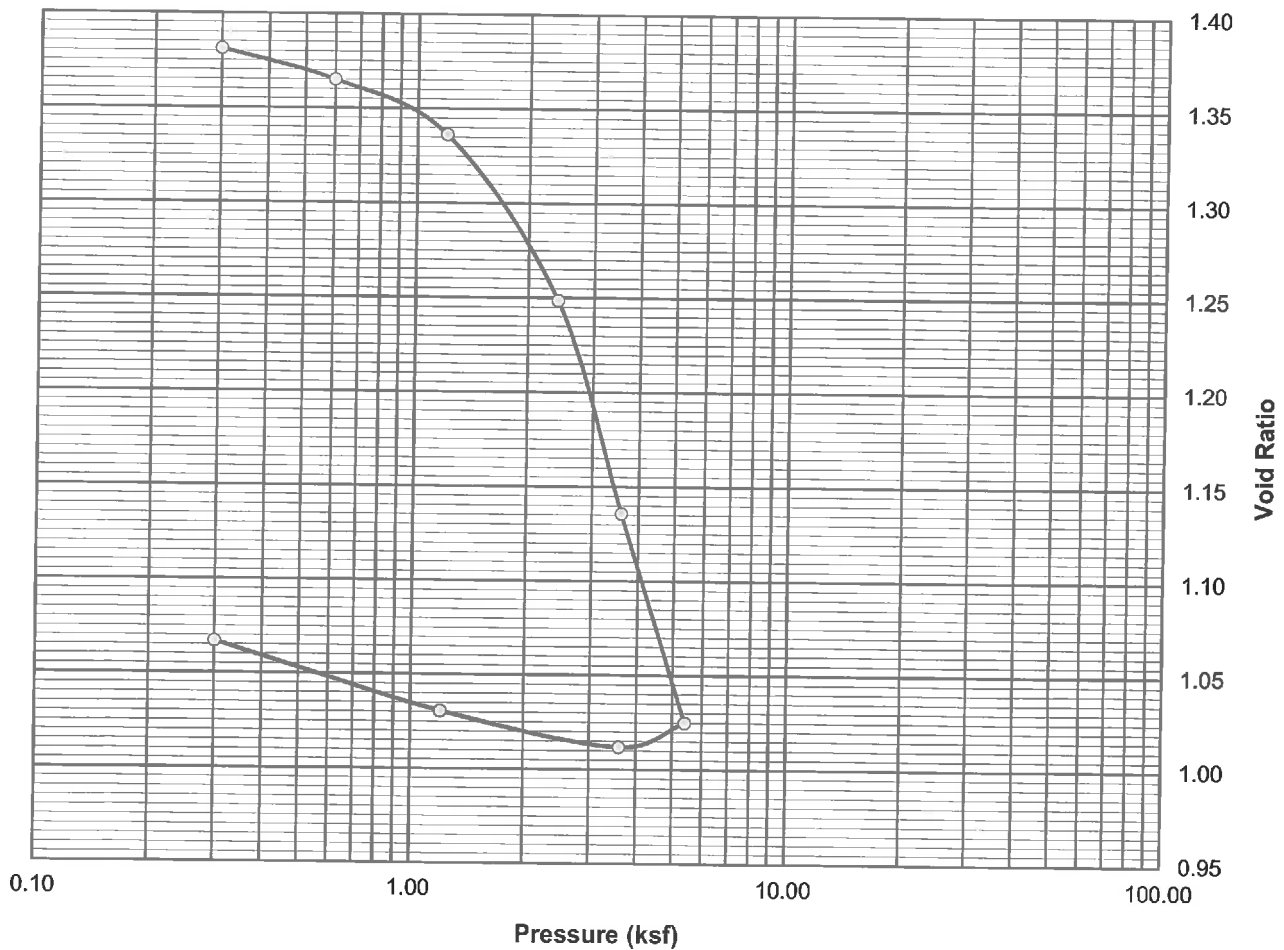
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18217B
Date: 3/12/2015

Boring: B-5
Sample: 3C
Depth: 45-47'

P_C	=	2.0 KSF
C_C	=	0.63
C_R	=	0.05
w	=	53.0%
W_L	=	38
W_P	=	20



Comments:

EMW

Reviewed By



Consolidation Test

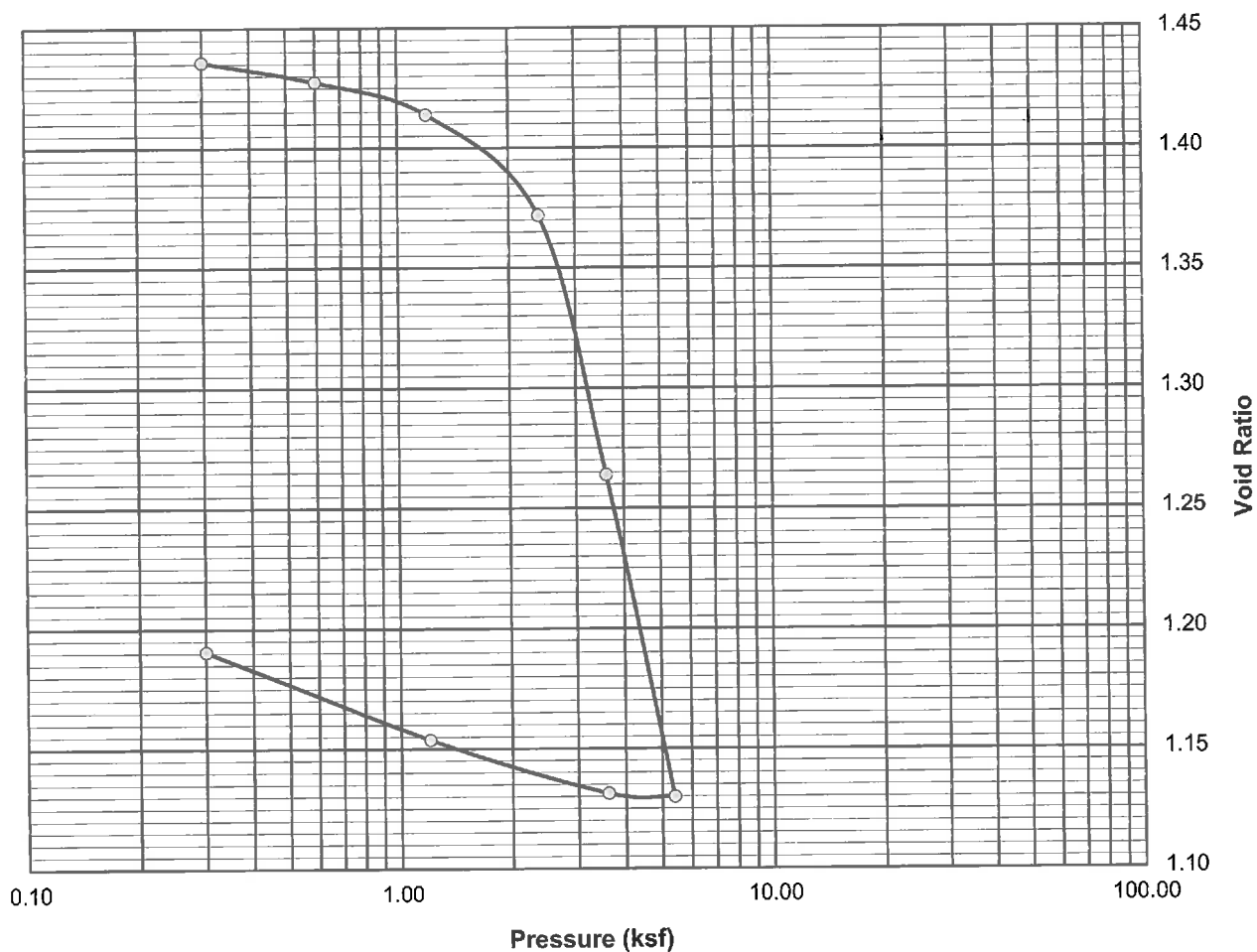
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18240B
Date: 3/25/2015

Boring: B-203
Sample: 1C
Depth: 20-22'

P_C	=	2.4 KSF
C_C	=	0.76
C_R	=	0.03
w	=	53.4%
W_L	=	46
W_P	=	23



Comments:

EMW

Reviewed By



Consolidation Test

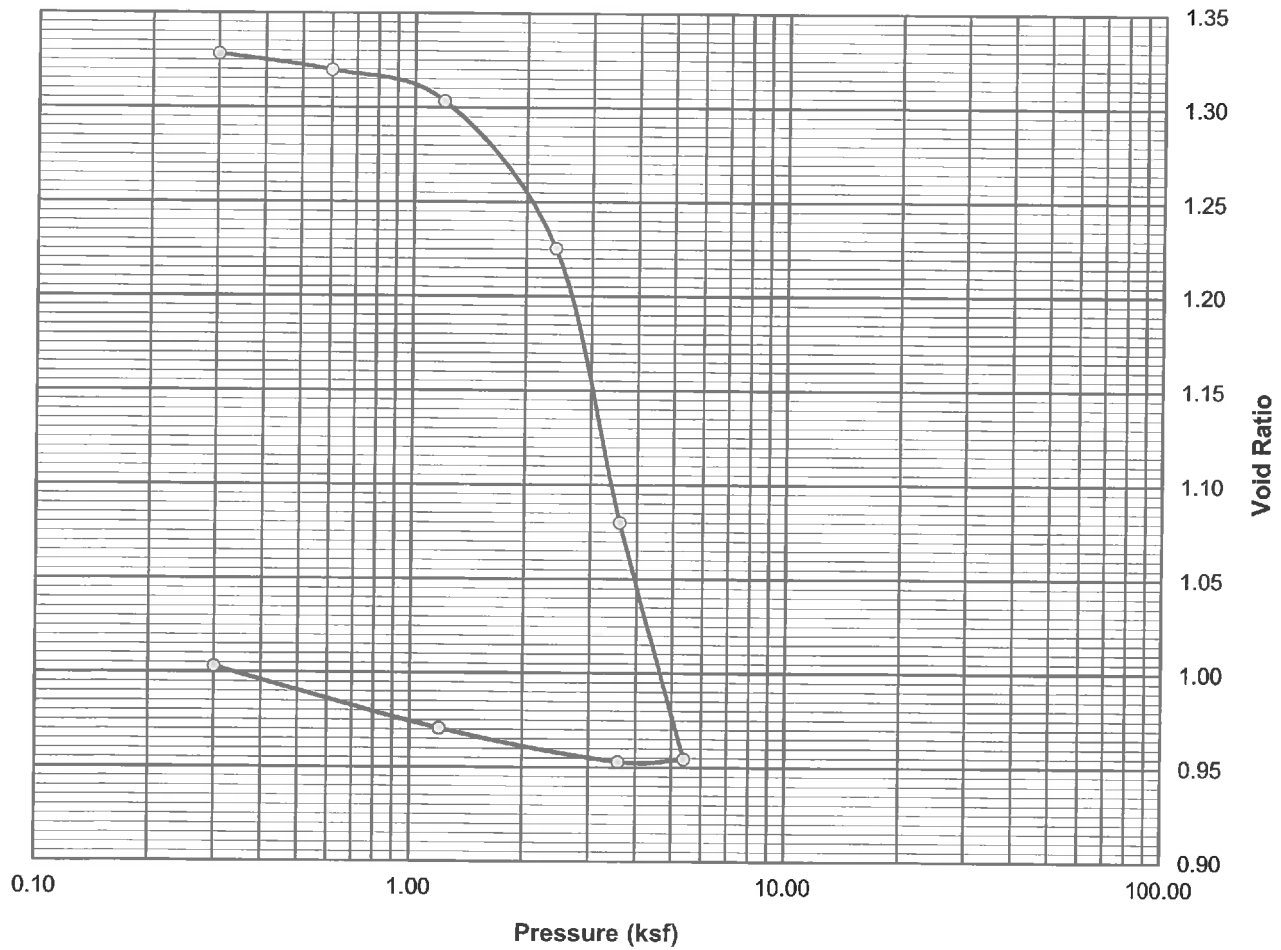
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18241B
Date: 3/25/2015

Boring: B-203
Sample: 2C
Depth: 40-42'

P_C	=	2.0 KSF
C_C	=	0.71
C_R	=	0.03
w	=	49.5%
W_L	=	41
W_P	=	20



Comments:

EMW

Reviewed By



Consolidation Test

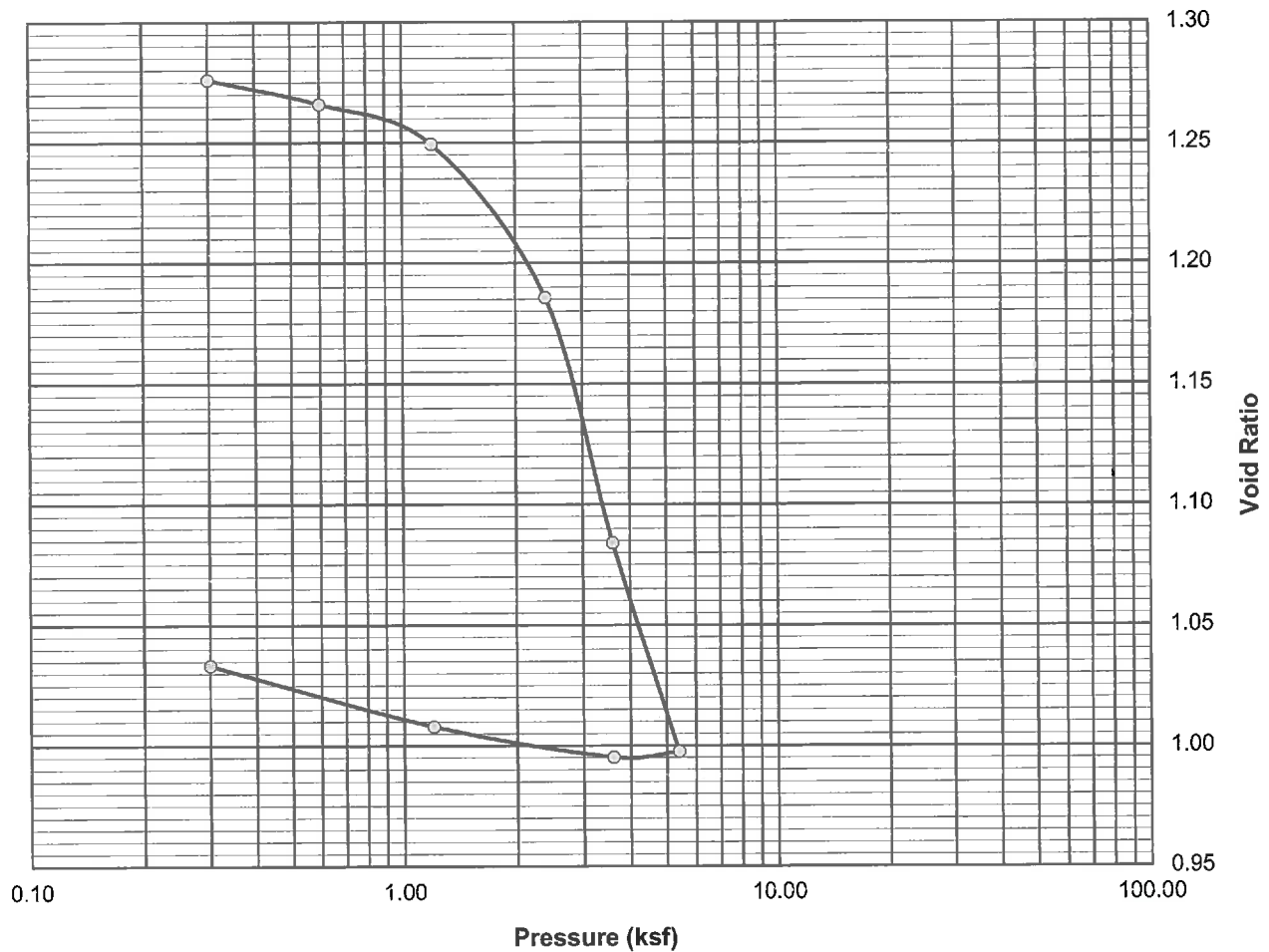
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18218B
Date: 3/12/2015

Boring: B-302
Sample: 2C
Depth: 30-32'

P_C	=	1.8 KSF
C_C	=	0.49
C_R	=	0.03
w	=	46.5%
W_L	=	38
W_P	=	19



Comments:

EMW

Reviewed By



Consolidation Test

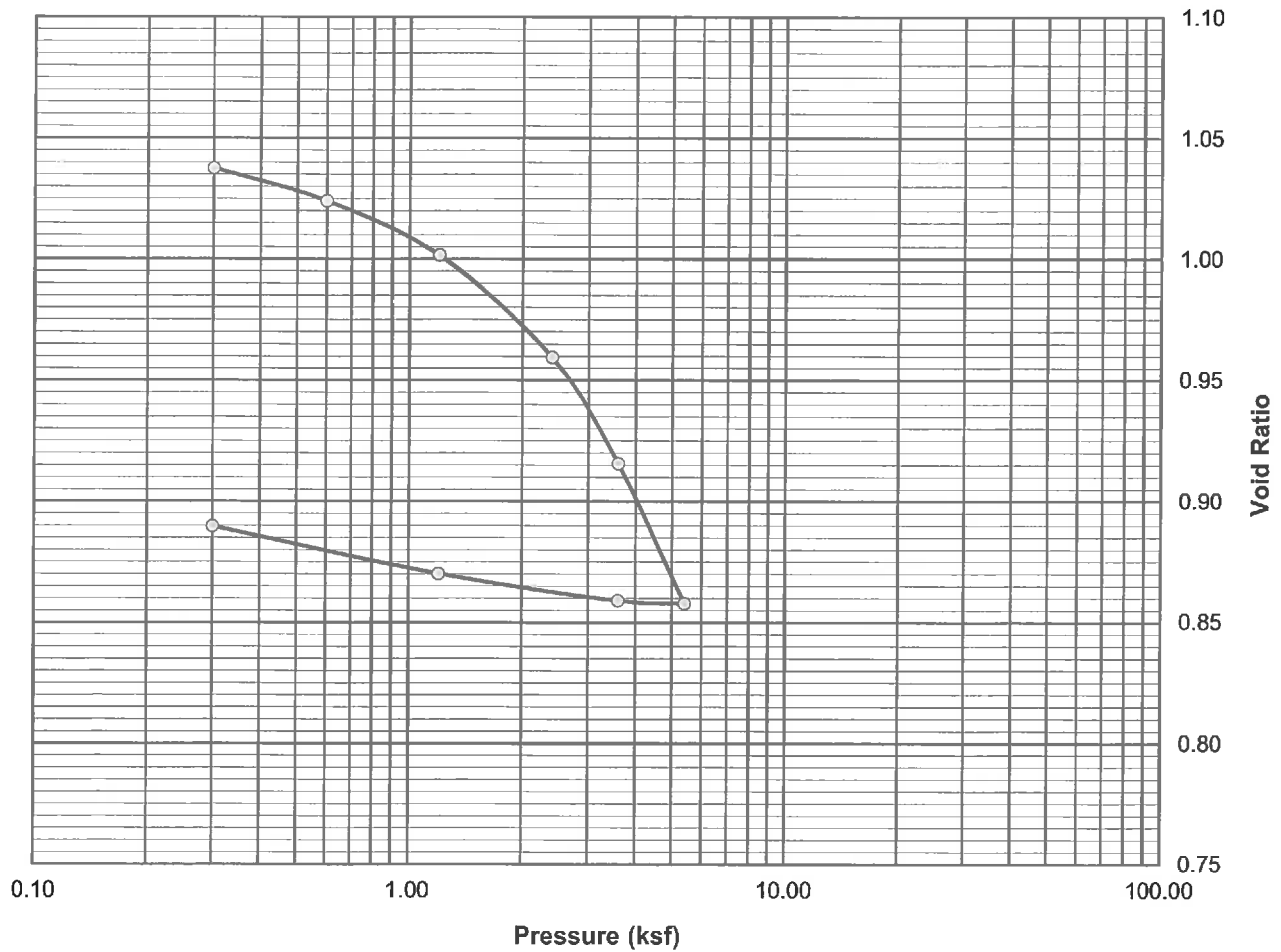
ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18219B
Date: 3/14/2015

Boring: B-302
Sample: 3C
Depth: 40-42'

P_C	=	2.3 KSF
C_C	=	0.33
C_R	=	0.04
w	=	39.8%
W_L	=	42
W_P	=	21



Comments:

EMW

Reviewed By



Consolidation Test

ASTM D-4767

Project Name: Proposed Retail Development, Westbrook, Maine
Client: J & J Development, LLC

Project Number: 15-0083
Lab ID: 18220B
Date: 3/14/2015

Boring: B-402
Sample: 1C
Depth: 25-27'

P_C	= 1.5 - 1.8
C_C	= 0.26
C_R	= 0.07
w	= 42.1%
W_L	= 35
W_P	= 19



Comments:

EMW

Reviewed By



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Test Pit: **One**
Soil Description: Soil Fill in Pile (SO)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

- 0 - 24" Very dark grayish brown (10YR 3/2) fine sandy loam, granular, friable.
- 24 - 48" Light yellowish brown (2.5Y 6/3) stony fine sandy loam, friable, blocky.
- 48 - 60" Very dark brown (2.5Y 3/3) stony fine sandy loam, friable, blocky.
- 60 - 72" Dark yellowish brown (10YR 4/4) gravely fine sandy loam, firm, blocky.
- 72 - 84" Light gray (2.5Y 7/1) silt loam, firm, blocky, with redoximorphic ('redox.') features.

Test Pit: **Two**
Soil Description: Compact Reclaim over Sandy Fill (CR)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

- 0 - 12" Grayish brown (2.5Y 5/2) crushed concrete dust and chips less than 2" with some continuous buried pavement.
- 12 - 32" Light olive brown (2.5Y 5/4) sand, loose to compact, massive.
- 32 - 72" Light yellowish brown (2.5Y 6/3) stony loamy sand, firm, massive.

Test Pit: **Three**
Soil Description: Compact Reclaim over Sandy Fill (CR)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

- 0 - 24" Gray (2.5Y 5/1) crushed concrete dust and chips less than 2" with some continuous buried pavement.
- 24 - 36" Brownish yellow (10YR 6/6) loamy sand, friable, blocky.
- 36 - 72" Light olive brown (2.5Y 5/6) sand, loose to compact, massive.

Test Pit: **Four**
Soil Description: Compact Reclaim over Sandy Fill (CR)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

- 0 - 36" Gray (2.5Y 5/1) crushed concrete dust and chips less than 2" and crushed stone, with two continuous buried pavement layers.
- 24 - 36" Brownish yellow (10YR 6/6) loamy sand, friable, blocky.
- 36 - 72" Light olive brown (2.5Y 5/6) sand, loose to compact,

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massive.

Test Pit: **Five**
Soil Description: Compact Reclaim over Sandy Fill (CR)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 12" Very dark gray (2.5Y 3/1) reclaimed asphalt, concrete dust and chips less than 2", firm.
12 - 30" Pale olive (5Y 6/3) stony fine sandy loam, firm, massive.
30 - 72" Light olive brown (2.5Y 5/3) stony loamy sand, friable, massive.

Test Pit: **Six**
Soil Description: Compact Reclaim over Sandy Fill (CR)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 36" Alternating layers of olive brown (2.5Y 4/4) gravely sandy loam, firm, massive; olive brown (2.5Y 4/3) crushed concrete, firm, massive; and pale olive (2.5Y 7/3) gravely sand, loose, single grain.
36 - 72" Olive brown (2.5Y 4/3) gravely fine sandy loam, firm, massive.

Test Pit: **Seven**
Soil Description: Stone Dust and Wash Tailings (SW)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 30" Very dark gray (2.5Y 3/1) reclaimed asphalt, crushed concrete dust and chips less than 2".
30 - 72" Gray (5Y 5/1) concrete dust and wash tailings, firm, blocky.

Observed water flowing into the pit from top to bottom.

Test Pit: **Eight**
Soil Description: Stone Dust & Wash Tailings in Pile (SP)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 30" Gray (5Y 5/1) silt from stone dust and wash tailings, firm, blocky.
30 - 84" Grayish brown (2.5Y 5/2) silt from stone dust wash tailings, firm, blocky.

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Test Pit: **Nine**
Soil Description: Unstable Concrete Waste (UC)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 5" Very dark grayish brown (10YR 3/2) stony fine sandy loam fill, friable, granular.
5 - 72" Gray (5Y 6/1) crushed concrete dust and chips with large slabs of concrete.
72 - 84" Gray (2.5Y 5/1) silt loam, friable, massive, with redox. (Buried wetland surface).
Observed water flowing into pit at 30" depth.

Test Pit: **Ten**
Soil Description: Elmwood Soil (Em)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 10" Very dark gray (2.5Y 3/2) very fine sandy loam, granular, friable.
10 - 20" Dark yellowish brown (10YR 4/4) very fine sandy loam, blocky, friable.
20 - 36" Olive (5Y 5/4) very fine sandy loam, blocky, friable, with redox.
36 - 76" Gray (2.5Y 5/1) silty clay loam, firm, blocky, redox.

Test Pit: **Eleven**
Soil Description: Stone Dust and Wash Tailings (SW)
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 30" Dark brown (10YR 3/3) silt from stone dust and wash tailings, granular, friable.
30 - 48" Light olive brown (2.5Y 5/3) silt from stone dust and wash tailings, friable, blocky, with redox.
48 - 90" Olive gray (5Y 5/2) silt from stone dust and wash tailings, friable, blocky, with redox.

Test Pit: **Twelve**
Soil Description: Soil Fill in Pile
Job Site: Pike, Westbrook, Maine
Date: 22 June 2015

0 - 12" Dark gray (2.5Y 5/1) gravely crushed concrete.
12 - 30" Light olive brown (2.5Y 5/3) stony loamy sand, firm, massive.
30 - 48" Pale olive (2.5Y 6/3) stony loamy sand, firm, massive.
48 - 84" Pale olive (5Y 6/4) stony loamy sand, friable, massive.

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Soil Observation:

A

Soil Description:

Silty Poorly Drained Fill (SI)

Job Site:

Pike, Westbrook, Maine

Date:

22 June 2015

- 0 - 15" Light gray (2.5Y 7/2) gravely crushed concrete and sediment overflowed from sedimentation trap.
- 15 - 30" Dark gray (2.5Y 4/1) gravely crushed concrete and sediment overflowed from sedimentation trap.
- 30 - 40" Dark gray (2.5Y 4/1) gravely crushed concrete and sediment overflowed from sedimentation trap mixed with organic soils (muck) from underlying natural wetland.

Observation discontinued.

Soil Observation:

B

Soil Name:

Roundabout (Rd)

Job Site:

Pike, Westbrook, Maine

Date:

22 June 2015

- 0 - 7" Very dark gray (2.5Y 3/1) very fine sandy loam, granular, friable, with redox.
- 7 - 14" Light gray (2.5Y 7/2) very fine sandy loam, blocky, friable with redox.
- 14 - 21" Light olive brown (2.5Y 5/3) loamy very fine sandy loam, blocky, friable, with redox.
- 21 - 40" Olive brown (2.5Y 4/4) silt loam, firm, blocky, with redox.

Observation discontinued.

TEST PITS
FOR
MAIN STREET
WESTBROOK, ME
FEBRUARY 15, 2016
JBE Project No. 14110

Performed by: Wayne Morrill, Jones & Beach Engineers, Inc., SSD #1358

Test Pit #13

0"- 12"		topsoil
12"-19"	2.5Y 6/4	light yellowish brown gravelly sand granular, friable
19"-32"	2.5Y 5/2	grayish brown loamy sand granular, friable

No SHWT
Roots to 32"
No H₂O observed
Refusal observed 32"

Test Pit #14

0"- 8"		topsoil
8"-22"	10YR 3/6	dark yellowish brown loamy sand granular, friable
22"-41"	2.5Y 5/6	light olive brown fine sand granular, friable
41"-65"	2.5Y 7/4	pale yellow loamy sand granular, friable

No SHWT
Roots to 22"
No H₂O observed
No Refusal observed

Test Pit #15

0"- 7"

topsoil

7"-33"

2.5Y 4/3

olive brown
loamy sand
granular, friable

33"-65"

2.5Y 6/4

light yellowish brown
single grain sand
granular, friableNo SHWT
Roots to 24"
No H₂O observed
No Refusal observed**Test Pit #16**

0"- 6"

processed pavement

6"-46"

5Y 4/2

olive gray
processed gravel
granular, firmNo SHWT
No Roots observed
No H₂O observed
Refusal observed 46"**Test Pit #17**

0"- 30"

2.5Y 5/1

gray
stonedust

30"-42"

5Y 5/2

olive gray
processed gravel
granular, friableNo SHWT
No Roots observed
No H₂O observed
No Refusal observed**Test Pit #18**

0"- 42"

2.5Y 4/2

dark grayish brown
processed gravel
granular, friableNo SHWT
No Roots observed
No H₂O observed
No Refusal observed

Test Pit #19

0"- 24"

2.5Y 3/1

very dark gray
processed gravel
granular, firm

24"-48"

5Y 4/3

olive
loamy sand
granular, friable

No SHWT

No Roots observed

No H₂O observed

No Refusal observed

Test Pit #20

0"-12"

5Y 5/1

gray
processed gravel

12"-42"

5Y 4/2

olive gray
processed gravel
granular, firm

No SHWT

No Roots observed

No H₂O observed

Refusal observed 42"

Test Pit #21

0"- 8"

topsoil

8"-24"

10YR 4/6

dark yellowish brown
loamy sand
granular, friable

24"-44"

2.5Y 4/3

olive brown
fine sandy loam
granular, friable

44"-70"

Gley 1 3/2

very dark grayish green
clay
massive, firm

SHWT = 24"

Roots to 24"

H₂O observed 24"

No Refusal observed

Test Pit #22

0"-12"		topsoil
12"-39"	2.5Y 5/2	grayish brown loamy sand granular, friable
39"-58"	2.5Y 4/2	dark grayish brown loamy sand granular, friable
58"-73"	Gley 1 3/2	very dark grayish green clay massive, firm

SHWT = 30"
Roots to 42"
No H₂O observed
No Refusal observed

Test Pit #23

0"-6"		topsoil
6"-16"	2.5Y 3/3	dark olive brown fine sandy loam granular, friable
16"-36"	2.5Y 4/3	olive brown fine sandy loam granular, firm
36"-70"	5Y 4/1	dark gray loamy sand granular, firm

No SHWT
No Roots observed
H₂O observed 48"
No Refusal observed

Test Pit #24

0"-7"	5Y 5/2	olive gray glashil till
7"-36"	5Y 5/2	olive gray loamy sand granular, friable
36"-50"	2.5Y 4/3	olive brown loamy sand granular, friable

SHWT = 24"
Roots to 24"
H₂O observed 36"
No Refusal observed

Test Pit #25

0"-118"	5Y 6/1	gray glashil till
---------	--------	----------------------

No SHWT
No Roots observed
No H₂O observed
No Refusal observed

Test Pit #26

0"-10"		topsoil
10"-16"	2.5Y 4/3	olive brown fine sandy loam granular, friable
16"-44"	2.5Y 4/2	dark grayish brown fine sandy loam granular, firm
44"-67"	Gley 1 3/2	very dark grayish green marine clay massive, firm

SHWT = 44"
Roots to 50"
No H₂O observed
No Refusal observed

Test Pit #27

0"-32"	5Y 6/1	gray glashil till
32"-66"	2.5Y 5/3	light olive brown loamy sand granular, friable
66"-70"	2.5Y 3/1	very dark gray topsoil

No SHWT
No Roots observed
No H₂O observed
No Refusal observed

Test Pit #28

0"-10"	5Y 6/1	gray glashil till
10"-27"	10YR 3/3	dark brown loamy sand granular, friable
27"-36"	2.5Y 2.5/1	black processed gravel granular, firm
36"-70"	5Y 4/1	dark gray silt clay loam massive, firm

SHWT = 36"
No Roots observed
No H₂O observed
No Refusal observed

Test Pit #30

0"-60"	crushed concrete
--------	------------------

No SHWT
No Roots observed
No H₂O observed
No Refusal observed

Test Pit #31

0"-7"		topsoil
7"-16"	2.5Y 5/2	grayish brown fine sandy loam granular, friable
16"-31"	2.5Y 4/3	olive brown fine sandy loam granular, firm
31"-70"	5Y 4/2	olive gray silt clay loam massive, firm

SHWT = 16"
Roots to 36"
No H₂O observed
No Refusal observed

Test Pit #32

0"-18"	2.5Y 3/2	very dark grayish brown topsoil
18"-57"	5Y 4/2	olive gray silt clay loam massive, firm

SHWT = 18"
Roots to 30"
H₂O observed 18"
No Refusal observed

Test Pit #33

0"- 8"		topsoil
8"-24"	2.5Y 5/2	grayish brown loamy sand granular, friable

No SHWT
Roots to 24"
No H₂O observed
Refusal observed 24"

**TEST PITS
FOR
58 & 80 MAIN STREET
WESTBROOK, MAINE
MAY 19, 2016
JBE Project No. 14110**

Performed by: Gifford Colburn, Jones & Beach Engineers, Inc., SSD #1839

Test Pit #34

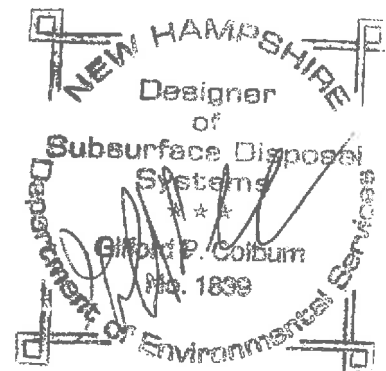
0"- 4"		gravel/ pavement
4"-24"		gravel fill p-stone
24"-56"	2.5Y 6/4	light yellowish brown sand granular, friable
56"-72"	10YR 5/6	yellowish brown sandy loam firm
72"-80"	5Y 5/1	gray clay, firm

SHWT = 56"
No Roots observed
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #35

0"- 12"	10YR 6/4	light yellowish brown sand single grain
12"-34"	5Y 5/1	gray gravelly clay firm
34"-41"	5Y 2.5/1	black sandy loam granular, friable
41"-64"	10YR 5/3	brown gravel, loose

SHWT = 34"
No Roots observed
H₂O @ 64"
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #36

0"- 12"		pavement, gravel
12"-28"	5Y 5/1	gray gravelly sandy clay
28"-65"	10YR 4/1	dark gray sandy loam firm

SHWT = 28"
No Roots observed
H₂O @ 63"
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #37

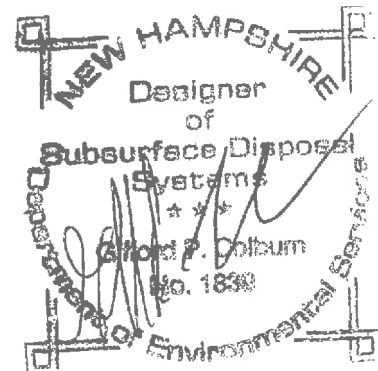
0"- 12"		topsoil
12"-32"	5Y 5/1	gray loamy clay
32"-68"	10YR 5/4	yellowish brown sand single grain with redox

SHWT = 32"
Roots @ 32"
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #38

0"- 2"		topsoil
2"-72"		clay sandy loam blocky, firm

SHWT = 72"
Roots @ 2"
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #39

0"- 10"

gravelly fill, pavement

10"-30"

10YR 6/4

light yellowish brown
sand
single grain

30"-60"

10YR 5/3

brown
sand/gravel
with redox

60"-65"

5Y 5/1

gray
sand
single grain
wet

SHWT = 30"

No Roots observed

H₂O @ 60"

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #40

0"- 10"

gravelly fill, bricks

10"-30"

10YR 6/4

light yellowish brown
sand
single grain

30"-60"

10YR 5/3

brown
sand/gravel
with redox

60"-63"

5Y 5/1

gray
sand
single grain
wet

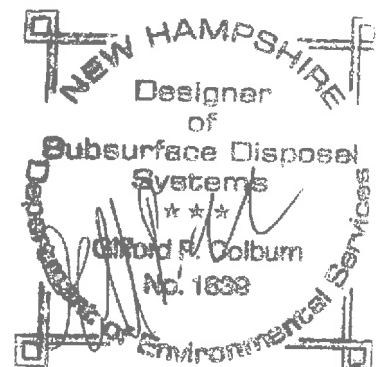
SHWT = 30"

No Roots observed

H₂O @ 60"

No Refusal observed

Perc Rate = 8 min/inch



Test Pit #41

0"- 16"		gravelly sandy loam fill
16"-46"	2.5Y 4/1	dark gray sandy loam firm
46"-72"	5Y 5/1	gray clay, firm with redox

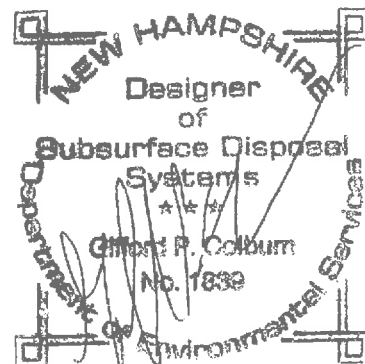
SHWT = 46"

Roots @ 46"

No H₂O observed

No Refusal observed

Perc Rate = 8 min/inch



Section 20 – Blasting (rev 1)

1.0 INTRODUCTION

Following is an assessment of rock blasting associated with the proposed Dirigo Plaza mixed-use commercial development construction project in Westbrook, Maine.

Dirigo Plaza is proposed to be constructed on approximately 53 acres comprising the west end of the former Pike Industries rock quarry/asphalt batch plant facility in Westbrook (the “Site”, see Site Location Map attached as Sheet 1). The Site is designated on City of Westbrook Tax Map 42B as Lots 9, 10 11 and 14.

The Site is bounded by Larrabee Road to the west, Main Street to the north, the Westbrook Arterial to the south, undeveloped land to the southeast and portions of the former rock quarry to the east-northeast. Improvements on the Site include the west end of the historic rock quarry, the former asphalt batch plant and several other structures that are proposed for demolition and removal during the Dirigo Plaza development. A Portland Pipeline Corporation buried petroleum pipeline corridor shared by Central Maine Power Company overhead power transmission lines is adjacent to the historic rock quarry east-northeast of the Site. A Buckeye Partners, LP buried petroleum pipeline corridor crosses the southwest end of the Site. Buried natural gas lines maintained by Unitil are located beneath Larrabee Road west of the Site and Main Street north of the Site. Other utilities in the Site area include buried Portland Water District and Westbrook Sewer District utilities along Larrabee Road and Main Street.

2.0 SITE PLAN

The Maine Site Location of Development Permit Application requires that a Site Plan be presented which indicates the “locations of all off-site structures and wells not owned or controlled by the applicant within 2,000 feet of any blast site”.

The Site Plan is attached as Sheet 2. Numerous structures are located within 2,000 feet of the proposed blast area. The majority of these structures are industrial, commercial and retail-use buildings. The closest residential buildings to the proposed blast area are about 1,700 feet to the east-northeast.

Based on our research, which included discussions with the Portland Water District and the City of Westbrook Code Enforcement Office, and a review of Maine Geological Survey and Maine Department of Environmental Protection (MeDEP) maps and records, there are no private or public water supply wells in-use within 2,000 feet of the proposed blast area.

3.0 BLASTING ORDINANCE

The City of Westbrook has a Blasting Ordinance (Article II. Use of Blasting), which is attached as Appendix A.

The Blasting Ordinance describes City of Westbrook requirements for code compliance, transportation of explosives, permits, and blast event notice to off-Site property owners, inspections, monitoring and record keeping.

The Blasting Ordinance should be reviewed thoroughly by the blasting contractor prior to the initiation of construction blasting on the Site.

4.0 BLASTING ASSESSMENT

4.1 Anticipated Effects of Blasting

Minimal adverse effects of blasting can be anticipated provided that blasting activities are done as outlined below and in general conformance with the "Blasting Guidance Manual," Office of Surface Mining, Reclamation, and Enforcement (OSMRE), U.S. Department of Interior.

4.2 Blasting Plan

A Blasting Plan should be prepared by the blasting contractor to address the construction blasting at the Site. The Blasting Plan should include sketches of the blast locations, drill patterns, delay periods, and decking. The Plan should also indicate the type and amount of explosives to be used, including weight of explosives per delay, stemming, critical dimensions and the measures to protect off-site structures.

4.3 Blast-produced Sound

Sound (airblast overpressure) produced by blasting shall be regulated as outlined in MeDEP Chapter 375.10(C)(4)(c) and Maine Statute 38 MRSA 490-Z(14)(H). Blasting shall not occur in the period between sundown and sunrise the following day, or in the

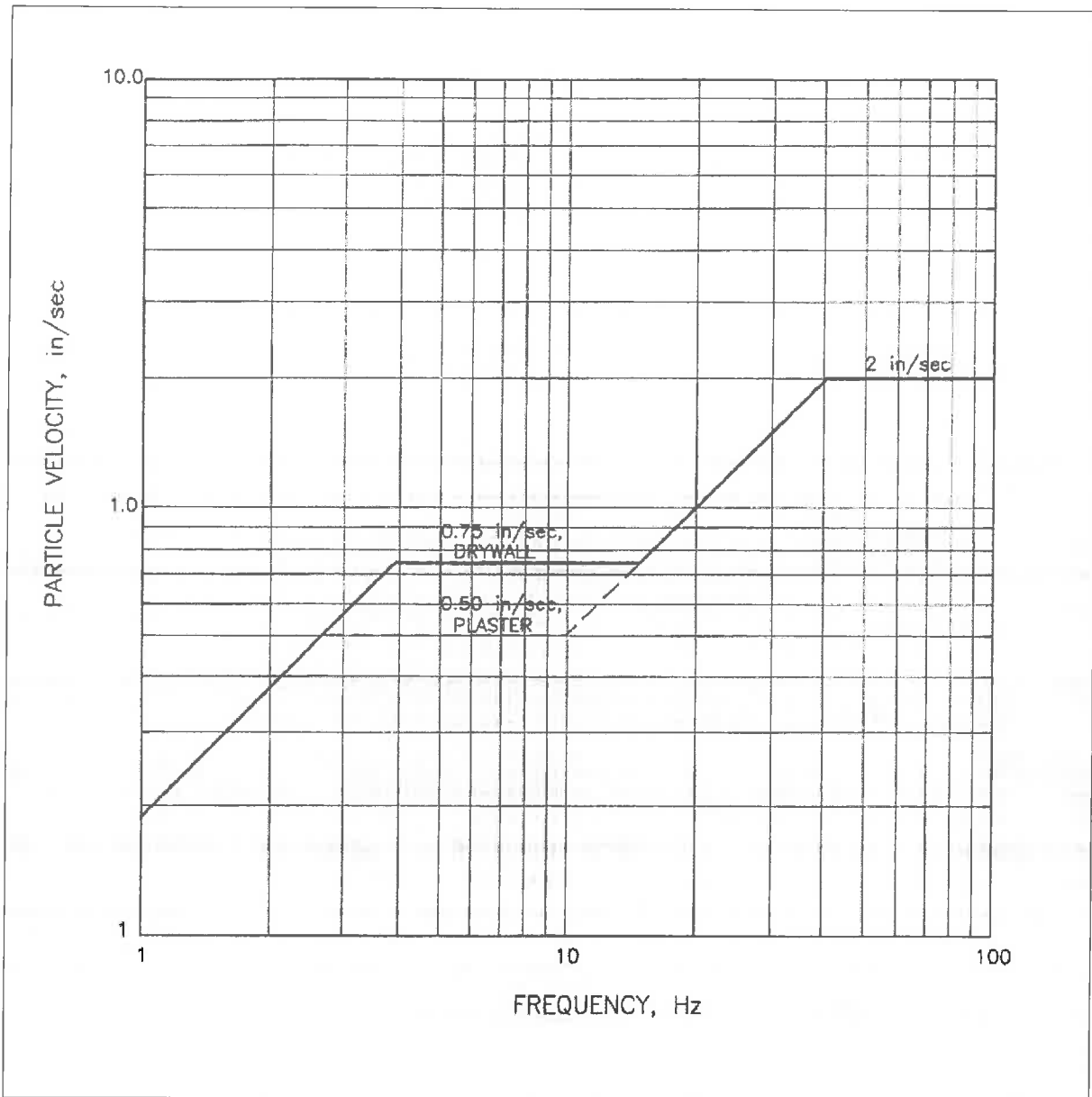
period between the hours of 7:00 p.m. and 7:00 a.m., whichever is greater. Blasting will not occur on Sundays and not more than 4 times per day.

The blasting program should be designed so that the sound generated by each blast at the nearest occupied structure not owned or controlled by the developer does not exceed the following limits {measured in peak linear sound level (dBL)}:

Number of Blasts per Day	Sound Level Limit
1	129 dBL
2	126 dBL
3	124 dBL
4	123 dBL

4.4 Blast-produced Ground Vibrations

Blasting should be undertaken in such a manner that at the property line nearest the blasting, it will produce ground vibrations that do not exceed the safe limits for structures shown below on Figure B of Appendix B, U.S. Bureau of Mines Report of Investigations 8507 (1980):



These limits are based on the frequency (hertz) and the peak particle velocity (inches per second) of the blast vibrations, and are generally-accepted limits for preventing cosmetic damage to residential structures.

4.5 Blast-produced Flyrock

The blasting contractor shall use sufficient stemming, matting or natural protective cover to prevent fly rock from leaving the project site or from entering protected natural resources or natural buffer strips, unless prior authorization has been received from the MeDEP. Crushed rock or other suitable material must be used for stemming when available; native gravel, drill cuttings or other material may be used for stemming only if no other suitable material is available.

4.6 Blasting Notification

In accordance with the City of Westbrook Blasting Ordinance, the blasting contractor shall notify all property owners within 500 feet of the blast area. The notice is to be by registered mail sent at least 5 business days prior to the intended date of commencement of blasting operations.

For each blasting event, the blaster shall notify City of Westbrook public safety communications on the day of the blast event at least 4 hours prior to the blast (public safety communications is to notify Westbrook Fire and Rescue and the code enforcement officer.)

Although Portland Pipeline Corporation, Buckeye Partners, LP and Unitil utilities in the Site area historically have been subjected to ground vibrations during commercial blasting in the quarry on the Site, they should be notified of the proposed Dirigo Plaza construction blasting prior to the initiation of blasting in order to discuss potential effects of the construction blasting on the buried pipelines in the vicinity of the blast area. The telephone number for Portland Pipeline Corporation in South Portland, Maine is (207) 767-0421, the telephone number for Buckeye Partners, LP is (1-866-432-4960) and the contact number for Unitil is (1-866-933-3821). All three utility companies can be notified by contacting Dig Safe of Maine (1-888-DIG-SAFE).

4.7 Pre-Blast Surveys

The City of Westbrook Blasting Ordinance indicates that all property owners within 500 feet of the blast area shall be provided the offer of a pre-blast survey prior to the initiation of blasting. The offer can be made along with the blasting notification sent to the property owners by registered mail (Section 3.3 above). The Site Plan (Sheet 2) depicts

approximately 15 to 20 off-site commercial and retail buildings within 500 feet of the proposed blast area.

The pre-blast surveys authorized to be made by the property owners should include a survey of the interior and exterior of each building with the use of a video camera and/or digital camera. A pre-blast survey summary form should be placed in the file when the survey is completed. The form should provide information on the location of visual observations made at the particular buildings and grounds that are surveyed. All records of the pre-blast surveys should be forwarded to J & J Gove Development, LLC at the end of a period of 6 months after completion of construction.

4.8 Blast Monitoring

A seismograph should be set up at the property line or the off-site structure that is closest to the blast area during each blast event. The seismograph will record the air blast, peak particle velocity and frequency of each blast.

Each seismograph used should record in full analog wave form each of the 3 mutually perpendicular components (longitudinal, transverse and vertical) of ground vibration motion in terms of particle velocity. The seismograph should have a Seismic Frequency Range of 2 to 150 Hz and a sound frequency of 2-500 Hz.

The following information at a minimum shall be documented for each blast:

- Seismograph Model
- Seismograph Calibration Date
- Date and Time of Blast
- Seismograph Location
- Distance to Blast
- Peak Particle Velocity {(in/sec) (horizontal, vertical and transverse)}
- Frequency
- Seismograph Operator
- Airblast Overpressure (dB or psi)

In addition, documentation should be provided by the blasting contractor showing the location of the seismograph relative to the blast, relative to the nearest off-site structure or property line and the stratum or structure on which the seismograph geophone was placed during the blast event.

4.9 Blast Records

Records for each blast event will be kept in general accordance with Maine Statute 38 MRSA 490-Z(14)(L), and in accordance with the City of Westbrook Blasting Ordinance. A variation from the requirements of Maine Statute 38 MRSA 490-Z(14)(L) is that the social security number of the blaster does not need to be included on the records.

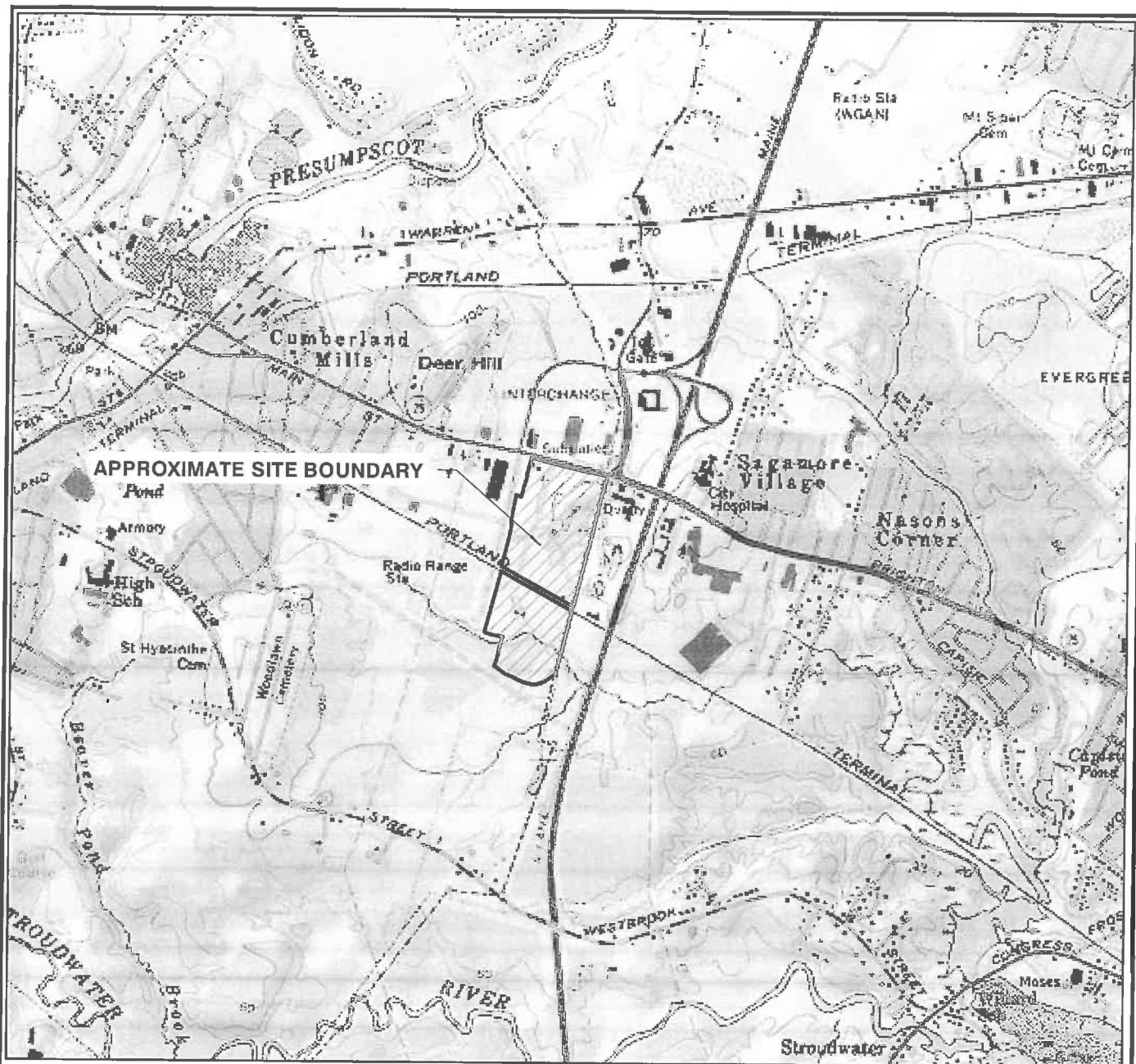
Blast records, including seismograph monitoring data, shall be kept by J & J Gove Development, LLC for a period of at least 5 years after blasting has ceased and shall be available for inspection upon request by the MeDEP and City of Westbrook officials.

Attachments

Sheet 1 – Site Location Map

Sheet 2 – Site Plan

Appendix A – Westbrook Blasting Ordinance



2,000 0 2,000 4,000
Scale in Feet



J & J GOVE DEVELOPMENT, LLC

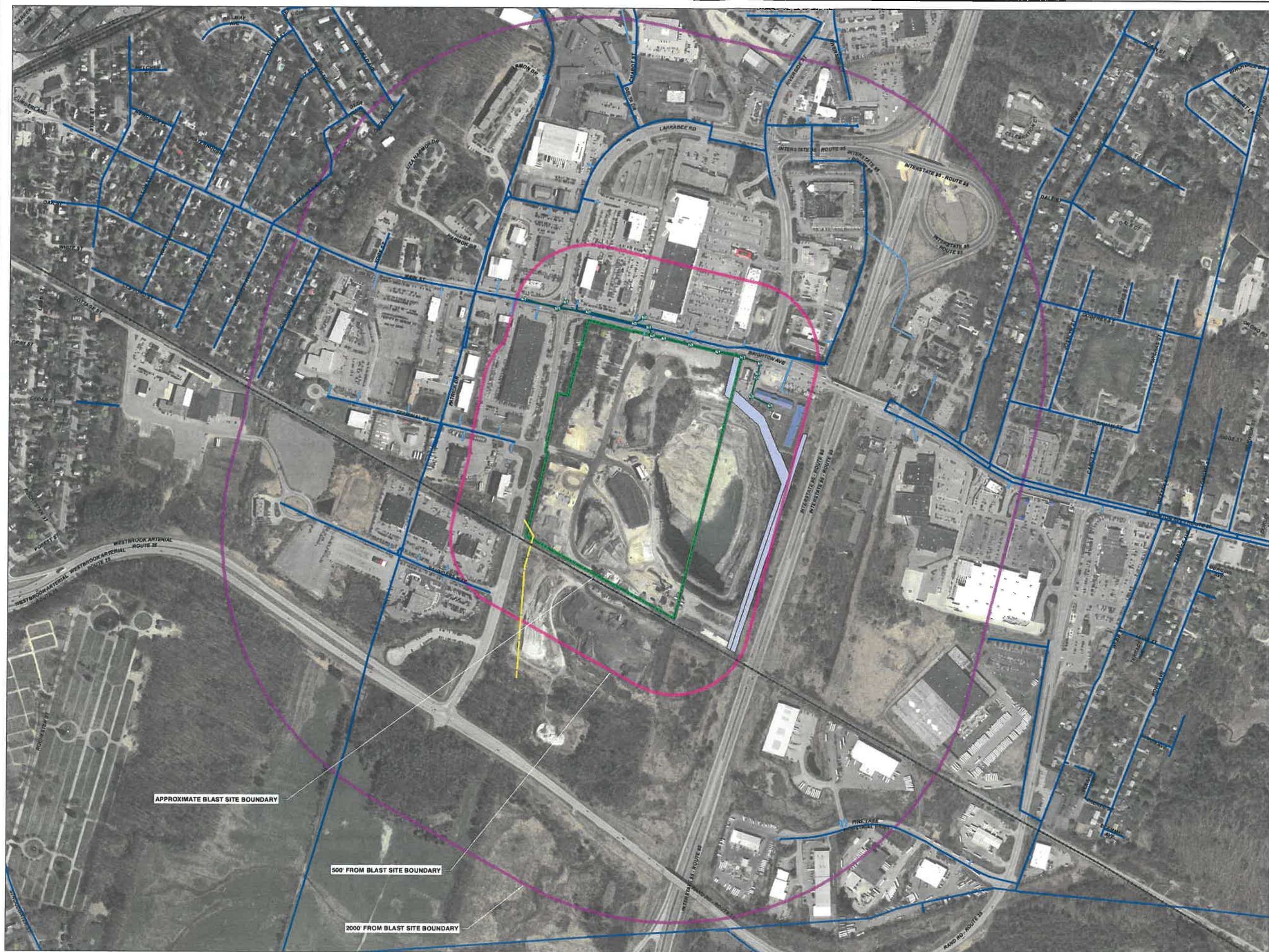
SITE LOCATION MAP

PROPOSED DIRIGO PLAZA
CONSTRUCTION BLASTING ASSESSMENT
WESTBROOK, MAINE

NOTE:

SITE LOCATION MAP PREPARED FROM
ESRI ArcGIS ONLINE AND DATA PARTNERS
INCLUDING USGS AND © 2007 NATIONAL
GEOGRAPHIC SOCIETY.

Job No.	15-0083.1	Scale	1:24000
Date:	02/26/2016	Sheet	1



- LEGEND**
-  SEWER MANHOLE, SEE NOTE 3
-  SEWER LINE, SEE NOTE 3
-  ACTIVE RAILROAD
-  APPROXIMATE BUCKEYE OIL LINE EASEMENT, SEE NOTE 3
-  WATER MAIN, SEE NOTE 4
-  WATER SERVICE, SEE NOTE 4
-  BLAST SITE BOUNDARY
-  500' DISTANCE FROM BLAST SITE BOUNDARY
-  2000' DISTANCE FROM BLAST SITE BOUNDARY
-  CENTRAL MAINE POWER AND PORTLAND PIPE LINE EASEMENTS

- NOTES:**
1. SITE PLAN PREPARED FROM STATE OF MAINE AERIAL ORTHOPHOTOS IMAGED "GEOLIBRARY 3IN 2012," PROVIDED BY THE STATE OF MAINE, MAINE OFFICE OF GIS AND MAINE GEOLIBRARY BOARD.
 2. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. CONSTRUCTION BLASTING ASSESSMENT.
 3. SEWER LINES, SEWER MANHOLES, BUCKEYE OIL LINE EASEMENT, CENTRAL MAINE POWER AND PORTLAND PIPE LINE CORPORATION EASEMENT FROM EXISTING CONDITIONS PLAN PREPARED BY JONES & BEACH ENGINEERS, INC.
 4. WATER MAIN AND WATER SERVICE LINES PROVIDED BY PORTLAND WATER DISTRICT.
 5. ACTIVE RAILROAD FROM STATEWIDE RAILROAD COVERAGE PROVIDED BY MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (MEGIS)
 6. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE CONSTRUCTION BLASTING ASSESSMENT FEATURES IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.



S.W. COLE
ENGINEERING, INC.

LA LOQUE DEVELOPMENT LLC

SITE PLAN

PROPOSED DIRIGO PLAZA
CONSTRUCTION BLASTING ASSESSMENT
WESTBROOK, MAINE

Job No.	15-0083.1	Scale	1" = 300'
Date:	02/26/2016	Sheet	2

APPENDIX A

Chapter 33

VEHICLES FOR HIRE

(Vehicles for Hire deleted. See Taxicabs under Chapter 20, Licenses & Permits).

Chapter 34

WEAPONS AND EXPLOSIVES

Art. I. In General, §§ 34-1 – 34-13

Art. II. Use of Blasting Agents, §§ 34-14 - 34-24

ARTICLE I. IN GENERAL

Sec. 34-1. No hunting allowed; permit to discharge firearms required.

No person shall hunt with the use of a firearm within the city limits. Neither shall any person, without a permit from the chief of police, fire or discharge any gun, fowling piece, cannon, or firearm within the municipal boundaries, except in the performance of official military or law enforcement duties or in lawful self-defense. Nothing contained herein shall be construed to prevent the possession of firearms on one's own domicile nor prevent their transportation to a municipality allowing discharge of firearms. (1942, Rev. Code, Ch. XXVIII, § 1; Ord. of 5-18-87)

Sec. 34-2 – 34-3. *Repealed.*

(1942 Rev. Code, Ch. XXVIII, Sec. 2; Ord. of 10-3-05)

Secs. 34-4 – 34-13. *Reserved.*

ARTICLE II. USE OF BLASTING

Sec. 34-14. Purpose.

This ordinance is intended to minimize negative impacts from blasting associated with construction and related activities. Such impacts include but are not limited to airborne shock waves, flying debris, ground vibrations, and dust which are physically harmful and otherwise detrimental to individuals and the community in the enjoyment of life, property and the conduct of business. It is also intended to prevent damage to geologic and environmental resources upon which depend such features as wells and wildlife. Extractive Industries shall not be subject to these requirements, however shall require an annual permit and be subject to all other State and Federal regulations on Mining/Quarrying activities. (1942 Rev. Code, Ch. XXVIII-A, § 2; Ord. of 12-1-69; Ord. of 10-3-05)

Sec. 34-15. Code compliance.

The use and storage of explosives and blasting agents in the city shall be conducted in compliance with all pertinent sections of the Code and, except as superseded by the provisions of this article, "National Fire Protection Association Codes", NFPA 1 Uniform Fire Code and NFPA 495 Explosive Materials Code, or other applicable state or federal regulation. In the case of a conflict with another provision, the stricter provision shall apply. (1942 Rev. Code, Ch. XXVIII-A, § 1; Ord. of 12-1-69; Ord. of 10-3-05)

Sec. 34-16. Transportation of explosives.

Every vehicle transporting explosives shall be compliant with NFPA 495, Chapter 7 and all federal and state laws and regulations. (1942 Rev. Code, Ch. XXVIII-A, §§ 3, 6; Ord. of 12-1-69; 10-3-05)

Sec. 34-17. Permit required. (See Master Fee Schedule.)

Prior to any blasting within the city, a permit must be obtained from the code enforcement officer. Prior to granting the permit, the code enforcement officer shall request comments on the application from the fire, police, and public services departments. Review by other departments may be sought if appropriate. Permit applications shall include the following information:

- (a) Names, addresses, and contact numbers for the applicant, blaster, property owner, and general contractor, if any.
- (b) Location(s) of proposed blasting activity.
- (c) Estimated number of cubic yards of material to be removed by blasting.
- (d) Start/end date.
- (e) Planned number of blasts.
- (f) A description of the project for which the blasting is being undertaken.
- (g) Evidence of insurance. (Minimum liability of \$3,000,000.00)
- (h) Qualifications of personnel performing blasting and evidence of certification to conduct blasting in the state.
- (i) The code enforcement officer may require a pre-blast survey and monitoring program.

(1942 Rev. Code, Ch. XXVIII-A, § 4; Ord. of 12-1-69; Ord. of 10-3-05)

Sec. 34-18. Notification.

(a) The blaster shall notify all property owners within five hundred (500) feet for all blasting projects. Notice shall be by registered mail sent at least five (5) business days prior to the intended date of commencement of blasting operations. Any property within five hundred (500) feet may request a pre-blast survey at the expense of the contractor. Additional notification may be required by the code enforcement officer.

(b) For any blasting operation, the blaster shall notify public safety communications who shall notify the fire rescue department and the code enforcement officer on the day of the blasting at least four (4) hours prior to the detonation(s). The notice may be given orally, but the burden of proof is on the blaster as to whether the notice was received.

(c) Where an excavator encounters a small amount of ledge when doing a street opening or in another similar small blasting project situation where advance notice is not reasonably feasible, the city engineer can modify the notice requirements. (1942 Rev. Code, Ch. XXVIII-A, § 5; Ord. of 12-1-69; Ord. of 10-3-05)

Sec. 34-19. Inspection and monitoring.

(a) The code enforcement officer, city engineer, fire chief or other duly authorized fire officer may observe any authorized blasting operations and may also order that additional ground vibration and air blast overpressure measurements using approved instrumentation be made by the blaster to ensure the limits specified in "NFPA 495 Explosive Materials Code" are not exceeded.

(b) All storage sites shall be subject to inspection and verification of compliance with this ordinance. (Ord. of 10-3-05)

Sec. 34-20. Records.

Persons responsible for all blasting projects shall maintain a record of each blast. All records shall be retained at least five (5) years following cessation of the blasting operation and shall be available for inspection by the code enforcement officer, city engineering, fire chief or other duly authorized fire officer and shall contain the following minimum data:

- (a) Name of person responsible for the blasting operation.
- (b) Location, date(s), and time of blast (not before 8 a.m., not after 5 p.m. Monday through Friday, excluding holidays).
- (c) Name of blaster.
- (d) Type of material blasted.
- (e) Number of holes, burden and spacing.
- (f) Diameter and depth of holes.
- (g) Types of explosives used.
- (h) Amount of explosives used.
- (i) Whether mats or other protections were used.

(Ord. of 10-3-05)

Sec. 34-21. Appeal of denial by code enforcement officer.

Where the code enforcement officer has denied a blasting permit under this article, the applicant may appeal the denial to the zoning board of appeals within 30 days of the code enforcement officer's decision by filing a written notice of appeal with the code enforcement officer. (Ord. of 10-3-95)

Sec. 34-22. Conditions.

Upon issuance of any blasting permit, the code enforcement officer may prescribe any reasonable conditions or requirements deemed necessary to minimize adverse effects upon the neighborhood or community. This shall include, but not limited to, the reclaiming for disposal off site of all material that prior to detonation was regulated by NFPA 495 and has been rendered inert, such as blasting caps and detonation cord. (Ord. of 10-3-95)

Sec. 34-23. Penalties.

Any material misstatement or omission of information required by this article or the violation of any condition attached to a permit granted under this article shall constitute a violation and be subject to the fine set forth in the Master Fine Schedule attached hereto as Appendix C. (Ord. of 10-3-05)

Sec. 34-24. Severability.

If any provisions of this ordinance is declared unconstitutional or held invalid, it shall not affect any other section, clause, or provision thereof, but the same shall remain in full force and effect. This ordinance does not restrict the fire chief, fire inspector or other duly authorized fire officer from enforcing any requirements of adopted or referenced NFPA codes in other sections of the Code. (Ord. of 10-3-05)

JONES & BEACH ENGINEERS, INC.

85 Portsmouth Avenue
Post Office Box 219
Stratham, NH 03885
Telephone: (603) 772-4746
Fax: (603) 772-0227

Post Office Box 484
Alton, NH 03809
Email: jbe@jonesandbeach.com
<http://www.jonesandbeach.com>

September 8, 2016

Maine Department of Environmental Protection
Attn: Ben Viola
312 Canco Road
Portland, ME 04103

**RE: Urban Impaired Stream Standard
58 & 80 Main Street, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Project No. 14110**

Dear Mr. Viola:

The subject of this letter is the proposed Dirigo Plaza project located at 58 & 80 Main Street in Westbrook, ME and the methodology utilized to determine the project's compliance with the Urban Impaired Stream standards of Chapter 500 & Chapter 501 of the Stormwater Management Law.

The intent of this project is to construct a new shopping center at the location of the existing Pike Industries quarry in Westbrook, ME.

Existing Site:

The existing Pike Industries site contains 81.78 acres. A good portion of the existing site consists of the existing quarry. The remainder of the site has been utilized as material storage (gravel, asphalt, concrete, etc.), paved roadways and parking, concrete plant, and miscellaneous industrial activities and contains portions of woodland throughout. To this end a great deal of the existing site is currently well compacted gravel, paved roadways, and buildings all of which are considered impervious and which receive no stormwater treatment prior to discharge from the site. The area breakdown of which is as follows:

Existing Developed Area (minus the quarry) = 43.46 ac.

Existing impervious area = 34.72 ac.

Existing roof impervious = 0.56 ac.

Existing paved road/parking impervious = 3.86 ac.

Existing compacted gravel = 30.30 ac.

Existing vegetation within developed area = 8.74 ac.

Proposed Site:

The intent of this project is to construct a multi-building commercial/retail complex with associated parking, roadways, drainage, and infrastructure. Existing buildings and industrial activities will be removed and full stormwater treatment as required by Chapter 500 of the Stormwater Law will be constructed throughout the site. The existing quarry will be allowed to fill with water and will provide stormwater treatment and detention for the proposed commercial/retail site. Proposed area breakdown is as follows:

Proposed Development Area = 55.41 ac.

Proposed impervious area = 41.63 ac.

Proposed roof area = 11.49 ac.

Proposed road/parking area = 30.14 ac.

Proposed landscape area = 13.78 ac.

Urban Impaired Stream Standard:

Per Chapter 500, Section 4, E, (1) of the Stormwater Management Law, the proposed project must meet the urban impaired stream standard as the project is located in the direct watershed of an urban impaired stream and requires a Site Law permit.

Section 4, E, (2) indicates that the applicant must either pay a compensation fee or mitigate project impacts by reducing or eliminating an off-site or on-site predevelopment impervious stormwater source as described in 06-096 CMR 501.

Section 4, E, (3) provides an exception to meeting the urban impaired stream standards. That exception is as follows. *'Any portion of a project in which impervious area that pre-dates the Stormwater Management Law is replaced is not required to meet the urban impaired stream standard for that area provided the Department determines that the new use of the untreated area is not likely to increase stormwater impacts in the proposed project's stormwater runoff beyond the levels already present in the runoff in the accordance with Table 2 of this Chapter.'*

Per Section 4, E, (3) that portion of the existing site that is currently impervious (34.72 ac.) could be replaced with untreated impervious and would not be required to meet the Urban Impaired Stream Standard. The proposed project will treat 96.2% of the proposed impervious including the existing impervious to be replaced and therefore exceeds the requirement of Section 4, E, (3).

Per Section 4, E, (3) this project would be required to provide compensation for the new (not replaced) impervious which totals 6.91 acres. Per Section Chapter 501, Section 3, A, Table 1 the applicant would therefore be responsible for mitigation credits of 1.88 credits or \$47,000. (see calculation below)

New non-roof impervious = 30.14 ac. (prop) - 34.72 ac. (ex) = -4.02 ac.

New roof impervious = 11.49 ac. (prop) - 0.56 ac. (ex) = 10.93 ac.

New impervious to be mitigation = 10.93 ac. - 4.02 ac. = 6.91 ac.

New landscape = 13.78 ac. (prop) - 8.74 ac. (ex.) = 5.04 ac.

Mitigation credits = (6.91 ac.) x (0.2 credits/ac.) + (5.04 ac.) x (0.1 credits/ac.) = 1.88 credits

Please note, it is our opinion that the above methodology for calculating the required Urban Impaired Stream mitigation credits is not the most accurate method for determining the required mitigation. As stated in Chapter 500, Section 4, E, (3) the existing impervious can be replaced with untreated impervious and the untreated impervious is not required to meet the Urban Impaired Stream standards. The existing impervious is proposed to be replaced with treated impervious and it is therefore the opinion of the applicant and Jones & Beach Engineers that the more accurate method for determining the required mitigation is by following Chapter 501, Section 3, A, subsections (1) & (3) as follows.

As stated previously, the existing impervious will be replaced with treated impervious and thus it is our opinion that a more accurate calculation of the Urban Impaired Stream mitigation credits would be derived from Chapter 501, Section 3, A.

Per Section 3, A, Table 1, the required mitigation credits for the proposed development are as follows:

Non-Roof impervious mitigation required = (30.14 ac.) x (0.5 credit/ac.) = 15.07 credits

Roof mitigation required = (11.49 ac.) x (0.2 credit/ac.) = 2.30 credits

Landscape mitigation required = (13.78 ac.) x (0.1 credit/ac.) = 1.38 credits

Total proposed developments required = 18.75 credits required

As the proposed project is replacing untreated impervious with treated impervious meeting the general standards for required treatment sizing, Per Section 3, A, (3) the proposed project is allowed to earn mitigation credits for the areas of existing untreated impervious retrofitted with treated impervious. The mitigation credits are calculated based upon Section 3, A, (3) Table 2 as follows:

Roof or other imp. area mitigation credit = (34.72 ac.) x (0.6 credit/ac.) = 20.83 credits earned

Landscaping mitigation credit = (8.74 ac.) x (0.3 credit/ac.) = 2.62 credits earned

Total credits earned = 23.45 credits

Therefore, by retrofitting/replacing the existing untreated development areas within the proposed development site with treated areas meeting the general sizing requirements, the applicant earns more mitigation credits than is required by the proposed development.

It is the opinion of the applicant and Jones & Beach Engineers that the mitigation credits method for determining the Urban Impaired Stream requirement is the more accurate method for the following reasons:

- 1.) The existing site includes large areas of untreated impervious and landscape area that have the potential to be a large pollutant source in the watershed stormwater,
- 2.) The proposed site removes the existing pollutant sources,

3.) The proposed site provides treatment at the required levels for all areas of the development (96.2% of impervious and 92.5% of the overall development area).

Calculating the compensation fee by this mitigation credit method, which we believe is the better methodology under Chapter 500, the applicant pays no compensation fees.

Therefore, the proposed project meets the Urban Impaired Stream standard by removing the existing potential pollutant source and constructing new development areas meeting the stormwater treatment sizing requirements of Chapter 500.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,

JONES & BEACH ENGINEERS, INC.

A handwritten signature in cursive script that reads "Barry W. Gier".

Barry W. Gier
Vice President

cc: Dirigo Center Developers, LLC
Jeff Dennis, Maine Department of Environmental Protection
Jennie Franceschi, City of Westbrook
Lauren Swett, PE, Woodward & Curran

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

June 30, 2016

Portland Planning Board
Attn: Richard Knowland, Senior Planner
389 Congress St., Room 314
Portland, ME 04101

**RE: Portland Planning Board Response Letter
80 Main Street & 11 Larrabee Road, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Project No. 14110**

Dear Mr. Knowland:

On behalf of our client, J&J Gove Development, LLC, Jones & Beach Engineers, Inc., have received review comments from Mike Farmer, Project Engineer, and Lauren Swett, Development Review Engineer, dated May 17, 2016. Review comments are italicized and we offer the following responses in bold below:

Mike Farmer Comments:

1. *The site drains to Nason's Brook and the wetland complex at Pine Tree Industrial Parkway, both of which are DEP-list impaired waters. In addition, the area near the intersection of Brighton Ave and Riverside St drains to Capisic Brook, another impaired stream. Nason's Brook is subject to the Statewide Impervious Cover TMDL and is on the Impaired Streams Priority List in the Maine Nonpoint Source Management Program Plan 2015-2019 (September 15, 2014).*

RESPONSE: No response necessary.

2. *The applicant's conceptual designs for post-construction stormwater management (i.e.: Under drained grassed swales, wet ponds, gravel wetlands and sand filters) appear to provide both water quantity and quality controls to help protect Nason's Brook. If the project is required to meet the Urban Impaired Stream Standard under the Chapter 500 stormwater regulations, the City of Portland has an approved Compensation Fee Utilization Plan and dedicated fund for Nason's Brook.*

RESPONSE: Applicant is reviewing this item.

3. *A construction site erosion & sediment control plan will be an important part of protecting both impaired streams from the potential impacts of construction activity. Best Management Practices should be utilized to prevent construction vehicles from tracking sediment onto roadways which is a potential source of illicit discharges to the MS4 of either community.*

RESPONSE: Detailed Erosion Control plans have been included in the revised plan set.

4. *Regular inspection and maintenance of the stormwater management system is critical for protecting the health of Nason's Brook. A site-specific stormwater management system inspection and maintenance plan, as well as a legal maintenance agreement between the owner/operator and the City of Westbrook, is highly recommended.*

RESPONSE: A Stormwater Operation & Maintenance has been provided.

5. *In order to protect the integrity of the existing stream channels and floodplains, and to allow for future adaptive management & mitigation under a watershed management plan, stream and wetland setbacks of at least 75' should be preserved. Experience in the Long Creek Watershed has shown that confinement and channelization of a brook can result in significant stream bank destabilization and channel erosion, which can cause property damage and make restoration of the brook more expensive and challenging for both the regulated communities and landowners in the watershed. Culverts or stream crossings should be designed to prevent impediments to stream flow or fish passage.*

RESPONSE: A 100-foot pavement setback and 75-foot grading setback to Nason's Brook have been maintained to the extent practicable. Existing culvert crossing of Nason's Brook will be replaced with an open bottom culvert to prevent impediment to stream flow or fish passage.

6. *Given the growing regional concern about the impact of using chlorides for winter snow and ice management, has any consideration been given to the potential impacts of winter operations on the streams, wetlands and ground water? One of the few effective BMPs for preventing water quality impacts from chlorides is to minimize their use. See the Maine Environmental Best Management Practices (BMP) Manual for Snow and Ice Control: <http://baswg.org/wp/wp-content/uploads/2015/11/Maine-Winter-Maintenance-BMP-Manual-Distributed-at-2015-Roundtable.pdf>.*

RESPONSE: Applicant will review the BMP Manual and incorporate appropriate measures.

7. *Designated snow storage areas should be established on the site with water quality protection in mind. Snow should not be stored in, or on, stormwater water treatment systems, brook channels or wetlands. This should have added benefits in the way of reducing maintenance requirements (e.g.: sediment & trash removal, plow damage, plant replacement, etc.) and prolonging the functional life span of the stormwater infrastructure.*

RESPONSE: Snow storage has been located away from stormwater treatment features to the extent practicable.

8. *The proposed fueling station appears to be located next to a stormwater treatment unit. If this is the case, the fueling station should be designed to prevent spills from impacting the stormwater treatment system. A Spill Prevention, Control and Countermeasure.*

RESPONSE: Proposed fueling station has been removed.

Lauren Swett Comments:

1. *As the project's extensive stormwater management system discharges to the City of Portland, we have performed a general review of the stormwater model to verify continuity and consistency*

throughout the model as it impacts the overall model outcome. In general, we are in agreement with the modeling approach. We have the following comments:

- a. *The Applicant should clarify the source of the rainfall amounts that were utilized for the modeled storm events. The latest version of the Maine DEP Chapter 500 regulations, identify rainfall for Cumberland County SW with different values than those listed in the application. It is noted that the Applicant has utilized more conservative rainfall amounts than the Maine DEP for all storms except for the 100-year storm.*

RESPONSE: Rainfall events have been updated.

- b. *The Applicant has noted that TR-55 methodology was utilized for time of concentration (TC) calculations. TR-55 typically considers a minimum TC of 6 minutes. One of the pre-development subcatchments has a TC of 0, and one pre-development and a number of post-development subcatchments have TC values less than 6 minutes. The applicant should clarify their TC calculation approach.*

RESPONSE: Minimum Tc of 5 minutes have been utilized in the revised model.

- c. *The Applicant should evaluate the open channel stream reaches that have been included in the stormwater model. Many of these channels show very large and unrealistic for surrounding topography (i.e. greater than 30') average flow depths in both the existing and proposed condition.*

RESPONSE: Model has been updated as required.

- d. *Two reaches located downstream of the quarry could not be found on the drainage plans. Please clarify where reaches 9 and 18 are located.*

RESPONSE: Reaches have been updated on sheet W1-1 as required.

- e. *The model identifies that some existing and proposed pipe reaches will be full during the 25-year storm event. The Applicant should clarify that no capacity/flooding issues will result from these full pipes.*

RESPONSE: Pipe sizing has been revised to prevent flooding issues.

2. *The proposed project will result in approximately 10,293 square-feet of new impervious area in the City of Portland and is located within the watershed of an Urban Impaired Stream (Nason's Brook). As such, it would be required to demonstrate compliance with the Basic, General, Urban Impaired Stream, and Flooding Standards of the MaineDEP Chapter 500 Rules in accordance with Section 5 of the City of Portland Technical Manual. We understand that this Subdivision application is for only a portion of the overall project area, and the entire project is being reviewed for stormwater compliance by the City of Westbrook and the Maine DEP. We offer the following comments with regards to the portion of the project that is located in the City of Portland:*

- a. *Basic Standard: Plans, notes, and details should be provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.*

RESPONSE: See Erosion Control Plans (EC-1 thru EC-6) for notes.

- b. *General & Urban Impaired Stream Standards: The Applicant is required to provide stormwater treatment throughout the entire project area and is proposing an extensive network of bioretention cells, underdrained filters, and sand filters throughout the development site. The existing quarry pit will be utilized as a wet pond. This wet pond will provide treatment for the entire new impervious area added in the City of Portland.*

RESPONSE: No response necessary.

- c. *Flooding Standard: The Applicant is required to provide flood control throughout the entire project area. Flood control will be provided by stormwater features throughout the site, primarily through the use of the existing quarry pit as a wet pond. Runoff from the portion of the project located in the City of Portland will be managed by the wet pond. The overall project will result in a reduction in peak discharge in all storm events based on the submitted model. The Applicant should consider the general stormwater modeling comments provided previously in this memo, and verify that any changes to the model do not change the flooding results.*

RESPONSE: Model has been updated as suggested.

3. *The pre-development and post-development HydroCAD model nodes for the quarry pond indicate a significant change in the water storage elevation. Based on a review of the model, it appears that pumping contained water in the existing condition at an elevation of -140, but in the proposed condition, groundwater will fill the pond to elevation +60 with stormwater storage above that elevation up to elevation +75. Has the hydrogeological impact of this change in water elevation on the surrounding area been evaluated?*

RESPONSE: The Quarry was used by Blue Rock and Pike Industries to harvest rock, as part of that operation the pit was constantly being dewatered through historic wash ponds. The water elevation is constantly rising since Pike Industries stopped dewatering. The water elevation will go back to its natural elevation within the next few years. This natural elevation will be where it historically started prior to pit excavations. The permanent pond elevation within the proposed quarry will be maintained at an elevation of 67.45. Elevation fluctuation during storm events, up to and including 100-year storm are anticipated at a maximum of 14.5". Therefore, no adverse effects of utilizing the quarry as a wet pond are anticipated.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,

JONES & BEACH ENGINEERS, INC.



Barry W. Gier
Vice President

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

September 12, 2016

Woodard & Curran
Attn. Lauren Swett, P.E.
41 Hutchins Drive
Portland, Maine 04102

**RE: Response Letter – Stormwater Management Plan
80 Main Street & 11 Larrabee Road, Westbrook, ME
Tax Map 42B, Lots 9, 10, 11 & 14
JBE Project No. 14110**

Dear Ms. Swett:

On behalf of our client, Dirigo Center Developers, LLC, Jones & Beach Engineers, Inc., has received review comments from you dated September 5, 2016. Review comments are italicized and we offer the following responses in bold below:

- 1. The applicant has provided a cross section of the proposed paved recreation trail. It appears from the large-scale grading plan that the fencing will be installed in areas that have varying grade changes that may transition quickly from steep to shallow. It is noted that the Applicant should consider the constructability of the fencing in these conditions.*

RESPONSE: The applicant has provided the proposed trail system design and details to Central Maine Power (CMP) for review. After consideration of potential safety issues involved with the trail and the location of the existing power lines and easements, CMP will not allow the proposed trail location and design. Therefore, the proposed trail around the existing quarry in Portland will be removed from future plan sets.

Security fencing will be provided in the vicinity of the Building “A” parking lot and Building “G” parking lot limiting access to this area. CMP is sending us a letter confirming its denial of our trail proposal and we will provide the City with a copy when we receive it.

- 2. Will any gate access be provided along the trail for future maintenance or for safety access? The Applicant should provide additional detail as applicable.*

RESPONSE: See Response #1.

- 3. Portions of the trail and fence are located within an existing Central Maine Power easement for transmission lines. The Applicant should confirm with CMP that pedestrian access will*

be acceptable in these areas. The Applicant should also clarify if additional fencing or other security measures will be required around the transmission lines, utility poles or the adjacent substation.

RESPONSE: See Response #1.

4. *The proposed project will result in approximately 10,293 square-feet of new impervious area in the City of Portland and is located within the watershed of an Urban Impaired Stream (Nason's Brook). As such, it would be required to demonstrate compliance with the Basic, General, Urban Impaired Stream and Flooding Standards of the Maine DEP Chapter 500 Rules in accordance with Section 5 of the City of Portland Technical Manual. We understand that this Subdivision Application is for only a portion of the overall project that is located in the City of Portland.*

- a) *Basic Standard: The applicant has provided plans, notes and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices within the development area in Westbrook. The plans should provide additional information on erosion and sedimentation control associated with the trail construction around the pond in Portland. The work will include excavation in areas of steep slopes that could be susceptible to erosion during and after construction. A plan showing erosion and sedimentation control features, or typical sections/details for the trail area should be provided.*

RESPONSE: See Response #1.

- b) *General Standards: The applicant is required to provide stormwater treatment throughout the entire project area and is proposing an extensive network of bioretention cells, underdrained filters, and sand filters throughout the development site. The existing quarry pit will be utilized as a wet pond. This wet pond will provide treatment for the entire new impervious area added in the City of Portland.*

RESPONSE: No response necessary.

- c) *Urban Impaired Stream Standards: As noted above, the Applicant is providing extensive stormwater treatment on the site. Due to the project's location within the watershed of the Urban Impaired Stream Nason's Brook, the project will be required to pay a compensation fee to the City of Portland, to contribute to the Compensation Fee Utilization Plan for urban impaired streams in the City.*

RESPONSE: See Urban Impaired Stream Standard Letter addressed to DEP attached.

- d) *Flooding Standard: The Applicant is required to provide flood control throughout the entire project area. Flood control will be provided by stormwater features throughout the site, primarily through the use of the existing quarry pits as a wet pond. Runoff from the portion of the project located in the City of Portland will be managed by the wet pond. The overall project will result in a reduction in peak discharge in all storm events based on the submitted model. The Applicant has updated their model to address most of the previously expressed concerns. The*

model appears to be very complete and in working order, but we have the following final comments for the Applicant to consider:

- *Reach 16R appears to represent a small stream channel that accepts discharge from the culvert represented by reach 15R. The 16R average flow depth is unrealistically high (31.95' in the 25-year storm), and the stormwater model shows the lead-in culvert reach 15R to be full. This likely will have minimal impact on the overall model, but we recommend that the Applicant look at the model to ensure that there will not be flooding issues.*

RESPONSE: This reach has been reviewed and revised as necessary. The modifications to the model result in no appreciable change in the hydrology for the site. See attached Pre-Development and Post-Development Summaries and updated Executive Summary.

- *Reaches 23R and 26R both indicate that pipes will be running full in at least the 25-year storm. As with the previous comment, this will not have an impact on the overall model, but we recommend that the Applicant look at the local flooding impact around these culverts.*

RESPONSE: Both reaches listed are located off-site on private property and are not within the control of the proposed developer.

Reach 23R is the interior drainage system located within the existing Travelodge property.

Reach 26R is an existing culvert located under the existing railroad near Larabee Road. Proposed drainage improvements in this area should reduce potential flooding issues. These improvements include the construction of drainage systems upstream of this reach as well as construction of the ditch along Larabee Road.

5. *The Applicant has noted that a Stormwater Pollution Prevention Plan will be completed. A copy should be submitted prior to issuance of a building permit.*

RESPONSE: A Stormwater Prevention Plan will be completed and submitted prior to issuance of building permit.

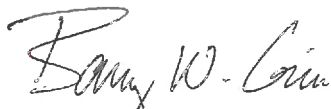
6. *The project will be required to comply with the post-construction stormwater management requirements as outlined in Chapter 32 of the City of Portland Code of Ordinances for all stormwater features located in the City of Portland.*

RESPONSE: Applicant is aware of this issue.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,

JONES & BEACH ENGINEERS, INC.



Barry W. Gier
Vice President

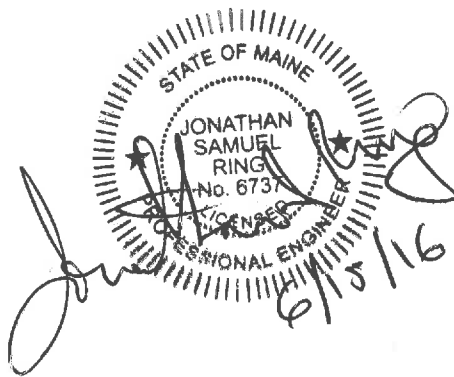
cc: Dirigo Center Developers, LLC
Barbara Barhydt, Portland Planning Department

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

**"Dirigo Plaza"
Tax Map 42B, Lots 9, 10, 11 & 14
58 & 80 Main Street
Westbrook, ME**

Prepared for:

**J&J Gove Development
7 Swain Drive
Hampton Falls, NH 03844**



**Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
February 11, 2016
JBE Project No. 14110**

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Property Owner (Owner) is responsible for maintenance of all stormwater infrastructure associated with this site. This includes all temporary and permanent stormwater and erosion control facilities both during and after construction.

B. General Inspection and Maintenance Requirements

1. The Owner shall perform all inspections and maintenance with greater than annual frequency as required by this report.
2. Regular maintenance of parking lots, roadways, and pedestrian areas.
3. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:
 - a. Culverts
 - b. Vegetation and landscaping
 - c. Catch basins and drain manholes
 - d. Riprap inlet and outlet protection aprons
 - e. Underdrained Sand Filter
 - f. Grassed Underdrained Soil Filter
 - g. Gravel Wetlands
 - h. Forebays

2. Regular maintenance of parking lots, roadways, and pedestrian areas:
 - Clear accumulations of winter sand in parking lots, along roadways, and in pedestrian areas at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.
3. Maintenance of permanent measures shall follow the following schedule:
 - a. **Culverts: Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris at the outlet, inlet, or within the conduit is to be removed and disposed of properly. Repair any erosion damage at the culvert's inlet and outlet.
 - b. **Erosion: Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.
 - c. **Vegetation and Landscaping: Annual inspection** at a minimum of site's vegetation and landscaping. Inspection early in the growing season or after heavy rains to identify active or potential erosion problems is recommended. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.
 - d. **Catch basins and Drain Manholes: Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-third depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

- e. **Riprap:** Rock riprap should be **inspected annually** and after every major storm event in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

f. **Underdrained Sand Filter:**

First Year Post-Construction: inspection frequency should be semi-annually and following every major storm in the first year following construction.

- Inspect after every major storm in the first few months to ensure proper function.
- Inspect to ensure system is draining with 24 to 36 hours after end of storm.
- Clean isolator rows as needed.

Post-Construction: inspection frequency should be at least every 6 months thereafter, as per USEPA good house-keeping requirements. Inspection frequency can be reduced to annual following 2 years of monitoring that indicates the rate of sediment accumulation is less than the cleaning criteria listed below. Inspections should focus on:

- Checking inlets, outlets, and overflow spillway for blockage, structural integrity, and evidence of erosion.
- Removal of debris and sediment accumulated in the isolator rows
- When the average depth of sediment throughout the isolator row exceeds 3 inches, clean-out must be performed.

Debris and sediment buildup within the isolator row fabric shall be removed as needed utilizing a Jet-Vac system.

g. **Grassed Underdrained Soil Filters:**

First Year Post-Construction: inspection frequency should be after every major storm in the first year following construction, with a minimum of every 6 months.

- Debris and sediment buildup shall be removed from the basin and any forebay areas.
- Mowing of a grassed basin can occur semi-annually to a height no less than 6 inches.

- any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched.
- Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.

Post-Construction: inspection frequency should be at least every 6 months to ensure that the basin is draining within 48 hours following a one inch storm or greater.

- Following a storm that fills the system to overflow, it drains in no less than 36 to 60 hours.
- If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.
- The top several inches of the filter shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. The removed sediments should be disposed of in an acceptable manner.
- Sediment and plant debris should be removed from the pretreatment structure at least annually.
- If mowing is desired, only hand held string trimmer or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Add new mulch only as necessary for bioretention cell.

h. **Gravel Wetlands:**

First Year Post-Construction: inspection frequency should be after every major storm in the first year following construction, with a minimum of every 6 months.

- Inspect to be certain system drains within 24-72 hrs (within the design period, but also not so quickly as to minimize stormwater treatment).
- Watering plants as necessary during the first growing season.
- Re-vegetating poorly established areas as necessary.
- Treating diseased vegetation as necessary.
- Quarterly inspection of soil and repairing eroded areas, especially on slopes.
- Checking inlets, outlets, and overflow spillway for blockage, structural integrity, and evidence of erosion.

Post-Construction: inspection frequency should be at least every 6 months thereafter, as per USEPA good house-keeping requirements. Inspection frequency can be reduced to annual following 2 years of monitoring that indicates the rate of sediment accumulation is less than the cleaning criteria listed below. Inspections should focus on:

- Checking the filter surface for dense, complete, root mat establishment across the wetland surface. Thorough revegetation with grasses, forbs, and shrubs is necessary. Unlike bioretention, where mulch is commonly used, complete surface coverage with vegetation is needed.
- Checking the gravel wetland surface for standing water or other evidence of riser clogging, such as discolored or accumulated sediments.
- Checking the sedimentation chamber or forebay for sediment accumulation, trash, and debris.
- Inspect to be certain the sedimentation forebay drains within 24 to 72 hrs.
- Checking inlets, outlets, and overflow spillway for blockage, structural integrity, and evidence of erosion.
- Removal of decaying vegetation, litter, and debris.
- Mow grass areas periodically so that grass does not exceed 4" in height.

Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetation of disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

Cleaning Criteria for Gravel Wetland Treatment Cells: Sediment should be removed from the gravel wetland surface when it accumulates to a depth of several inches (>10 cm) across the wetland surface. Materials should be removed with rakes rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

Draining and Flushing Gravel Wetland Treatment Cells: For maintenance it may be necessary to drain or flush the treatment cells. The optional drains will permit simpler maintenance of the system if needed. The drains need to be closed during standard operation. Flushing of the risers and horizontal subdrains is most effective with the entire system drained. Flushed water and sediment should be collected and properly disposed.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

**STORM WATER POLLUTION PREVENTION PLAN
INSPECTION PERIOD AND CRITERIA**

Tax Map 42B, Lots 9, 10, 11, & 14
58 & 80 Main Street
Westbrook, ME 04092

Stormwater Component	Inspection Period	Inspection Criteria/Methods
Culverts	Once per month	Inspect inlet/outlet. Remove debris.
Erosion	Annually	Repair site erosion.
Vegetation	Annually	Repair bare unvegetated areas.
Catch Basins and Drain Manholes	Annually (or more as required)	Remove trash and debris. Inspect for sediment. Remove if sediment greater than 1/3 sump depth.
Riprap	Annually	Relocate displaced rocks, remove woody vegetation and debris
Underdrained Sand Filters	1 st year; every storm event/6 months After 2 nd year; bi-annually	Inspect for sediment/debris collection, inspect inlets/outlets, inspection for erosion, see item e. Inspect to ensure underdrained sand filter is draining within 24 to 36 hours after a storm event.
Grassed Underdrained Soil Filters	1 st year; every storm event/6 months After 2 nd year; bi-annually	Inspect for standing water, sediment/debris collection, see item g.
Gravel Wetland	1 st year; every storm event/6 months 2 nd year; bi-annually 3 rd year; annually if meets criteria	Inspect for vegetation, standing water, sediment/debris collection, see item h.

**STORM WATER OPERATIONS AND MAINTENANCE PLAN
INSPECTION REPORT**

Tax Map 42B, Lots 9, 10, 11, & 14
58 & 80 Main Street
Westbrook, ME 04092

Yearly Inspection Form			
Inspected Component	Date of Inspection	Inspector	Issue Detected / Action Taken
Culverts			
Erosion			
Vegetation			
Catch Basins and Drain Manholes			
Riprap			
Underdrained Soil Filter			
Grassed Underdrained Soil Filters			
Gravel Wetland			

Section 7 - Construction Management Plan

As part of the North Campus Westbrook Development the site contractor will be constructing the proposed recreational trail in Portland. During construction of the recreational trail the site contractor will follow all applicable local and state construction standards and ensure steps are taken to control any potential erosion or sedimentation.

Section 8 - Traffic Study & Transportation Plans

A traffic study and associated reports have been compiled by Vanasse & Associates and provided to the City of Portland for review.

Section 9 - Significant Natural Features

There are no significant natural features present in the project area confirmed by the State of Maine - Department of Agriculture, Conservation & Forestry - Maine Natural Areas Program.

Attachment: Natural Resource Review Letter - Maine Natural Areas Program



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

June 1, 2015

VIA ELECTRONIC MAIL

Brendan Quigley
Gove Environmental Services, Inc.
8 Continental Dr, Building 2, Unit H
Exeter, NH 03833

Re: Rare and exemplary botanical features in proximity to: Commercial Redevelopment, Former PIKE Quarry, Westbrook, Maine

Dear Mr. Quigley:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received May 29, 2015 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in Westbrook, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Don Cameron
Ecologist
Maine Natural Areas Program
207-287-8041
don.s.cameron@maine.gov

Rare and Exemplary Botanical Features within 4 miles of Project: Commercial Development, Former PIKE Quarry, Westbrook, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Allegheny Vine	T	S1	G4	1860-10	9	Rocky summits and outcrops (non-forested, upland), Dry barrens (partly forested, upland)
American Sea-blite						
	T	S2	G5	1932-09-12	5	Tidal wetland (non-forested, wetland)
	T	S2	G5	2011-08-15	17	Tidal wetland (non-forested, wetland)
Beach Plum						
	E	S1	G4	1933-05-19	10	Rocky coastal (non-forested, upland)
Bottlebrush Grass						
	SC	S3	G5	1905-09-13	10	Hardwood to mixed forest (forest, upland)
Broad Beech Fern						
	SC	S2	G5	1872-08	15	Hardwood to mixed forest (forest, upland)
Creeping Spike-moss						
	E	S2	G5	1924-08-21	8	Open wetland, not coastal nor rivershore (non-forested, wetland), Old field/roadside (non-forested, wetland or upland)
Diocious Sedge						
	SC	S3	G4	1936-07-14	7	Non-tidal rivershore (non-forested, seasonally wet), Open wetland, not coastal nor rivershore (non-forested, wetland)
Ebony Spleenwort						
	SC	S2	G5	1910-06-06	10	Rocky summits and outcrops (non-forested, upland), Hardwood to mixed forest (forest, upland)
Engelmann's Spikerush						
	PE	SH	G4G5Q	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested, wetland)
Fern-leaved False Foxglove						
	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland), Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of Project: Commercial Development, Former PIKE Quarry, Westbrook, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Great Blue Lobelia	PE	SX	G5	1905-09	3	Forested wetland, Non-tidal rivershore (non-forested, seasonally wet)
Hollow Joe-pye Weed	SC	S2	G5?	2014-06-18	24	Open wetland, not coastal nor rivershore (non-forested, wetland), Old field/roadside (non-forested, wetland or upland)
Horned Pondweed	SC	S2	G5?	2007-10-22	18	Open wetland, not coastal nor rivershore (non-forested, wetland), Old field/roadside (non-forested, wetland or upland)
Marsh Milkwort	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
Missouri Rockcress	PE	SH	G5T4	1903-08-18	1	Tidal wetland (non-forested, wetland)
Parker's Pipewort	T	S1	G5?Q	1905-06-11	5	Dry barrens (partly forested, upland), Open wetland, not coastal nor rivershore (non-forested, wetland)
Pitch Pine Woodland	SC	S3	G3	1924-08-20	8	Rocky summits and outcrops (non-forested, upland), Hardwood to mixed forest (forest, upland)
Small Reed-grass	<null>	S3	G2	2005-12-08	28	Tidal wetland (non-forested, wetland)
Tidal Marsh Estuary Ecosystem	SC	S3	G5	2011-08-28	18	Rocky summits and outcrops (non-forested, upland)
Variable Sedge	<null>	S3	GNR	2011-08-25	8	Old field/roadside (non-forested, wetland or upland)
Maine Natural Areas Program	E	S1	G3	1911	8	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of Project: Commercial Development, Former PIKE Quarry, Westbrook, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Vasey's Pondweed	E	S1	G3	1911-06-29	9	(forest, upland) Dry barrens (partly forested, upland), Hardwood to mixed forest (forest, upland)
Water-plantain Spearwort	SC	S2	G4	1901-08-04	7	Open water (non-forested, wetland)
Wild Garlic	PE	SH	G4	1862-08	3	Open water (non-forested, wetland)
	SC	S2	G5	1918-07-16	6	Forested wetland, Hardwood to mixed forest (forest, upland)

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- SNR** Not yet ranked.
- SNA** Rank not applicable.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/dacf/mnap>

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A, B, C, or D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/dacf/mnap>

Section 16 - Abutters

Attachment: Abutters List

**ABUTTERS LIST (500 FT)
MAIN STREET
WESTBROOK, ME
JBE PROJECT No. 14110
October 29, 2014
Revised January 4, 2016
Revised January 27, 2016
Revised February 15, 2016
Revised March 2, 2016**

OWNER OF RECORD/SUBJECT PARCEL:

WESTBROOK TAX MAP 42B LOTS 10, 11 (58 MAIN ST) & 14 (LARRABEE RD)
PIKE INDUSTRIES INC.
3 EASTGATE PARK ROAD
BELMONT, NH 03220
BK 23578/PG 296 (LOT 10& 11)
BK 29536/PG 273 (LOT 14)

PORTLAND TAX MAP 264 LOTS A002001 (1190 BRIGHTON AVE) & A004001 (1176
BRIGHTON AVE)
PORTLAND TAX MAP 265 LOT A003
PIKE INDUSTRIES INC.
95 WARREN AVENUE
FAIRFIELD, ME 04937
BK 23504/PG 113

TAX MAP 42B/LOT 9 (80 MAIN ST)
LL LATHROP INC.
10 MOULTON STREET, SUITE 4
PORTLAND, ME 04101
BK 21632/PG 224

WESTBROOK ABUTTERS:

TAX MAP 9(1) LOT 5 (STROUDWATER ST)
PORTLAND WATER DISTRICT
PO BOX 3553
PORTLAND, ME 04104-3553

TAX MAP 9(1) LOT 6
LLEWELLYN A. RANDALL, JR
681 STROUDWATER STREET
WESTBROOK, ME 04092
BK 31997/PG 76

TAX MAP 9(1) LOT 8B (STROUDWATER ST)
MAINE TURNPIKE AUTHORITY
430 RIVERSIDE STREET
PORTLAND, ME 04103
BK 16036/PG 331

TAX MAP 42A LOT 7 (95 MAIN ST)
MCDONALD'S REAL ESTATE COMPANY
PO BOX 182571
COLUMBUS, OH 43218-2571
BK 24263/PG 155

TAX MAP 42A LOT 8 (91 MAIN ST)
WALLACE E. CAMP, SR., TRUSTEE
CAMP SIBLING TRUST
PO BOX 109
WESTBROOK, ME 04098
BK 30134/PG 136

TAX MAP 42A LOT 10 (MAIN ST)
PORTLAND ASSOCIATES, LLC
C/O WS ASSET MANAGEMENT INC.
33 BOYLSTON STREET, SUITE 3000
CHESTNUT HILL, MA 02467
BK 25490/PG 39

TAX MAP 42A LOT 13 (140 LARRABEE RD)
KENNERSON REALTY ASSOCIATION, LLC
655 ROOSEVELT TRAIL
WINDHAM, ME 04062
BK 12490/PG 139

TAX MAP 42B LOT 5 (120 MAIN ST)
SAMYCADAM CO. LLC
2602 59TH STREET S.
GULFPORT, FL 33707
BK 15390/PG 57

TAX MAP 42B LOT 6 (100 LARRABEE RD)
WE 100 LARRABEE ROAD LLC
C/O WINSTANLEY ENTERPRISES LLC
150 BAKER AVENUE EXT., SUITE 303
CONCORD, MA 01742
BK 26693/PG 280

TAX MAP 42B LOT 7 (95 LARRABEE RD)
MIDAS PROPERTIES, INC.
C/O MARVIN F. POER & COMPANY
PO BOX 52427
ATLANTA, GA 30355
BK 8662/PG 169

TAX MAP 42B LOT 8 (91 LARRABEE RD)
SHOEMAKER LLC
C/O CHARLOTTE SHOEMAKER
5100 SW 111 LANE ROAD
OCALA, FL 34473
BK 20854/PG 0074

TAX MAP 42B LOT 12 (10 TERMINAL ST)
BRENDA L. THORNTON TRUSTEE
JOSEPH H. CYR
683 MAIN ROAD
MILFORD, ME 04461
BK 30281/PG 237

TAX MAP 42B LOT 12B (50 LARRABEE RD)
DAVID B. MOORE REVOC. TRUST
DAVID B. MOORE, TRUSTEE
C/O HARCROS CHEMICAL INC.
5200 SPEAKER ROAD
KANSAS CITY, KS 66106
BK 20960/PG 218

TAX MAP 42B LOT 15 (MAINE CENTRAL RAILROAD)
PORTLAND TERMINAL COMPANY
GUILFORD TRANSPORTATION
IRON HORSE PARK
NORTH BILLERICA, MA 01862-1681
BK 2590/PG 301

TAX MAP 42B LOTS 101 (2 SAUNDERS WAY) & 113 (1 SAUNDERS WAY)
WWS PROPERTIES LLC
C/O BILL DODGE AUTO GROUP INC.
PO BOX 9567
WESTBROOK, ME 04098-5067
BK 30156/PG 199 (LOT 101)
BK 30156/PG 197 (LOT 113)

PORTLAND ABUTTERS:

TAX MAP 243 LOT B001001 (1819 WESTBROOK STREET)
TAX MAP 253 LOT A001 (1819 WESTBROOK STREET)
TAX MAP 254 LOT X001 (0 PINE TREE INDUSTRIAL PARKWAY) (1000 FT)
TAX MAP 269 LOT B001001 (1125 BRIGHTON AVENUE)
CITY OF PORTLAND
389 CONGRESS STREET
PORTLAND, ME 04101

TAX MAP 253 LOT A004 (111 PINE TREE INDUSTRIAL PARKWAY)
MEGCO REALTY II LLC
75 PINE TREE INDUSTRIAL PARKWAY
PORTLAND, ME 04102
BK 14185/PG 146

TAX MAP 264 LOT A001 (1150 BRIGHTON AVENUE)
TAX MAP 265 LOT B002
SAI PRASAD LLC
1150 BRIGHTON AVENUE
PORTLAND, ME 04102
BK 29899/PG 331

TAX MAP 262 LOT A001 (7 RAND ROAD) (1000 FT)
TAX MAP 264 LOT A005 (0 BRIGHTON AVENUE)
TAX MAP 264 LOT B001 (7 RAND ROAD) (1000 FT)
RAND ROAD HOLDINGS LLC
7 RAND ROAD
PORTLAND, ME 04104
BK 31342/PG 191

TAX MAP 265 LOT A001 (1210 BRIGHTON AVENUE)
TAX MAP 265 LOT A008 (1200 BRIGHTON AVENUE)
TAX MAP 265 LOT A009 (1220 BRIGHTON AVENUE)
PORTLAND HOTELS REALTY INC.
1200 BRIGHTON AVENUE
PORTLAND, ME 04102
BK 20821/PG316 (LOT A001) (LOT A009)
BK 26152/PG 307 (LOT A008)

TAX MAP 265 LOT A007 (1188 BRIGHTON AVENUE)
ANTHONY P. DEPALMER ET. AL.
103 GORE ROAD
RAYMOND, ME 04071
BK 32307/PG 021

TAX MAP 265 LOT B004 (1140 BRIGHTON AVENUE)
1140 BRIGHTON AVENUE ASSOCIATES INC.
1140 BRIGHTON AVENUE
PORTLAND, ME 04102
BK 17988/PG 304

TAX MAP 265 LOT B005
PORTLAND INN INC.
1150 BRIGHTON AVENUE
PORTLAND, ME 04102

TAX MAP 266 LOT A001 (1 RIVERSIDE STREET)
G6 HOSPITALITY PROPERTY LLC
PO BOX 117508
CARROLLTON, TX 75011
BK 30055/PG 225

TAX MAP 266 LOT C002 (6 RIVERSIDE STREET)
TAX MAP 266 LOT C004 (18 RIVERSIDE STREET)
TAX MAP 266 LOT C010 (24 RIVERSIDE STREET)
CENTRAL MAINE POWER CO.
LOCAL TAX
70 FARM VIEW DRIVE
NEW GLOUCESTER, ME 04260

SPINNAKER TRUST
ATTN: CHRIS O'NEIL
PO BOX 7160
PORTLAND, ME 04112

MAINE DEPT. OF TRANSPORTATION
REGION 1
51 PLEASANT HILL ROAD
SCARBOROUGH, ME 04070-0358

MAINE DEPT. OF TRANSPORTATION
REGION 3
PO BOX 817
ROUTE 2
DIXFIELD, ME 04224

ADDITIONAL ABUTTERS 1000 FT.

TAX MAP 253 LOT A002 (0 PINE TREE INDUSTRIAL PARKWAY)
TAX MAP 254 LOT A006 (0 PINE TREE INDUSTRIAL PARKWAY)
ALCO PARTNERS
75 PINE TREE INDUSTRIAL PARKWAY
PORTLAND, ME 04102
BK 11925 PG 316

TAX MAP 253 LOT A005 (131 PINE TREE INDUSTRIAL PARKWAY)
TAX MAP 254 LOT A004 (131 PINE TREE INDUSTRIAL PARKWAY)
RYDER TRUCK RENTAL INC.
#0680
PO BOX 025719
MIAMI, FL 33102
BK 9233 PG 310

TAX MAP 254 LOT A003 (106 PINE TREE INDUSTRIAL PARKWAY)
JLTS VIII LLC
73 INDUSTRIAL PARK ROAD
SACO, ME 04072
BK 26448 PG 071

TAX MAP 254 LOT A009
122 PTIP LLC
PO BOX 4894
PORTLAND, ME 04112
BK 24528 PG 078

APPLICANT:

J & J GOVE DEVELOPMENT
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

SURVEYORS/ENGINEERS:

JONES & BEACH ENGINEERS, INC.
ATTN. WAYNE MORRILL
PO BOX 219
STRATHAM, NH 03885

Applicant: J & J Gove Development, LLC
7 Swain Drive
Hampton Falls, NH 03844
Project Location: Main Street / Larrabee Road / Westbrook Arterial, Westbrook, ME
Westbrook Tax Map #32 Lot(s) #46-47
Project: Commercial Shopping Center
Identification #: Reg. 01-00185-A-N
Permit Category: 200 Plus PCE
Traffic Engineer: Vanasse & Associates, Inc.
Attn: Jeffery S. Dirk, PE
35 New England Business Center Drive, Suite 140
Andover, MA 01810-1071

Pursuant to the provision of 23 M.R.S.A. § 704-A and Chapter 305 of the MaineDOT's Regulations, the Maine Department of Transportation has considered the application of J & J Gove Development, LLC with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

The project consists of 550,000 SF of mixed-use retail development. Access to the site is via four full movement entrances, one signalized entrance on Main Street, one signalized entrance on Larrabee Road, one stop-controlled entrance on Larrabee Road and one signalized entrance on the Westbrook Arterial. The project is estimated to generate xxx trip ends during a typical Saturday peak hour and xxx trips during a typical PM peak hour.

Findings

Based on a review of the files and related information, MaineDOT approves the Traffic Movement Permit Application of J & J Gove Development, LLC subject to the following conditions:

MITIGATION

The mitigation is intended to describe that conceptually shown on the following plans provided by Vanasse & Associates, Inc. and Jones & Beach Engineers, Inc.:

1. "Conceptual Improvement Plan Riverside Street Corridor" Last Rev 6-10-16
2. "Brighton Avenue Corridor Conceptual Improvement Plan" Last Rev 6-10-16
3. "Conceptual Improvement Plan Riverside Street At Larrabee Road and I-95 Exit 48 Ramps" Last Rev 6-10-16
4. "Rand Road At I-95 Exit 47 Ramps Conceptual Improvement Plan" Last Rev 6-10-16
5. "Figure 14 Conceptual Improvement Plan" Sheets 1 thru 5, Last Rev 6-3-16
6. "Stroudwater Street At Forest Street Conceptual Improvement Plan" Last Rev 6-3-16
7. "Cumberland Street At Bridge Street Conceptual Improvement Plan" Last Rev 6-3-16

If the descriptions contained herein conflict with the plans, these descriptions shall take precedence over the plans. Not all of the mitigation discussed herein maybe shown on those or any plan. The following mitigation shall be constructed or implemented to MaineDOT's satisfaction prior to the opening of the facility, unless otherwise approved by MaineDOT.

On-Site Mitigation

Site Entrance / Main Street (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings. All markings shall be supplied, installed/painted and maintained yearly.

Modify raised median to accommodate dedicated left-turn pocket on Main Street to the site entrance with appropriate storage lengths and tapers.

~~Widen Main Street to accommodate five-foot bicycle lanes for both directions of travel.~~

Reconstruct sidewalks to meet ADA requirements.

Install new fully actuated traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. **Install a hardwire interconnect to the signal at Main and Larrabee Rd.**

Site Entrance / Larrabee @ Terminal Street (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance with appropriate storage lengths and tapers.

Widen Larrabee Road to provide five-foot bicycle lanes for both directions of travel.

Provide six-foot sidewalks along both sides of Larrabee Road.

Install new fully actuated traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. The traffic signal shall be set to flash until MUTCD traffic signal warrants are met. **Install a hardwire interconnect to the signal at Main and Larrabee Rd.**

Site Entrance / Larrabee @ Saunders Way (Unsignalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have a STOP bar and all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

~~Widen Larrabee Road to provide five-foot bicycle lanes for both directions of travel.~~

Site Entrance / Westbrook Arterial (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance with appropriate storage lengths and tapers.

Install new traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. **Install a hardwire interconnect to the signal at Westbrook Arterial and Larrabee Rd.**

General Requirements For All Entrances

A. The entrances shall provide overhead illumination, if not existing, to illuminate the intersections per MaineDOT standards at a minimum. Overhead lighting shall have an average of 0.6 to 1.0 foot candles, with the maximum to minimum lighting ratio of not more than 10:1 and an average to minimum light level of not more than 4:1.

Off-Site Mitigation

Optimize traffic signal timings in the coordinated system on Riverside St / Main St / Brighton Ave.

Riverside Street

~~Provide five-foot bicycle lanes and six-foot sidewalks between the intersections of Larrabee Road and Main Street.~~ [ST1]

Intersection of Riverside St / Larrabee Rd (Exit 48)

Construct a second dedicated left-turn lane on the Riverside southbound approach to Exit 48. Restripe the southbound approach to include two dedicated left-turn lanes, a dedicated thru lane and a share thru-right lane. Lane widths shall be a minimum of 11 feet.

Install appropriate overhead lane-usage signs for the Riverside southbound approach.

Construct a second left-turn lane on Larrabee.

Remove channelizing island for the right-turn movements from the Riverside Street northbound approach and the I-95 exit ramp. Construct a right turn lane with appropriate length and Taper

Install sidewalks along both sides of Riverside Street. **From where to where.**

~~Install bicycle lanes on Riverside Street south of the Exit 48 intersection.~~ **Install by widening?**

Reconstruct the traffic signal system to accommodate the new geometry and interconnect to the toll plaza. **Provide overlap phasing when possible.**

Design and implement an optimal traffic signal timing, phasing and coordination plan. **Install a hardwire interconnect to the signal at Main and Larrabee Rd.**

Intersection of Riverside St / Forest Ave

~~Construct a second dedicated left-turn lane on the eastbound approach.~~[ST2]

Design and implement an optimal traffic signal timing, phasing and coordination plan.

Intersection of Riverside St / Warren Ave

~~Construct a second left turn lane on the westbound approach.~~

~~Construct a dedicated right turn lane on the eastbound approach.~~[ST3]

Design and implement an optimal traffic signal timing, phasing and coordination plan. **Ensure there is a hardwire interconnect between adjacent intersections.**

Intersection of Riverside St / Home Depot

Design and implement an optimal traffic signal timing, phasing and coordination plan. **Ensure there is a hardwire interconnect between adjacent intersections.**

Intersection of Riverside St / Brighton Ave / Main St

Design and implement an optimal traffic signal timing, phasing and coordination plan. **Ensure there is a hardwire interconnect between adjacent intersections.**

Main Street

~~Widen Main Street to provide five foot bike lanes between the intersection with Larrabee Road and the Riverside Avenue.~~

Intersection of Main St / Larrabee Rd

Removed existing raised triangular islands from Larrabee approaches to Main Street. Construct dedicated right-turn pockets on the Larrabee approaches to Main Street with appropriate storage lengths and tapers.

~~Widen Main Street approaches to accommodate five-foot bicycle lanes.~~

Provide ADA improvements to the sidewalks and signal equipment.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan.

Westbrook Arterial

Intersection of Rand Rd / Westbrook Arterial (Exit 47)

Widen I-95 ramp to provide a second left-turn lane to the Westbrook Arterial.

Install raised medians along Rand Road approaching the intersection.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan.

Larrabee Road

~~Construct six-foot sidewalks and five-foot bike lanes between the intersection with Main Street and the Terminal Street entrance.~~

Stroudwater Street

Intersection of Stroudwater Street and Forest Street

Construct a dedicated left-turn pocket on Stroudwater Street to Forest Street with appropriate storage lengths and tapers. [ST4]

Cumberland Street

Intersection of Cumberland Street and Bridge Street

Construct a right-turn pocket on the Cumberland Street westbound approach to Bridge Street with appropriate storage lengths and tapers. [ST5]

Overall Requirements

A. Provide all necessary auxiliary signs, striping and pavement markings to implement the improvements described herein according to MaineDOT and/or National standards.

B. All plantings and signs (existing and/or proposed; permanent and/or temporary) shall be placed and maintained such that they do not block available sight distances and do not violate the State's "Installations and Obstructions" law. No signage, plantings or structures shall be allowed within the "clear zone" if they constitute a deadly fixed object as determined by MaineDOT. All signs shall meet MRSA Title 23, Chapter 21, Section 1914: "On-Premise Signs".

C. If any of the supporting data or representations for which this permit is based changes in any way or is found to be incorrect / inaccurate, the applicant shall request in writing from MaineDOT a decision of what impacts those changes will have on the permit. The applicant will then be required to submit those changes for review and approval and additional mitigation as a result of those changes may be required at the expense of the applicant.

By:

Stephen Landry, P.E.
State Traffic Engineer

Date: _____

TRAFFIC IMPACT STUDY EXECUTIVE SUMMARY

DIRIGO PLAZA MIXED-USE COMMERCIAL DEVELOPMENT
WESTBROOK ARTERIAL, LARRABEE ROAD AND MAIN STREET
WESTBROOK, MAINE

Prepared for:

J & J GOVE DEVELOPMENT, LLC
Hampton Falls, New Hampshire

February 2016

Amended May 2016

Prepared by:

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EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has conducted a Traffic Impact Study (TIS) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a mixed-use commercial development to be known as Dirigo Plaza and located on an assemblage of parcels bounded by Main Street (Route 25B), Westbrook Arterial, and Larrabee Road, in Westbrook, Maine (hereafter referred to as the “Project”). This assessment has been amended to incorporate specific comments received from the City of Westbrook and their independent review consultant, as well as subsequent consultation and meetings with the Maine Department of Transportation (MDOT), the Maine Turnpike Authority (MTA), the City of Portland and the Portland Area Comprehensive Transportation System (PACTS). Specifically, this amended assessment includes an expanded study area; updated traffic counts and safety analyses; revised trip-distribution pattern and trip assignments using the PACTS traffic model; and an expanded transportation improvement program.

This assessment was prepared in consultation with MDOT, the MTA, the Cities of Westbrook and Portland, and PACTS; was performed in accordance with the scoping determination issued by MDOT for the Project and Section 7, Traffic Study Requirements, of MDOT’s *Traffic Movement Permit* guidelines, and as amended thereafter based on comments received during the Project review process; and was conducted pursuant to the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports. Based on this amended assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE)¹ and applying appropriate adjustments to account for pass-by trips, the Project is predicted to generate approximately 13,366 new vehicle trips on an average weekday and 18,890 new vehicle trips on a Saturday (two-way volume over the operational day of the Project), with 351 new vehicle trips expected during the weekday morning peak-hour, 1,217 new vehicle trips expected during the weekday evening peak-hour and 1,853 new vehicle trips expected during the Saturday midday peak-hour;
2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build conditions) at the majority of the study intersections;

¹*Trip Generation*, 9th Edition; Institute of Transportation Engineers; Washington, DC; 2012.

3. At those locations where the Project was shown to have a pronounced impact or where a capacity or safety deficiency was identified, specific improvement measures have been identified to reconcile these conditions or to advance design plans for a future improvement project by others; and
4. Lines of sight to and from the Project site driveway intersections with Main Street, Westbrook Arterial and Larrabee Road were found to exceed the required minimum distance for the intersections to function in a safe and efficient manner based on the appropriate approach speed along the intersecting roadway.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

RECOMMENDATIONS

A detailed and expanded transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site is proposed as follows: two (2) driveways that will intersect Larrabee Road and will align with Terminal Street and Saunders Way, respectively, with the northernmost driveway (opposite Terminal Street) to be placed under traffic signal control (flashing operation until full activation is warranted); an existing driveway that serves the Project site that intersects Main Street opposite the driveway to the Westbrook Crossing shopping center that will be placed under traffic signal control; a right-turn, entrance only driveway that will intersect Main Street approximately 100 feet east of Larrabee Road; and a full access driveway that will intersect Westbrook Arterial approximately 550 feet east of Larrabee Road that will be placed under traffic signal control. As discussed with MDOT, it is proposed that the rights to construct a third full access driveway on Larrabee Road (to be located between the Westbrook Arterial and the railroad tracks) be transferred to Westbrook Arterial in order to allow for the construction of the full access driveway on Westbrook Arterial. The following recommendations are offered with respect to the design and operation of the Project site driveways:

- The Project site driveway intersections with Main Street (full access driveway to be located opposite the driveway to Westbrook Crossing) and Westbrook Arterial should be placed under traffic signal control. The proposed traffic signals should be interconnected and coordinated with the adjacent traffic signals on Main Street and Westbrook Arterial.
- The Main Street approach to the full access Project site driveway should provide a westbound left-turn, while maintaining the eastbound left-turn lane to the Westbrook Crossing shopping center and two (2) through travel lanes in both directions.
- The Westbrook Arterial approaches to the Project site driveway should provide a right-turn lane and two (2) through travel lanes on the westbound approach, and a left-turn lane and two (2) through travel lanes on the eastbound approach.

- The signalized Project site driveways should accommodate two (2) 11 to 12-foot wide exiting travel lanes and a single 14-foot wide (minimum) entering lane separated by a double-yellow centerline or a raised median a minimum of 6-feet in width.
- The north Project site driveway on Larrabee Road (opposite Terminal Street) should be placed under traffic signal control and operated in flashing mode (flashing yellow for Larrabee Road and flashing red for Terminal Street and the Project site driveway) until such time as the required warrants to justify full activation of the traffic control signal are met (see *Traffic Monitoring Program*). Larrabee Road approaching the intersection should be widened to provide a left-turn lane in both the north and southbound directions, with the Project site driveway providing two (2) 11 to 12-foot wide exiting travel lanes and a single 14-foot wide (minimum) entering lane separated by a double-yellow centerline or raised median a minimum of 6-feet in width. Vehicles exiting the Project site driveway and Terminal Street should be placed under STOP-sign control with a marked STOP-line provided until full activation of the traffic control signal.
- The south Project site driveway on Larrabee Road (opposite Saunders Way) should provide two (2) 11 to 12-foot wide exiting travel lanes and a single 14-foot wide (minimum) entering lane separated by a double-yellow centerline or raised median a minimum of 6-feet in width, with vehicles exiting the driveway placed under STOP-sign control with a marked STOP-line provided. In addition, Larrabee Road approaching the intersection should be widened to provide a left-turn lane in both the north and southbound directions.
- All signs and pavement markings to be installed within the Project site shall conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).²
- Sidewalks should be provided within the Project site linking the proposed buildings to the sidewalk infrastructure along Main Street.
- Wheelchair ramps should be provided for crossing the Project site driveways where a sidewalk is present and at locations internal to the Project site where pedestrian crossings are proposed.
- Signs and landscaping to be installed internal to the Project site and at the Project site driveway intersections should be designed and maintained so as not to restrict lines of sight.
- Snow windrows along the Project site frontage within the sight triangle areas of the Project site driveways shall be promptly removed where such accumulations would exceed 2.5 feet in height.

Off-Site

The following off-site improvements are proposed to off-set the impact of the Project and improve traffic operations, and will be implemented by the Project proponent prior to the issuance of a Certificate of Occupancy for the Project and subject to receipt of all necessary rights, permits and approvals:

²*Manual on Uniform Traffic Control Devices* (MUTCD); Federal Highway Administration; Washington, D.C.; 2009.

Westbrook:

- ***William Clarke Drive Traffic Signal System*** – Design and implement an optimal traffic signal timing, phasing and coordination plan, to include the following intersections:
 1. William Clarke Drive at Mechanic Street
 2. William Clarke Drive at Spring Street
 3. William Clark Drive at Stroudwater Street
 4. William Clarke Drive at Hannaford Drive
 5. William Clarke Drive at Main Street Connector

The improvements will include the installation of all necessary hardware and appurtenances required to provide a fully functioning, coordinated traffic signal system inclusive of the above intersections.

- ***William Clarke Drive at New Gorham Road and Main Street, and William Clarke Drive at Saco Street*** - Design and implement an optimal traffic signal timing and phasing plan, to include the installation of all necessary hardware and appurtenances to implement the changes. The traffic signal system at these two (2) separate intersections currently operates from a common traffic signal controller. To the extent desired by the City, the traffic signal systems at these intersections will be modified to operate from separate traffic signal controllers, and will be interconnected and coordinated.
- ***Cumberland Street at Bridge Street*** – Design and implement an optimal traffic signal timing and phasing plan, to include the installation of all necessary hardware and appurtenances to implement the changes.
- ***Main Street at Forest Street*** – Convert the Main Street westbound right-turn lane to a through/right-turn lane and design and implement an optimal traffic signal timing and phasing plan, to include the installation of all necessary hardware and appurtenances to implement the changes.
- ***Main Street at Larrabee Road*** – Remove the raised triangular islands on the Larrabee Road approaches to eliminate the right-turn slip-ramps; install crosswalks, wheelchair ramps and pedestrian traffic signal equipment (push buttons, signal indications and phasing); reconstruct/upgrade/replace traffic signal equipment as necessary to accommodate the intersection improvements; and interconnect and coordinate with adjacent traffic signals at the Project site driveway/Westbrook Crossing shopping center and Brighton Avenue/Riverside Street intersections.
- ***Westbrook Arterial at Larrabee Road*** – Design and implement an optimal traffic signal timing and phasing plan, and interconnect and coordinate with the proposed traffic control signal to be installed at the Project site driveway. These improvements include the installation of all necessary hardware and appurtenances to implement the changes.
- ***Cumberland Street at Park Road*** – Perform a detailed Traffic Signal Warrants Analysis (TSWA) in accordance with the methodology established in the MUTCD, to include conducting a 12-hour (7:00 AM to 7:00 PM) manual turning movement count on an average weekday. The results of the TSWA will be summarized in a memorandum provided to the City and will include a conceptual improvement plan depicting the recommended intersection improvements.

- ***Stroudwater Street at Forest Street*** - Perform a detailed TSWA in accordance with the methodology established in the MUTCD, to include conducting a 12-hour (7:00 AM to 7:00 PM) manual turning movement count on an average weekday. The results of the TSWA will be summarized in a memorandum provided to the City and will include a conceptual improvement plan depicting the recommended intersection improvements.

Portland:

- ***Brighton Avenue Traffic Signal System*** – Design and implement an optimal traffic signal timing, phasing and coordination plan, to include the following intersections:

1. Brighton Avenue at Riverside Street
2. Brighton Avenue at City Hospital Drive
3. Brighton Avenue at Taft Avenue
4. Brighton Avenue at Rand Road and Cabot Street
5. Brighton Avenue at Rowe Avenue and Warwick Street
6. Brighton Avenue at Capisic Street, Kent Street and Hillcrest Avenue
7. Brighton Avenue at Woodford Street, Colonial Road and Columbia Road
8. Brighton Avenue at Stevens Avenue
9. Brighton Avenue at St. John Street and Devonshire Street

The improvements will include the installation of all necessary hardware and appurtenances required to provide a fully functioning, coordinated traffic signal system inclusive of the above intersections.

- ***Riverside Street Traffic Signal System*** – Design and implement an optimal traffic signal timing, phasing and coordination plan, to include the following intersections:

1. Riverside Street at Warren Avenue
2. Riverside Street at Home Depot Drive
3. Riverside Street at Larrabee Road
4. Riverside Street at Westbrook Crossing Drive
5. Riverside Street at Brighton Avenue

The improvements will include the installation of all necessary hardware and appurtenances required to provide a fully functioning, coordinated traffic signal system inclusive of the above intersections.

- ***Westbrook Arterial at Rand Road and the I-95 Ramps*** – Design and implement an optimal traffic signal timing and phasing plan, to include the installation of all necessary hardware and appurtenances to implement the changes.

- ***Capisic Street at Frost Street*** - Perform a detailed TSWA in accordance with the methodology established in the MUTCD, to include conducting a 12-hour (7:00 AM to 7:00 PM) manual turning movement count on an average weekday. The results of the TSWA will be summarized in a memorandum provided to the City and will include a conceptual improvement plan depicting the recommended intersection improvements.

Safety Improvements

The following safety-related improvements will be completed in conjunction with the Project and will be implemented by the Project proponent prior to the issuance of a Certificate of Occupancy for the Project and subject to receipt of all necessary rights, permits and approvals:

Westbrook:

➤ *Main Street at Larrabee Road*

- i.) Review and upgrade the existing traffic signal system to meet current design standards which may include: signal indications; vehicle detection system to include bicycle detection; controller and cabinet; emergency vehicle detection system (OPTICOM™); and all necessary appurtenances to provide a fully functional traffic signal system;
- ii.) Design and implement an optimal traffic signal timing and phasing plan to include vehicle clearance times developed in accordance with current MUTCD, City and MDOT standards; and
- iii.) Review, upgrade and replace existing signs and pavement markings as may be necessary.

➤ *Main Street at Cumberland Street, Warren Avenue and Harnois Avenue* – The City of Westbrook will be implementing specific improvements at these intersections that includes the installation of traffic control signals to enhance safety and facilitate pedestrian and bicycle access. No additional improvements are required at this time.

Portland:

➤ *Riverside Street at Larrabee Road and the I-95 Ramps*

- i.) Design and construct geometric and traffic control improvements at the intersection to include the elimination of the channelized right-turn slip-ramp on the Riverside Street northbound approach; realignment of the Larrabee Road eastbound approach and the accompanying departure as it approaches the toll plaza; and the addition of a right-turn lane on the Larrabee Road westbound exit from the toll plaza area and elimination of the existing channelized right-turn slip-ramp;
- ii.) Review and upgrade the existing traffic signal system to meet current design standards which will include: signal indications; pedestrian pushbuttons and indications; vehicle detection system to include bicycle detection; controller and cabinet; emergency vehicle detection system (OPTICOM™); and all necessary appurtenances to provide a fully functional traffic signal system;
- iii.) Design and implement an optimal traffic signal timing and phasing plan to include vehicle clearance times developed in accordance with current MUTCD, City and MDOT standards; and
- iv.) Review, upgrade and replace existing signs and pavement markings as may be necessary.

➤ ***Riverside Street at Warren Avenue***

- i.) Review and upgrade the existing traffic signal system to meet current design standards which may include: signal indications; pedestrian pushbuttons and indications; vehicle detection system to include bicycle detection; controller and cabinet; emergency vehicle detection system (OPTICOM™); and all necessary appurtenances to provide a fully functional traffic signal system;
- ii.) Design and implement an optimal traffic signal timing and phasing plan to include vehicle clearance times developed in accordance with current MUTCD, City and MDOT standards; and
- iii.) Review, upgrade and replace existing signs and pavement markings as may be necessary.

➤ ***Brighton Avenue at Stevens Avenue***

- i.) Review and upgrade the existing traffic signal system to meet current design standards which may include: signal indications; pedestrian pushbuttons and indications; vehicle detection system to include bicycle detection; controller and cabinet; emergency vehicle detection system (OPTICOM™); and all necessary appurtenances to provide a fully functional traffic signal system;
- ii.) Design and implement an optimal traffic signal timing and phasing plan to include vehicle clearance times developed in accordance with current MUTCD, City and MDOT standards; and
- iii.) Review, upgrade and replace existing signs and pavement markings as may be necessary.

➤ ***Capisic Street at Frost Street***

- i.) Selective trimming of vegetation along Capisic Street to improve sight lines;
- ii.) Install an “Intersection Ahead” (graphic symbol) warning sign on Capisic Street west of the intersection;
- iii.) Install a “Stop Sign Ahead” (graphic symbol) warning sign on Frost Street approaching the intersection; and
- iv.) Review, upgrade and replace existing signs and pavement markings as may be necessary.

Transportation Demand Management

The Project site is ideally situated to take advantage of available public transportation resources in the area, including the METRO bus service operated by the Greater Portland Transit District. In an effort to encourage use of alternative modes of transportation to single-occupant vehicles, the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- Information regarding public transportation services, maps, schedules and fare information will be made available to employees of the Project and posted in a central location within each building;

- A packet will be provided to new employees of the Project detailing available public transportation services, bicycle and walking alternatives, and commuter options;
- Pedestrian accommodations will be incorporated within the Project site and extending to Main Street;
- The planned improvements to Main Street, Westbrook Arterial and Larrabee Road that will be completed as a part of the Project will incorporate bicycle lanes and/or widened shoulders to accommodate bicycle travel to the extent that public right-of-way is available for such accommodations.
- A METRO bus stop will be provided along Main Street or at an appropriate location determined in consultation with Greater Portland Transit District; and
- Secure bicycle parking will be provided, including both exterior bicycle racks and weather protected bicycle parking in a secure area where such accommodations can be made.

Traffic Monitoring Program

The Project proponent will conduct a post-development traffic monitoring program in order to validate the trip projections for the Project and to determine if and when the installation of a traffic control signal may be justified at the Larrabee Road/Project site Driveway/Terminal Street intersection. The monitoring program will include:

- i) Obtaining traffic volume information over a continuous seven day, weeklong period at the driveways serving the Project site;
- ii) Performing a continuous 12-hour (7:00 AM to 7:00 PM) manual turning movement and vehicle classification count on an average weekday at the Project site driveway intersection with Larrabee Road and Terminal Street; and
- iii) Completing a detailed TSWA at the Larrabee Road/Project site Driveway/Terminal Street intersection in accordance with the methodology established in the MUTCD.

The monitoring program will commence six (6) months after issuance of the first Certificate of Occupancy for the Project and will continue on an annual basis thereafter for a period not to exceed 2-years after Project completion and occupancy. The results of the monitoring program will be summarized in a report to be provided to the City of Westbrook within 2-months after the completion of the data collection effort. When full activation of the traffic control signal is found to be warranted at the Larrabee Road/Project site Driveway/Terminal Street intersection, the Project proponent will undertake the required actions and obtain all necessary approvals to transition the traffic signal system from flashing operation to full operation.

Loading and Deliveries

The Project has been designed to accommodate all loading and delivery functions on-site in a safe and efficient manner. Designated loading areas will be provided on-site to accommodate deliveries. Refuse/recycling will be accommodated in centralized areas for each building. Truck routes and hours of deliveries will be coordinated to minimize truck activity during the commuter peak hours. Reasonable efforts will be made to use service vendors currently delivering in the vicinity of the Project site in an effort to reduce the overall number of new trucks in the area.

With implementation of the above recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

**DIRIGO PLAZA
TRANSPORTATION IMPROVEMENT PROGRAM SUMMARY - WESTBROOK**

Intersection	Improvement Measure	Responsible Party
<i>William Clarke Drive Traffic Signal System (5 intersections)</i>	– Design and implement an optimal traffic signal timing, phasing and coordination plan	J&J Gove Development LLC
<i>William Clarke Drive/ New Gorham Road/Main Street and William Clarke Drive/ Saco Street</i>	– Design and implement an optimal traffic signal timing and phasing plan – If requested by City, modify traffic signals to operate on separate traffic signal controllers (vs. current single controller operation) and interconnect and coordinate two signals	J&J Gove Development LLC
<i>Cumberland Street/Bridge Street</i>	– Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC
<i>Main Street/Forest Street</i>	– Convert Main Street westbound right-turn lane to a through/right-turn lane – Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC
<i>Main Street/Larrabee Road</i>	– Remove raised triangular islands from Larrabee Road approaches – Install crosswalks and pedestrian traffic signal equipment – Upgrade/replace traffic signal equipment – Review/upgrade/replace signs and pavement markings – Coordinate with adjacent traffic signals – Design and implement an optimal traffic signal timing, phasing and coordination plan	J&J Gove Development LLC
<i>Westbrook Arterial/ Larrabee Road</i>	– Design and implement an optimal traffic signal timing and phasing plan – Coordinate with adjacent traffic signal	J&J Gove Development LLC
<i>Cumberland Street/Park Road</i>	– Perform Traffic Signal Warrants Analysis – Prepare Conceptual Improvement Plans	J&J Gove Development LLC
<i>Stroudwater Street/Forest Street</i>	– Perform Traffic Signal Warrants Analysis – Prepare Conceptual Improvement Plans	J&J Gove Development LLC

**DIRIGO PLAZA
TRANSPORTATION IMPROVEMENT PROGRAM SUMMARY - PORTLAND**

Intersection	Improvement Measure	Responsible Party
<i>Brighton Avenue Traffic Signal System (9 intersections)</i>	– Design and implement an optimal traffic signal timing, phasing and coordination plan	J&J Gove Development LLC
<i>Riverside Street Traffic Signal System (5 intersections)</i>	– Design and implement an optimal traffic signal timing, phasing and coordination plan	J&J Gove Development LLC
<i>Westbrook Arterial/Rand Road/I-95 Ramps</i>	– Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC
<i>Capisic Street/Frost Street</i>	– Perform Traffic Signal Warrants Analysis – Prepare Conceptual Improvement Plans – Trim vegetation along Capisic Street – Install “Intersection Ahead” warning signs on Capisic Street – Install “Stop Sign Ahead” warning sign on Frost Street – Review/upgrade/replace signs and pavement markings	J&J Gove Development LLC
<i>Riverside Street/Larrabee Road</i>	– Design and construct intersection geometric improvements – Upgrade/replace traffic signal equipment – Review/upgrade/replace signs and pavement markings – Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC
<i>Riverside Street/Warren Avenue</i>	– Upgrade/replace traffic signal equipment – Review/upgrade/replace signs and pavement markings – Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC
<i>Brighton Avenue/Stevens Avenue</i>	– Upgrade/replace traffic signal equipment – Review/upgrade/replace signs and pavement markings – Design and implement an optimal traffic signal timing and phasing plan	J&J Gove Development LLC

MEMORANDUM

TO: Mr. Timothy Soucie, P.E.
Region Traffic Engineer
MaineDOT - Region 1
P.O. Box 358
Scarborough, ME 04070

FROM: Mr. Jeffrey S. Dirk, P.E., PTOE, FITE 
Principal
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810-1066
(978) 474-8800, ext. 830
jdirk@rdva.com

DATE: June 3, 2016

RE: 6846

SUBJECT: Response to Comments on Comments on Amended Traffic Impact Study
Dirigo Plaza - Westbrook Arterial, Larrabee Road and Main Street (Route 25B)
Westbrook, Maine

Vanasse & Associates, Inc. (VAI) is providing supplemental information and analyses in support of the May 6, 2016 Amended *Traffic Impact Study* prepared for the Dirigo Plaza mixed-use commercial development to be located on an assemblage of parcels bounded by Main Street (Route 25B), Westbrook Arterial, and Larrabee Road, in Westbrook, Maine (hereafter referred to as the "Project"). Specifically, this memorandum focuses on the May 20, 2016 consolidated comments that were provided by MDOT and focuses on the intersections and roadways located in the City of Westbrook. We will be providing similar information, plans and analyses to address the comments related to the intersections and roadways in the City of Portland, including improvements to the Maine Turnpike interchanges with Rand Road (Exit 47) and Riverside Street (Exit 48), improvements to Brighton Avenue and Riverside Street, and an assessment of 2015 motor vehicle crash data and associated recommendations for improvements at all high crash locations. This information will be provided in a subsequent memorandum.

The following details our responses to the May 20, 2016 consolidated comments.

TRAFFIC IMPACT STUDY – GENERAL

Comment: *Intersections with LOS below D: Please provide additional review of intersections with a failing LOS below D and provide mitigation recommendations.*

Response: This memorandum provides specific recommendations for those intersections located within the City of Westbrook where one or more movements or lane groups were identified to be operating below LOS D. Similar recommendations will be provided in a subsequent memorandum for those intersections located within the City of Portland that were also found to be operating below LOS D.



- Comment:** *High-crash Locations (HCLs): Please provide additional review of intersections and segments deemed a HCL and provide mitigation recommendations.*
- Response:** An additional review of high crash locations based on 2015 motor vehicle crash data provided by MDOT is underway and will be provided in a subsequent memorandum along with specific recommendations for improvements.
- Comment:** *Traffic volume adjustments, Page 14: The seasonal adjustments were based on Maine DOT adjustment factors, which typically indicate greater seasonal fluctuation than the City has observed, albeit anecdotally. As such, the predevelopment volumes, if anything, are conservative.*
- Response:** We agree with this observation and acknowledge that the adjusted traffic volumes are likely conservative (high).
- Comment:** *Background Growth, Page 20: A one percent background growth in addition to the other development should have more documentation as to why it is needed. From Portland's perspective, many locations have seen flat or declining peak hour volumes, particularly weekdays.*
- Response:** The use of a 1.0 percent per year compounded annual background traffic growth rate was confirmed by the City of Westbrook and PACTS for the development of the future condition traffic volume projections in addition to the incorporation of the identified development projects by others. We acknowledge that this approach may result in conservative (high) traffic volumes at specific locations.
- Comment:** *Trip generation, Pages 21-23: I generally concur with the idea of utilizing the appropriate LUC 820 for a development of this nature. However, the fueling facility, while utilizing the appropriate LUC, suggests no internal capture between uses, which one would expect to be a not insignificant percentage. In addition, there is no use of diverted trips in this study, which in my previous experience with a number of large retail developments is a major component in trip distribution and assignment. A cursory review of the ITE Trip generation Handbook indicates that diverted trips may compose as much as a third to 40 percent of total trips, particularly on a Saturday.*
- Response:** We agree that inclusion of diverted linked trips and application of an internal capture rate to the traffic volume projections for the fueling facility would result in lower overall traffic volumes for the Project. This approach was weighed vs. developing the traffic characteristics of each of the individual land uses proposed within the Project site, applying an internal capture rate to respective uses where appropriate, and then adjusting to account for pass-by trips and diverted linked trips. After careful review of these two approaches by MDOT, it was determined that considering the entirety of the Project excepting the fueling facility as a shopping center (LUC 820) and applying appropriate adjustments to account for pass-by trips would result in a reasonable and balanced approach to determining the potential impact of the Project on the transportation infrastructure.

MAINE TURNPIKE

Comment: *Exit 48/Riverside Street: This intersection needs additional review of both safety and mobility needs. Please provide additional analysis of the existing conditions as well as of the proposed mitigation discussed at the May 10th meeting.*

Response: VAI has developed a comprehensive improvement plan for the Riverside Street corridor extending to and including the Exit 48/Riverside Street intersection that is based on the concept plan provided by the City of Portland. This information and the supporting analysis will be provided in a subsequent memorandum.

Comment: *Exit 47/Rand Road: The study shows the I-95 Off-Ramp NB LT as a LOS F under 2021 build conditions. Please review and provide mitigation suggestions. Possible mitigation may include the construction of an additional lane exiting the turnpike to provide dual left turn lanes and a right turn lane.*

Response: VAI has developed a comprehensive improvement plan for the Exit 47/Rand Road intersection that includes the addition of a second left-turn lane approaching Rand Road from the toll plaza as well as the associated reconstruction of the traffic signal system to accommodate the proposed geometry. This information and the supporting analysis will be provided in a subsequent memorandum.

RIVERSIDE STREET

Comment: *Please review the existing pedestrian facilities on Riverside between Exit 48 and Brighton Avenue and provide recommendations for improvements.*

Response: VAI has developed a comprehensive improvement plan for the Riverside Street corridor extending from Brighton Avenue to a point north of the Exit 48/Riverside Street intersection that includes the addition of pedestrian and bicycle accommodations. A portion of these improvements are shown on the revised improvement plan for the Brighton Avenue/Riverside Street intersection that is included herein (Figure 14, Sheet 5 of 5). The Riverside Street improvement plans will be provided in a subsequent memorandum.

BRIGHTON AVENUE

Comment: *The section of Brighton Avenue from Nason's Corner was identified as an area to be reviewed for improvements (bike/ped, signal improvements). Additional comments will be provided at a later date.*

Response: VAI has developed a conceptual improvement plan for the Brighton Avenue corridor extending from Riverside Street to Nason's Corner that includes pedestrian and bicycle focused improvements. A portion of these improvements are shown on the revised improvement plan for the Brighton Avenue/Riverside Street intersection that is included herein (Figure 14, Sheet 5 of 5). The Brighton Avenue improvement plans will be provided in a subsequent memorandum. In addition, we will be coordinating with the City of Portland to define those locations that require traffic signal equipment upgrades.



MAIN STREET

Comment: *There is a need for coordination along Main Street at Larrabee Road, Main Entrance & Riverside Street. For coordination, fiber will need to be installed between the three intersections.*

Response: The Applicant will design and construct an interconnected and coordinated traffic signal system along the Main Street corridor using fiber optic cable for communications. The traffic signal system will include the following intersections: Main Street/Larrabee Road, Main Street/Westbrook Crossing/Dirigo Plaza, and Brighton Avenue/Riverside Street.

Comment: *There are concerns regarding the proximity of a slip lane on Main Street to the Larrabee Road intersection.*

Response: The Main Street right-turn entrance only driveway to the Project site that was to be located east of Larrabee Road has been eliminated and is reflected on the revised improvement plans that are included herein (Figure 14, Sheet 4 of 5).

Comment: *Is pedestrian equipment to be provided at the Main Street/Kohl's intersection?*

Response: Pedestrian traffic signal equipment and phasing will be provided at the Main Street/Westbrook Crossing (Kohl's)/Dirigo Plaza intersection. In addition, as discussed with the Westbrook Planning Board, the crosswalk across Main Street has been relocated to the east side of the intersection so as to align with the sidewalk within the Project site (see Figure 14, Sheet 4 of 5)

Sheets 4 and 5 of Figure 14 included herein have been revised in their entirety to incorporate the following enhancements to the improvement program for the Project:

1. Bicycle lanes have been added along both sides of Main Street between Larrabee Road and the Brighton Avenue bridge over the Maine Turnpike (discussion of Brighton Avenue improvements will be provided in a separate memorandum).
2. Bicycle boxes have been added on the Main Street approaches to Larrabee Road (east leg), Westbrook Crossing (Kohl's)/Dirigo Plaza (both legs) and Riverside Street (both legs) to assist bicyclists in turning movements at the intersections.
3. Bicycle accommodations (5-foot shoulders, minimum) have been added to Larrabee Road (discussion follows) and Riverside Street (additional details and plans to be provided in a subsequent memorandum).
4. Raised medians have been increased in width to a minimum of 8-feet to allow for the installation of landscaping.
5. Trees, plantings and street furniture will be added along both sides of Main Street between Larrabee Road and Riverside Street subject to the availability of public right-of-way and the ability to obtain all necessary rights, permits and approvals.

In addition, a METRO bus stop will be provided along the Project side of Main Street at a location to be determined in consultation with the Greater Portland Transit District. With the planned improvements to the Main Street corridor and inclusive of the Main Street/Larrabee Road and Main Street/Westbrook Crossing (Kohl's)/Dirigo Plaza intersections, all movements at the subject intersections are predicted to operate at LOS D or better during the peak hours (see Table 1).



Comment: *Main Street/Forest Street – Main Street westbound left-turn/through movement is predicted to operate at LOS E during the weekday evening peak-hour.*

Response: In order to improve operating conditions at this intersection, it is recommended that the Main Street right-turn lane be converted to a through/right-turn lane and that an optimal traffic signal timing and phasing plan be implemented. With these improvements, all movements at the intersection are predicted to operate at LOS C or better during the peak hours (see Table 1).

WESTBROOK ARTERIAL

Comment: *Concerns regarding speed on the Westbrook Arterial and the impact of an additional traffic signal.*

Response: MDOT will review the posted speed limit along the Westbrook Arterial as a part of the formal review of the design plans for the proposed traffic signal that is to be installed at the driveway that will serve the Project.

LARRABEE ROAD

Comment: *Can a pedestrian crosswalk be installed at Larrabee Road?*

Response: A sidewalk has been added along both sides of Larrabee Road between Main Street and Terminal Street, with crosswalks provided for crossing Terminal Street and the Larrabee Road north leg of the Larrabee Road/Terminal Street intersection (see Figure 14, Sheets 3 and 4 of 5). The traffic signal system that is to be installed at the Larrabee Road/Terminal Street intersection will include pedestrian traffic signal equipment and phasing, and will be active prior to full activation of the traffic signal system (i.e., if the signal system is placed into flashing operation on an interim basis, the pedestrian phase will be available upon push button actuation).

In addition to the incorporation of sidewalks for Larrabee Road, bicycle accommodations have been provided for the entirety of the corridor by way of 5-foot (minimum) shoulders between Westbrook Arterial and Main Street, and extending to the north of the Main Street/Larrabee Road intersection.

CUMBERLAND STREET

Comment: *Cumberland Street/Bridge Street – we would want the upgrade of the signal equipment included*

Response: The Project proponent will replace the traffic signal system at the Cumberland Street/Bridge Street intersection (complete). In addition, in order to improve operating conditions at the intersection (overall LOS E predicted during the weekday evening peak-hour), a right-turn lane will be added to the Cumberland Street westbound approach (see enclosed conceptual improvement plan).



Comment: *Cumberland Street/Park Road – we would want the warrant analysis done, and if it doesn't meet warrants, what improvements would you suggest?*

Response: A detailed traffic signal warrants analysis has been completed for the Cumberland Street/Park Road intersection (attached) in accordance with the methodology and procedures outlined in the Manual on Uniform Traffic Control Devices (MUTCD)¹ and using traffic counts conducted in May 2016 over a continuous 12-hour period (7 AM to 7 PM) on an average weekday. Based on this analysis, the subject intersection was found to meet the necessary warrants (MUTCD Warrants 1, 2 and 4) to justify the installation of a traffic control signal. As such and subject to receipt of all necessary rights, permits and approvals, the Project proponent will design and construct a traffic signal at the Cumberland Street/Park Road intersection to include the addition of a right-turn lane on the Cumberland Street westbound approach (see enclosed conceptual improvement plan). With the installation of a traffic control signal and the associated geometric improvements at the subject intersection, all movements are predicted to operate at LOS D or better during the peak hours (see Table 1).

FOREST STREET

Comment: *Forest Street and Stroudwater Street – we would want the warrant analysis done, and if it doesn't meet warrants, what improvements would you suggest?*

Response: A detailed traffic signal warrants analysis has been completed for the Forest Street/Stroudwater Street intersection (attached) in accordance with the methodology and procedures outlined in the MUTCD and using traffic counts conducted in May 2016 over a continuous 12-hour period (7 AM to 7 PM) on an average weekday. Based on this analysis, the subject intersection was found to meet the necessary warrants (MUTCD Warrants 1, 2 and 4) to justify the installation of a traffic control signal. As such and subject to receipt of all necessary rights, permits and approvals, the Project proponent will design and construct a traffic signal at the Forest Street/Stroudwater Street intersection to include the addition of a right-turn lane on the Stroudwater Street westbound approach (see enclosed conceptual improvement plan). With the installation of a traffic control signal and the associated geometric improvements at the subject intersection, all movements are predicted to operate at LOS C or better during the peak hours (see Table 1).

Comment: *Concern with the significant delay being shown in the model and the potential queue length from the Forest Street off ramp towards the arterial, as well as the delay at Forest Street at Stroudwater Street.*

Response: With the proposed installation of a traffic control signal and associated geometric improvements at the Forest Street/Stroudwater Street intersection, motorist delays will be reduced at the intersection and vehicle queues on Forest Street and the off-ramp from the Westbrook Arterial will be reduced such that the off-ramp queue will not extend onto the Westbrook Arterial (see Table 1).

¹Manual on Uniform Traffic Control Devices (MUTCD); Federal Highway Administration; Washington, D.C.; 2009.

WESTBROOK STREET

Comment: *Quantify the impacts to Westbrook Street.*

Response: As discussed in the May 2016 Amended *Traffic Impact Study*, the trip distribution pattern for the Project was developed using the PACTS traffic model and was then refined based on existing traffic patterns within the study area. Based on this approach and as depicted on Figures 10 and 11 of the May 2016 Amended *Traffic Impact Study*, the Project is predicted to result in between 45 and 75 vehicles traveling on Stroudwater Street east Forest Street and toward Westbrook Street during the peak traffic volume hours.

WILLIAM CLARKE DRIVE

Comment: *William Clarke Drive/New Gorham Road and William Clarke Drive/Saco Street – Intersections operate from one controller which limits ability to improve operations; Saco Street left-turn movement is predicted to operate at LOS F under No-Build conditions with vehicle queues that extend to 340 feet.*

Response: In order to improve operating conditions at these intersections, it is recommended that the traffic signal systems at these intersections be modified to operate from separate traffic signal controllers and that the controllers be interconnected and coordinated. In addition, it is recommended that the William Clarke Drive northbound approach be widened to accommodate a second through travel lane. With these improvements and the implementation of an optimal traffic signal timing, phasing and coordination plan, all movements at these intersections are predicted to operate at LOS D or better during the peak hours (see Table 1).

Comment: *William Clarke Drive/Mechanic Street – With the addition of Project-related traffic the left-turn and through movements on the William Clarke Drive westbound approach were shown to operate at LOS E/F during the weekday evening peak-hour.*

Response: In order to improve operating conditions at this intersection, it is recommended that an optimal traffic signal timing, phasing and coordination plan be developed. With these improvements, all movements at this intersection are predicted to operate at LOS D or better during the peak hours (see Table 1).

OTHER

Comment: *The number of curb cuts at Walmart parking section along main access drive should be reduced to limit conflicts.*

Response: The Site Plans for the Project will be revised accordingly and submitted by others under separate cover.

Comment: *An internal signage package is necessary to show how traffic will be directed through the site.*

Response: The Site Plans for the Project will be revised accordingly and submitted by others under separate cover.



Comment: *Sidewalk system in South campus will need to be incorporated.*

Response: The Site Plans for the Project will be revised accordingly and submitted by others under separate cover.

SUMMARY

VAI has prepared supplemental information and analyses in support of the May 6, 2016 Amended *Traffic Impact Study* prepared for the Dirigo Plaza mixed-use commercial development to be located on an assemblage of parcels bounded by Main Street (Route 25B), Westbrook Arterial, and Larrabee Road, in Westbrook, Maine. This information is responsive to the May 20, 2016 consolidated comments that were provided by MDOT and focuses on the intersections and roadways located in the City of Westbrook. A similar filing is being prepared to address the comments related to the intersections and roadways in the City of Portland, including those associated with the Maine Turnpike interchanges with Rand Road (Exit 47) and Riverside Street (Exit 48), and the Brighton Avenue and Riverside Street corridors, and will also include an assessment of 2015 motor vehicle crash data.

cc: J. Franceschi, P.E., CPESC – City of Westbrook, Director of Planning and Code Enforcement
 J. Adams, P.E., PTOE - Milone & Macbroom
 J. Levine – City of Portland, Planning & Urban Development Director
 B. Hyman – City of Portland, Transportation Program Manager
 J. Bartlett, P.E., PTOE – City of Portland DPW, Transportation System Engineer
 T. Errico, P.E. - T.Y. Lin International
 J. Gove – J&J Gove Development, LLC
 W. Morrill – Jones & Beach Engineers, Inc.
 BG, File

Table 1
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Signalized Intersection/ Peak Hour/Movement	Storage ^a Length	2021 No-Build			2021 Build With Mitigation		
		Delay ^b	LOS ^c	Queue ^d Avg/95 th	Delay	LOS	Queue Avg/95 th
<u>Westbrook Intersections</u>							
<i>Cumberland Street at Bridge Street</i>							
<i>Weekday Evening:</i>							
Cumberland Street EB LT/TH/RT	480	51.1	D	154/341	50.0	D	206/288
Cumberland Street WB LT/TH/RT	610	55.6	E	455/920	--	--	--
Cumberland Street WB LT/TH	610	--	--	--	37.4	D	338/499
Cumberland Street WB RT	200	--	--	--	5.0	A	79/182
Bridge Street NB LT/TH/RT	425	84.0	F	318/520	38.1	D	174/255
Bridge Street SB LT/TH/RT	375	96.3	F	309/429	37.3	D	233/350
Overall	--	70.0	E	--	37.7	D	--
<i>Saturday MIDDAY:</i>							
Cumberland Street EB LT/TH/RT	480	11.4	B	106/184	16.1	B	145/264
Cumberland Street WB LT/TH/RT	610	18.8	B	157/306	--	--	--
Cumberland Street WB LT/TH	610	--	--	--	26.9	C	204/423
Cumberland Street WB RT	200	--	--	--	4.3	A	26/59
Bridge Street NB LT/TH/RT	425	17.3	B	95/160	18.8	B	111/190
Bridge Street SB LT/TH/RT	375	17.3	B	102/170	24.4	C	120/213
Overall	--	16.2	B	--	20.7	C	--
<i>Main Street at Forest Street</i>							
<i>Weekday Evening:</i>							
Main Street EB LT/TH	170	13.1	B	115/234	12.2	B	103/146
Main Street EB RT	100	5.3	A	13/36	5.0	A	4/18
Main Street WB LT/TH	225	60.8	E	641/1156	15.8	B	179/223
Main Street WB TH/RT	225	--	--	--	9.9	A	118/187
Main Street WB RT	225	1.3	A	7/52	--	--	--
Forest Street NB LT/TH/RT	360	22.3	C	147/236	16.5	B	122/242
Forest Street SB LT/TH/RT	235	11.6	B	3/18	13.9	B	8/30
Overall	--	39.2	D	--	13.0	B	--
<i>Saturday MIDDAY:</i>							
Main Street EB LT/TH	170	8.2	A	89/170	9.9	A	118/248
Main Street EB RT	100	6.0	A	10/32	6.7	A	12/34
Main Street WB LT/TH	225	31.2	C	275/617	26.5	C	187/357
Main Street WB TH/RT	225	--	--	--	5.3	A	118/306
Main Street WB RT	225	1.4	A	37/132	--	--	--
Forest Street NB LT/TH/RT	360	16.3	B	50/94	15.9	B	46/84
Forest Street SB LT/TH/RT	235	13.2	B	12/38	10.3	B	14/40
Overall	--	19.1	B	--	14.7	B	--

See notes at end of table.

Table 1 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Signalized Intersection/ Peak Hour/Movement	Storage ^a Length	2021 No-Build			2021 Build With Mitigation		
		Delay ^b	LOS ^c	Queue ^d Avg/95 th	Delay	LOS	Queue Avg/95 th
Main Street at Larrabee Road							
<i>Weekday Evening:</i>							
Main Street EB LT	175	51.5	D	175/271	47.7	D	195/298
Main Street EB TH	550	38.6	D	186/291	46.0	D	221/355
Main Street EB TH/RT	550	29.5	C	147/246	37.1	C	191/300
Main Street WB LT	300	48.0	D	147/241	44.7	D	162/302
Main Street WB TH	1,300	34.8	C	190/284	30.9	C	221/321
Main Street WB TH/RT	1,300	41.3	D	208/306	34.3	C	228/364
Larrabee Road NB LT/TH	885	50.0	D	169/258	51.9	D	237/326
Larrabee Road NB TH/RT	885	27.5	C	151/241	32.9	C	212/267
Larrabee Road SB LT/TH	1,280	48.9	D	130/199	44.6	D	159/253
Larrabee Road SB TH	1,280	53.1	D	122/186	48.0	D	166/275
Larrabee Road SB RT	300	4.2	A	51/138	9.1	A	74/150
Overall	--	37.7	D	--	38.8	D	--
<i>Saturday Midday:</i>							
Main Street EB LT	175	43.2	D	129/213	35.0	D	124/183
Main Street EB TH	550	29.6	C	135/243	27.0	C	158/249
Main Street EB TH/RT	550	31.1	C	190/295	27.2	C	164/265
Main Street WB LT	300	43.6	D	94/163	51.3	D	93/129
Main Street WB TH	1,300	26.6	C	123/207	23.5	C	126/191
Main Street WB TH/RT	1,300	31.5	C	139/217	28.0	C	154/220
Larrabee Road NB LT/TH	885	32.3	C	123/208	45.4	D	178/244
Larrabee Road NB TH/RT	885	26.0	C	87/158	42.0	D	160/237
Larrabee Road SB LT/TH	1,280	29.3	C	46/89	32.5	C	103/182
Larrabee Road SB TH	1,280	32.2	C	47/92	29.0	C	96/180
Larrabee Road SB RT	300	2.2	A	25/80	6.6	A	47/102
Overall	--	29.4	C	--	31.1	C	--

See notes at end of table.

Table 1 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Signalized Intersection/ Peak Hour/Movement	Storage ^a Length	2021 No-Build			2021 Build With Mitigation		
		Delay ^b	LOS ^c	Queue ^d Avg/95 th	Delay	LOS	Queue Avg/95 th
New Gorham Road at William Clarke Drive							
<i>Weekday Evening:</i>							
William Clarke Drive EB LT	150	32.8	C	80/140	35.9	D	94/167
William Clarke Drive EB TH	360	17.1	B	88/158	15.9	B	89/159
William Clarke Drive EB TH/RT	360	15.4	B	69/130	13.8	B	67/119
William Clark Drive WB LT	320	35.7	D	121/210	36.6	D	114/187
William Clark Drive WB TH	320	--	--	--	12.1	B	96/140
William Clark Drive WB TH/RT	320	22.2	C	211/285	16.0	B	100/141
New Gorham Road NB LT/TH	390	34.0	C	69/130	31.1	C	65/119
New Gorham Road NB RT	390	4.9	A	24/50	4.9	A	24/50
New Gorham Road SB LT/TH	325	42.2	D	128/215	33.3	C	101/177
New Gorham Road SB RT	325	6.7	A	70/153	1.4	A	11/47
Overall	--	22.7	C	--	18.3	C	--
<i>Saturday Middy:</i>							
William Clarke Drive EB LT	150	33.2	C	77/142	30.1	C	87/149
William Clarke Drive EB TH	360	14.9	B	96/168	18.9	B	113/186
William Clarke Drive EB TH/RT	360	13.5	B	74/137	17.5	B	93/159
William Clarke Drive WB LT	320	39.1	D	61/114	35.5	D	56/109
William Clark Drive WB TH	320	--	--	--	10.3	B	47/85
William Clarke Drive WB TH/RT	320	8.8	A	78/140	12.2	B	48/80
New Gorham Road NB LT/TH	390	34.2	C	105/175	27.6	C	94/165
New Gorham Road NB RT	390	6.0	A	34/68	6.1	A	33/71
New Gorham Road SB LT/TH	325	35.4	D	92/159	26.6	C	66/129
New Gorham Road SB RT	325	2.3	A	28/86	0.9	A	6/30
Overall	--	17.0	B	--	16.6	B	--
William Clarke Drive at Saco Street							
<i>Weekday Evening:</i>							
William Clarke Drive EB TH	320	8.4	A	46/94	7.2	A	45/90
William Clarke Drive EB TH/RT	320	9.6	A	57/101	9.1	A	56/105
William Clarke Drive WB LT	650	34.3	C	238/527	42.6	D	268/543
William Clarke Drive WB TH	650	48.4	D	427/664	40.8	D	376/677
Saco Street NB LT	340	92.9	F	283/554	49.2	D	189/352
Saco Street NB RT	175	8.4	A	126/283	6.6	A	88/216
Overall	--	37.7	D	--	30.1	C	--
<i>Saturday Middy:</i>							
William Clarke Drive EB TH	320	7.4	A	56/108	9.2	A	65/120
William Clarke Drive EB TH/RT	320	9.6	A	71/129	11.7	B	78/137
William Clarke Drive WB LT	650	33.2	C	90/164	33.6	C	111/234
William Clarke Drive WB TH	650	18.9	B	188/345	32.4	C	282/470
Saco Street NB LT	340	28.9	C	48/96	25.1	C	44/83
Saco Street NB RT	175	6.6	A	45/74	7.1	A	49/87
Overall	--	15.1	B	--	20.5	C	--

See notes at end of table.

Table 1 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Signalized Intersection/ Peak Hour/Movement	Storage ^a Length	2021 No-Build			2021 Build With Mitigation		
		Delay ^b	LOS ^c	Queue ^d Avg/95 th	Delay	LOS	Queue Avg/95 th
William Clarke Drive at Mechanic Street							
<i>Weekday Evening:</i>							
William Clarke Drive EB LT	100	35.8	D	72/125	39.2	D	69/124
William Clarke Drive EB TH	625	9.3	A	77/163	12.8	B	91/201
William Clarke Drive EB TH/RT	625	8.0	A	72/160	11.0	B	86/198
William Clarke Drive WB LT	100	47.7	D	23/79	35.9	D	30/106
William Clarke Drive WB TH	200	19.0	B	141/420	30.9	C	286/521
William Clarke Drive WB TH/RT	200	25.4	C	192/472	36.1	D	337/553
Mechanic Street NB LT/TH/RT	120	32.6	C	75/131	36.2	D	75/150
Mechanic Street SB LT/TH	240	40.9	D	58/111	43.6	D	62/124
Mechanic Street SB RT	100	20.7	C	25/58	17.9	B	26/68
Overall	--	20.5	C	--	27.4	C	--
<i>Saturday MIDDAY:</i>							
William Clarke Drive EB LT	100	21.9	C	46/92	22.0	C	47/89
William Clarke Drive EB TH	625	7.4	A	57/125	8.0	A	65/140
William Clarke Drive EB TH/RT	625	6.7	A	63/128	7.1	A	70/145
William Clarke Drive WB LT	100	27.9	C	13/39	27.1	C	12/51
William Clarke Drive WB TH	200	14.6	B	72/165	15.7	B	92/205
William Clarke Drive WB TH/RT	200	14.1	B	133/237	16.1	B	142/262
Mechanic Street NB LT/TH/RT	120	13.7	B	27/56	14.4	B	27/59
Mechanic Street SB LT/TH	240	18.7	B	46/84	22.8	C	51/94
Mechanic Street SB RT	100	6.8	A	29/51	6.9	A	30/56
Overall	--	11.7	B	--	12.8	B	--
Main Street at the Westbrook Crossing							
Driveway and the Project Site Driveway							
<i>Weekday Evening:</i>							
Main Street EB LT	100	10.5	B	48/95	46.7	D	84/141
Main Street EB TH	1,300	4.6	A	1/18	13.1	B	50/125
Main Street EB TH	1,300	4.1	A	0/0	--	--	--
Main Street EB TH/RT	1,300	--	--	--	12.9	B	62/119
Main Street WB LT	125	--	--	--	35.3	D	136/230
Main Street WB TH	450	1.9	A	1/12	24.1	C	187/297
Main Street WB TH/RT	450	3.4	A	2/14	24.2	C	134/236
Project Site Driveway NB LT/TH	200	--	--	--	37.0	D	106/162
Project Site Driveway NB RT	200	--	--	--	8.0	A	46/76
Westbrook Crossing SB LT	100	25.3	D	30/59	--	--	--
Westbrook Crossing SB LT/TH	100	--	--	--	31.6	D	43/103
Westbrook Crossing SB RT	100	6.6	A	52/94	11.3	B	77/119
Overall	--	4.8	A	--	22.2	C	--
<i>Saturday MIDDAY:</i>							
Main Street EB LT	100	10.2	B	44/104	29.3	C	98/163
Main Street EB TH	1,300	2.2	A	0/0	39.5	D	128/194
Main Street EB TH	1,300	3.6	A	0/0	--	--	--
Main Street EB TH/RT	1,300	--	--	--	37.3	D	124/176
Main Street WB LT	125	--	--	--	26.8	C	13/191
Main Street WB TH	450	3.0	A	0/0	14.8	B	47/158
Main Street WB TH/RT	450	4.7	A	3/19	9.5	A	33/73
Project Site Driveway NB LT/TH	200	--	--	--	35.7	D	120/180
Project Site Driveway NB RT	200	--	--	--	8.7	A	58/101
Westbrook Crossing SB LT	100	21.5	C	43/86	--	--	--
Westbrook Crossing SB LT/TH	100	--	--	--	34.2	C	55/129
Westbrook Crossing SB RT	100	5.3	A	46/75	6.6	A	53/80
Overall	--	5.4	A	--	22.4	C	--

See notes at end of table.

Table 1 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Signalized Intersection/ Peak Hour/Movement	Storage ^a Length	2021 No-Build			2021 Build With Mitigation		
		Delay ^b	LOS ^c	Queue ^d Avg/95 th	Delay	LOS	Queue Avg/95 th
Cumberland Street at Park Road							
<i>Weekday Evening:</i>							
Cumberland Street EB LT/TH	1,110	8.0	A	58/182	11.2	A	105/147
Cumberland Street WB TH/RT	530	10.4	B	46/445	--	--	--
Cumberland Street WB TH	530	--		--	12.1	B	115/178
Cumberland Street WB RT	150	--		--	0.5	A	59/147
Park Road SB LT/RT	1,000	91.9	F	108/239	20.7	C	26/46
Overall		15.2	C	--	10.6	B	--
<i>Saturday Midday:</i>							
Cumberland Street EB LT/TH	1,110	2.6	A	13/60	9.1	A	106/197
Cumberland Street WB TH/RT	530	5.5	A	0/0	--	--	--
Cumberland Street WB TH	530	--		--	11.9	B	102/190
Cumberland Street WB RT	150	--		--	0.5	A	22/88
Park Road SB LT/RT	1,000	17.7	C	62/104	16.5	D	69/119
Overall	--	6.0	A	--	10.2	B	--
Stroudwater Street at Forest Street							
<i>Weekday Evening:</i>							
Stroudwater Street EB LT/TH	1,050	16.8	C	127/245	43.4	C	216/379
Stroudwater Street WB TH/RT	1,525	3.1	A	8/28	--	--	--
Stroudwater Street WB TH	1,525	--	--	--	12.5	B	138/255
Stroudwater Street WB RT	150	--	--	--	0.8	A	54/142
Forest Street SB LT/RT	190	123.1	F	209/276	20.8	C	110/195
Overall		26.3	C	--	11.6	B	--
<i>Saturday Midday:</i>							
Stroudwater Street EB LT/TH	1,050	2.6	A	27/69	10.1	A	79/122
Stroudwater Street WB TH/RT	1,525	1.1	A	1/8	--	--	--
Stroudwater Street WB TH	1,525	--	--	--	6.4	A	39/72
Stroudwater Street WB RT	150	--	--	--	0.6	A	21/42
Forest Street SB LT/RT	190	7.7	A	51/89	7.1	A	50/91
Overall	--	3.3	A	--	6.7	A	--

^aStorage length in feet.

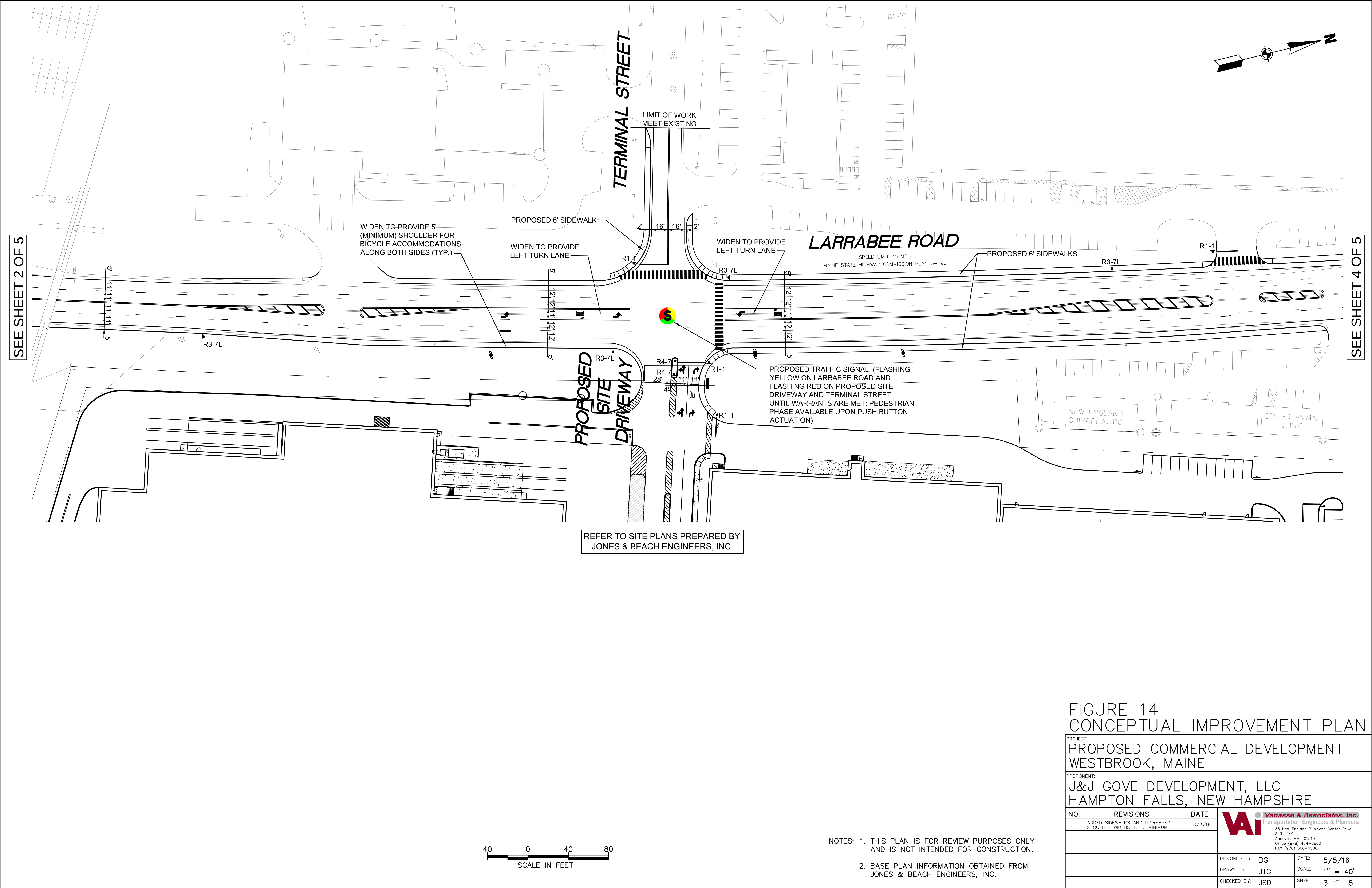
^bPercentile delay per vehicle (seconds).

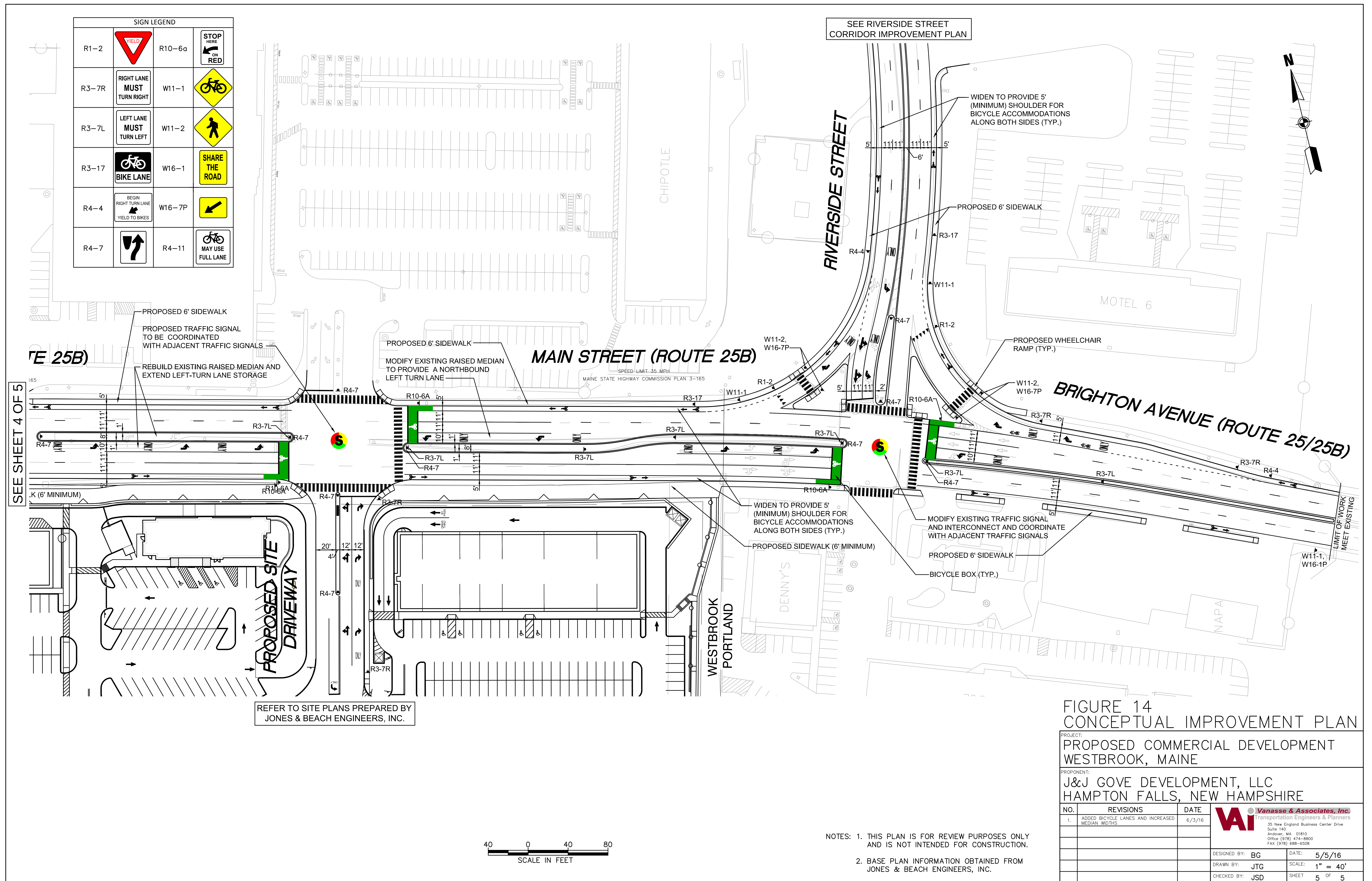
^cLevel-of-Service.

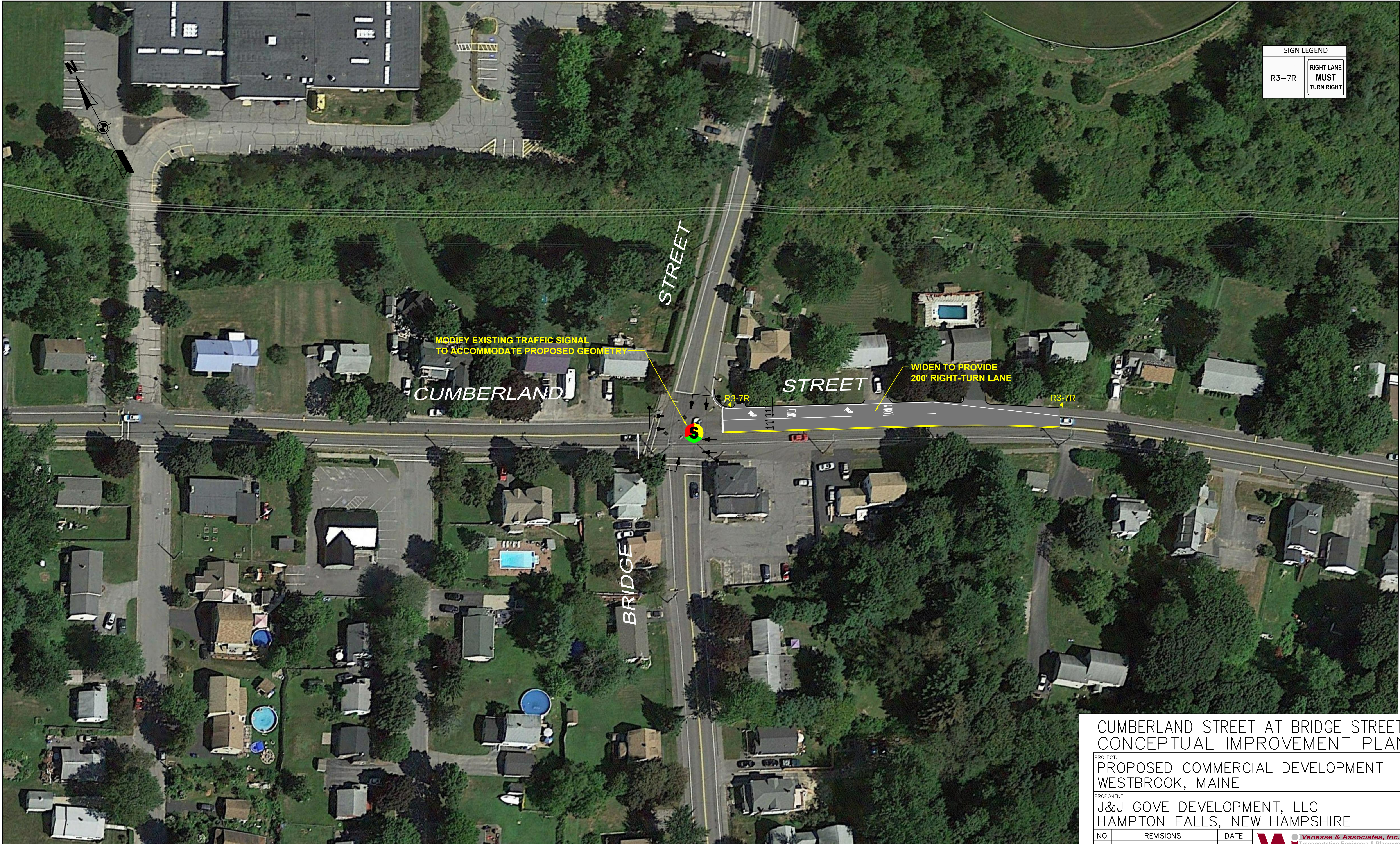
^dQueue length in feet.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; NWB = northwestbound; SWB = southwestbound;

LT = left-turning movements; TH = through movements; RT = right-turning movements.







MODIFY EXISTING TRAFFIC SIGNAL
TO ACCOMMODATE PROPOSED GEOMETRY

WIDEN TO PROVIDE
200' RIGHT-TURN LANE

R3-7R

R3-7R



NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY
AND IS NOT INTENDED FOR CONSTRUCTION.

2. BASE PLAN INFORMATION OBTAINED FROM
GOOGLE EARTH.

CUMBERLAND STREET AT BRIDGE STREET CONCEPTUAL IMPROVEMENT PLAN

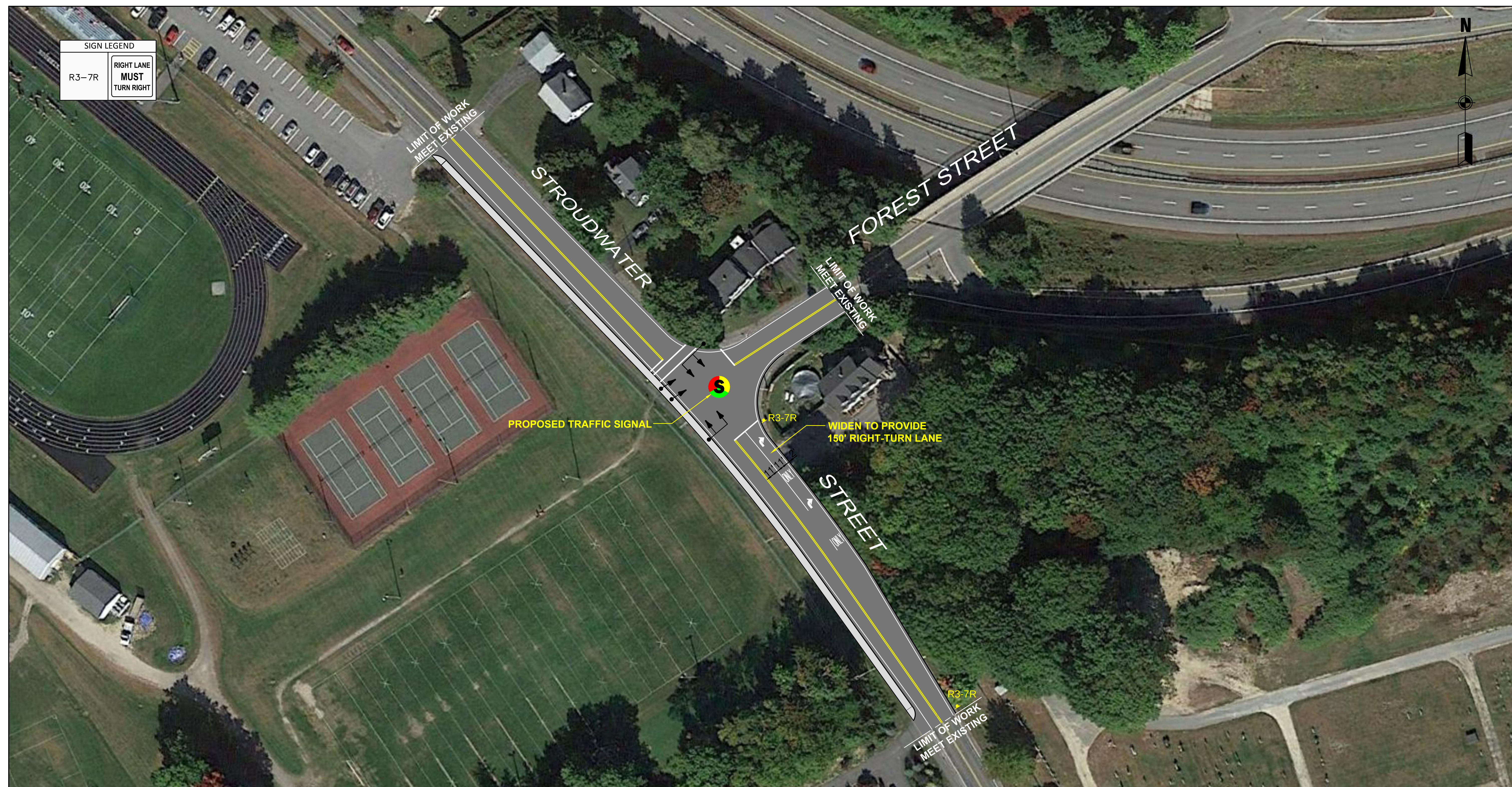
PROJECT:
PROPOSED COMMERCIAL DEVELOPMENT
WESTBROOK, MAINE

PROPOSER:
J&J GOVE DEVELOPMENT, LLC
HAMPTON FALLS, NEW HAMPSHIRE

NO.	REVISIONS	DATE

Vai
Vanasse & Associates, Inc.
Transportation Engineers & Planners
35 New England Business Center Drive
Suite 140
Andover, MA 01810
Office (978) 474-8800
Fax (978) 688-6508

DESIGNED BY: BG	DATE: 6/3/16
DRAWN BY: JTG	SCALE: 1" = 40'
CHECKED BY: JSD	SHEET 1 OF 1



STROUDWATER STREET AT FOREST STREET CONCEPTUAL IMPROVEMENT PLAN

PROJECT: PROPOSED COMMERCIAL DEVELOPMENT
WESTBROOK, MAINE

PROPOSER:
J&J GOVE DEVELOPMENT, LLC
HAMPTON FALLS, NEW HAMPSHIRE

NO.	REVISIONS	DATE	 Vanasse & Associates, Inc. Transportation Engineers & Planners 35 New England Business Center Drive Suite 140 Andover, MA 01810 Office (978) 674-3800 FAX (978) 688-6508
		DESIGNED BY: BG	DATE: 6/3/16
		DRAWN BY: JTC	SCALE: 1" = 40'
		CHECKED BY: JSD	SHEET 1 OF 1

NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY
AND IS NOT INTENDED FOR CONSTRUCTION.

2. BASE PLAN INFORMATION OBTAINED FROM GOOGLE EARTH.

APPENDIX

SILTRAFFIC CAPACITY ANALYSIS WORKSHEETS
TRAFFIC SIGNAL WARRANT ANALYSIS

SIMTRAFFIC CAPACITY ANALYSIS WORKSHEETS

1: New Gorham Road & Route 25/William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NE	NE	SW	SW	All
Movements Served	L	T	TR	L	T	TR	LT	R	LT	R	
Denied Del/Veh (s)											1.1
Total Del/Veh (s)	35.9	15.9	13.8	36.6	12.1	16.0	31.0	4.9	33.3	1.4	18.3

2: Saco Street & William Clarke Boul. Performance by lane

Lane	EB	EB	WB	WB	NB	NB	All
Movements Served	T	TR	L	T	L	R	
Denied Del/Veh (s)							0.4
Total Del/Veh (s)	7.2	9.1	42.6	40.8	49.2	6.6	30.1

3: Mechanic Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LTR	LT	R	
Denied Del/Veh (s)										0.2
Total Del/Veh (s)	39.2	12.8	11.0	35.9	30.9	36.1	36.2	43.6	17.9	27.4

4: Spring Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	L	T	R	L	TR	
Denied Del/Veh (s)												0.8
Total Del/Veh (s)	49.5	40.6	44.8	36.7	24.0	26.1	40.6	38.4	8.4	41.0	36.2	32.6

5: Stroudwater Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	SE	SE	NW	NW	All
Movements Served	L	T	TR	L	T	TR	L	TR	L	LTR	
Denied Del/Veh (s)											0.4
Total Del/Veh (s)	48.3	17.4	20.3	47.1	17.8	20.3	39.3	26.3	35.9	33.2	23.4

6: Hannaford Drive & William Clarke Boul. Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	All
Movements Served	T	TR	L	T	T	L	LR	
Denied Del/Veh (s)								0.0
Total Del/Veh (s)	13.2	14.0	42.0	5.9	5.8	33.1	16.2	13.6

7: William Clarke Boul. & Westbrook Arterial Performance by lane

Lane	EB	EB	EB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	TR	L	R	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	33.4	13.1	6.8	21.3	17.3	32.1	34.8	20.3

8: Westbrook Arterial & Main Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	All
Movements Served	T	R	L	T	L	R	
Denied Del/Veh (s)							1.1
Total Del/Veh (s)	16.7	11.9	18.8	6.8	18.1	18.4	13.9

Total Network Performance

Denied Del/Veh (s)	1.4
Total Del/Veh (s)	65.3

Intersection: 1: New Gorham Road & Route 25/William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NE	NE	SW	SW
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	196	188	135	202	147	147	131	65	203	81
Average Queue (ft)	94	89	67	114	96	100	65	24	101	11
95th Queue (ft)	167	159	119	187	140	141	119	50	177	47
Link Distance (ft)		464	464	218	218	218	459		356	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				2						
Storage Bay Dist (ft)	150							390		325
Storage Blk Time (%)	2	1								
Queuing Penalty (veh)	5	1								

Intersection: 2: Saco Street & William Clarke Boul.

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	L	T	L	R
Maximum Queue (ft)	112	112	529	569	469	250
Average Queue (ft)	45	56	268	376	189	88
95th Queue (ft)	90	105	543	687	352	216
Link Distance (ft)	218	218	552	552	672	
Upstream Blk Time (%)			2	6		
Queuing Penalty (veh)			12	35		
Storage Bay Dist (ft)					175	
Storage Blk Time (%)					15	
Queuing Penalty (veh)					34	

Intersection: 3: Mechanic Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LT	R
Maximum Queue (ft)	139	248	259	153	507	536	190	146	88
Average Queue (ft)	69	91	86	30	286	337	75	62	26
95th Queue (ft)	124	201	198	106	521	553	150	124	68
Link Distance (ft)		552	552		1642	1642	729	297	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	70			100					100
Storage Blk Time (%)	16	10			22		3	0	
Queuing Penalty (veh)	59	11			4		1	0	

Intersection: 4: Spring Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	TR
Maximum Queue (ft)	154	371	389	237	305	289	224	387	205	149	248
Average Queue (ft)	53	220	241	96	167	175	119	178	87	42	125
95th Queue (ft)	145	347	367	186	276	277	208	319	195	100	209
Link Distance (ft)		1642	1642		644	644		431			306
Upstream Blk Time (%)								0			0
Queuing Penalty (veh)								0			0
Storage Bay Dist (ft)	80			240			150		130	75	
Storage Blk Time (%)	1	44		0	3		3	18	1	3	30
Queuing Penalty (veh)	3	15		1	5		19	72	4	7	17

Intersection: 5: Stroudwater Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	SE	SE	NW	NW
Directions Served	L	T	TR	L	T	TR	L	TR	L	LTR
Maximum Queue (ft)	65	264	271	149	268	290	233	221	61	123
Average Queue (ft)	11	93	106	33	125	138	164	90	20	62
95th Queue (ft)	40	211	225	100	230	248	256	169	48	112
Link Distance (ft)		644	644		1029	1029	216	216	415	
Upstream Blk Time (%)							6	0		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (ft)	80			110						260
Storage Blk Time (%)		14		0	8					
Queuing Penalty (veh)		3		1	4					

Intersection: 6: Hannaford Drive & William Clarke Boul.

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	LR
Maximum Queue (ft)	277	297	176	148	129	166	156
Average Queue (ft)	145	152	93	49	60	88	67
95th Queue (ft)	246	261	154	107	109	141	121
Link Distance (ft)	1029	1029		485	485	191	191
Upstream Blk Time (%)						0	0
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)			165				
Storage Blk Time (%)			1	0			
Queuing Penalty (veh)			5	0			

Intersection: 7: William Clarke Boul. & Westbrook Arterial

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	220	342	273	282	251	190	212
Average Queue (ft)	151	72	76	185	161	80	102
95th Queue (ft)	225	208	162	265	242	151	176
Link Distance (ft)		485	485	1282	1282	431	431
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	145						
Storage Blk Time (%)	14	0					
Queuing Penalty (veh)	44	0					

Intersection: 8: Westbrook Arterial & Main Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	235	95	163	209	97	240
Average Queue (ft)	119	43	84	92	38	111
95th Queue (ft)	192	81	135	168	77	200
Link Distance (ft)	654			513	431	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	375			200
Storage Blk Time (%)	0					1
Queuing Penalty (veh)	0					1

Network Summary

Network wide Queuing Penalty: 367

1: New Gorham Road & Route 25/William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NE	NE	SW	SW	All
Movements Served	L	T	TR	L	T	TR	LT	R	LT	R	
Denied Del/Veh (s)											1.2
Total Del/Veh (s)	30.1	18.9	17.5	35.5	10.3	12.2	27.6	6.1	26.6	0.9	16.6

2: Saco Street & William Clarke Boul. Performance by lane

Lane	EB	EB	WB	WB	NB	NB	All
Movements Served	T	TR	L	T	L	R	
Denied Del/Veh (s)							0.4
Total Del/Veh (s)	9.2	11.7	33.6	32.4	25.1	7.1	20.5

3: Mechanic Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LTR	LT	R	
Denied Del/Veh (s)										0.2
Total Del/Veh (s)	22.0	8.0	7.1	27.1	15.7	16.1	14.4	22.8	6.9	12.8

4: Spring Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	L	T	R	L	TR	
Denied Del/Veh (s)												0.7
Total Del/Veh (s)	47.7	39.3	45.6	36.6	18.9	19.0	35.3	26.1	7.4	39.0	30.3	30.2

5: Stroudwater Street & William Clarke Boul. Performance by lane

Lane	EB	EB	EB	WB	WB	WB	SE	SE	NW	NW	All
Movements Served	L	T	TR	L	T	TR	L	TR	L	LTR	
Denied Del/Veh (s)											0.3
Total Del/Veh (s)	30.7	24.2	28.6	27.9	10.0	10.2	22.1	16.9	27.5	23.2	20.0

6: Hannaford Drive & William Clarke Boul. Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	All
Movements Served	T	TR	L	T	T	L	LR	
Denied Del/Veh (s)								0.0
Total Del/Veh (s)	13.4	13.9	22.0	8.1	6.3	19.9	8.3	12.0

7: William Clarke Boul. & Westbrook Arterial Performance by lane

Lane	EB	EB	EB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	TR	L	R	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	21.6	10.3	7.6	17.1	11.5	21.8	24.6	14.7

8: Westbrook Arterial & Main Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	All
Movements Served	T	R	L	T	L	R	
Denied Del/Veh (s)							1.2
Total Del/Veh (s)	16.4	12.5	21.0	7.7	20.9	19.7	14.0

Total Network Performance

Denied Del/Veh (s)			1.4				
Total Del/Veh (s)			49.2				

Intersection: 1: New Gorham Road & Route 25/William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NE	NE	SW	SW
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	182	207	186	124	104	85	182	91	163	58
Average Queue (ft)	87	113	93	56	47	48	94	33	66	6
95th Queue (ft)	149	186	159	109	85	80	165	71	129	30
Link Distance (ft)		464	464	218	218	218	459		356	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150							390		325
Storage Blk Time (%)	1	3								
Queuing Penalty (veh)	2	6								

Intersection: 2: Saco Street & William Clarke Boul.

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	L	T	L	R
Maximum Queue (ft)	156	182	352	522	97	110
Average Queue (ft)	65	78	111	282	44	49
95th Queue (ft)	120	137	234	470	83	87
Link Distance (ft)	218	218	552	552	672	
Upstream Blk Time (%)	0	0	0	0		
Queuing Penalty (veh)	0	1	0	1		
Storage Bay Dist (ft)					175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Mechanic Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LT	R
Maximum Queue (ft)	110	183	173	96	250	286	70	109	60
Average Queue (ft)	47	65	70	12	92	142	27	51	30
95th Queue (ft)	89	140	145	51	205	262	59	94	56
Link Distance (ft)		552	552		1642	1642	729	297	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	70			100					100
Storage Blk Time (%)	5	4			4			1	
Queuing Penalty (veh)	19	4			1			1	

Intersection: 4: Spring Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	TR
Maximum Queue (ft)	154	455	472	204	253	276	132	154	127	149	276
Average Queue (ft)	47	229	253	102	123	134	64	76	53	44	139
95th Queue (ft)	134	377	401	172	215	225	114	134	96	112	230
Link Distance (ft)		1642	1642		644	644		431			306
Upstream Blk Time (%)											0
Queuing Penalty (veh)											0
Storage Bay Dist (ft)	80			240			150		130	75	
Storage Blk Time (%)	1	46		0	0		0	1	0	1	33
Queuing Penalty (veh)	3	18		0	0		0	4	1	3	14

Intersection: 5: Stroudwater Street & William Clarke Boul.

Movement	EB	EB	EB	WB	WB	WB	SE	SE	NW	NW
Directions Served	L	T	TR	L	T	TR	L	TR	L	LTR
Maximum Queue (ft)	131	276	298	82	136	144	150	118	62	123
Average Queue (ft)	20	154	177	21	50	56	61	58	17	58
95th Queue (ft)	84	267	291	58	105	114	115	102	43	107
Link Distance (ft)		644	644		1029	1029	216	216	415	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	80			110						260
Storage Blk Time (%)	0	24			1					
Queuing Penalty (veh)	0	7			0					

Intersection: 6: Hannaford Drive & William Clarke Boul.

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	LR
Maximum Queue (ft)	220	236	145	136	142	134	102
Average Queue (ft)	113	118	68	52	68	60	47
95th Queue (ft)	203	215	114	108	122	107	82
Link Distance (ft)	1029	1029		485	485	191	191
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)			165				
Storage Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			

Intersection: 7: William Clarke Boul. & Westbrook Arterial

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	189	152	155	221	184	127	179
Average Queue (ft)	105	57	76	130	93	56	88
95th Queue (ft)	165	129	142	194	164	106	147
Link Distance (ft)		485	485	1282	1282	431	431
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	145						
Storage Blk Time (%)	2	0					
Queuing Penalty (veh)	9	0					

Intersection: 8: Westbrook Arterial & Main Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	260	92	161	269	80	179
Average Queue (ft)	134	41	83	119	28	98
95th Queue (ft)	218	79	136	206	63	164
Link Distance (ft)	654			513	431	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	375			200
Storage Blk Time (%)	0			0		0
Queuing Penalty (veh)	0			0		0

Network Summary

Network wide Queuing Penalty: 92

3: Bridge Street & Cumberland Street Performance by lane

Lane	EB	WB	WB	NB	SB	All
Movements Served	LTR	LT	R	LTR	LTR	
Denied Del/Veh (s)						0.5
Total Del/Veh (s)	50.0	37.1	5.0	38.1	37.3	37.7

6: Cumberland Street & Park Road Performance by lane

Lane	EB	WB	WB	SB	All
Movements Served	LT	T	R	LR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	11.2	12.1	0.5	20.7	10.6

8: Harnois Avenue & Cumberland Street/Main Street Performance by lane

Lane	EB	EB	WB	WB	WB	WB	All
Movements Served	R	R	L	L	T	T	
Denied Del/Veh (s)							0.1
Total Del/Veh (s)	19.9	10.5	1.0	2.6	6.0	5.9	7.3

9: Main Street & warren Avenue Performance by lane

Lane	WB	WB	WB	SB	SB	All
Movements Served	T	T	TR	R	R	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	3.1	3.7	3.9	27.4	17.1	5.5

10: Connector & Main Street/Main Street Performance by lane

Lane	WB	WB	NE	NE	NE	All
Movements Served	T	T	L	R	R	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	13.4	11.2	27.3	0.5	0.2	11.3

11: Main Street/Harnois Avenue & Connector Performance by lane

Lane	NB	NB	SB	SB	SB	All
Movements Served	R	R	L	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	9.7	4.7	2.3	4.9	0.5	4.2

13: Forest Street & Main Street Performance by lane

Lane	EB	EB	WB	WB	NB	SB	All
Movements Served	LT	R	LT	TR	LTR	LTR	
Denied Del/Veh (s)							0.1
Total Del/Veh (s)	12.2	5.0	15.8	7.9	16.5	13.9	13.0

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	46.3

Intersection: 3: Bridge Street & Cumberland Street

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	357	448	150	350	326
Average Queue (ft)	206	338	79	174	233
95th Queue (ft)	288	499	182	255	350
Link Distance (ft)	349	1059		413	322
Upstream Blk Time (%)	6				1
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			125		
Storage Blk Time (%)		37	0		
Queuing Penalty (veh)		59	0		

Intersection: 6: Cumberland Street & Park Road

Movement	EB	WB	WB	SB
Directions Served	LT	T	R	LR
Maximum Queue (ft)	246	200	125	66
Average Queue (ft)	105	115	59	26
95th Queue (ft)	252	178	147	46
Link Distance (ft)	1059	2611		298
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)		5	0	
Queuing Penalty (veh)		14	1	

Intersection: 8: Harnois Avenue & Cumberland Street/Main Street

Movement	EB	EB	WB	WB	WB	WB
Directions Served	R	R	L	L	T	T
Maximum Queue (ft)	101	132	31	95	131	124
Average Queue (ft)	78	99	9	34	68	76
95th Queue (ft)	113	129	32	85	124	143
Link Distance (ft)	2611				266	266
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	200	200		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Main Street & warren Avenue

Movement	WB	WB	WB	SB	SB
Directions Served	T	T	TR	R	R
Maximum Queue (ft)	94	74	77	115	47
Average Queue (ft)	50	48	50	71	14
95th Queue (ft)	100	75	73	114	42
Link Distance (ft)	341	341	341	226	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Connector & Main Street/Main Street

Movement	WB	WB	NE
Directions Served	T	T	L
Maximum Queue (ft)	302	237	260
Average Queue (ft)	156	146	172
95th Queue (ft)	236	237	247
Link Distance (ft)	593	593	269
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Main Street/Harnois Avenue & Connector

Movement	NB	NB	SB	SB
Directions Served	R	R	L	L
Maximum Queue (ft)	147	54	32	72
Average Queue (ft)	90	37	17	38
95th Queue (ft)	134	53	43	54
Link Distance (ft)	922	922	344	344
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: Forest Street & Main Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	TR	LTR	LTR
Maximum Queue (ft)	138	25	218	173	238	30
Average Queue (ft)	109	4	179	118	122	8
95th Queue (ft)	146	18	223	187	242	30
Link Distance (ft)	593	593	977	977	716	411
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 75

3: Bridge Street & Cumberland Street Performance by lane

Lane	EB	WB	WB	NB	SB	All
Movements Served	LTR	LT	R	LTR	LTR	
Denied Del/Veh (s)						0.5
Total Del/Veh (s)	16.1	26.9	4.3	18.8	24.4	20.7

6: Cumberland Street & Park Road Performance by lane

Lane	EB	WB	WB	SB	All
Movements Served	LT	T	R	LR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	9.1	11.9	0.5	16.5	10.2

8: Harnois Avenue & Cumberland Street/Main Street Performance by lane

Lane	EB	EB	WB	WB	WB	WB	All
Movements Served	R	R	L	L	T	T	
Denied Del/Veh (s)							0.1
Total Del/Veh (s)	32.4	14.1	3.2	7.8	4.6	2.2	10.5

9: Main Street & warren Avenue Performance by lane

Lane	WB	WB	WB	SB	SB	All
Movements Served	T	T	TR	R	R	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	3.6	2.9	2.6	23.5	8.7	5.4

10: Connector & Main Street/Main Street Performance by lane

Lane	WB	WB	NE	NE	NE	All
Movements Served	T	T	L	R	R	
Denied Del/Veh (s)						0.2
Total Del/Veh (s)	12.2	9.8	39.0	0.9	0.2	13.6

11: Main Street/Harnois Avenue & Connector Performance by lane

Lane	NB	NB	SB	SB	SB	All
Movements Served	R	R	L	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	15.9	4.9	4.9	8.0	0.7	6.2

13: Forest Street & Main Street Performance by lane

Lane	EB	EB	WB	WB	NB	SB	All
Movements Served	LT	R	LT	TR	LTR	LTR	
Denied Del/Veh (s)							0.1
Total Del/Veh (s)	9.9	6.7	26.5	5.3	15.9	10.3	14.7

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	45.1

Intersection: 3: Bridge Street & Cumberland Street

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	307	488	72	227	263
Average Queue (ft)	145	204	26	111	120
95th Queue (ft)	267	423	59	190	213
Link Distance (ft)	349	1059	1059	413	323
Upstream Blk Time (%)	1				0
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Cumberland Street & Park Road

Movement	EB	WB	WB	SB
Directions Served	LT	T	R	LR
Maximum Queue (ft)	250	249	128	141
Average Queue (ft)	106	102	22	69
95th Queue (ft)	197	190	88	119
Link Distance (ft)	1059	2610		300
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			125	
Storage Blk Time (%)		2	0	
Queuing Penalty (veh)		4	0	

Intersection: 8: Harnois Avenue & Cumberland Street/Main Street

Movement	EB	EB	WB	WB	WB	WB
Directions Served	R	R	L	L	T	T
Maximum Queue (ft)	368	216	200	211	126	83
Average Queue (ft)	137	145	43	102	15	20
95th Queue (ft)	285	228	124	185	66	59
Link Distance (ft)	2610				266	266
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)		200	200	200		
Storage Blk Time (%)	1	3	0	1		
Queuing Penalty (veh)	2	12	0	2		

Intersection: 9: Main Street & warren Avenue

Movement	WB	WB	WB	SB	SB
Directions Served	T	T	TR	R	R
Maximum Queue (ft)	163	84	82	149	55
Average Queue (ft)	56	32	25	77	7
95th Queue (ft)	131	75	69	132	31
Link Distance (ft)	341	341	341	226	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Connector & Main Street/Main Street

Movement	WB	WB	NE	NE	NE	B12	B12	B12
Directions Served	T	T	L	R	R	T	T	T
Maximum Queue (ft)	265	198	350	43	22	160	96	94
Average Queue (ft)	136	97	239	4	1	24	16	11
95th Queue (ft)	221	167	358	25	11	161	148	110
Link Distance (ft)	593	593	269	269	269	440	440	440
Upstream Blk Time (%)			12			0	0	0
Queuing Penalty (veh)			49			1	1	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Main Street/Harnois Avenue & Connector

Movement	NB	NB	SB	SB
Directions Served	R	R	L	L
Maximum Queue (ft)	266	210	146	171
Average Queue (ft)	137	69	46	71
95th Queue (ft)	228	164	100	137
Link Distance (ft)	922	922	344	344
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: Forest Street & Main Street

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	TR	LTR	LTR
Maximum Queue (ft)	335	37	426	408	108	39
Average Queue (ft)	118	12	187	118	46	14
95th Queue (ft)	248	34	357	306	84	40
Link Distance (ft)	593	593	977	977	716	411
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 72

18: Forest Street & Libby Avenue/Route 25 Off-Ramp Performance by lane

Lane	EB	WB	WB	NB	SB	All
Movements Served	LTR	LT	R	LTR	LTR	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	4.5	9.2	1.5	0.7	0.3	2.7

19: Forest Street & Route 25 On-Ramp Performance by lane

Lane	NB	SB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.0
Total Del/Veh (s)	1.1	1.3	1.2

20: Stroudwater Street & Forest Street Performance by lane

Lane	EB	WB	WB	SB	All
Movements Served	LT	T	R	LR	
Denied Del/Veh (s)					1.1
Total Del/Veh (s)	43.3	12.5	0.8	20.8	19.6

Total Network Performance

Denied Del/Veh (s)			1.0		
Total Del/Veh (s)			20.8		

Intersection: 18: Forest Street & Libby Avenue/Route 25 Off-Ramp

Movement	EB	WB	WB	NB
Directions Served	LTR	LT	R	LTR
Maximum Queue (ft)	28	95	56	51
Average Queue (ft)	13	50	13	5
95th Queue (ft)	36	76	51	26
Link Distance (ft)	129	215	215	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Forest Street & Route 25 On-Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	75
Average Queue (ft)	12
95th Queue (ft)	45
Link Distance (ft)	213
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: Stroudwater Street & Forest Street

Movement	EB	WB	WB	SB
Directions Served	LT	T	R	LR
Maximum Queue (ft)	424	257	150	217
Average Queue (ft)	216	138	54	110
95th Queue (ft)	379	255	142	195
Link Distance (ft)	1272	633		206
Upstream Blk Time (%)				1
Queuing Penalty (veh)				2
Storage Bay Dist (ft)			125	
Storage Blk Time (%)		7	0	
Queuing Penalty (veh)		20	0	

Network Summary

Network wide Queuing Penalty: 22

18: Forest Street & Libby Avenue/Route 25 Off-Ramp Performance by lane

Lane	EB	WB	WB	NB	SB	All
Movements Served	LTR	LT	R	LT	TR	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	3.9	5.5	1.0	0.7	0.2	2.0

19: Forest Street & Route 25 On-Ramp Performance by lane

Lane	NB	SB	All
Movements Served	TR	LT	
Denied Del/Veh (s)			0.0
Total Del/Veh (s)	0.8	0.8	0.8

20: Stroudwater Street & Forest Street Performance by lane

Lane	EB	WB	WB	SB	All
Movements Served	LT	T	R	LR	
Denied Del/Veh (s)					0.9
Total Del/Veh (s)	10.1	6.4	0.6	7.1	6.7

Total Network Performance

Denied Del/Veh (s)		0.9	
Total Del/Veh (s)		8.6	

Intersection: 18: Forest Street & Libby Avenue/Route 25 Off-Ramp

Movement	EB	WB	NB
Directions Served	LTR	LT	LT
Maximum Queue (ft)	28	56	24
Average Queue (ft)	14	34	3
95th Queue (ft)	37	53	16
Link Distance (ft)	128	215	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Forest Street & Route 25 On-Ramp

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	22	53
Average Queue (ft)	1	7
95th Queue (ft)	7	30
Link Distance (ft)	206	213
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Stroudwater Street & Forest Street

Movement	EB	WB	WB	SB
Directions Served	LT	T	R	LR
Maximum Queue (ft)	141	120	53	126
Average Queue (ft)	79	39	21	50
95th Queue (ft)	122	77	42	91
Link Distance (ft)	1272	633		206
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			125	
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Network Summary

Network wide Queuing Penalty: 0

2: I-95 Ramps & Rand Road Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	All
Movements Served	T	R	L	T	L	L	R	
Denied Del/Veh (s)								2.2
Total Del/Veh (s)	27.3	6.0	20.9	11.8	23.0	15.2	5.4	15.7

6: Larrabee Road & Saunders Way/South Site Drive Performance by lane

Lane	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	LTR	LT	R	LT	TR	LT	TR	
Denied Del/Veh (s)								0.2
Total Del/Veh (s)	11.7	22.1	3.7	1.1	1.3	1.6	0.6	2.3

9: Westbrook Arterial & Site Drive Performance by lane

Lane	EB	EB	EB	WB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	T	R	L	R	
Denied Del/Veh (s)									2.2
Total Del/Veh (s)	35.9	5.2	28.1	4.2	4.6	1.3	32.3	6.0	7.8

11: Rand Road Performance by lane

Lane	EB	WB	WB	All
Movements Served	T	T	T	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	0.5	0.7	0.8	0.6

24: Westbrook Arterial/Westbrook Arterial & Larrabee Road Performance by lane

Lane	EB	EB	EB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	TR	L	R	
Denied Del/Veh (s)								0.4
Total Del/Veh (s)	27.7	10.8	10.6	21.5	25.9	42.7	14.1	20.9

Total Network Performance

Denied Del/Veh (s)		2.1	
Total Del/Veh (s)		22.2	

Intersection: 2: I-95 Ramps & Rand Road

Movement	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	R	L	T	L	L	R
Maximum Queue (ft)	167	148	252	165	262	224	126
Average Queue (ft)	141	108	101	99	170	119	31
95th Queue (ft)	168	172	177	164	238	222	76
Link Distance (ft)				859	384	384	384
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		250	325				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Larrabee Road & Saunders Way/South Site Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LT	LT
Maximum Queue (ft)	74	92	50	31	93
Average Queue (ft)	23	42	28	3	10
95th Queue (ft)	56	82	46	18	44
Link Distance (ft)	236	266	266	805	738
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Westbrook Arterial & Site Drive

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	R
Maximum Queue (ft)	128	139	46	65	53	138	138
Average Queue (ft)	66	74	45	46	25	82	46
95th Queue (ft)	110	141	52	56	55	135	98
Link Distance (ft)		578				122	122
Upstream Blk Time (%)			1	2	0	2	1
Queuing Penalty (veh)			0	0	0	0	0
Storage Bay Dist (ft)	150						
Storage Blk Time (%)		0					
Queuing Penalty (veh)		0					

Intersection: 11: Rand Road

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 24: Westbrook Arterial/Westbrook Arterial & Larrabee Road

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	174	334	298	488	485	282	254
Average Queue (ft)	138	136	44	168	192	150	155
95th Queue (ft)	198	279	165	342	391	242	247
Link Distance (ft)		1070	1070	578	578	805	805
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150						
Storage Blk Time (%)	10	1					
Queuing Penalty (veh)	31	2					

Network Summary

Network wide Queuing Penalty: 33

2: I-95 Ramps & Rand Road Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	All
Movements Served	T	R	L	T	L	L	R	
Denied Del/Veh (s)								0.8
Total Del/Veh (s)	18.2	3.0	14.4	10.5	16.9	12.0	3.6	11.1

6: Larrabee Road & Saunders Way/South Site Drive Performance by lane

Lane	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	LTR	LT	R	LT	TR	LT	TR	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	6.8	17.2	4.3	1.1	1.6	2.2	0.4	2.6

9: Westbrook Arterial & Site Drive Performance by lane

Lane	EB	EB	EB	WB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	T	R	L	R	
Denied Del/Veh (s)									2.4
Total Del/Veh (s)	36.4	5.6	28.4	5.6	5.8	1.5	28.3	4.8	10.0

11: Rand Road Performance by lane

Lane	EB	WB	WB	All
Movements Served	T	T	T	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	0.4	0.7	0.8	0.6

24: Westbrook Arterial/Westbrook Arterial & Larrabee Road Performance by lane

Lane	EB	EB	EB	WB	WB	SB	SB	All
Movements Served	L	T	T	T	TR	L	R	
Denied Del/Veh (s)								0.6
Total Del/Veh (s)	24.0	12.6	10.3	12.8	15.0	32.8	6.2	15.6

Total Network Performance

Denied Del/Veh (s)		1.6	
Total Del/Veh (s)		17.7	

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Intersection: 2: I-95 Ramps & Rand Road

Movement	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	R	L	T	L	L	R
Maximum Queue (ft)	132	136	108	152	198	186	59
Average Queue (ft)	113	71	53	76	129	61	24
95th Queue (ft)	153	125	91	130	197	146	53
Link Distance (ft)				859	384	384	384
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		250	325				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Larrabee Road & Saunders Way/South Site Drive

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	LT	TR	LT
Maximum Queue (ft)	35	100	66	29	17	61
Average Queue (ft)	9	44	35	2	1	17
95th Queue (ft)	32	80	57	15	11	48
Link Distance (ft)	208	239	239	810	810	776
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Westbrook Arterial & Site Drive

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	R
Maximum Queue (ft)	157	183	62	57	47	114	103
Average Queue (ft)	96	68	36	36	29	87	36
95th Queue (ft)	147	137	53	49	51	121	72
Link Distance (ft)		590				87	87
Upstream Blk Time (%)			8	8	1	16	0
Queuing Penalty (veh)			0	0	0	0	0
Storage Bay Dist (ft)	150						
Storage Blk Time (%)	1	0					
Queuing Penalty (veh)	3	1					

Intersection: 11: Rand Road

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 24: Wesbrook Arterial/Westbrook Arterial & Larrabee Road

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	174	392	310	242	269	183	144
Average Queue (ft)	150	156	44	94	116	103	69
95th Queue (ft)	193	329	187	179	205	165	114
Link Distance (ft)		1070	1070	590	590	810	810
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150						
Storage Blk Time (%)	13	0					
Queuing Penalty (veh)	37	1					

Network Summary

Network wide Queuing Penalty: 41

103: Riverside St & Westbrook Crossing/Citgo/VIP Performance by lane

Lane	EB	EB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LTR	L	T	TR	L	T	TR	
Denied Del/Veh (s)										0.3
Total Del/Veh (s)	50.5	4.4	22.0	52.0	6.7	7.2	45.0	3.1	5.1	11.8

104: Travelodge Dr/Riverside St & Main St/Brighton Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB	All
Movements Served	L	T	TR	L	T	T	R	LTR	L	LT	R	
Denied Del/Veh (s)												0.1
Total Del/Veh (s)	47.0	15.8	12.6	99.7	15.7	20.4	1.8	43.4	34.9	41.3	1.3	19.0

105: Site Drive/Westbrook Crossing Drive & Main St Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LT	R	LT	R	
Denied Del/Veh (s)											0.2
Total Del/Veh (s)	46.7	13.1	12.9	35.3	24.1	24.2	37.0	8.0	31.6	11.3	22.2

106: Larrabee Road/Larrabee Rd & Main St Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LT	TR	LT	T	R	
Denied Del/Veh (s)												0.3
Total Del/Veh (s)	47.7	46.0	37.1	44.7	30.9	34.3	51.9	32.9	44.6	48.0	9.1	38.8

107: Larrabee Road & Terminal Street Performance by lane

Lane	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LTR	LT	R	L	T	TR	L	T	TR	
Denied Del/Veh (s)										0.1
Total Del/Veh (s)	22.4	23.0	4.7	5.5	0.4	0.6	7.1	2.0	1.9	5.7

108: Right-In Drive & Main St Performance by lane

Lane	EB	EB	WB	WB	All
Movements Served	T	TR	T	T	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	2.9	2.3	2.8	2.6	2.6

Intersection: 103: Riverside St & Westbrook Crossing/Citgo/VIP

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	163	148	97	71	67	134	48	70	180
Average Queue (ft)	122	74	33	43	23	57	14	16	58
95th Queue (ft)	200	167	82	76	60	131	38	51	134
Link Distance (ft)	148		125		492	492		586	586
Upstream Blk Time (%)	8	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)		90		195			125		
Storage Blk Time (%)	29								
Queuing Penalty (veh)	26								

Intersection: 104: Travelodge Dr/Riverside St & Main St/Brighton Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	LT	R
Maximum Queue (ft)	158	189	202	28	241	244	200	49	213	226	160
Average Queue (ft)	74	69	94	9	120	120	37	15	107	124	32
95th Queue (ft)	143	158	179	29	208	207	158	42	184	198	136
Link Distance (ft)		719	719		328	328		229	492	492	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	160			110			100				60
Storage Blk Time (%)	0	0			7	8				25	
Queuing Penalty (veh)	1	0			1	43				31	

Intersection: 105: Site Drive/Westbrook Crossing Drive & Main St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	147	164	128	224	355	263	148	76	110	112
Average Queue (ft)	84	50	62	136	183	134	106	46	43	77
95th Queue (ft)	141	125	119	230	297	236	162	76	103	119
Link Distance (ft)		160	160		719	719	133	133	97	97
Upstream Blk Time (%)	1	1					4		1	6
Queuing Penalty (veh)	0	4					0		0	0
Storage Bay Dist (ft)	75			150						
Storage Blk Time (%)	24	0		13	4					
Queuing Penalty (veh)	53	0		49	9					

103: Riverside St & Westbrook Crossing/Citgo/VIP Performance by lane

Lane	EB	EB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LTR	L	T	TR	L	T	TR	
Denied Del/Veh (s)										0.3
Total Del/Veh (s)	37.5	6.5	42.6	42.6	6.7	7.7	41.5	6.9	8.3	12.9

104: Travelodge Dr/Riverside St & Main St/Brighton Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB	All
Movements Served	L	T	TR	L	T	T	R	LTR	L	LT	R	
Denied Del/Veh (s)												0.0
Total Del/Veh (s)	47.5	20.0	15.1	31.9	22.9	20.6	1.5	30.8	28.4	34.2	1.3	19.9

105: Site Drive/Westbrook Crossing Drive & Main St Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LT	R	LT	R	
Denied Del/Veh (s)											0.1
Total Del/Veh (s)	29.3	39.5	37.3	26.8	14.8	9.5	35.7	8.7	34.2	6.6	22.4

106: Larrabee Road/Larrabee Rd & Main St Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	All
Movements Served	L	T	TR	L	T	TR	LT	TR	LT	T	R	
Denied Del/Veh (s)												0.4
Total Del/Veh (s)	35.0	27.0	27.2	51.3	23.5	28.0	45.4	42.0	32.5	29.0	6.6	31.1

107: Larrabee Road & Terminal Street Performance by lane

Lane	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LTR	LT	R	L	T	TR	L	T	TR	
Denied Del/Veh (s)										0.2
Total Del/Veh (s)	13.9	38.1	6.1	1.9	0.5	1.3	8.3	2.5	1.3	8.0

108: Right-In Drive & Main St Performance by lane

Lane	EB	EB	WB	WB	All
Movements Served	T	TR	T	T	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	3.2	5.2	0.9	1.0	2.5

Intersection: 103: Riverside St & Westbrook Crossing/Citgo/VIP

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	163	148	93	70	69	90	27	166	202
Average Queue (ft)	113	70	35	28	28	57	5	47	97
95th Queue (ft)	173	159	84	59	68	107	23	123	190
Link Distance (ft)	148		125		500	500		586	586
Upstream Blk Time (%)	4	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)		90		195			125		
Storage Blk Time (%)	22	0						0	
Queuing Penalty (veh)	24	0						0	

Intersection: 104: Travelodge Dr/Riverside St & Main St/Brighton Ave

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	LTR	L	LT	R
Maximum Queue (ft)	165	140	159	50	198	149	51	192	220	160
Average Queue (ft)	109	87	103	11	129	84	20	109	131	42
95th Queue (ft)	165	136	147	37	197	141	55	177	206	157
Link Distance (ft)		677	677		328	328	229	500	500	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	160			110						60
Storage Blk Time (%)	2	0			11	3			31	
Queuing Penalty (veh)	6	0			1	14			46	

Intersection: 105: Site Drive/Westbrook Crossing Drive & Main St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	165	209	194	197	230	83	181	142	164	75
Average Queue (ft)	98	128	124	123	47	33	120	58	55	53
95th Queue (ft)	163	194	176	191	158	73	180	101	129	80
Link Distance (ft)		166	166		677	677	206	206	253	253
Upstream Blk Time (%)	1	4	4							
Queuing Penalty (veh)	0	13	14							
Storage Bay Dist (ft)	100			125						
Storage Blk Time (%)	7	25		15						
Queuing Penalty (veh)	14	43		36						

TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic Signal Warrant Analysis Summary - Stroudwater Street at Forest Street
2016 Existing Conditions - Average Month Conditions

Time	Stroudwater Street		Forest Street		Warrant 1 Condition A ^c	Warrant 1 Condition B ^d	Warrant 2 ^e	Warrant 3 ^f
	Volume (Major Street) ^a	Volume (Minor Street) ^b	Volume (Minor Street) ^b	Volume (Major Street) ^a				
7:00	964		297	Yes	Yes		Yes	Yes
8:00	600		198	Yes	No		No	No
9:00	501		166	Yes	No		No	No
10:00	490		149	No	No		No	No
11:00	502		128	No	No		No	No
12:00	519		135	No	No		No	No
1:00	547		126	No	No		No	No
2:00	737		172	Yes	No		No	No
3:00	749		201	Yes	No	Yes	Yes	No
4:00	837		206	Yes	Yes	Yes	Yes	No
5:00	825		190	Yes	Yes	Yes	Yes	No
6:00	513		209	Yes	Yes	No	No	No
Warrant Satisfied?					Yes	No	Yes	Yes

^aBased on 12-hour manual turning movement counts conducted on Thursday, May 26, 2016. Volume includes total of both approaches.

^bBased on 12-hour manual turning movement counts conducted on Thursday, May 26, 2016. Includes total Forest Street southbound approach volume.

^cWarrant 1 Condition A - Eight Hour Vehicular Volume, Minimum Vehicular Volume - satisfied when major street volume > 500 and minor street volume > 150.

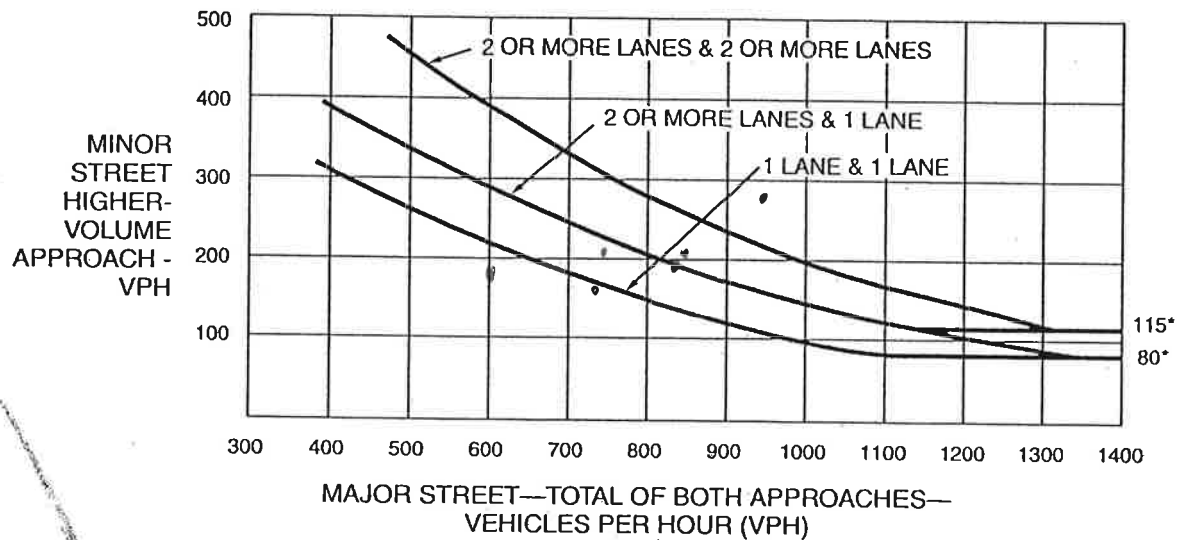
^dWarrant 1 Condition B - Eight Hour Vehicular Volume, Interruption of Continuous Traffic - satisfied when major street volume > 750 and minor street volume > 75.

^eWarrant 2 - Four Hour Vehicular Volume - see Figure 4C-1.

^fWarrant 3 - Peak Hour Vehicular Volume - see Figure 4C-3.

Strondwater Street/Forest Street Intersection
2016 Existing Average - Month Conditions

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

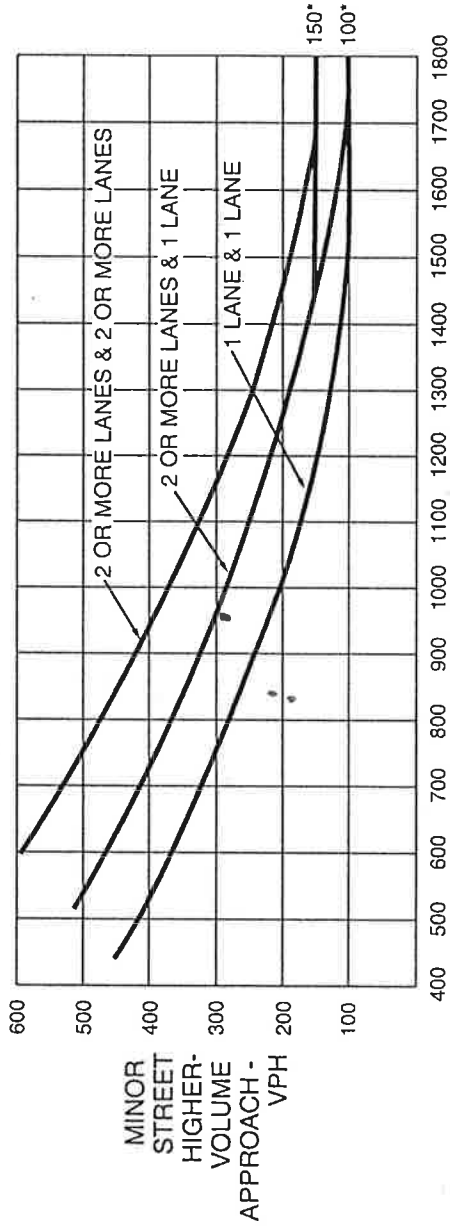


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Meets Warrant 2

*Standwater Street/Forest Street Intersection
2016 Existing Average - North Conditions*

Figure 4C-3. Warrant 3, Peak Hour



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Accurate Counts

978-664-2565

N/S Street : Stroudwater Street
 E/W Street : Forest Street
 City/State : Westbrook, ME
 Weather : Clear

File Name : 68460002
 Site Code : 68460002
 Start Date : 5/26/2016
 Page No : 1

Groups Printed- Cars - Trucks							
Start Time	Stroudwater St From North Left	Thru	Forest St From East Left	Right	Stroudwater St From South Thru	Right	Int. Total
07:00 AM	11	120	57	36	34	17	275
07:15 AM	35	143	53	48	47	18	344
07:30 AM	41	185	47	33	74	43	423
07:45 AM	55	140	33	19	64	33	344
Total	142	588	190	136	219	111	1386
08:00 AM	25	93	30	22	28	21	219
08:15 AM	20	86	25	28	51	11	221
08:30 AM	32	97	38	23	33	17	240
08:45 AM	11	58	36	16	47	29	197
Total	88	334	129	89	159	78	877
09:00 AM	24	78	29	29	42	15	217
09:15 AM	16	63	28	18	40	20	185
09:30 AM	16	55	25	18	28	16	158
09:45 AM	17	53	15	20	40	28	173
Total	73	249	97	85	150	79	733
10:00 AM	34	59	20	13	42	13	181
10:15 AM	27	43	18	21	33	18	160
10:30 AM	24	59	22	24	33	18	180
10:45 AM	20	53	22	24	49	13	181
Total	105	214	82	82	157	62	702
11:00 AM	22	41	20	9	45	15	152
11:15 AM	17	43	20	16	29	19	144
11:30 AM	20	43	24	17	73	27	204
11:45 AM	20	65	22	13	52	21	193
Total	79	192	86	55	199	82	693

Accurate Counts

978-664-2565

N/S Street : Stroudwater Street
 E/W Street : Forest Street
 City/State : Westbrook, ME
 Weather : Clear

File Name : 68460002
 Site Code : 68460002
 Start Date : 5/26/2016
 Page No : 2

Groups Printed- Cars - Trucks							
Start Time	Stroudwater St From North		Forest St From East		Stroudwater St From South		Int. Total
	Left	Thru	Left	Right	Thru	Right	
12:00 PM	10	39	13	26	53	30	171
12:15 PM	25	45	20	20	45	28	183
12:30 PM	22	50	16	19	57	19	183
12:45 PM	28	63	18	16	34	22	181
Total	85	197	67	81	189	99	718
01:00 PM	33	51	21	20	52	19	196
01:15 PM	16	51	16	13	52	23	171
01:30 PM	24	59	14	16	51	27	191
01:45 PM	25	46	28	11	45	27	182
Total	98	207	79	60	200	96	740
02:00 PM	21	57	24	18	52	19	191
02:15 PM	11	75	22	33	64	22	227
02:30 PM	55	68	24	30	76	48	301
02:45 PM	44	60	27	34	93	45	303
Total	131	260	97	115	285	134	1022
03:00 PM	35	52	22	42	72	39	262
03:15 PM	42	60	28	17	65	44	256
03:30 PM	24	60	28	31	69	38	250
03:45 PM	45	69	27	26	68	41	276
Total	146	241	105	116	274	162	1044
04:00 PM	38	46	28	26	98	47	283
04:15 PM	46	44	23	35	91	49	288
04:30 PM	60	43	12	41	90	57	303
04:45 PM	29	43	21	40	88	51	272
Total	173	176	84	142	367	204	1146

Accurate Counts

978-664-2565

N/S Street : Stroudwater Street
E/W Street : Forest Street
City/State : Westbrook, ME
Weather : Clear

File Name : 68460002
Site Code : 68460002
Start Date : 5/26/2016
Page No : 3

Groups Printed- Cars - Trucks

Start Time	Stroudwater St From North		Forest St From East		Stroudwater St From South		Int. Total
	Left	Thru	Left	Right	Thru	Right	
05:00 PM	48	38	27	48	99	55	315
05:15 PM	41	47	20	39	125	63	335
05:30 PM	36	31	15	24	71	58	235
05:45 PM	24	31	12	24	93	47	231
Total	149	147	74	135	388	223	1116
06:00 PM	16	34	19	34	57	42	202
06:15 PM	16	40	18	39	59	34	206
06:30 PM	39	43	21	41	56	29	229
06:45 PM	23	22	14	44	38	16	157
Total	94	139	72	158	210	121	794
Grand Total	1363	2944	1162	1254	2797	1451	10971
Apprch %	31.6	68.4	48.1	51.9	65.8	34.2	
Total %	12.4	26.8	10.6	11.4	25.5	13.2	
Cars	1328	2850	1136	1224	2698	1424	10660
% Cars	97.4	96.8	97.8	97.6	96.5	98.1	97.2
Trucks	35	94	26	30	99	27	311
% Trucks	2.6	3.2	2.2	2.4	3.5	1.9	2.8

Traffic Signal Warrant Analysis Summary - Cumberland Street at Park Road
2016 Existing Conditions - Average Month Conditions

Time	Cumberland Street		Park Road	Warrant 1 Condition A ^c	Warrant 1 Condition B ^d	Warrant 1 Combination Condition	Warrant 2 ^e	Warrant 3 ^f
	Volume (Major Street) ^a	Volume (Minor Street) ^b	Volume					
7:00	907	190		Yes	Yes	Yes	Yes	No
8:00	846	167		Yes	Yes	Yes	Yes	No
9:00	679	166		Yes	No	Yes	No	No
10:00	680	126		No	No	Yes	No	No
11:00	697	128		No	No	Yes	No	No
12:00	723	139		No	No	Yes	No	No
1:00	727	145		No	No	Yes	No	No
2:00	862	145		No	Yes	Yes	Yes	No
3:00	1012	172		Yes	Yes	Yes	Yes	No
4:00	1263	148		No	Yes	Yes	Yes	Yes
5:00	1225	125		No	Yes	Yes	Yes	No
6:00	875	123		No	Yes	Yes	No	No
Warrant Satisfied?				No	No	Yes	Yes	Yes

^aBased on 12-hour manual turning movement counts conducted on Thursday, May 26, 2016. Volume includes total of both approaches.

^bBased on 12-hour manual turning movement counts conducted on Thursday, May 26, 2016. Includes total Forest Street southbound approach volume.

^cWarrant 1 Condition A - Eight Hour Vehicular Volume, Minimum Vehicular Volume - satisfied when major street volume > 500 and minor street volume > 150.

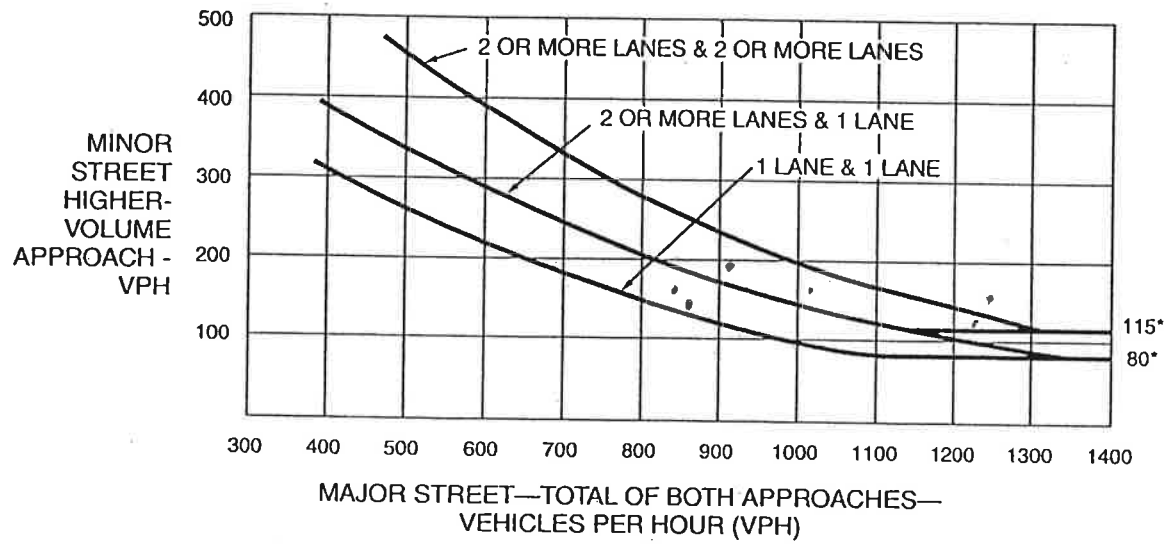
^dWarrant 1 Condition B - Eight Hour Vehicular Volume, Interruption of Continuous Traffic - satisfied when major street volume > 750 and minor street volume > 75.

^eWarrant 2 - Four Hour Vehicular Volume - see Figure 4C-1.

^fWarrant 3 - Peak Hour Vehicular Volume - see Figure 4C-3.

Cumberland Street/Park Road
2016 Average-Month Conditions

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

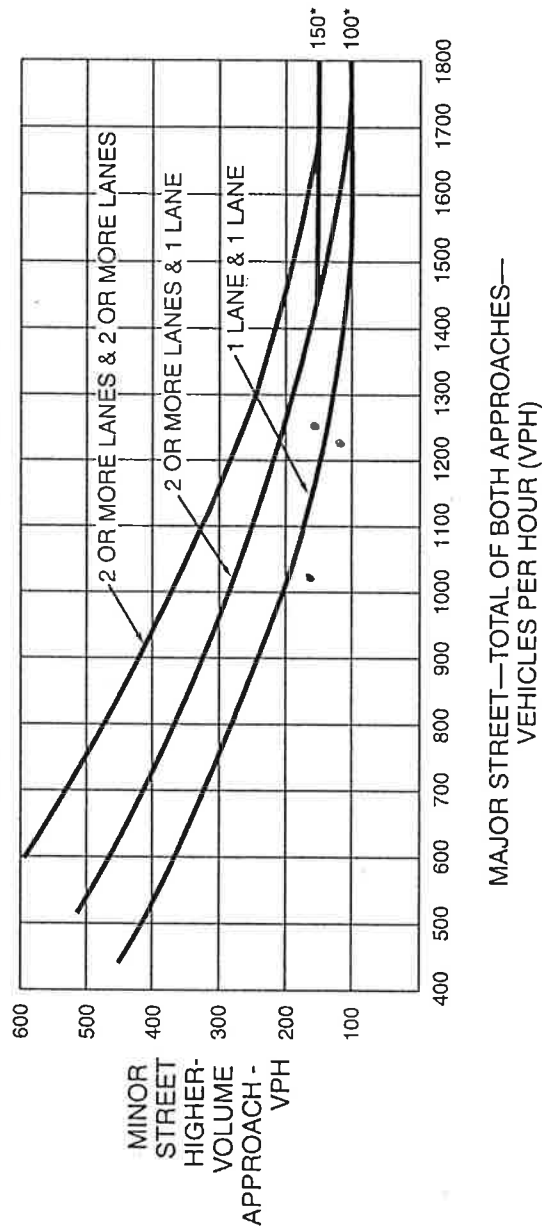


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Meets Warrant 2

*Cumberland Street/Park Road
2016 Existing Average-Month Conditions*

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Next Warrant 3

Accurate Counts

978-664-2565

N/S Street : Park Rad
E/W Street : Cumberland Street
City/State : Westbrook, ME
Weather : Clear

File Name : 68460001
Site Code : 68460001
Start Date : 5/26/2016
Page No : 1

Groups Printed- Cars - Trucks							
Start Time	Park Rd From North		Cumberland St From East		Cumberland St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
07:00 AM	66	0	38	13	4	182	303
07:15 AM	49	2	58	28	15	185	337
07:30 AM	49	0	41	27	4	129	250
07:45 AM	34	9	76	51	10	136	316
Total	198	11	213	119	33	632	1206
08:00 AM	41	1	70	27	12	137	288
08:15 AM	46	2	61	27	12	137	285
08:30 AM	36	0	53	28	9	138	264
08:45 AM	55	2	56	30	8	125	276
Total	178	5	240	112	41	537	1113
09:00 AM	46	7	66	39	6	85	249
09:15 AM	48	0	57	35	3	92	235
09:30 AM	41	2	49	40	11	88	231
09:45 AM	36	2	60	28	1	86	213
Total	171	11	232	142	21	351	928
10:00 AM	30	2	68	22	4	83	209
10:15 AM	39	0	65	26	6	85	221
10:30 AM	33	0	75	22	5	107	242
10:45 AM	33	2	71	34	4	70	214
Total	135	4	279	104	19	345	886
11:00 AM	36	3	69	20	4	71	203
11:15 AM	30	5	93	29	6	80	243
11:30 AM	37	0	77	43	5	88	250
11:45 AM	25	5	64	40	7	70	211
Total	128	13	303	132	22	309	907

Accurate Counts

978-664-2565

N/S Street : Park Rad
 E/W Street : Cumberland Street
 City/State : Westbrook, ME
 Weather : Clear

File Name : 68460001
 Site Code : 68460001
 Start Date : 5/26/2016
 Page No : 2

Groups Printed- Cars - Trucks							
Start Time	Park Rd From North		Cumberland St From East		Cumberland St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
12:00 PM	33	4	79	40	0	78	234
12:15 PM	34	2	82	35	2	80	235
12:30 PM	42	1	92	29	2	72	238
12:45 PM	34	3	86	30	2	85	240
Total	143	10	339	134	6	315	947
01:00 PM	23	3	83	43	5	68	225
01:15 PM	31	8	90	33	5	69	236
01:30 PM	51	4	90	29	1	72	247
01:45 PM	36	0	95	36	2	78	247
Total	141	15	358	141	13	287	955
02:00 PM	31	2	108	31	0	76	248
02:15 PM	39	2	99	51	3	68	262
02:30 PM	42	3	100	39	6	81	271
02:45 PM	36	1	128	60	8	90	323
Total	148	8	435	181	17	315	1104
03:00 PM	44	2	145	41	4	74	310
03:15 PM	43	5	128	52	7	71	306
03:30 PM	36	2	154	53	9	107	361
03:45 PM	49	8	130	45	5	87	324
Total	172	17	557	191	25	339	1301
04:00 PM	39	5	178	63	5	87	377
04:15 PM	36	3	184	53	11	89	376
04:30 PM	40	2	180	80	7	77	386
04:45 PM	37	1	196	60	12	106	412
Total	152	11	738	256	35	359	1551

Accurate Counts

978-664-2565

N/S Street : Park Rad
E/W Street : Cumberland Street
City/State : Westbrook, ME
Weather : Clear

File Name : 68460001
Site Code : 68460001
Start Date : 5/26/2016
Page No : 3

Groups Printed- Cars - Trucks

Start Time	Park Rd From North		Cumberland St From East		Cumberland St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
05:00 PM	36	5	193	55	7	82	378
05:15 PM	42	1	181	80	4	76	384
05:30 PM	18	4	205	67	2	88	384
05:45 PM	25	6	180	58	2	66	337
Total	121	16	759	260	15	312	1483
06:00 PM	31	7	136	46	4	91	315
06:15 PM	38	5	113	33	2	89	280
06:30 PM	29	3	116	28	10	82	268
06:45 PM	22	0	106	34	0	72	234
Total	120	15	471	141	16	334	1097
Grand Total	1807	136	4924	1913	263	4435	13478
Apprch %	93	7	72	28	5.6	94.4	
Total %	13.4	1	36.5	14.2	2	32.9	
Cars	1783	132	4845	1889	257	4374	13280
% Cars	98.7	97.1	98.4	98.7	97.7	98.6	98.5
Trucks	24	4	79	24	6	61	198
% Trucks	1.3	2.9	1.6	1.3	2.3	1.4	1.5

MEMORANDUM

TO: Mr. Timothy Soucie, P.E.
Region Traffic Engineer
MaineDOT - Region 1
P.O. Box 358
Scarborough, ME 04070

FROM: Mr. Jeffrey S. Dirk, P.E., PTOE, FITE
Principal
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810-1066
(978) 474-8800, ext. 830
jdirk@rdva.com



DATE: July 6, 2016

RE: 6846

SUBJECT: Motor Vehicle Crash Analysis
Dirigo Plaza - Westbrook Arterial, Larrabee Road and Main Street (Route 25B)
Westbrook, Maine

Attached please find the review of the intersections and roadway segments within the study area of the May 6, 2016 Amended *Traffic Impact Study* prepared for the Dirigo Plaza mixed-use commercial development to be located in Westbrook, Maine, that were deemed High-crash Locations (HCLs). This submission completes our responses to the May 20, 2016 consolidated comments that were provided by MDOT in reference to the May 6, 2016 Amended *Traffic Impact Study*.

cc: J. Franceschi, P.E., CPESC – City of Westbrook, Director of Planning and Code Enforcement
J. Adams, P.E., PTOE - Milone & Macbroom
J. Levine – City of Portland, Planning & Urban Development Director
B. Hyman – City of Portland, Transportation Program Manager
J. Bartlett, P.E., PTOE – City of Portland DPW, Transportation System Engineer
T. Errico, P.E. - T.Y. Lin International
J. Gove – J&J Gove Development, LLC
W. Morrill – Jones & Beach Engineers, Inc.
BG, File



ATTACHMENTS

CITY OF WESTBROOK HIGH CRASH LOCATION SUMMARIES AND COLLISION
DIAGRAMS

CITY OF PORTLAND HIGH CRASH LOCATION SUMMARIES AND COLLISION
DIAGRAMS

CITY OF WESTBROOK HIGH CRASH LOCATION SUMMARIES AND COLLISION
DIAGRAMS

City of Westbrook
2013/2015 Roadway Safety Summary Report
Main Street @ Larrabee Road
(Node # 18670)

[36 Crashes – 1.23 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Twenty-one (21) of the 36 vehicle crashes reported for the intersection were “*rear-end*” crashes with 10 of these accidents occurring in the through/left-turn travel lanes on the east approach of Main Street. Seven of the remaining 11 “*rear-end*” crashes occurred in either of the two channelized right-turn lanes located on Larrabee Road. Interestingly, the majority of the “*rear-end*” accidents occurred during non-peak hour time periods. Two other lesser crash patterns included four “*angle*” crashes and three “*turning movement*” crashes reported with five of the collisions occurring as a result of a motorist entering the intersection on a red signal indication.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Remove channelized right-turn islands from both Larrabee Road approaches. Add replacement exclusive right-turn lanes on both approaches.
- Roadway pavement markings on all approaches should be upgraded and replaced annually.
- Overhead lane signage should be added throughout the intersection.
- Optimize traffic signal phasing and timing at intersection.

COLLISION DIAGRAM

SHEET 1 OF 2

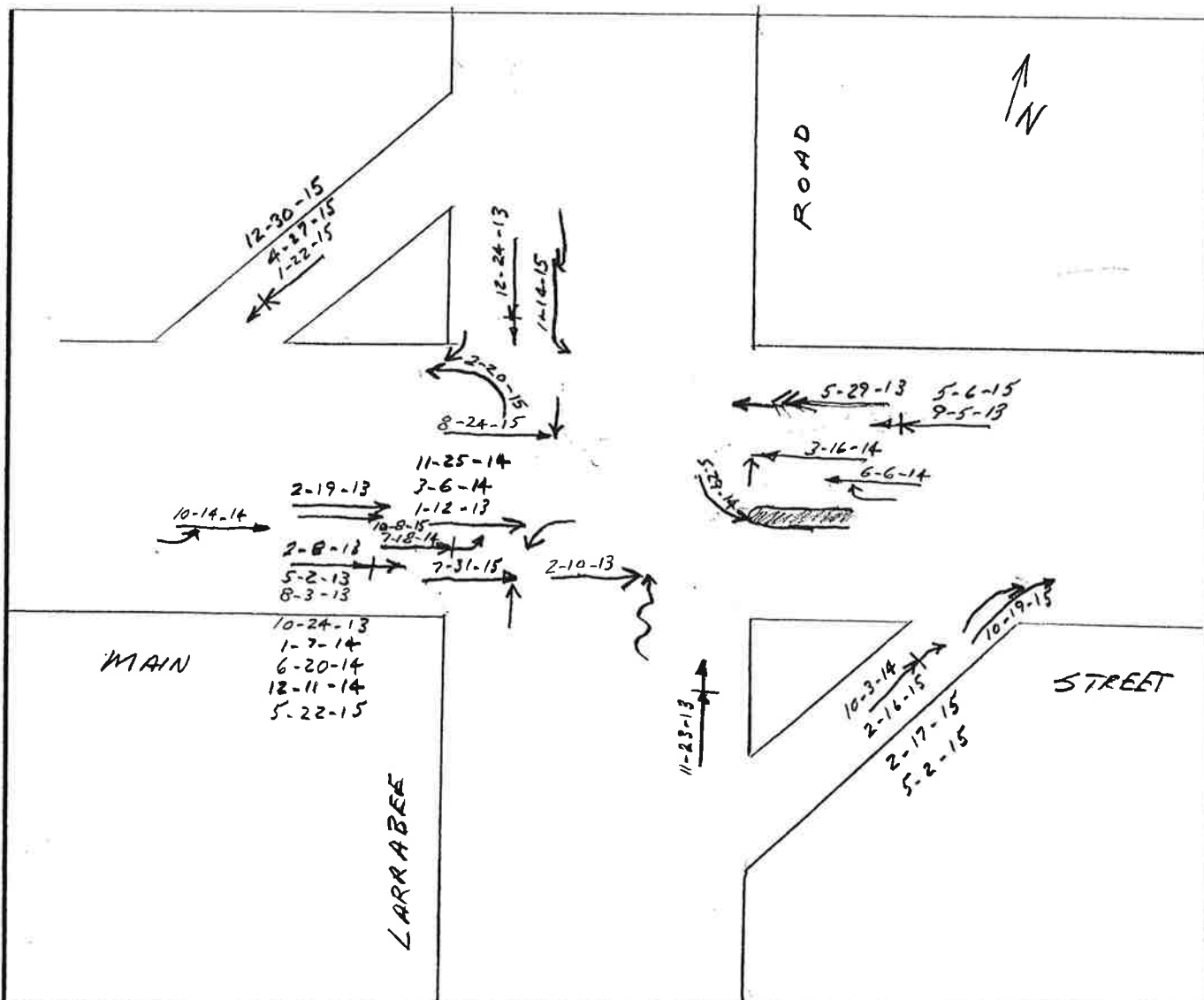
LOCATION MAIN ST. @ LARRABEE RD.

TOWN WESTBROOK

NODE NO(S) 18670

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAVED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. HIT AND RUN |
| 22. OTHER HUMAN VIOLATION FACTOR | 23. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

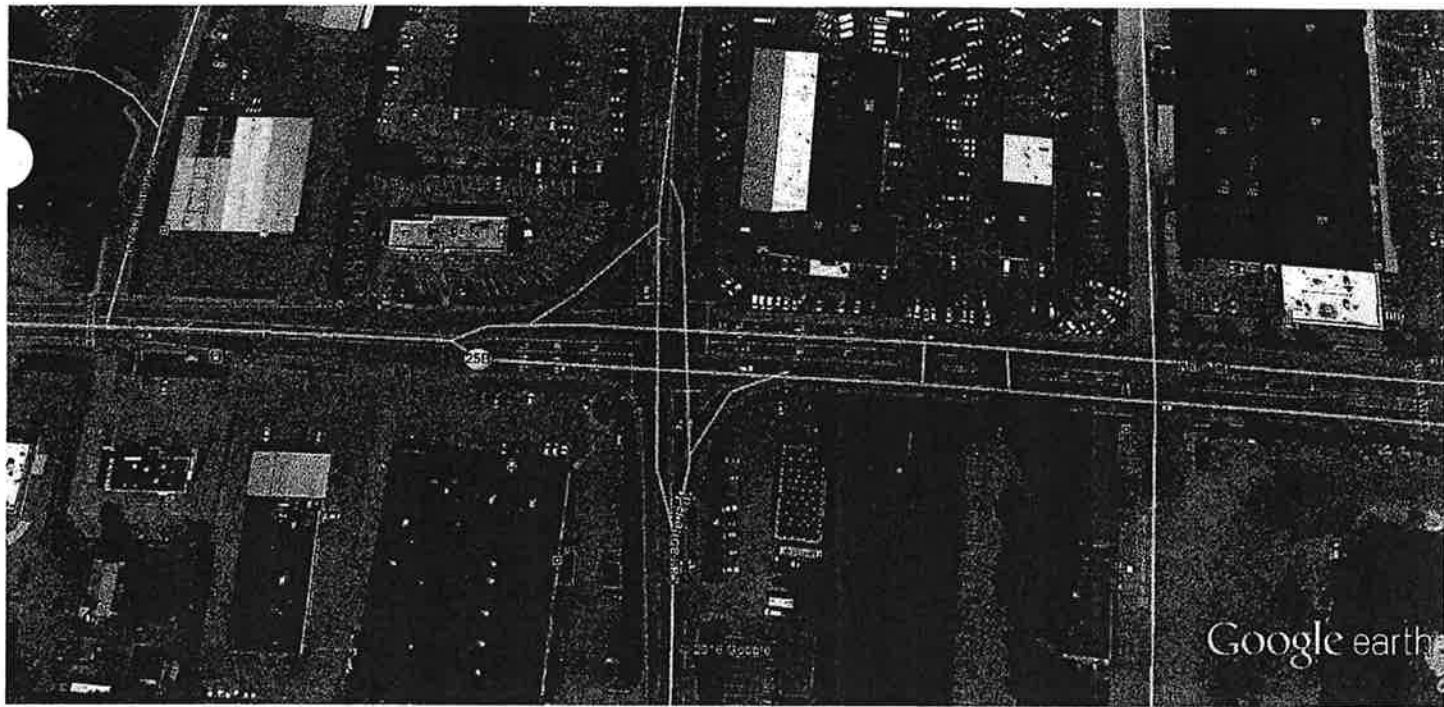
K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

NODE NO(S) 18670

DATE PREPARED 6-17-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-21	1-12-13	12:44	—	—	—	—	2	1	5	RAN RED LIGHT
13-69	2-8-13	9:44	—	—	—	—	2	SNOW	4	
13-76	2-10-13	9:00	—	—	1	—	2	SLUSH	TOO FAST FOR CONDITIONS	
13-95	2-19-13	14:25	—	—	—	1	2	1	OUT	
13-210	5-2-13	6:56	—	—	—	1	2	1	4	
13-268	5-29-13	8:00	—	—	—	—	2	2	11	
13-376	8-3-13	12:59	—	—	—	—	2	1	4	
13-435	9-5-13	13:09	—	—	—	—	2	1	4	
13-511	10-24-13	17:18	—	—	—	1	3	1	4	
13-544	11-23-13	9:56	—	—	—	3	2	1	14	
13-629	12-24-13	9:58	—	—	—	1	2	2	4	
14-21	1-7-14	15:19	—	—	—	—	2	1	Pulled over, ambulance to allow car thru	
14-139	3-6-14	17:13	—	—	—	—	2	1	Run	Ran Red Light
14-156	3-16-14	15:56	—	—	—	—	2	1	Hit & Run	Ran Red Light
14-269	5-29-14	19:43	—	—	—	—	2	1	10	
14-286	6-6-14	00:25	—	—	—	—	4	1	8	
14-334	6-20-14	18:47	—	—	—	2	2	1	4	
383	7-18-14	17:19	—	—	—	—	2	1	14	
14-493	10-3-14	15:41	—	—	—	—	2	1	4	
14-515	10-14-14	10:48	—	—	—	—	2	1	8	
14-594	11-25-14	19:57	—	—	—	—	4	1	5	Ran Red Light
14-633	12-11-14	6:50	—	—	—	—	2	1	51	
15-31	1-14-15	7:56	—	—	—	—	2	1	8	
15-47	1-22-15	10:19	—	—	—	—	2	1	4	
15-138	2-16-15	11:50	—	—	—	2	2	1	4, 14	
15-144	2-17-15	14:45	—	—	—	—	2	2	14	
15-152	2-20-15	14:37	—	—	—	—	2	2	2	
15-277	4-27-15	15:42	—	—	—	—	2	1	4	
15-286	5-2-15	10:16	—	—	—	—	2	1	14	
15-297	5-6-15	17:26	—	—	—	—	2	1	41?	
15-324	5-22-15	18:18	—	—	—	—	2	1	4	
15-438	7-31-15	15:05	—	—	—	—	2	1	car in open field + light went back	
15-485	8-24-15	6:44	—	—	—	1	2	1	14	Ran Red Light
15-559	10-8-15	14:37	—	—	—	—	2	1	4	
15-583	10-19-15	17:21	—	—	—	—	2	1	?	Hit & Run
15-725	12-30-15	7:36	—	—	—	—	2	SLUSH	4 Poor Road Cond. Hires	



Google earth

feet
meters



City of Westbrook
2013/2015 Roadway Safety Summary Report
Cumberland Street, Main Street and Warren Avenue
(Node # 15093)

[56 Crashes – 7.20 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Each of the 56 total vehicle crashes reported for the intersection were “*rear-end*” crashes involving a motorist attempting to enter Cumberland Street from Warren Avenue being stuck from behind by a second motor vehicle. The greater majority (approximately 60%) of the vehicle crashes reported occurred during non-peak travel periods. The principal contributing factor leading to the vehicle crash involved the second motorist “*following too close*” and/or being distracted for a number of varying reasons.

Recommended Intersection Mitigation Measures

The Maine Department of Transportation has appropriated project funding for the design and construction of sequenced traffic signals at this location. The project is currently being designed with construction scheduled for 2018.

COLLISION DIAGRAM

SHEET 1 OF 3

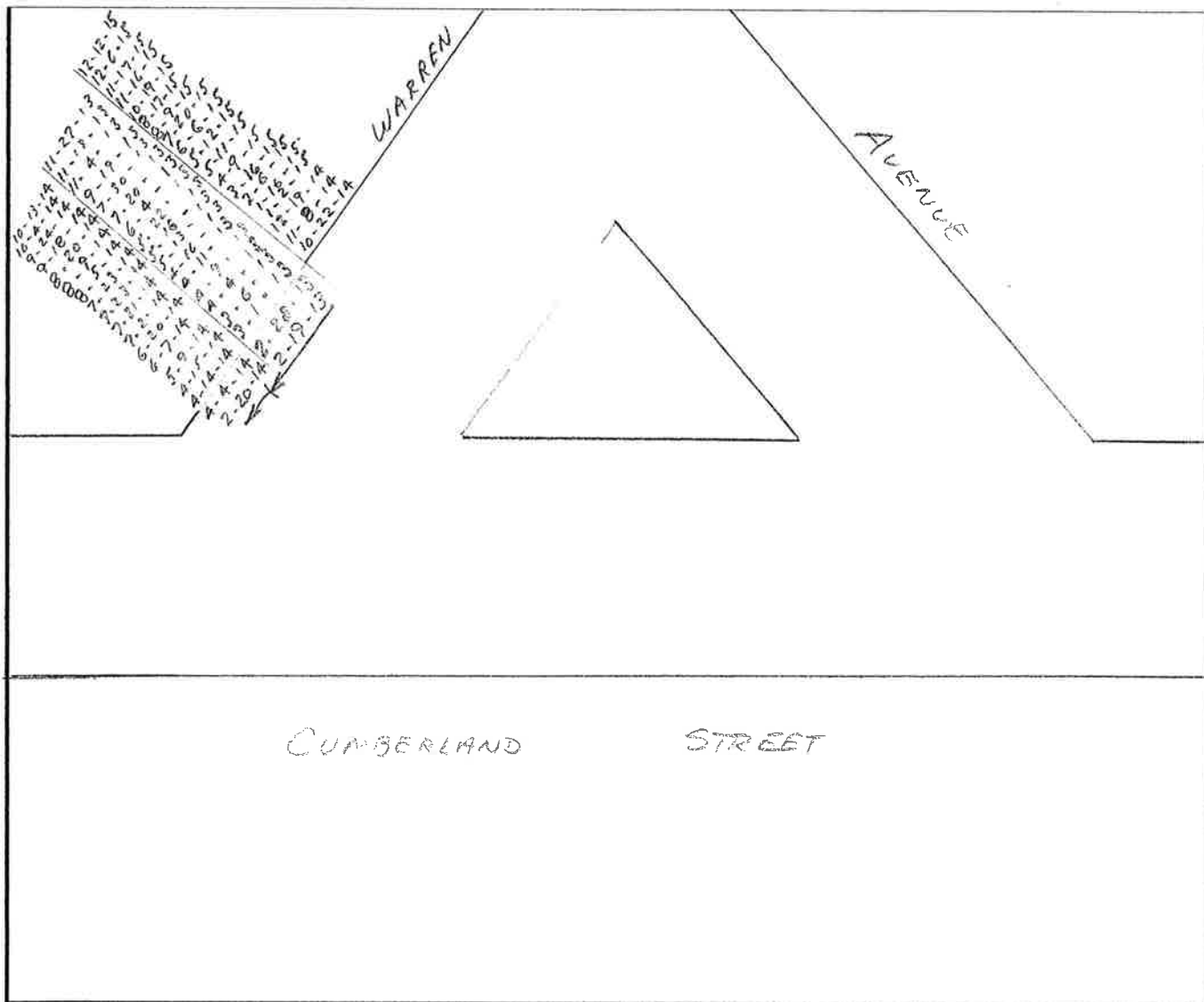
LOCATION CUMBERLAND ST. @ WARREN AVE.

TOWN WESTBROOK

NODE NO(S) 15093

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-21-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPROPER TURN |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PEDEST. VIOLATION ERROR | 15. IMPEDING TRAFFIC |
| 16. PHYSICAL IMPAIRMENT | 17. VISION OBSCURED-SUN/HEADLIGHTS | 18. DRIVER INEXPERIENCE |
| 19. WINDSHIELD GLASS | 20. OTHER VISION OBSCUREMENT | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. HIT AND RUN | 23. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 46. OTHER VEHICLE DEFECT |
| 47. UNKNOWN | | |

SYMBOLS

- | | | | | | |
|----------------|----|----------------|-----|------------------|--------|
| ANGLE | ↓ | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | →← | REAR END | →→ | VEHICLE (MOVING) | → |
| FIXED OBJECT | → | SIDE SWIPE | →→ | BICYCLE | ---[B] |
| HEAD ON | →← | TURNING MOVE | →↗ | ANIMAL | ---[A] |
| OVERTURN | →○ | CHANGE LANE | →↘ | SLED | ---[S] |
| PARKED VEHICLE | ↖ | OUT OF CONTROL | →~→ | | |

WEATHER

- | | | |
|------------|----------|------------------|
| C = CLEAR | F = FOG | R = RAIN |
| SL = SLEET | S = SNOW | CL = CLOUDY |
| | | XW = CROSS WINDS |

INJURIES

- | | |
|--------------------|------------------------|
| K = FATAL | B = NON-INCAPACITATING |
| A = INCAPACITATING | C = POSSIBLE INJURY |

COLLISION DIAGRAM

SHEET 2 OF 3

LOCATION CUMBERLAND ST. @ WARREN AVE.TOWN WESTBROOKNODE NO(S) 15093YEARS REVIEWED 2013 - 2015DATE PREPARED 6-21-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-96	2-19-13	15:55					2	1	51	
13-111	2-29-13	13:34				1	2	2	4	
13-113	3-1-13	11:55					2	1	4	
13-122	3-6-13	8:19					2	1		Reckless Oper.
13-169	4-4-13	12:18					2	1	4	
13-177	4-9-13	11:20					2	1	4	
13-180	4-11-13	8:45					2	1	51	
13-192	4-16-13	15:46					2	1	4	
13-229	5-13-13	13:26					2	1	4	
13-236	5-10-13	15:26					2	1	4, 14	
13-247	5-22-13	14:46					4	?	30	
13-263	5-28-13	14:24					2	1	4, 14	
13-281	6-4-13	14:57					2	1	4, 14	
13-359	7-20-13	17:01					2	1	4	
13-368	7-30-13	14:16					2	1	4	
13-456	9-19-13	12:00					2	1	4	
13-524	11-4-13	17:11					4	1	4	
13-534	11-13-13	12:23					2	1	4	
13-566	11-27-13	12:22					2	1	4, 14	
14-107	2-20-14	7:01					2	Ice/Frost	4	
14-187	4-4-14	12:19				1	2	1	4	
14-199	4-4-14	10:35					2	1	4	
14-201	4-15-14	11:23					2	1	4	
14-237	5-9-14	13:15					2	1	4	
14-319	6-17-14	10:35					2	1	51	
14-333	6-20-14	18:24					2	1	4, 14	
14-353	7-2-14	16:46					2	2	4	
14-388	7-21-14	13:22					2	1	4	
14-392	7-23-14	15:11					2	1	4, 14	
14-393	7-23-14	16:32					2	1	4, 14	
14-413	8-5-14	15:17					2	1	4	
14-417	8-9-14	20:11			1		4	1	4	
14-436	8-20-14	14:26					2	1	4	
14-473	9-18-14	17:23					2	1	4	
14-485	9-24-14	17:09					2	1	14	
14-496	10-4-14	10:59			1		2	1	4	
14-514	10-13-14	14:03					2	1	4	
14-530	10-22-14	14:58					2	2	4, 14	
14-560	11-8-14	10:22					2	1	4	
14-647	12-19-14	10:14					2	1	4	
15-1	1-2-15	8:51					2	1	4	
15-36	1-16-15	7:02			1		3	2	51	
15-102	2-6-15	10:47			1		2	2	51	
15-203	3-16-15	16:43					2	1	4	

SHEET 3 OF 3

DATE PREPARED 6-21-2016

[illegible]

City of Westbrook
2013/2015 Roadway Safety Summary Report
Main Street @ Stroudwater Street
(Node # 17182)

[8 Crashes – 1.11 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The safety analysis concludes that the traffic crashes occur randomly within the intersection with varying collision patterns.

Recommended Intersection Mitigation Measures

Mitigation is not recommended for this location.

COLLISION DIAGRAM

SHEET 1 OF 2

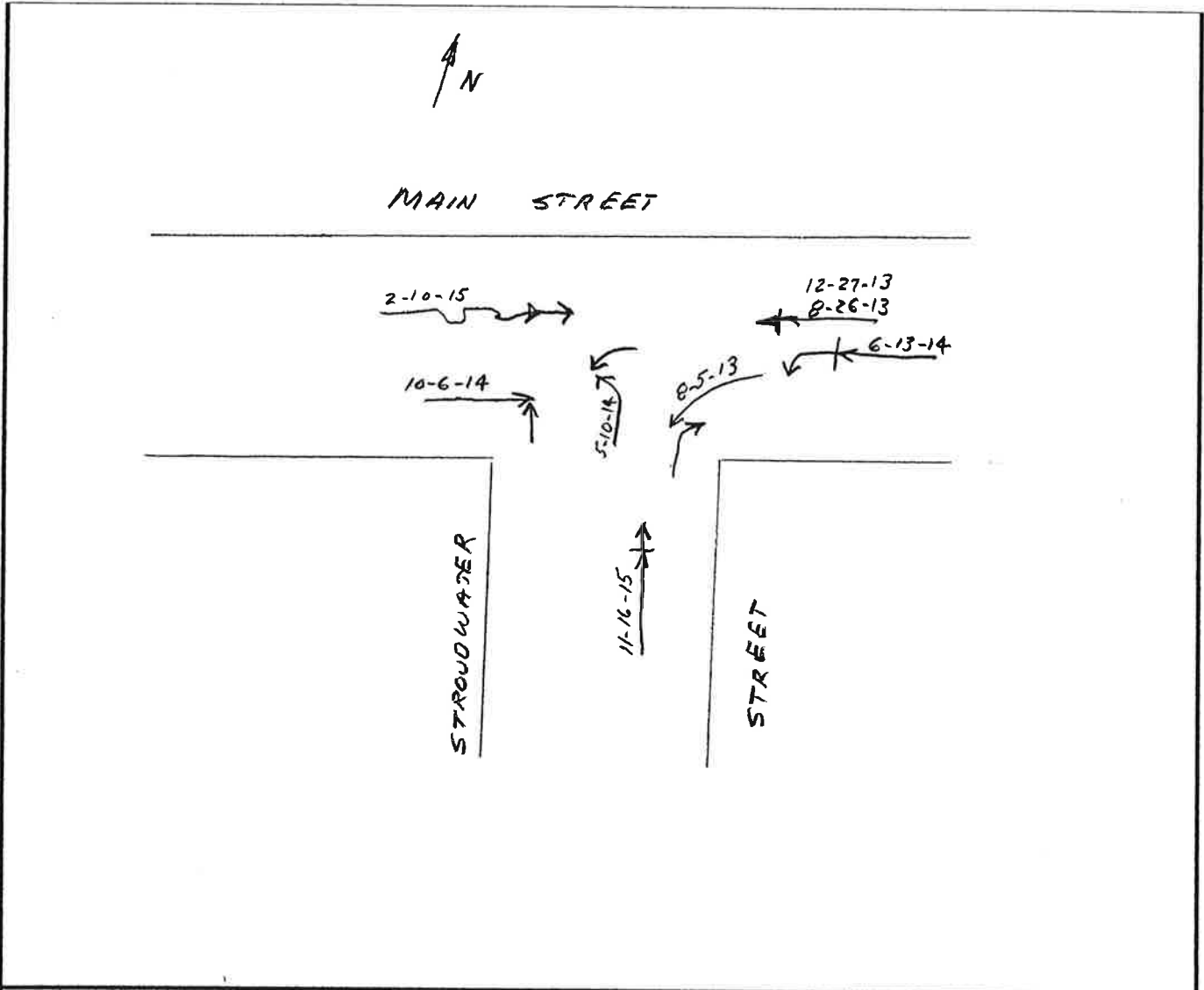
LOCATION MAIN ST. & STROUDWATER ST.

TOWN WEST BROOK

NODE NO(S) 17182

YEARS REVIEWED 2013-2015

DATE PREPARED 6-16-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. IMP. UNSAFE LANE CHANGE | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. UNSAFE BACKING | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER HUMAN VIOLATION FACTOR | 21. UNKNOWN |
| 22. HIT AND RUN | | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

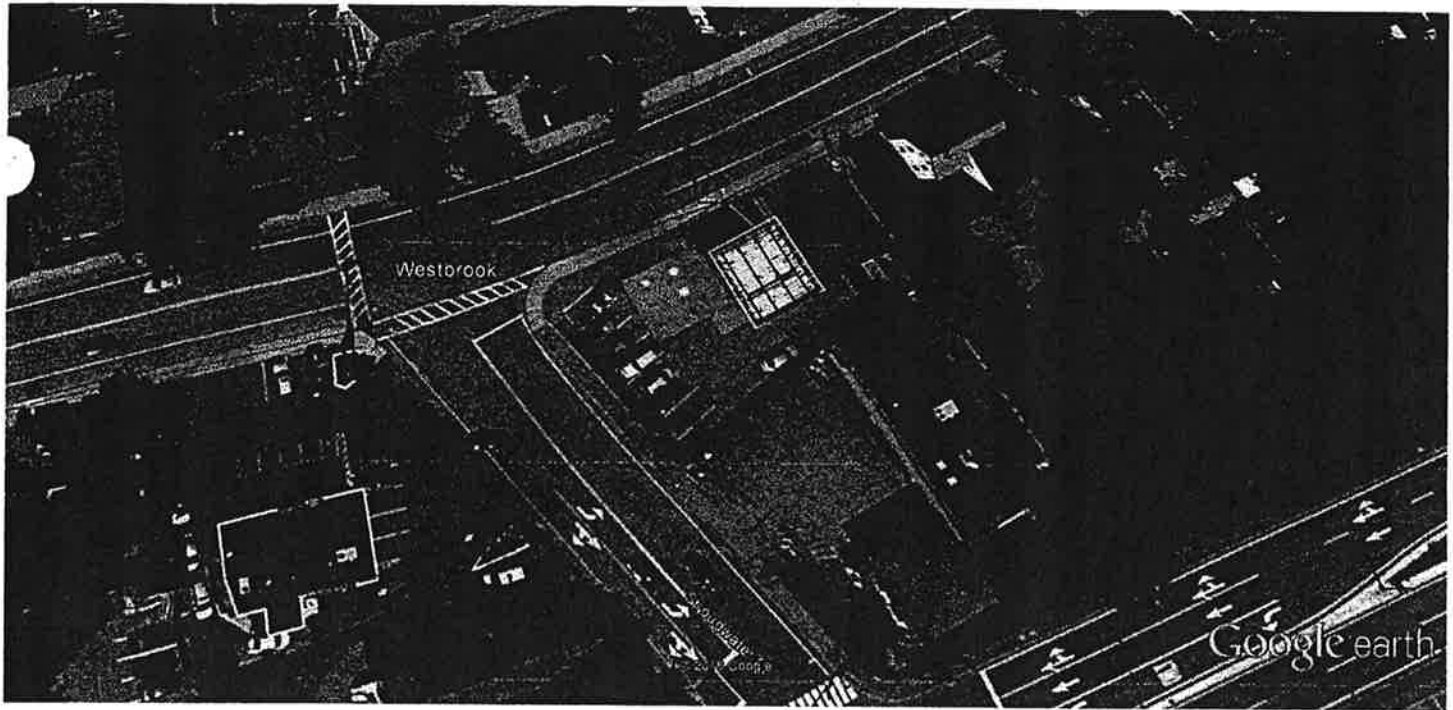
WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

N.



Google earth

feet
meters



City of Westbrook
2013/2015 Roadway Safety Summary Report
Main Street @ Mechanic Street
(Node # 17173)

[8 Crashes – 1.33 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Six (6) of the 8 reported crashes at the Main Street/Mechanic Street intersection were “*rear-end*” crashes occurring on either of the two Main Street approaches. Three of the eight crashes occurred with the leading vehicle stopped for a pedestrian crossing the street and the second vehicle striking the stopped motor vehicle.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location to augment sidewalk improvements currently under construction at the intersection:

- Install RRFB (*Rectangular Rapid Flash Beacon*) system for the Main Street pedestrian crossing.
- Install high-visibility pedestrian crosswalks with “*piano key*” pattern on both crosswalk locations.

COLLISION DIAGRAM

SHEET 1 OF 2

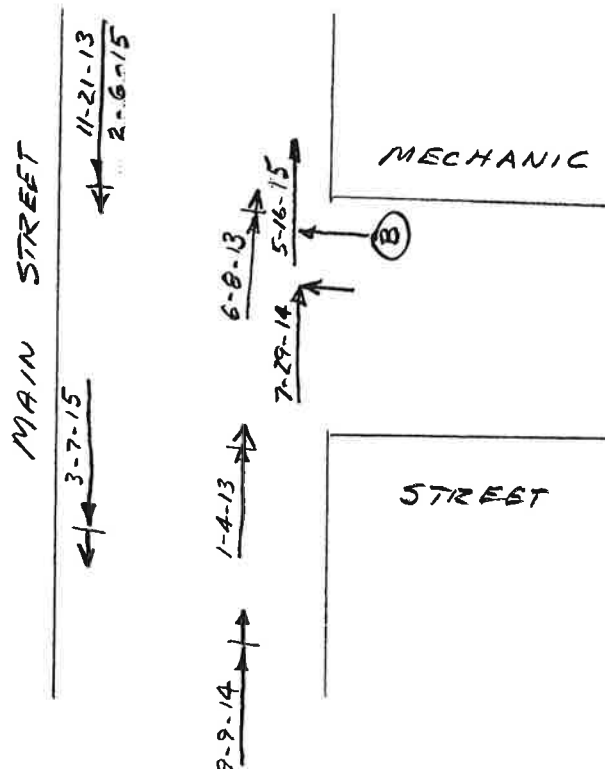
LOCATION MAIN ST. & MECHANIC ST.

TOWN WESTBROOK

NODE NO(S) 17173

YEARS REVIEWED 2013-2015

DATE PREPARED 6-13-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY
4. ICE/PACKED SNOW-SANDED
7. OILY
10. OTHER
2. WET
5. MUDDY
8. SNOW/SLUSH-NOT SANDED
3. SNOW/SLUSH-SANDED
6. DEBRIS
9. ICE-PKD. SNOW-NOT SANDED

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|---------------------------------------|-------------------------------------|---------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER--NO PASSING | 7. IMPROPER PASS--OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION--DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED--WINDSHIELD GLASS |
| 19. VISION OBSCURED--SUN/HEADLIGHTS | 20. OTHER HUMAN VIOLATION FACTOR | |
| 21. HIT AND RUN | 51. UNKNOWN | |

VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

ANGLE		PEDESTRIAN		FATAL ACCIDENT	
BACKING		REAR END			
FIXED OBJECT		SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON		TURNING MOVE		BICYCLE	
OVERTURN		CHANGE LANE		ANIMAL	
PARKED VEHICLE		OUT OF CONTROL		SLED	

WEATHER

C = CLEAR
SL = SLEET
F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

DATE PREPARED 6-13-2016

[illegible]

City of Westbrook
2013/2015 Roadway Safety Summary Report
Cumberland Street @ Park Road
(Node # 15097)

[8 Crashes – 1.49 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Five (5) of the 8 reported crashes at the Cumberland Street/Park Road intersection were “*angle*” collisions involving a vehicle entering the intersection from the Park Road approach being stuck by a through vehicle traveling on Cumberland Street. Four of the (5) reported “*angle*” crashes occurred during the peak commuter hours of 7:00 to 9:00 AM.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Conduct a traffic signal warrant study for the intersection; if traffic signals are determined to be warranted consideration should be given to their installation.
- Re-grade Cumberland Street embankment in the easterly quadrant of the intersection improving vehicle sightlines.
- Trim two evergreen trees located immediately left of the intersection, improving sight distance from the Park Road approach.
- Install 24” painted stop bar on Park Road approach.
- Install new Stop Sign with BlinkerSign LED boarder lighting on Park Road.

COLLISION DIAGRAM

SHEET 1 OF 2

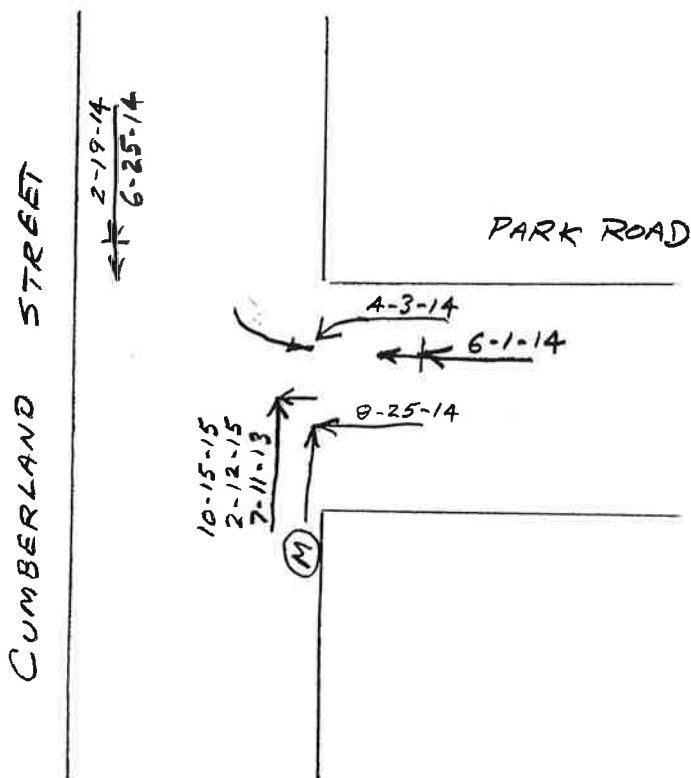
LOCATION CUMBERLAND ST. @ PARK RD.

TOWN WESTBROOK

NODE NO(S) 15097

YEARS REVIEWED 2013-2015

DATE PREPARED 6-13-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|---|----------------|-----|------------------|-----|
| ANGLE | ↓ | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | ↔ | REAR END | → | | |
| FIXED OBJECT | → | SIDE SWIPE | → | VEHICLE (MOVING) | → |
| HEAD ON | ↔ | TURNING MOVE | → | BICYCLE | → B |
| OVERTURN | → | CHANGE LANE | → | ANIMAL | → A |
| PARKED VEHICLE | ↗ | OUT OF CONTROL | → | SLED | → S |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

TOWN WESTBROOK

NODE NO(S) 15097

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-13-2016

[illegible]

City of Westbrook
2013/2015 Roadway Safety Summary Report
William Clark Drive @ Brackett Street
(Node # 18546)

[11 Crashes – 1.61 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Five (5) of the 11 reported crashes for this intersection are “*rear-end*” crashes occurring on either of the two William Clark Drive approaches. Two of the five crashes involved pedestrians crossing William Clark Drive in the painted crosswalk. The other crash pattern (3 crashes total) worthy of note, involved a motor vehicle collision with a bicycle or pedestrian.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Install supplemental pedestrian lighting system compatible with the existing pedestrian light system in the center traffic island to enhance visibility.
- Add advance pedestrian (W11-1 signs) on both approaches of William Clark Drive with BlinkerSign LED boarder lighting.
- Re-stripe crosswalk markings in intersection maintaining the high visibility “*piano-key*” design pattern.

COLLISION DIAGRAM

SHEET 1 OF 2

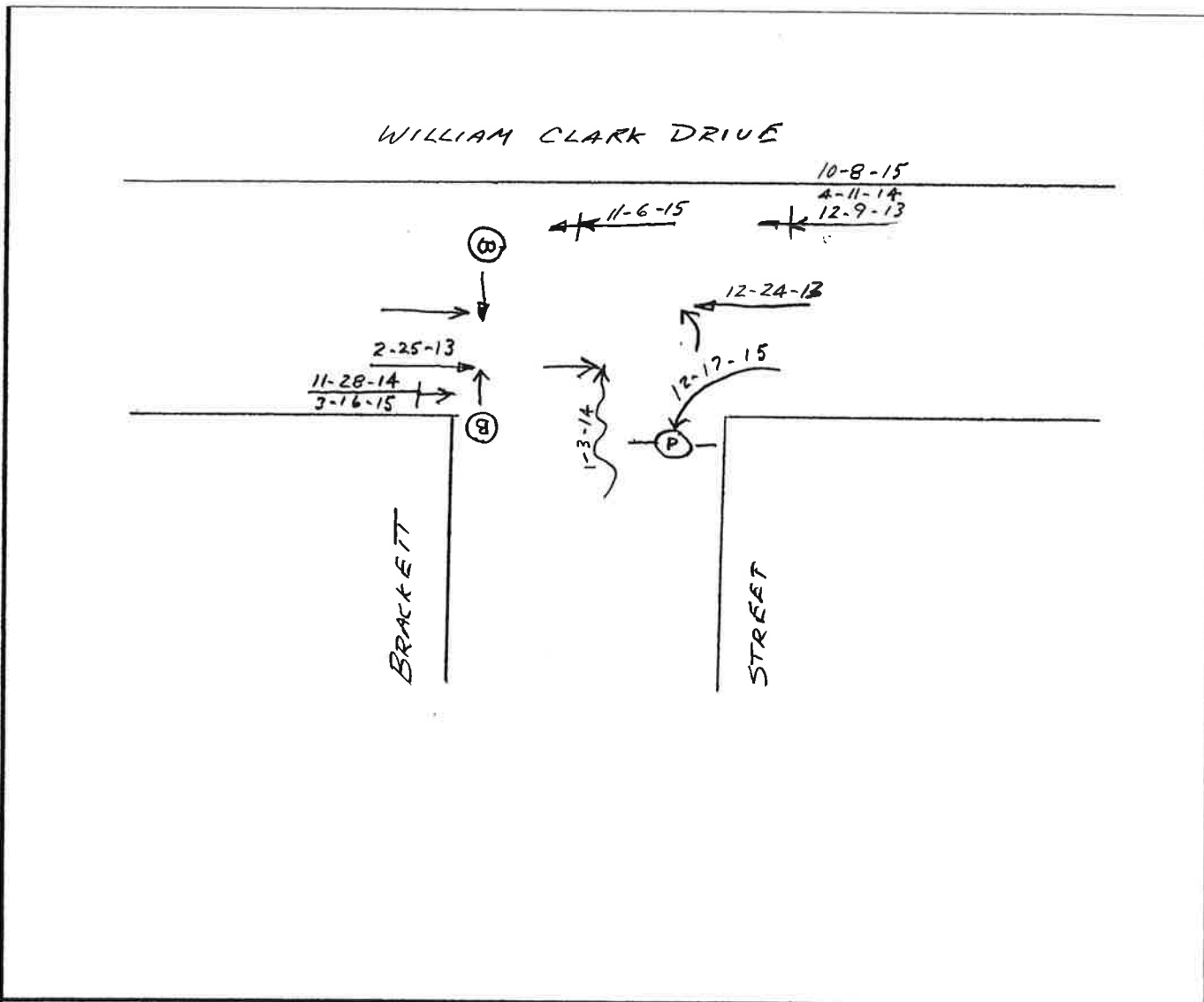
LOCATION WILLIAM CLARK DR & BRACKETT

TOWN WESTBROOK

NODE NO(S) 18546

YEARS REVIEWED 2013-2015

DATE PREPARED 6-16-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. ONLY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION WILLIAM CLARK DR. & BRACKETT ST.

TOWN WESTBROOK

_NODE NO(S)_____ 18546

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-16-2016

[illegible]



Google earth

feet 300
meters 90



City of Westbrook
2013/2015 Roadway Safety Summary Report
William Clark Drive @ Church Street
(Node # 18547)

[8 Crashes – 1.18 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Seven (7) of the 8 reported crashes for this intersection are “*rear-end*” crashes occurring on either of the two William Clark Drive approaches. Further detailed review shows that four of the 7 crashes occurred as a result of the first driver stopping for a pedestrian crossing William Clark Drive with the second vehicle striking the first vehicle.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Install supplemental pedestrian lighting system compatible with existing pedestrian system in the center traffic island to enhance visibility.
- Add advance pedestrian (W11-1 signs) on both approaches of William Clark Drive with BlinkerSign LED boarder lighting.
- Re-stripe crosswalk markings in intersection maintaining the high visibility “*piano-key*” design pattern.

SHEET 1 OF 2

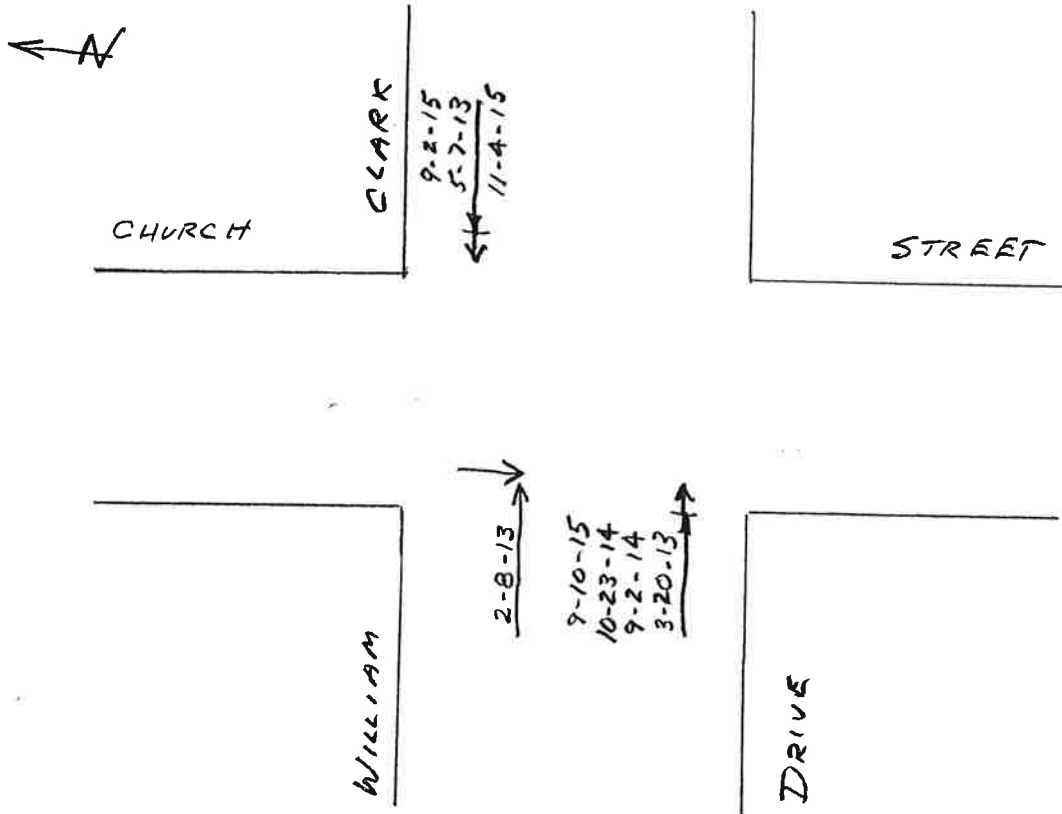
LOCATION WILLIAM CLARK DR. @ CHURCH ST.

TOWN WESTBROOK

NODE NO(S) 18547

YEARS REVIEWED 2013-2015

DATE PREPARED 6-15-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. IMP. UNSAFE LANE CHANGE | 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL |
| 13. IMPEDING TRAFFIC | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 21. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

ANGLE		PEDESTRIAN		FATAL ACCIDENT	
BACKING		REAR END			
FIXED OBJECT		SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON		TURNING MOVE		BICYCLE	
OVERTURN		CHANGE LANE		ANIMAL	
PARKED VEHICLE		OUT OF CONTROL		SLED	

C - CLEAR
SL - SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING

SHEET 2 OF 2

DATE PREPARED 6-15-2016

[illegible]

City of Westbrook
2013/2015 Roadway Safety Summary Report
William Clark Drive @ Saco Street
(Node #18543)

[30 Crashes – 1.18 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The intersection safety audit completed for this signalized intersection identified three (3) clear crash patterns for the intersection. The highest frequency of crashes involved a total of 16 “*rear-end*” crashes occurring on the three intersection approaches. Further review into the actual recorded timing of each “*rear-end*” traffic accident shows that only three of the traffic incidents occurred during the typical peak travel periods, suggesting that the driver speed and/or inattention may have contributed to the higher than expected frequency of off-peak crashes. The second pattern of accidents identified for the intersection involved a total of six (6) “*lane change*” accidents occurring on the westbound approach of William Clark Drive. This crash pattern has historically existed at the intersection and is directly related to the through lane drop that occurs on the westbound approach of William Clark Drive. The remaining note worthy crash pattern included a total of 4 “*angle*” crashes that resulted with a motorist illegally entering the intersection on a red signal indication.

Recommended Intersection Mitigation Measures

The following *near-term* mitigation measures expand upon recommendations previously included in a recently approved development project located on William Clark Drive:

- Optimize traffic signal timing at intersection.
- Adjust, as necessary, vehicle extension and clearance interval timings on all approaches.
- Increase the number and re-stripe left-turn markings in designated westbound lane on William Clark Drive.
- Add a post-mounted mid-block supplemental sign in median on William Clark Drive to advise motorists that only left-turn movements are permitted from the left travel lane.
- Add pavement markings on Saco Street approach for both the left and right-turn lanes.
- Add overhead lane-use signs on Saco Street mast arm structure.
- Replace all intersection 8 inch traffic signals with 12 inch housings throughout intersection.
- Replace all existing pedestrian signal equipment throughout intersection.

The *long-term* solution proposes the addition of a second through lane on the westbound approach of William Clark Drive, which eliminates the existing “*lane entrapment*” condition that prevails in the westbound lanes on William Clark Drive.

COLLISION DIAGRAM

SHEET 1 OF 2

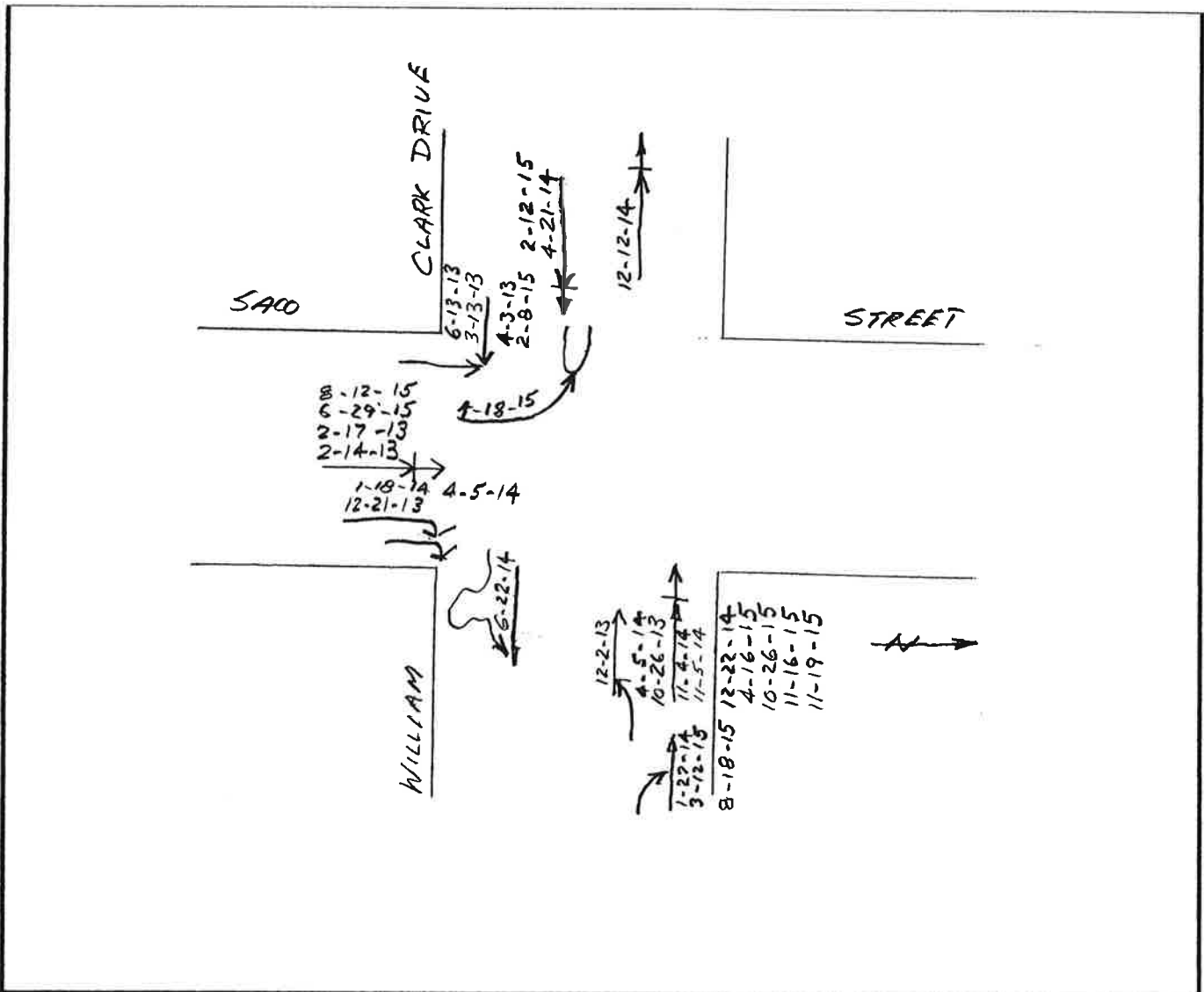
LOCATION WILLIAM CLARK DR. @ SAGO ST.

TOWN WESTBROOK

NODE NO(S) 18543

YEARS REVIEWED 2013-2015

DATE PREPARED 6-13-2016



CRITICAL RATE FACTOR

EQUIV. PROP. DAMAGE ACC/YEAR

ACC/MEV

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

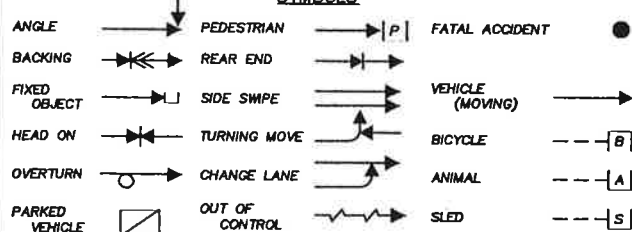
APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMP. PARKING START/STOP |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PASS-OVERTAKING | 9. IMPROPER TURN |
| 10. IMP. UNSAFE LANE CHANGE | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PEDEST. VIOLATION ERROR | 15. DRIVER INEXPERIENCE |
| 16. WINDSHIELD GLASS | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. HIT AND RUN | 23. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 46. OTHER VEHICLE DEFECT |
| | 47. UNKNOWN | |

SYMBOLS



C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW

R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING

B = NON-INCAPACITATING
C = POSSIBLE INJURY

LOCATION WILLIAM CLARK DR. @ SACO ST.

TOWN WESTBROOK

NODE NO(S) 18543

YEARS REVIEWED 2013-2015

DATE PREPARED 6-13-2016

[illegible]

City of Westbrook
2013/2015 Roadway Safety Summary Report
Spring Street @ Eisenhower Drive
(Node #15047)

[19 Crashes – 2.57 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The safety analysis shows two distinct crash patterns reported for this intersection. The first pattern, a total of 7 “*rear-end*” accidents occurring on the Eisenhower Drive approach and the second pattern, a total of eight “*angle*” crashes with through traffic on Spring Street colliding with vehicles turning left from the Eisenhower Drive approach.

Recommended Intersection Mitigation Measures

The City of Westbrook is currently developing intersection improvement plans for this intersection that include: installing sequenced traffic signals, extending the length of the dedicated left-turn lane on the north approach of Spring Street and, lengthening the dedicated right-turn lane on Eisenhower Drive. Completion of this project should have a very positive result in reducing the frequency of traffic crashes occurring at this location.

COLLISION DIAGRAM

SHEET 1 OF 2

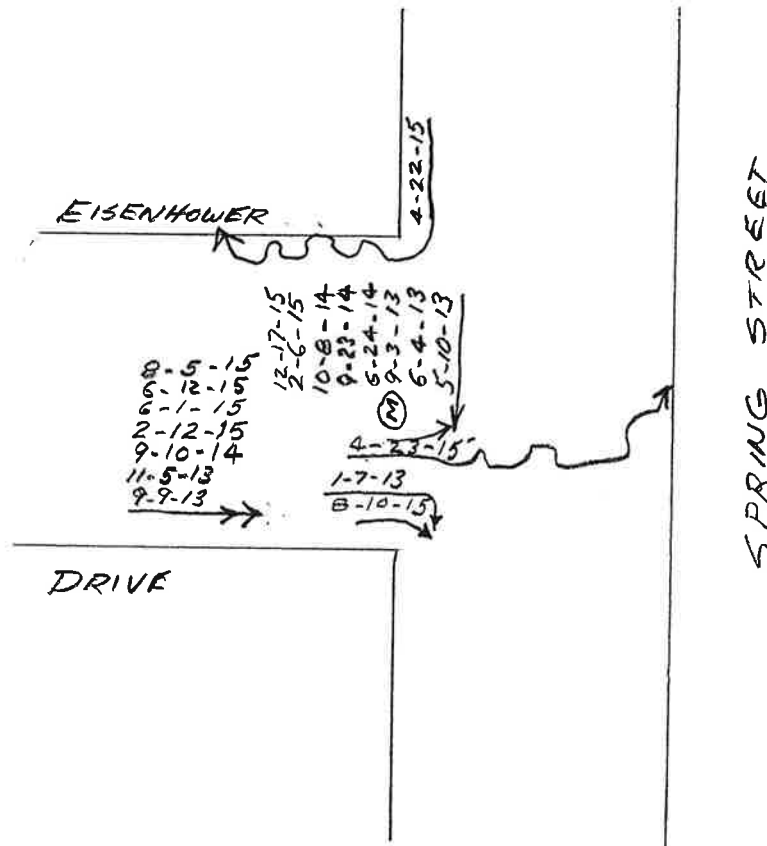
LOCATION SPRING ST. @ EISENHOWER DR.

TOWN WESTBROOK

NODE NO(S) 15047

YEARS REVIEWED 2013-2015

DATE PREPARED 6-14-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|-----------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPROPER TURN |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PEDEST. VIOLATION ERROR | 15. IMPEDING TRAFFIC |
| 16. WINDSHIELD GLASS | 17. PHYSICAL IMPAIRMENT | 18. DRIVER INEXPERIENCE |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. VISION OBSCURED- |
| 22. HIT AND RUN | 23. OTHER HUMAN VIOLATION FACTOR | 24. UNKNOWN |

VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 46. OTHER VEHICLE DEFECT |
| 47. OR FACTOR | 48. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|-------|----------------|-------|------------------|-------|
| ANGLE | → | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | ↔ | REAR END | → R | | |
| FIXED OBJECT | → F | SIDE SWIPE | → S | VEHICLE (MOVING) | → |
| HEAD ON | → H | TURNING MOVE | → T | BICYCLE | → [B] |
| OVERTURN | → O | CHANGE LANE | → C | ANIMAL | → [A] |
| PARKED VEHICLE | → P | OUT OF CONTROL | → O | SLED | → [S] |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW

R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING

B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

DATE PREPARED 6-14-2016

[illegible]

City of Westbrook

2013/2015 Roadway Safety Summary Report

Main Street – Liz Harmon Drive to Larrabee Road

(Nodes # 60986 to 18447)

[15 Crashes – 2.26 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The traffic safety audit completed for this location identified a singular crash pattern for the very short roadway segment. Eleven (11) of the 15 reported vehicle crashes were either “*angle*” or “*turning movement*” collisions occurring at the driveway intersections of Amato’s (four crashes) and McDonald’s (seven crashes). The majority of the driveway accidents occurred during non-peak travel times with the vehicle driver not yielding to opposing or conflicting traffic.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

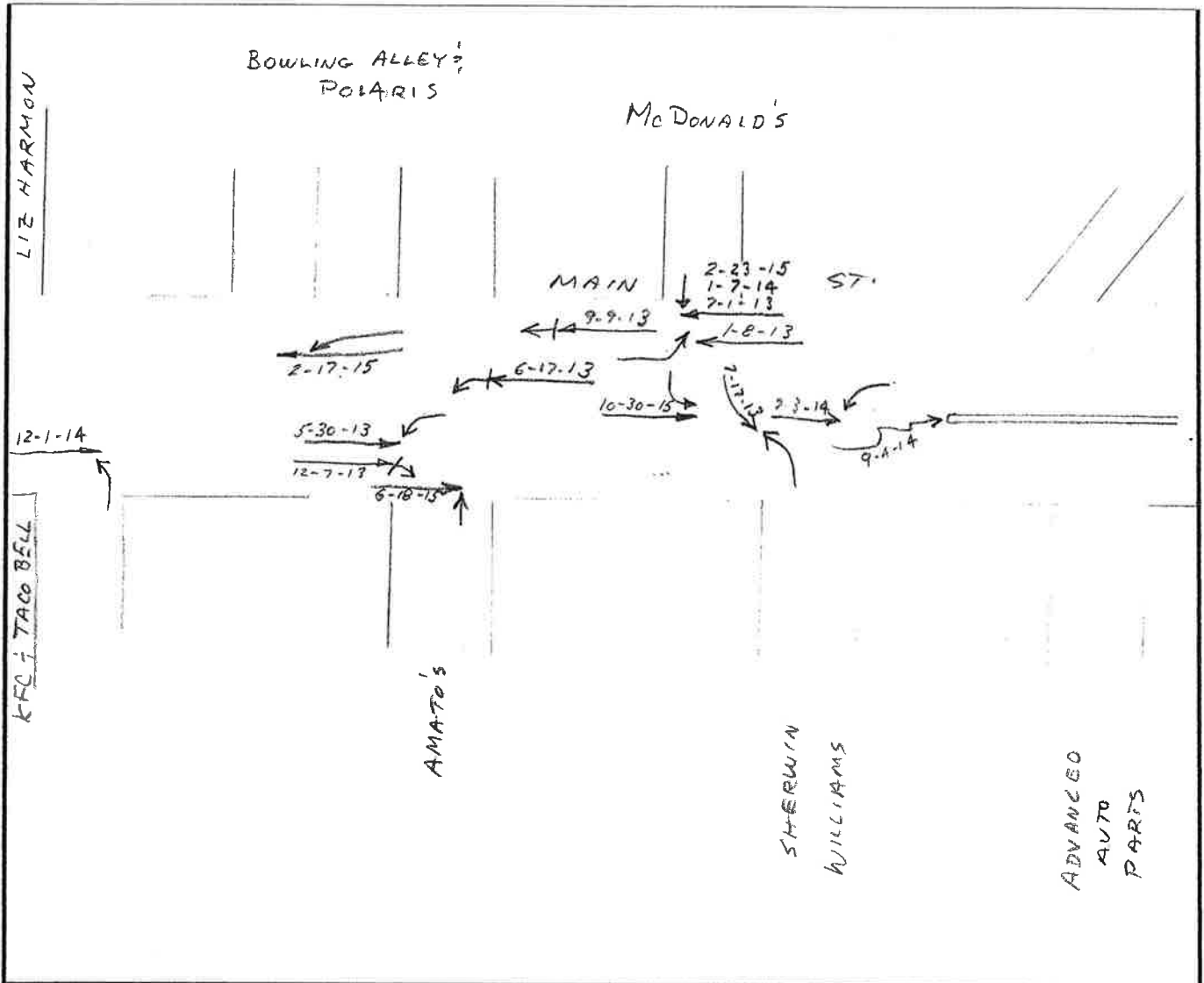
- Explore access management improvements throughout road section; eliminating duplicate driveways where possible, create driveway connectivity options where possible and, explore vehicle storage and on-site circulation improvements at fast-food restaurant site.
- Increase the number of turning arrows in the center two-way left-turn lane.
- Add lane reduction arrows to westbound Main Street indicating travel lane reduction.
- Extend the length of the broken lane line markings on the westbound approach of Main Street.
- Long-term the City, working with MaineDOT, may want to explore the advantages / disadvantages of installing a raised center island throughout the section to mitigate the high frequency of crashes occurring in the section.

SHEET 1 OF 2

LOCATION MAIN ST. - [END TRAFFIC ISLAND TO LIZ HARMON]

TOWN WESTBROOK NODE NO(S) 60986-18447

YEARS REVIEWED 2013 - 2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|---------------------------------------|-------------------------------------|-------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER--NO PASSING | 7. IMPROPER PASS--OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION--DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-- |
| WINDSHIELD GLASS | 19. VISION OBSCURED--SUN/HEADLIGHTS | |
| 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR | |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|--|----------------|--|------------------|--|
| ANGLE | | PEDESTRIAN | | FATAL ACCIDENT | |
| BACKING | | REAR END | | | |
| FIXED OBJECT | | SIDE SWIPE | | VEHICLE (MOVING) | |
| HEAD ON | | TURNING MOVE | | BICYCLE | |
| OVERTURN | | CHANGE LANE | | ANIMAL | |
| PARKED VEHICLE | | OUT OF CONTROL | | SLED | |

WEATHER

- C = CLEAR
SL = SLEET
- WEATHER
F = FOG
S = SNOW
- R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

- K = FATAL
A = INCAPACITATING

SHEET 2 OF 2

DATE PREPARED 6-25-2016

[illegible]



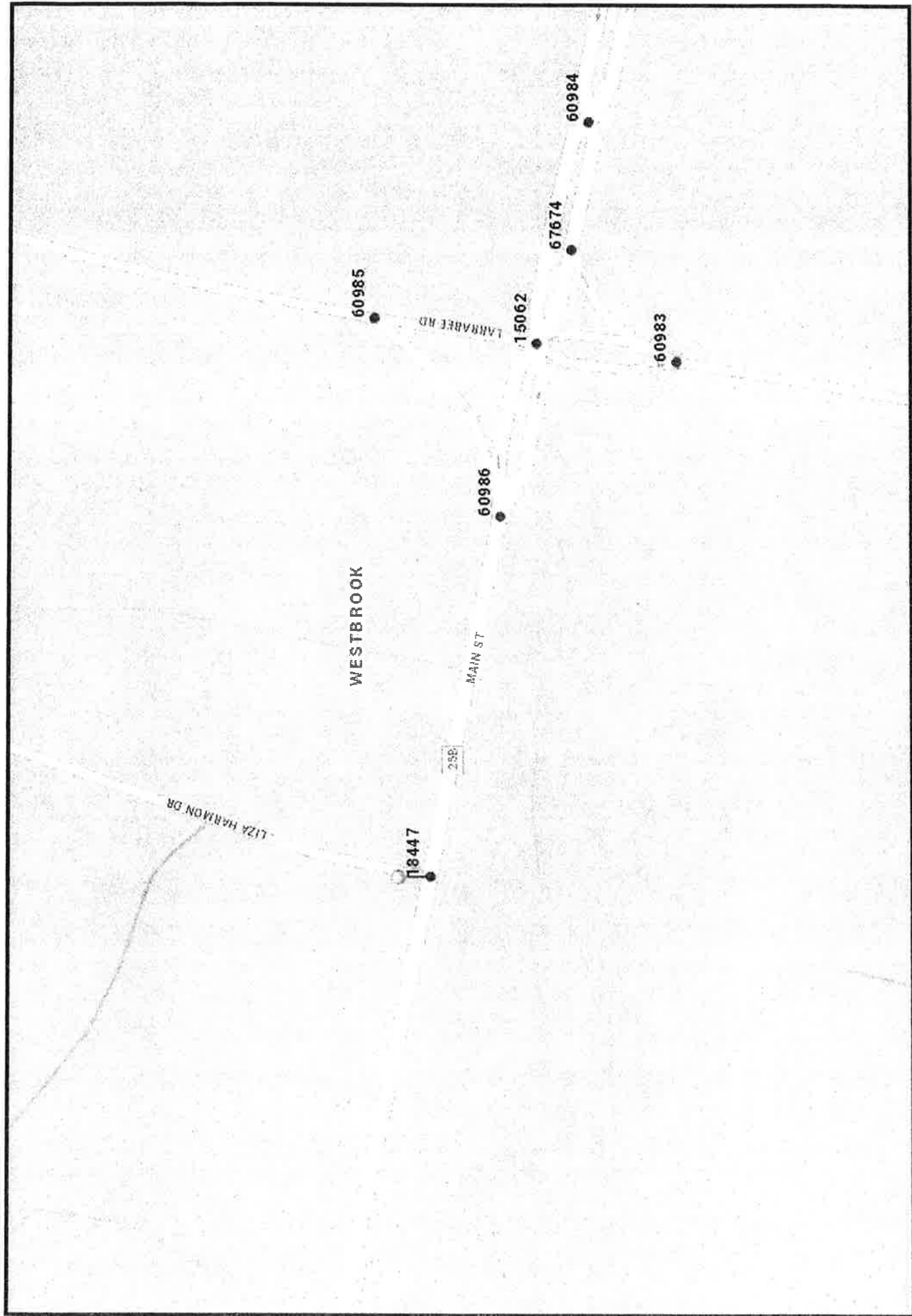
Google earth

feet 300
meters 100



- ① MacDonald's
- ② Bowling Alley & Polar's
- ③ Bowling Alley
- ④ KFC, Taco Bell
- ⑤ Amato's
- ⑥ Sherwin Williams
- ⑦ Advance Auto Parts

311_789



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.05 Miles
1 inch = 0.04 miles

Date: 6/14/2016
Time: 12:18:52 PM

City of Westbrook

2013/2015 Roadway Safety Summary Report

Main Street – Marrett Street to Deer Hill Avenue

(Nodes # 15064 to 15065)

[11Crashes – 2.27 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The traffic safety audit completed for this location identified a singular crash pattern for the very short roadway segment of 0.05 miles. Eight (8) of the 11 reported vehicle crashes were “*rear-end*” collisions occurring within either the east or westbound travel lanes on Main Street. Six of the 8 “*rear-end*” collisions occurred during the evening peak commuter hours; driver frustration during this time frame may be a contributing factor in the higher than expected level of vehicle accidents reported for this short roadway section.

Recommended Intersection Mitigation Measures

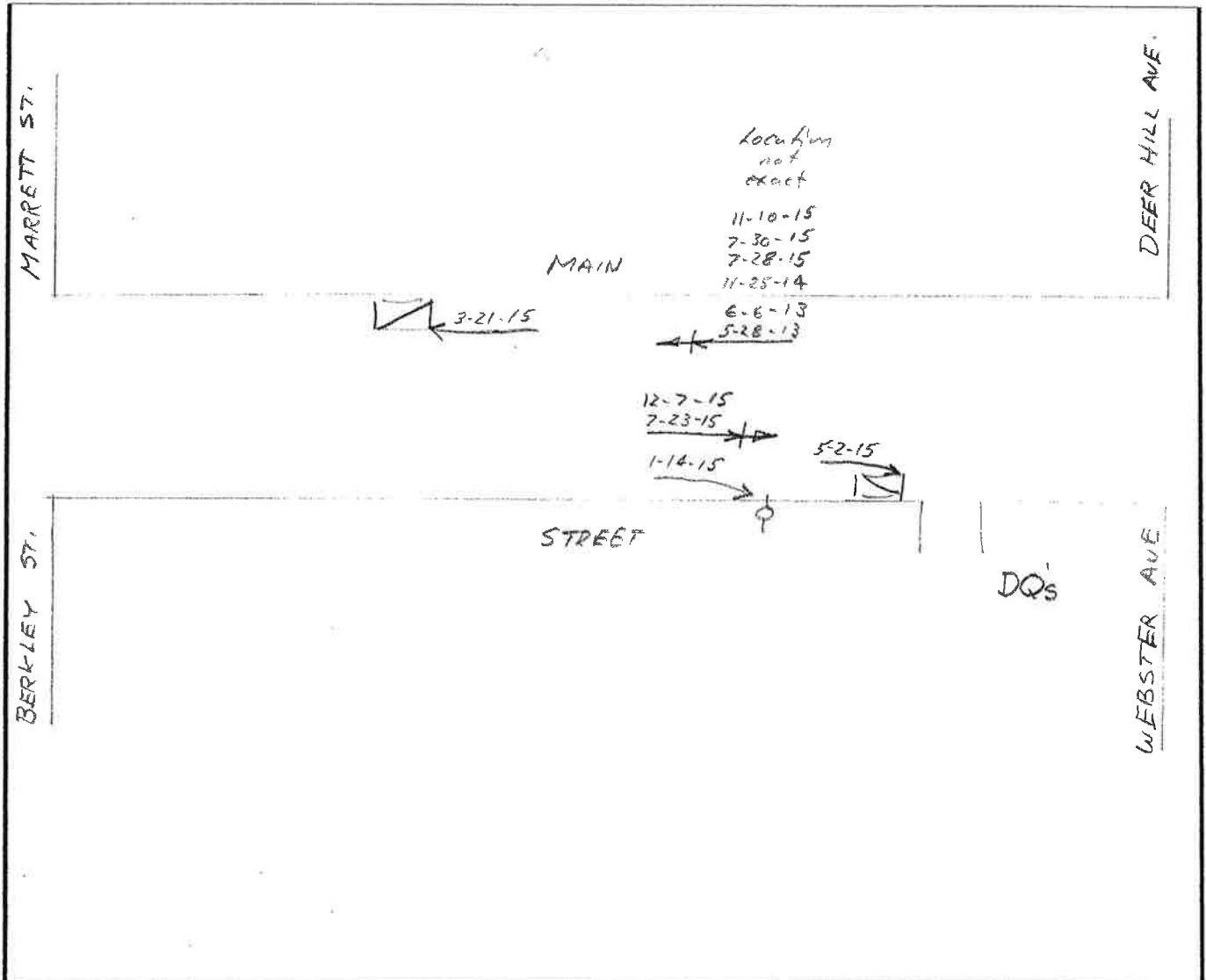
Improvements are not recommended for this location.

SHEET 1 OF 2

LOCATION MAIN ST. / MARRETT ST. TO DEER HILL AVE.

TOWN WESTBROOK NODE NO(S) 15064-15065

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|---------------------------------------|-------------------------------------|-------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER--NO PASSING | 7. IMPROPER PASS--OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION--DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-- |
| WINDSHIELD GLASS | 19. VISION OBSCURED--SUN/HEADLIGHTS | |
| 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR | |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

- | TRAFFIC SITUATIONS | | | | | |
|--------------------|--|----------------|--|------------------|--|
| ANGLE | | PEDESTRIAN | | FATAL ACCIDENT | |
| BACKING | | REAR END | | | |
| FIXED OBJECT | | SIDE SWIPE | | VEHICLE (MOVING) | |
| HEAD ON | | TURNING MOVE | | BICYCLE | |
| OVERTURN | | CHANGE LANE | | ANIMAL | |
| PARKED VEHICLE | | OUT OF CONTROL | | SLED | |

WEATHER

- C = CLEAR
SL = SLEET
F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

- K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

COLLISION DIAGRAM

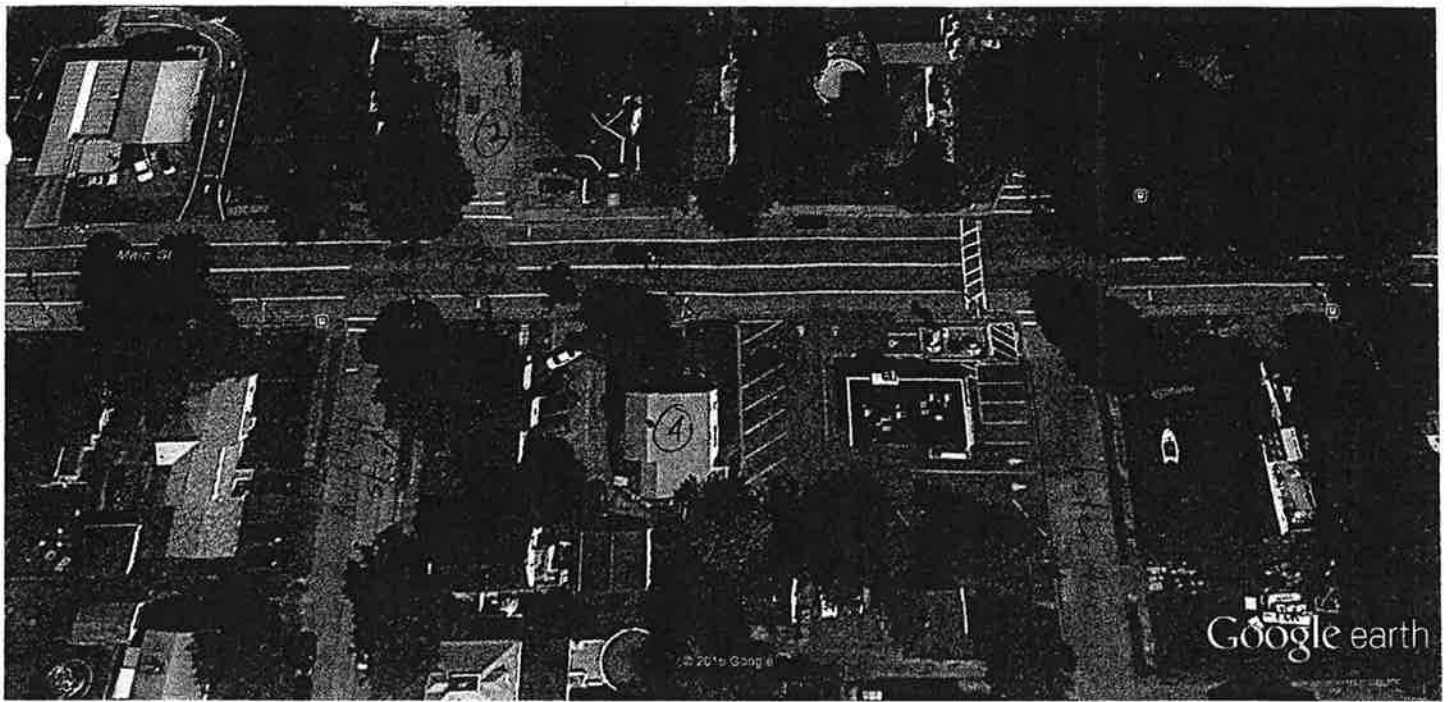
SHEET 2 OF 2

LOCATION MAIN ST. - [MARRETT ST. TO DEER HILL AVE.]

7 VN WESTBROOK NODE NO(S) 15064-15065

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016

[illegible]



Google earth

feet
meters

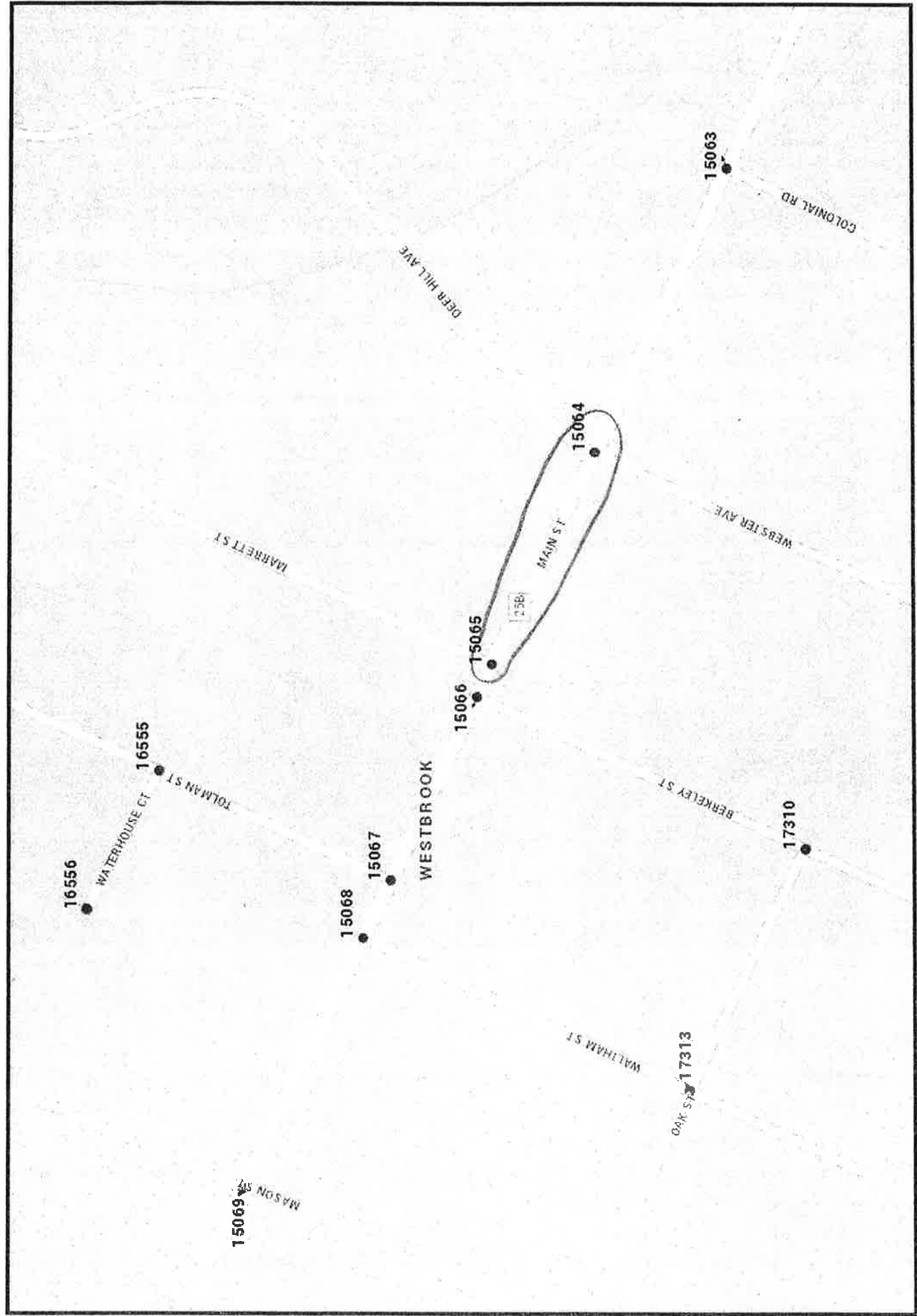
200

80



- ① DQ's
- ② #281 Home
- ③ #284
- ④ #280

312-687



City of Westbrook

2013/2015 Roadway Safety Summary Report

Main Street – Stroudwater Street to Dunn Street

(Nodes # 17182 – 17183)

[8 Crashes – 1.03 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Three (3) of the 8 vehicle crashes reported for this street segment involved a moving vehicle striking a parked vehicle. The remaining 5 vehicle accidents included three “*rear-end*” crashes and two driveway accidents, each occurring in separate locations within the street segment.

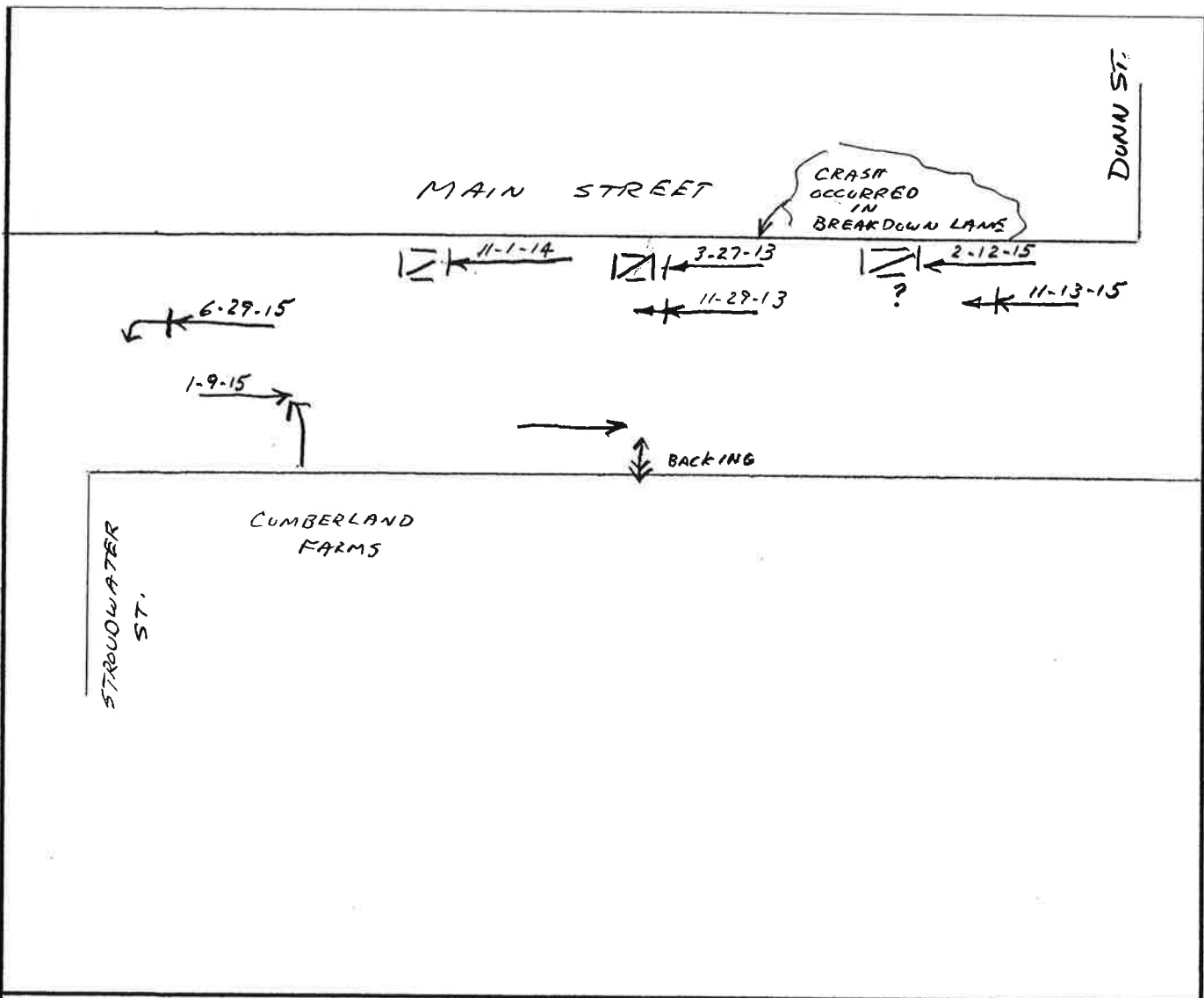
Recommended Intersection Mitigation Measures

Mitigation improvements are not recommended for this location.

COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION MAIN ST. [STROUDWATER ST. TO DUNN ST.]
 TOWN WESTBROOK NODE NO(S) 17182 - 17183
 YEARS REVIEWED 2013 - 2015 DATE PREPARED 6-17-2016



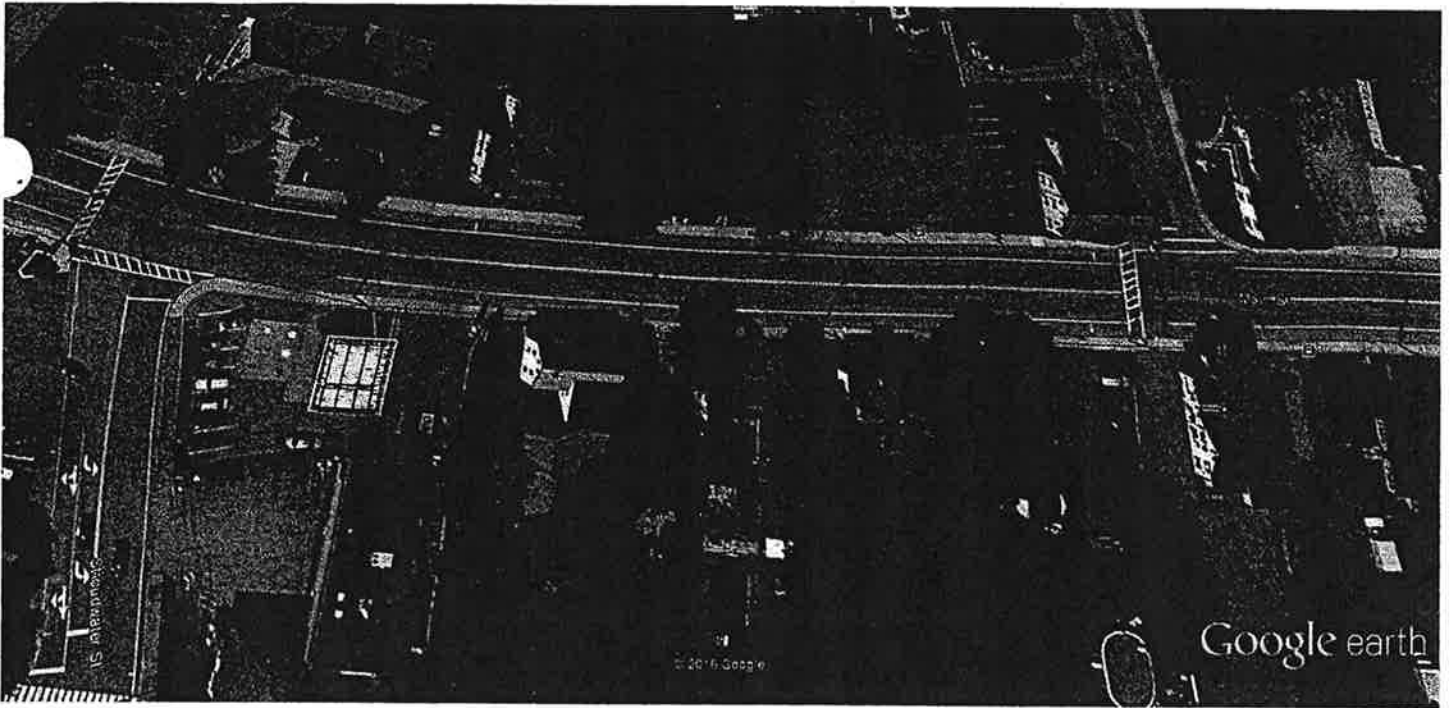
CRITICAL RATE FACTOR		EQUIV. PROP. DAMAGE ACC/YEAR		ACC/MEV			
LIGHT							
1. DAWN (MORNING)	2. DAYLIGHT	3. DUSK (EVENING)					
4. DARK (ST. LIGHTS ON)	5. DARK (NO ST. LIGHTS)	6. DARK (ST. LIGHTS OFF)					
7. OTHER							
ROAD SURFACE							
1. DRY	2. WET	3. SNOW/SLUSH-SANDED					
4. ICE/PAKED SNOW-SANDED	5. MUDDY	6. DEBRIS					
7. OILY	8. SNOW/SLUSH-NOT SANDED	9. ICE-PKD. SNOW-NOT SANDED					
10. OTHER							
APPARENT CONTRIBUTING FACTORS - HUMAN							
1. NO IMPROPER ACTION	2. FAIL TO YLD. RIGHT OF WAY	3. ILLEGAL UNSAFE SPEED					
4. FOLLOW TOO CLOSE	5. DISREGARD TRAFFIC CONTROL DEVICE						
6. DRIVING LEFT OF CENTER-NO PASSING	7. IMPROPER PASS-OVERTAKING						
8. IMP. UNSAFE LANE CHANGE	9. IMP. PARKING START/STOP	10. IMPROPER TURN					
11. UNSAFE BACKING	12. NO SIGNAL OR IMP. SIGNAL	13. IMPEDING TRAFFIC					
14. DRIVER INATTENTION-DISTRACTION	15. DRIVER INEXPERIENCE						
16. PEDEST. VIOLATION ERROR	17. PHYSICAL IMPAIRMENT	18. VISION OBSCURED-					
WINDSHIELD GLASS	19. VISION OBSCURED-SUN/HEADLIGHTS						
20. OTHER VISION OBSCUREMENT	30. OTHER HUMAN VIOLATION FACTOR						
31. HIT AND RUN	51. UNKNOWN						
- VEHICULAR							
41. DEFECTIVE BRAKES	42. DEFECTIVE TIRE/FAILURE	43. DEFECTIVE LIGHTS					
44. DEFECTIVE SUSPENSION OR FACTOR	45. DEFECTIVE STEERING	50. OTHER VEHICLE DEFECT					
51. UNKNOWN							
			SYMBOLS				
ANGLE				PEDESTRIAN		FATAL ACCIDENT	
BACKING				REAR END			
FIXED OBJECT				SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON				TURNING MOVE		BICYCLE	
OVERTURN				CHANGE LANE		ANIMAL	
PARKED VEHICLE				OUT OF CONTROL		SLED	
C = CLEAR SL = SLEET			WEATHER				
			F = FOG S = SNOW				
			R = RAIN CL = CLOUDY XW = CROSS WINDS				
			INJURIES				
			K = FATAL A = INCAPACITATING				
			B = NON-INCAPACITATING C = POSSIBLE INJURY				

SHEET 2 OF 2

[illegible]

Novak 19

Dunn

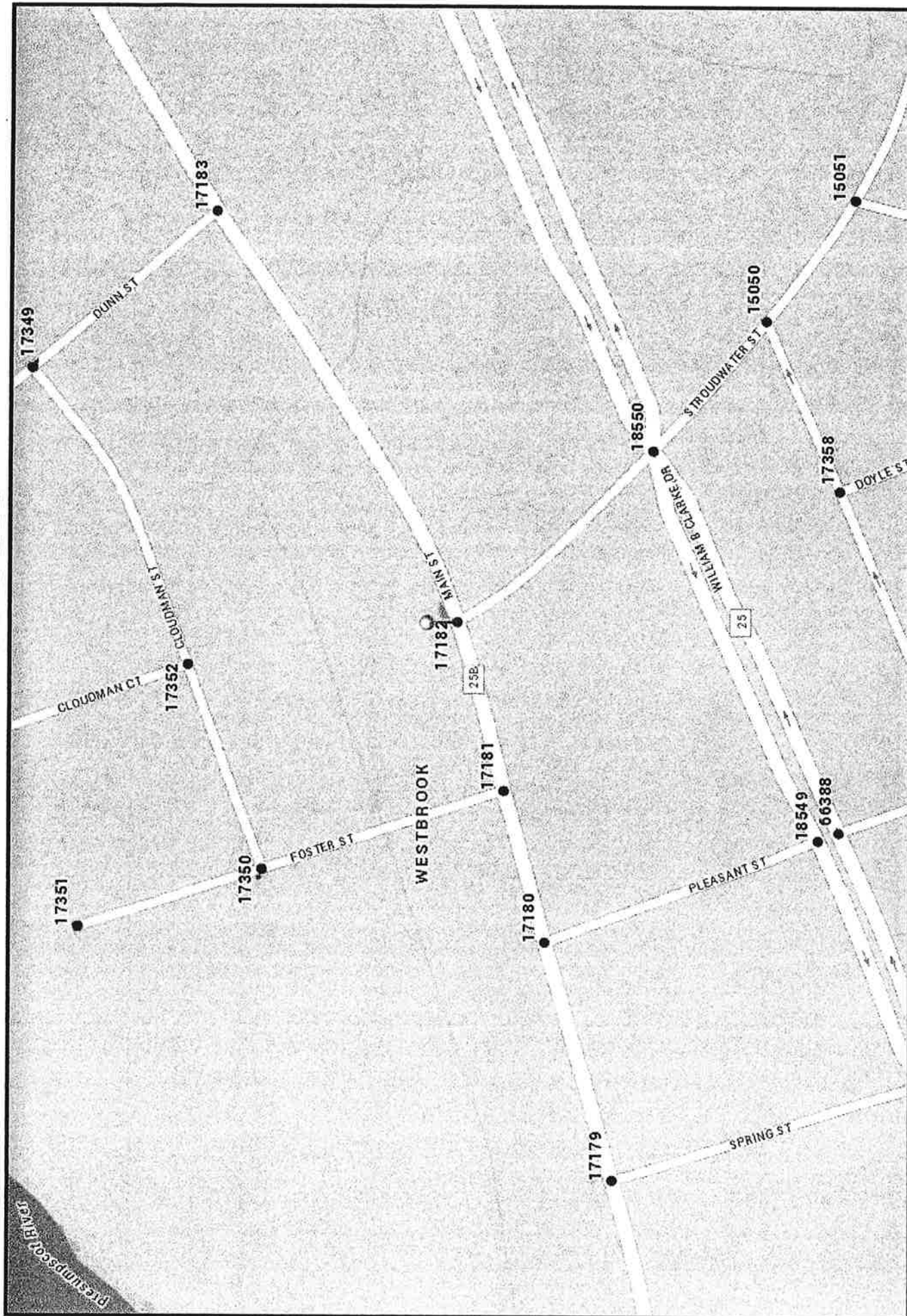


Google earth

feet
meters



17182 & 3119265



City of Westbrook

2013/2015 Roadway Safety Summary Report

Main Street – Dana Street to Mill Lane

(Nodes # 15086 – 15087)

[10 Crashes – 2.02 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Six (6) of the 10 vehicle crashes reported for this street segment occurred at or near the parking lot driveways serving the Friendly Discount Store located at 922 Main Street. Two of the (6) vehicle collisions involved a motorist exiting the parking lot being struck by a through vehicle traveling eastbound on Main Street. Each of the remaining four crashes were isolated, singular incidents occurring in the general area of the parking lot entrance/exit driveways to the noted store at Main Street. The remaining four vehicle accidents include two “*rear-end*” collisions occurring in the westbound Main Street travel lane and the final crash was a driveway “*backing*” incident occurring near the Mill Lane intersection.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Install appropriate “*Do-Not Enter*” signs to the exit driveway of the Friendly Discount Store to appropriately denote the existing parking lot circulation pattern. Add a larger, more visible, “*ENTER-ONLY*” sign to the entry drive replacing the existing sign.
- Prohibit on-street parking between driveways serving the Friendly Discount Store to improve sightlines for entering and exiting traffic.

COLLISION DIAGRAM

SHEET 1 OF 2

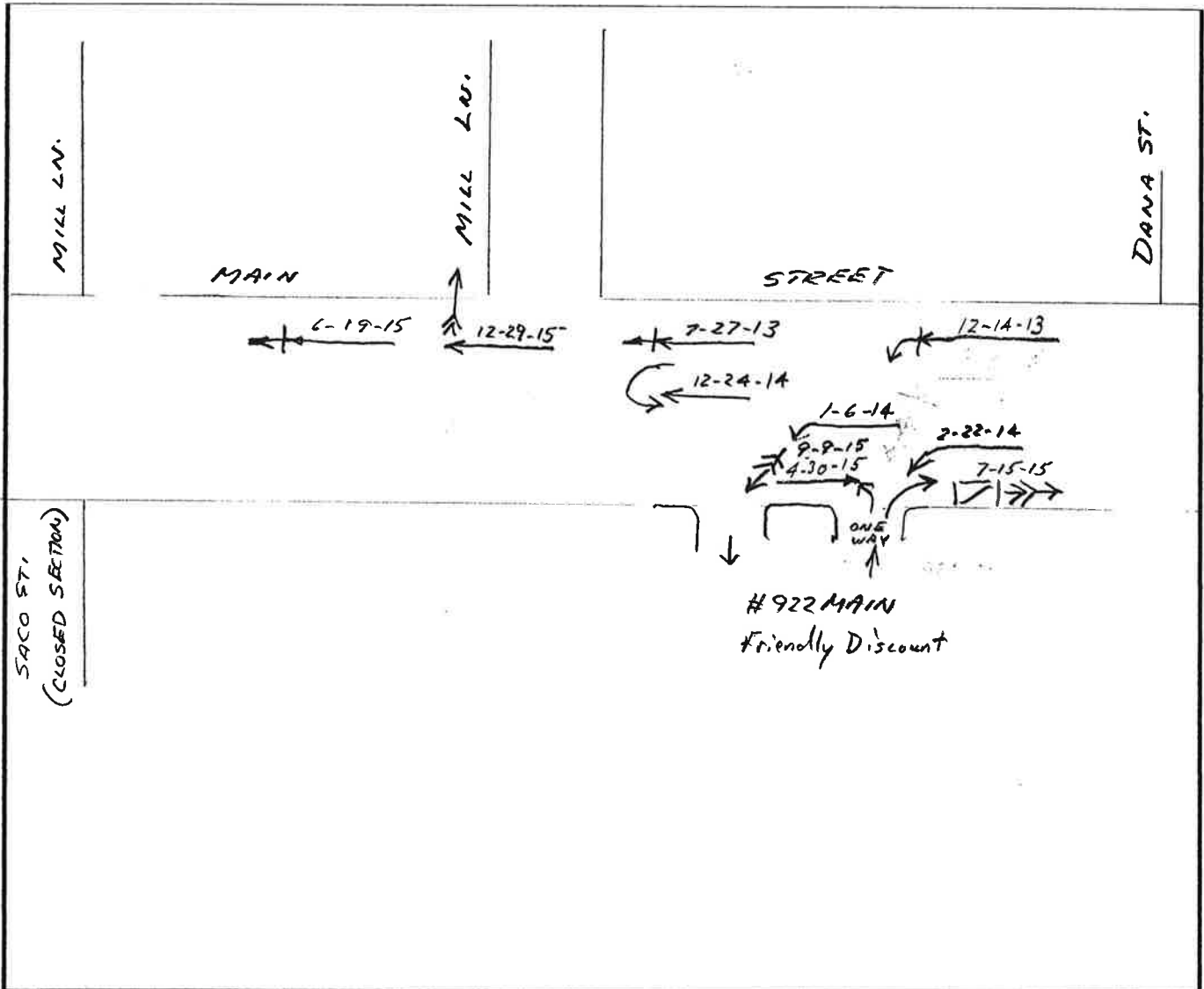
LOCATION MAIN ST. [DANA ST. to MILL LN.]

TOWN WESTBROOK

NODE NO(S) 15086-15087

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAVED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. ONLY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

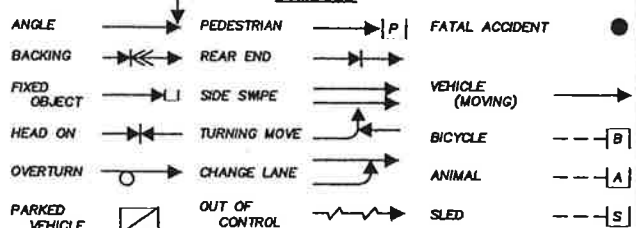
APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. IMP. UNSAFE LANE CHANGE | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. UNSAFE BACKING | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. HIT AND RUN | 23. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 46. OTHER VEHICLE DEFECT |
| 47. OR FACTOR | 48. UNKNOWN | |

SYMBOLS



C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

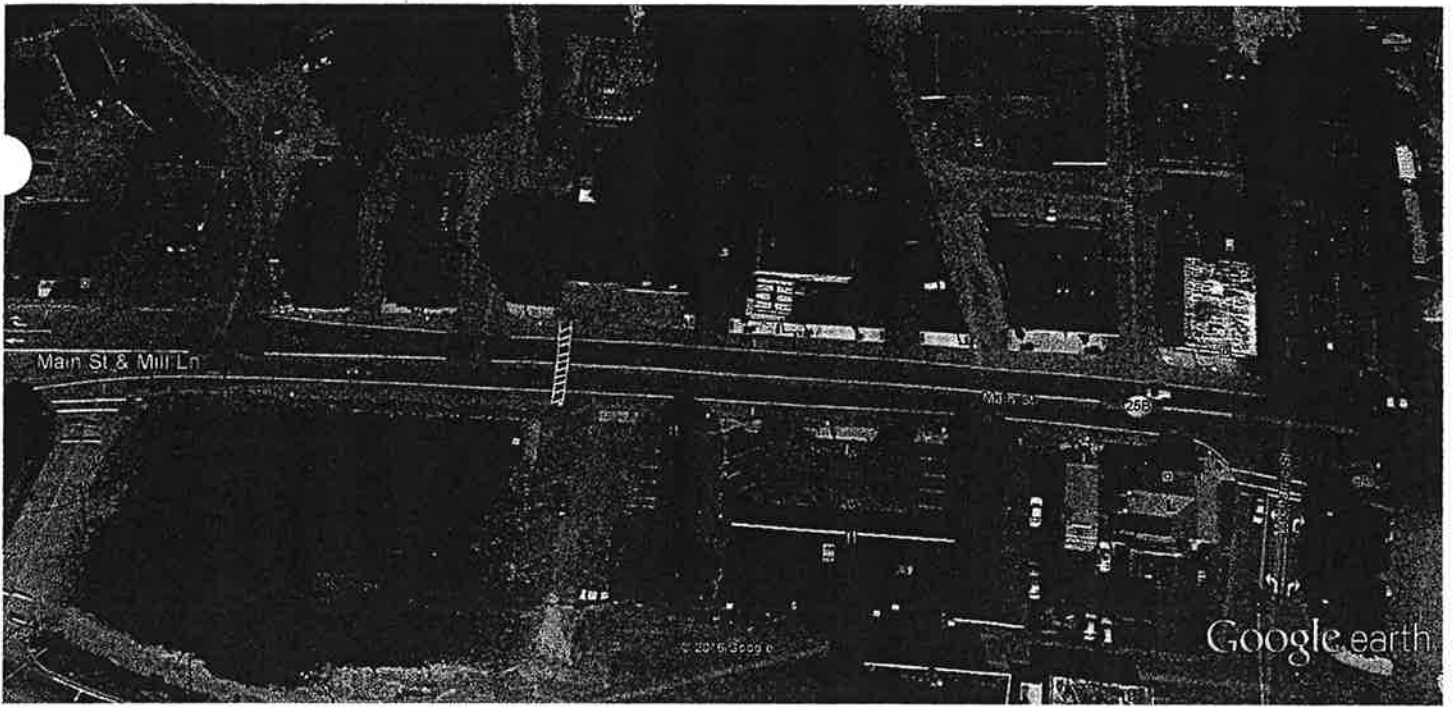
INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

LOCATION MAIN ST. [DANA ST. TO MILL LN.]
TOWN WESTBROOK NODE NO(S) 15086 - 15087
YEARS REVIEWED 2013 - 2015 DATE PREPARED 6-17-2016

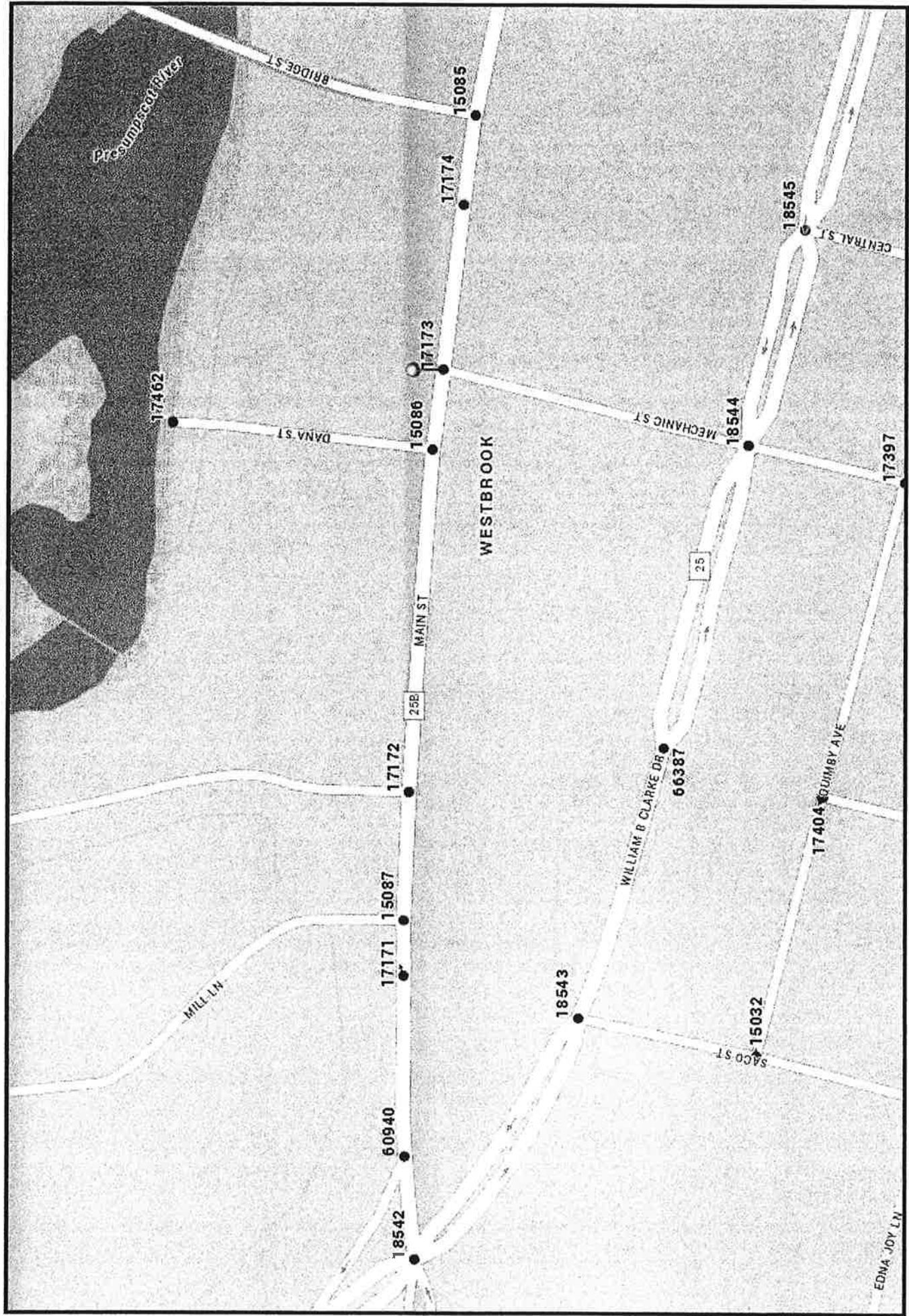
[illegible]



Google earth



17173 (190519



CITY OF PORTLAND HIGH CRASH LOCATION SUMMARIES AND COLLISION
DIAGRAMS

City of Portland
2013/2015 Roadway Safety Summary Report
Riverside Street/Larrabee Road/MTA Exit 48
(Node# 18670)

[73 Crashes – 1.93 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Twenty-six (26) or approximately thirty-five percent of the 73 reported vehicle crashes at this intersection are “*lane-change*” accidents occurring on the southbound approach of Riverside Street involving motorists in the far left-turn lane. Motorist in the far left-turn lane are attempting to continue straight on Riverside Street southerly colliding with vehicles in the middle (combination left-turn-straight lane). The reporting police officer cited in a number of incidents that motorists were unaware of the lane change on the southbound approach of Riverside Street and/or expressed confusion with the limited destination information provided in advance of the intersection.

The remaining (47) vehicle crashes appear to be more randomly occurring within the intersection.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- The southbound approach of Riverside Street should be reconstructed providing an additional and exclusive left-turn lane, thereby, eliminating the “*lane entrapment*” condition that appears to be the principal contributing factor in the very high number of “*lane-change*” collisions occurring in the southbound travel lanes.
- Add overhead lane use traffic signs both in advance and at the intersection on the southbound intersection approach.
- Add overhead destination signing on the southbound intersection approach in advance of the intersection.
- Add both overhead lane use signs on remaining intersection approaches.
- Install roadway lane use and symbol markings in all travel lanes on each intersection approach.

2013 COLLISION DIAGRAM

SHEET 1 OF 5

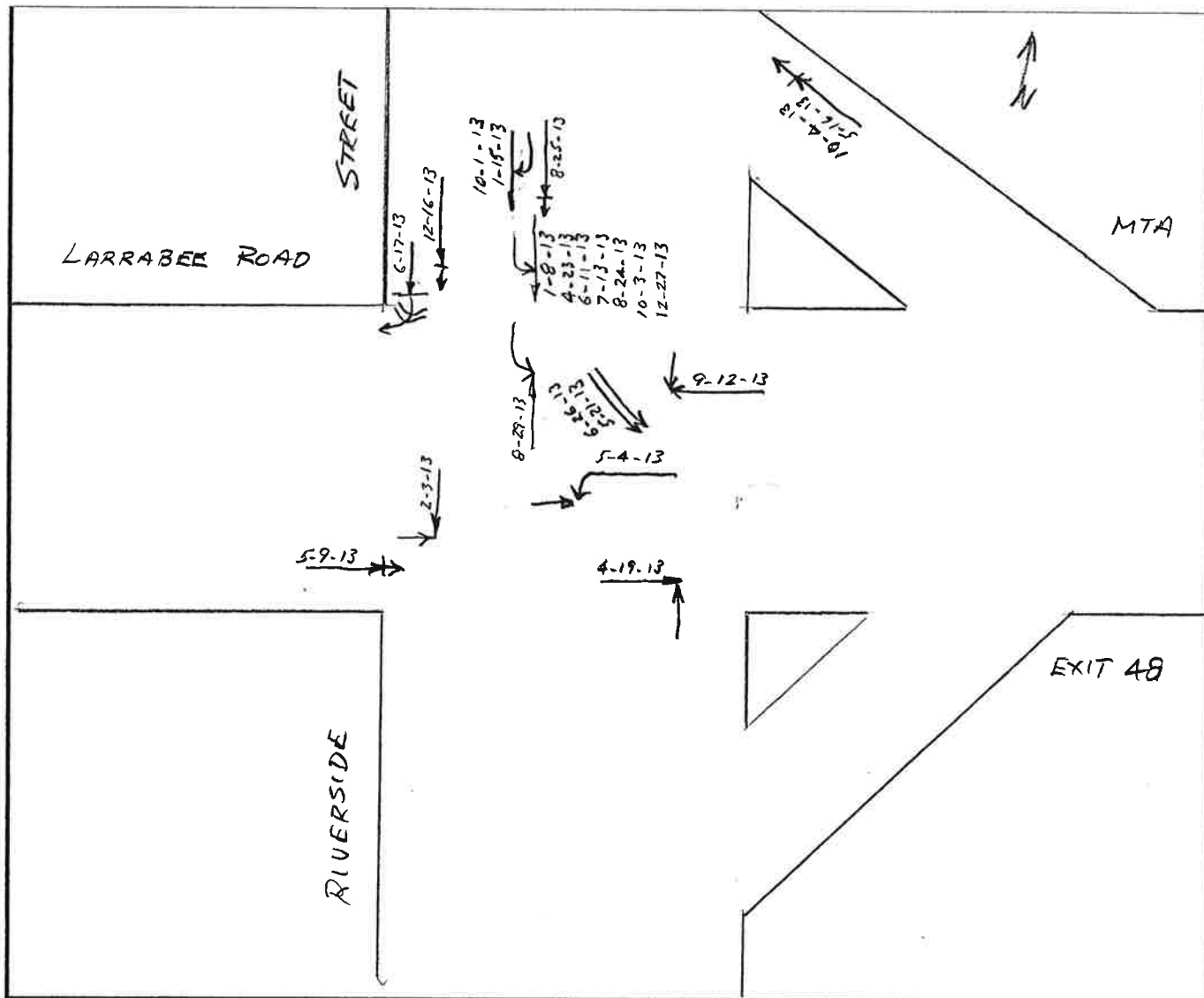
LOCATION RIVERSIDE ST. / MTA EXIT 48 / LARRABEE RD.

TOWN PORTLAND

NODE NO(S) 18670

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 7. IMPROPER PASS-OVERTAKING |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 8. IMP. UNSAFE LANE CHANGE | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 11. UNSAFE BACKING | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW

R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING

B = NON-INCAPACITATING
C = POSSIBLE INJURY

2014 COLLISION DIAGRAM

SHEET 2 OF 5

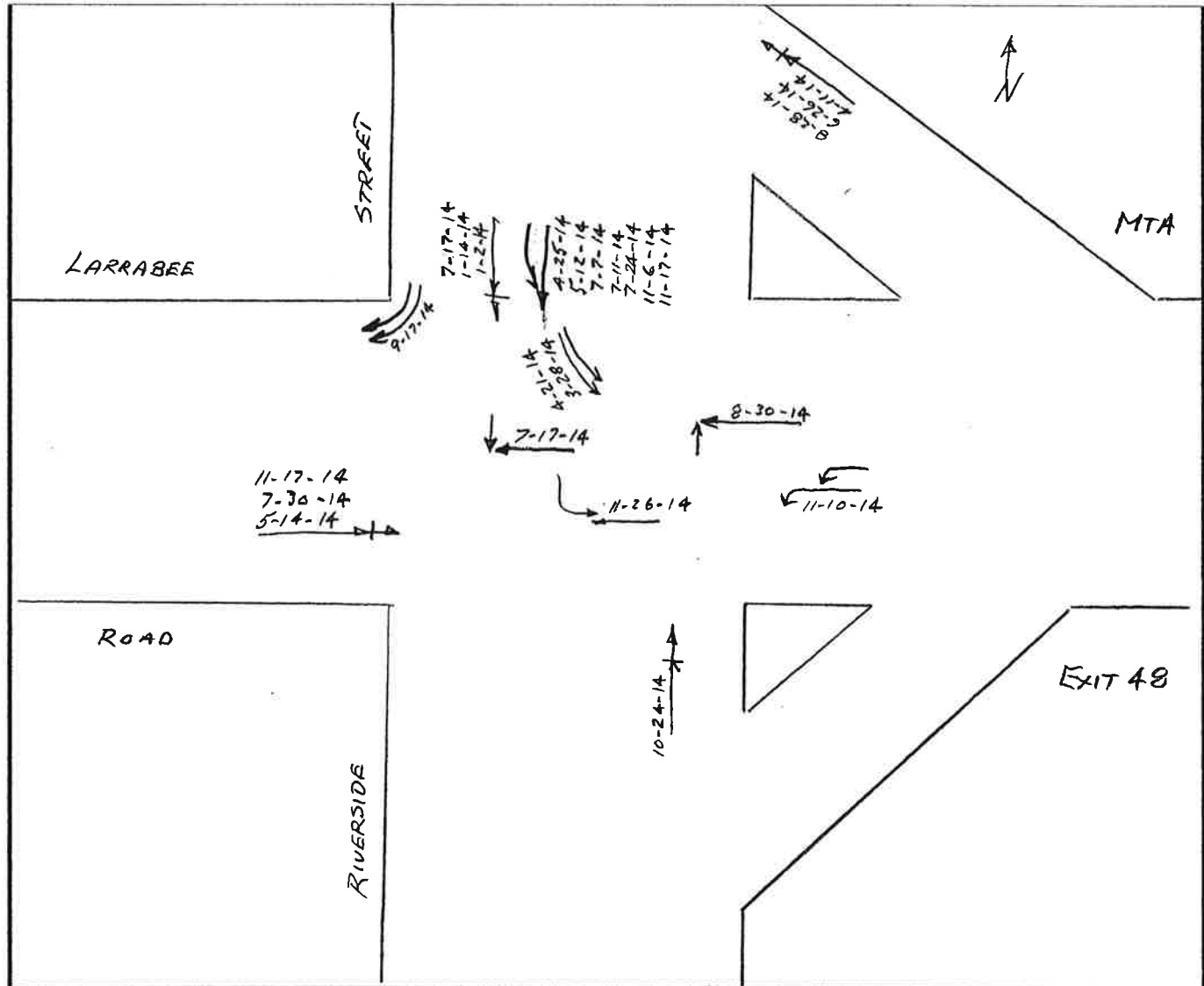
LOCATION RIVERSIDE ST. /MTA EXIT 48/ LARRABEE RD.

TOWN PORTLAND

NODE NO(S) 18670

YEARS REVIEWED 2013-2015

DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | 16. PEDEST. VIOLATION ERROR |
| 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- | 19. VISION OBSCURED-SUN/HEADLIGHTS |
| 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR | |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
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WEATHER

F = FOG
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R = RAIN
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XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 3 OF 5

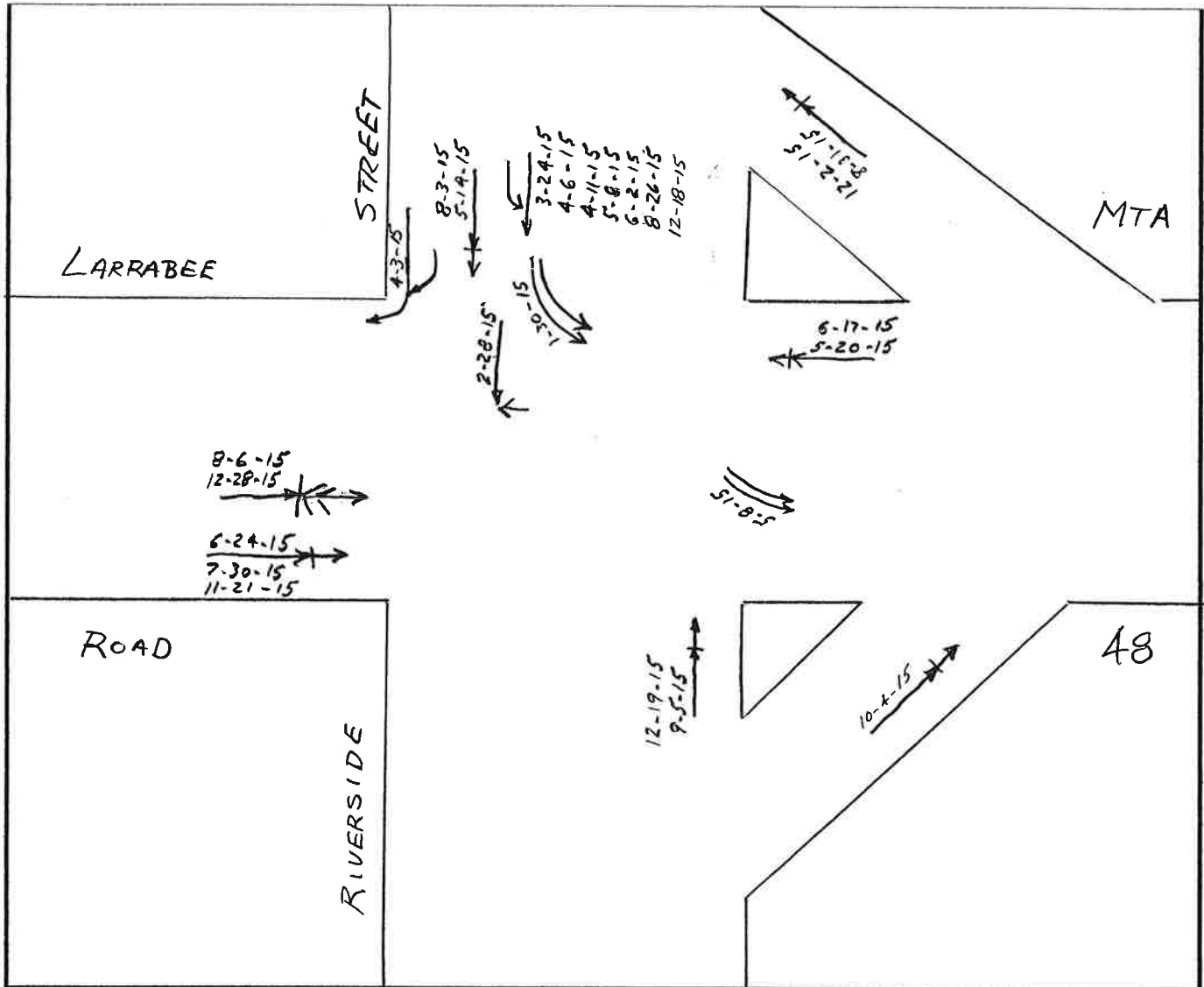
LOCATION RIVERSIDE ST / MTA EXIT 48 / LARRABEE RD

TOWN PORTLAND

NODE NO(S) 18670

YEARS REVIEWED 2013-2015

DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|-----------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. IMP. UNSAFE LANE CHANGE | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 11. UNSAFE BACKING | | 15. DRIVER INEXPERIENCE |
| 14. DRIVE INATTENTION-DISTRACTION | | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 19. VISION OBSCURED-SUN/HEADLIGHTS | |
| 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR | |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

- | | | | | | |
|--------------|--|----------------|--|------------------|--|
| ANGLE | | PEDESTRIAN | | FATAL ACCIDENT | |
| BACKING | | REAR END | | | |
| FIXED OBJECT | | SIDE SWIPE | | VEHICLE (MOVING) | |
| HEAD ON | | TURNING MOVE | | BICYCLE | |
| OVERTURN | | CHANGE LANE | | ANIMAL | |
| PARKED | | OUT OF CONTROL | | SLED | |

WEATHER

- | | | |
|------------|----------|------------------|
| C = CLEAR | F = FOG | R = RAIN |
| SL = SLEET | S = SNOW | CL = CLOUDY |
| | | XW = CROSS WINDS |

INJURIES

- K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 4 OF 5

LOCATION RIVERSIDE ST / MTA EXIT 48 / LARRABEE RDTOWN PORTLANDNODE NO(S) 18670YEARS REVIEWED 2013-2015DATE PREPARED 6-17-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-102	1-8-13	12:00	—	—	—	—	2	1	10	Went straight in left only lane x
13-177	1-15-13	11:39	—	—	—	—	2	1	8	
13-412	2-3-13	1:26				1	4	1	5	Ran Red Light
13-1222	4-19-13	13:40	—	—	—	—	2	1	5	Ran Red Light
13-1234	4-23-13	12:30	—	—	—	—	2	1	8	Straight in left-lane x
13-1337	5-4-13	12:06				2	2	1	2	CHECK LIGHT SMO
13-222	5-9-13	12:53	—	—	—	—	2	1	4	
13-1435	5-16-13	21:33				1	4	1	14	
13-1478	5-21-13	16:48	—	—	—	—	2	1	14	
13-43026	6-11-13	8:50	—	—	—	—	2	2	8	Straight in left-lane x
13-1733	6-17-13	19:58	—	—	—	—	2	1	11	
13-47141	6-26-13	7:08	—	—	—	—	2	1	8	
13-1989	7-13-13	17:30				1	2	1	8	Straight in left-lane x
13-2406	8-24-13	18:45	—	—	—	—	4	1	8	Straight in left-lane x
13-63723	8-25-13	9:57	—	—	—	—	2	1	4	
13-2459	8-29-13	20:47	—	—	—	—	4	1		Ran Red Light
13-2586	9-12-13	14:23	—	—	—	—	2	2		Ran Red Light
2762	10-1-13	13:45	—	—	—	—	2	1	4, 8	
2803	10-3-13	17:17	—	—	—	—	2	1	8	Straight in left-lane
13-73982	10-4-13	17:13	—	—	—	—	2	1	14	
13-3652	12-16-13	10:46	—	—	—	—	2	SLUSH	4	
13-3812	12-27-13	13:17	—	—	—	—	2	2	8	Straight in left-lane x
2014										
14-7	1-2-14	8:36	—	—	—	—	2	SNOW	4	
14-196	1-14-14	13:05	—	—	—	—	2	2	4	
14-1063	3-28-14	10:58	—	—	—	—	2	2	14, 8	
14-1190	4-11-14	20:02	—	—	—	—	4	1	4	
14-1257	4-21-14	12:38	—	—	—	—	2	1	8	
14-1296	4-25-14	13:38			1		2	1	8	Straight in left lane x
14-1465	5-12-14	10:48	—	—	—	—	2	1	8	Straight in left lane x
14-246	5-14-14	8:57	—	—	—	—	2	1	4, 41	
14-1846	6-26-14	13:07				1	2	1	4, 14	
14-58432	7-7-14	8:03	—	—	—	—	2	1	8	Straight in left lane x
14-1983	7-9-14	8:30	—	—	—	—	2	1	8	Straight in left lane x
14-2021	7-11-14	18:16	—	—	—	—	2	1	8, 14	Straight in left lane x
14-2073	7-17-14	6:40				1	2	1	5	Ran Red Light
14-2243	7-17-14	16:30	—	—	—	—	—	—	4	
14-2154	7-24-14	14:11	—	—	—	—	2	1	8	Straight in left lane x
14-2220	7-30-14	16:40	—	—	—	—	2	1	4, 14	
2548	8-28-14	20:15	—	—	—	—	4	1	4, 14	
14-2565	8-30-14	13:16	—	—	—	—	2	1		Ran Red Light
14-2764	9-17-14	15:48	—	—	—	—	2	1	8	
14-3146	10-24-14	10:28	—	—	—	—	2	2	4	
14-3280	11-6-14	14:20	—	—	—	—	2	1	8	Straight in left lane x

SHEET 5 OF 5

DATE PREPARED 6-17-2016

[illegible]

City of Portland

2013/2015 Roadway Safety Summary Report

Riverside Street @ Warren Avenue (Node# 15893)

[51 Crashes – 1.32 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Twenty-two (22) of the 51 vehicle crashes are “*rear-end*” accidents occurring on the four intersection approaches with the greatest majority of crashes (10) reported for the Warren Avenue westbound approach. Thirteen (13) additional crashes are “*angle*” crashes involving motorist entering the intersection on a “*red*” signal indication. Six (6) of the eight “*angle*” crashes involved motorists on the westbound approach of Warren Avenue colliding with motorists departing the southbound approach of Riverside Street. The remaining 16 vehicle crashes occurred more randomly throughout the intersection.

Traffic congestion prevails at this location through-out the day with very long vehicle queues on both Warren Avenue and the southbound Riverside Street approaches of the intersection routinely during each signal cycle.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Provide physical improvements increasing the capacity of the intersection, specifically on both Warren Avenue approaches.
- Update and optimize traffic signal phasing and timing at the intersection with proposed improvements.
- Replace all overhead lane use signing throughout the intersection.
- Paint as necessary roadway turn arrows and symbols throughout the intersection.

COLLISION DIAGRAM

SHEET 1 OF 3

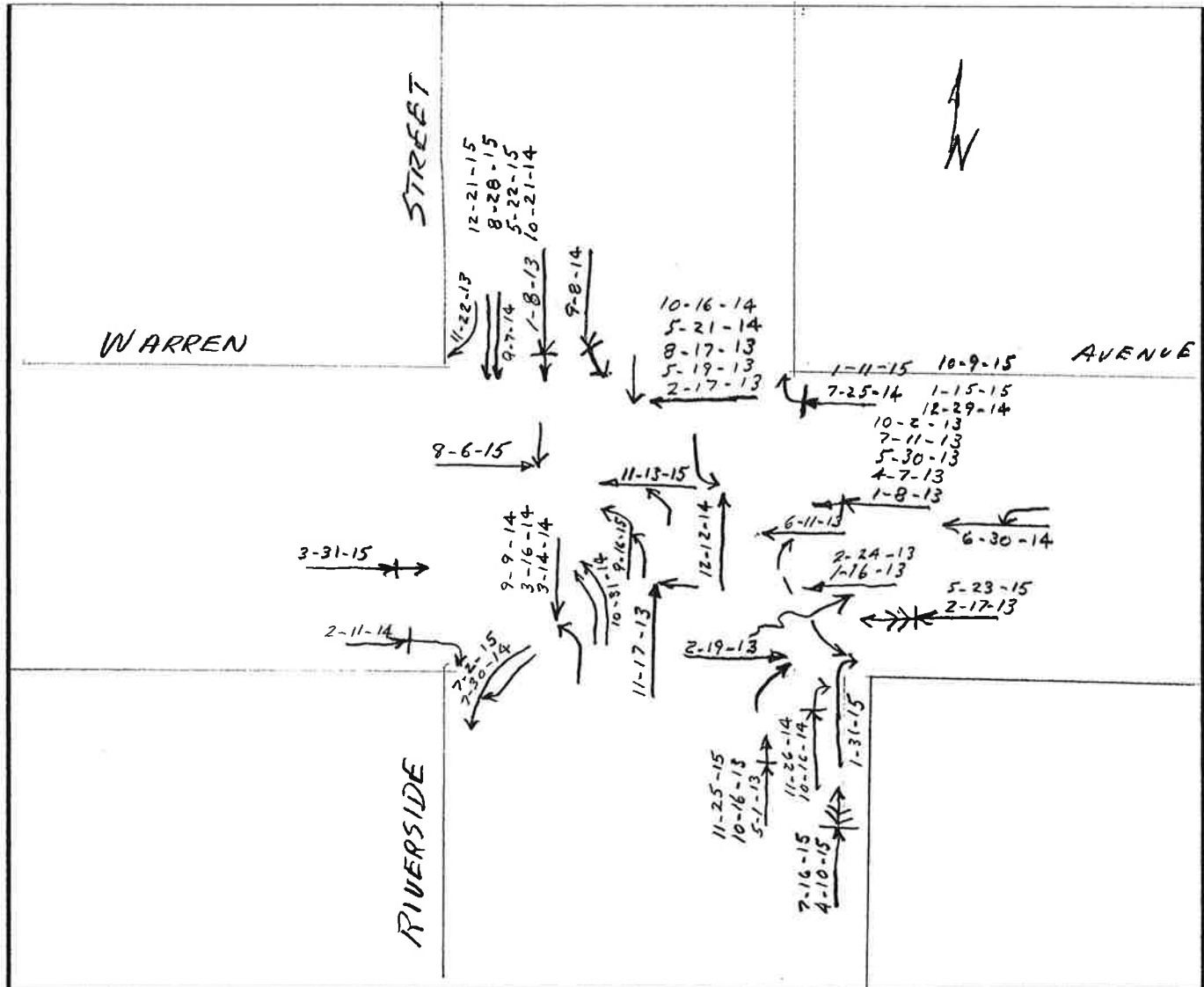
LOCATION RIVERSIDE ST. @ WARREN AVE

TOWN PORTLAND

NODE NO(S) 15893

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-18-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAVED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 21. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 3

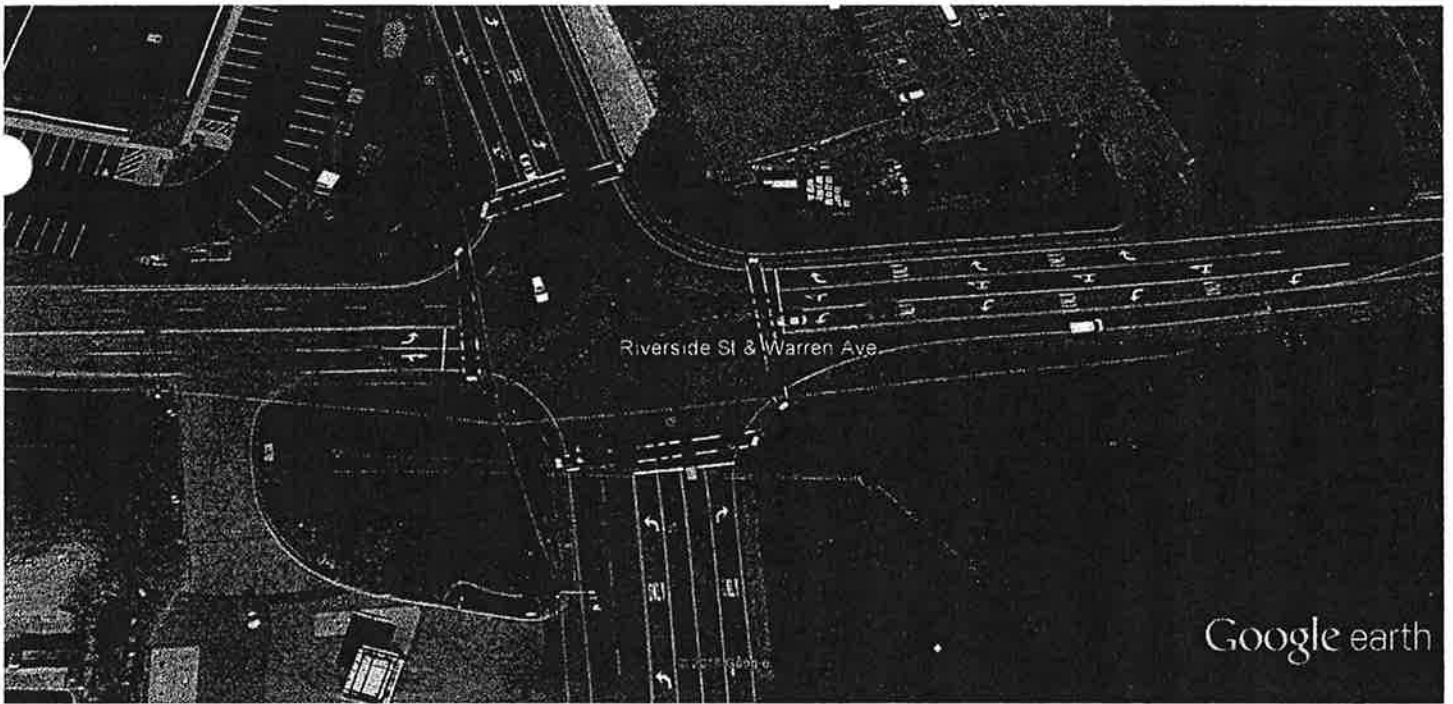
LOCATION RIVERSIDE ST. @ WARREN AVE.TOWN PORTLAND NODE NO(S) 15893YEARS REVIEWED 2013-2015 DATE PREPARED 6-18-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-110	1-8-13	14:18				1	2	1	4, 14	
13-110	1-8-13	17:45	—	—	—		4	2	4	
13-194	1-16-13	8:28	—	—	—		2	SNOW	3, road	conditions
13-595	2-17-13	18:00	—	—	—		4	SLUSH	11	
13-590	2-17-13	12:18				1	2	SNOW	2	ran red light
13-626	2-19-13	17:05	—	—	—		4	2	2	RTOR MOV.
13-687	2-24-13	15:25	—	—	—		2	SLUSH		road conditions
13-1148	4-7-13	15:10				1	2	1	4	
13-1313	5-1-13	13:50				1	2	1	3,	
13-1457	5-19-13	14:30				1	2	1	5	ran red light
13-1564	5-30-13	10:39				1	2	1	4, 14	
13-1681	6-11-13	15:05	—	—	—		2	2	51	
13-1964	7-11-13	11:22	—	—	—		2	2	4, 14	
13-2333	8-17-13	18:56				3	2	1	5	ran red light
13-2790	10-2-13	20:10	—	—	—		4	1	51	
13-2936	10-16-13	10:13	—	—	—		2	1	4	
13-3267	11-17-13	00:20				1	4	1	5	ran red light
13-3331	11-22-13	18:15	—	—	—		4	2	31	
509	2-11-14	8:18	—	—	—		2	1	4,	
14-944	3-14-14	21:35	—	—	—		4	1	2	? check light
14-961	3-16-14	16:08	—	—	—		2	1	2	? " "
14-1537	5-21-14	18:52	—	—	—		2	1	5	ran red light
14-1886	6-30-14	14:35	—	—	—		2	1	8	straight in left lane
14-2167	7-25-14	15:04	—	—	—		2	1	10	
14-2211	7-30-14	11:37	—	—	—		2	1	8, 10	
14-2666	9-8-14	13:58	—	—	—		2	1	4	
14-2690	9-9-14	21:10	—	—	—		4	1	51	? check light
14-2755	9-17-14	6:53	—	—	—		2	1	2, 14	
14-3053	10-16-14	10:32				2	2	2	4	
14-3047	10-16-14	7:24	—	—	—		2	1	5	ran red light
14-3101	10-21-14	11:15	—	—	—		2	1	4	
14-3233	10-31-14	11:08	—	—	—		2	1	8, 10	
14-3499	11-26-14	17:34				1	4	SNOW	51	
14-3674	12-12-14	17:18				1	4	1	5	ran red light
14-3840	12-29-14	15:20				3	2	1	4, 14	
15-128	1-11-15	12:20				2	2	1	4	
15-211	1-15-15	17:07	—	—	—		4	2	4	
15-428	1-31-15	13:59	—	—	—		2	2	10	RTOR
15-1335	3-31-15	6:55	—	—	—		2	1	4, 14	
28510	4-10-15	14:40	—	—	—		2	2	11	
15-1819	5-22-15	14:44	—	—	—		2	1	4, 14	
15-1827	5-23-15	9:25				1	2	1	11	
15-2269	7-2-15	8:28	—	—	—		2	1	8, 14	
15-2427	7-16-15	12:33	—	—	—		2	1	11	

SHEET 3 OF 3

DATE PREPARED 6-18-2016

[illegible]



Google earth



City of Portland
2013/2015 Roadway Safety Summary Report
Riverside Street @ Forest Avenue
(Node# 16892)

[37 Crashes – 1.11 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Thirty (30) of the total 37 crashes reported for this intersection are “*rear-end*” accidents occurring on the four intersection approaches. Approximately half of the 30 “*rear-end*” crashes occurred during either the morning or afternoon peak commuter travel periods. This trend certainly reflects the level of traffic congestion prevalent at this highly traveled regionally significant signalized intersection.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Optimize signal timing with time of day programming.
- Replace missing overhead traffic control signing throughout the intersection.
- Paint left-turn arrows and symbols appropriately throughout the intersection.
- Construct a second left-turn lane on the northbound Riverside Street approach.

COLLISION DIAGRAM

SHEET 1 OF 2

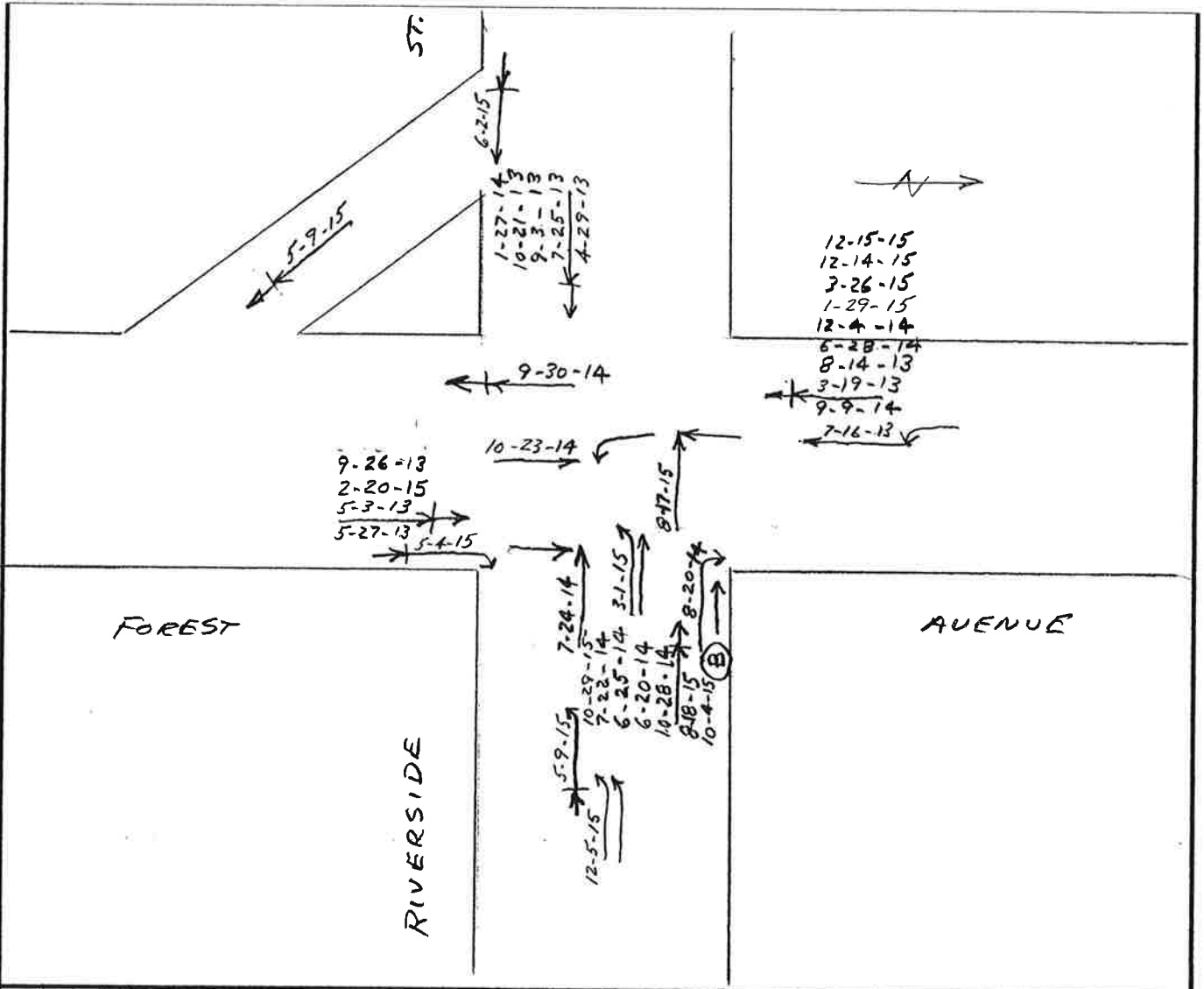
LOCATION FOREST AVE. @ RIVERSIDE ST.

TOWN PORTLAND

NODE NO(S) 16892

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-16-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. DRIVER INATTENTION-DISTRACTION | 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL |
| 13. IMPEDING TRAFFIC | 14. PEDEST. VIOLATION ERROR | 15. DRIVER INEXPERIENCE |
| 16. WINDSHIELD GLASS | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-SUN/HEADLIGHTS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. HIT AND RUN | 23. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| 51. UNKNOWN | | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | VEHICLE (MOVING) |
| FIXED OBJECT | SIDE SWIPE | BICYCLE |
| HEAD ON | TURNING MOVE | ANIMAL |
| OVERTURN | CHANGE LANE | SLED |
| PARKED VEHICLE | OUT OF CONTROL | |

WEATHER

- | | | |
|------------|----------|------------------|
| C = CLEAR | F = FOG | R = RAIN |
| SL = SLEET | S = SNOW | CL = CLOUDY |
| | | XW = CROSS WINDS |

INJURIES

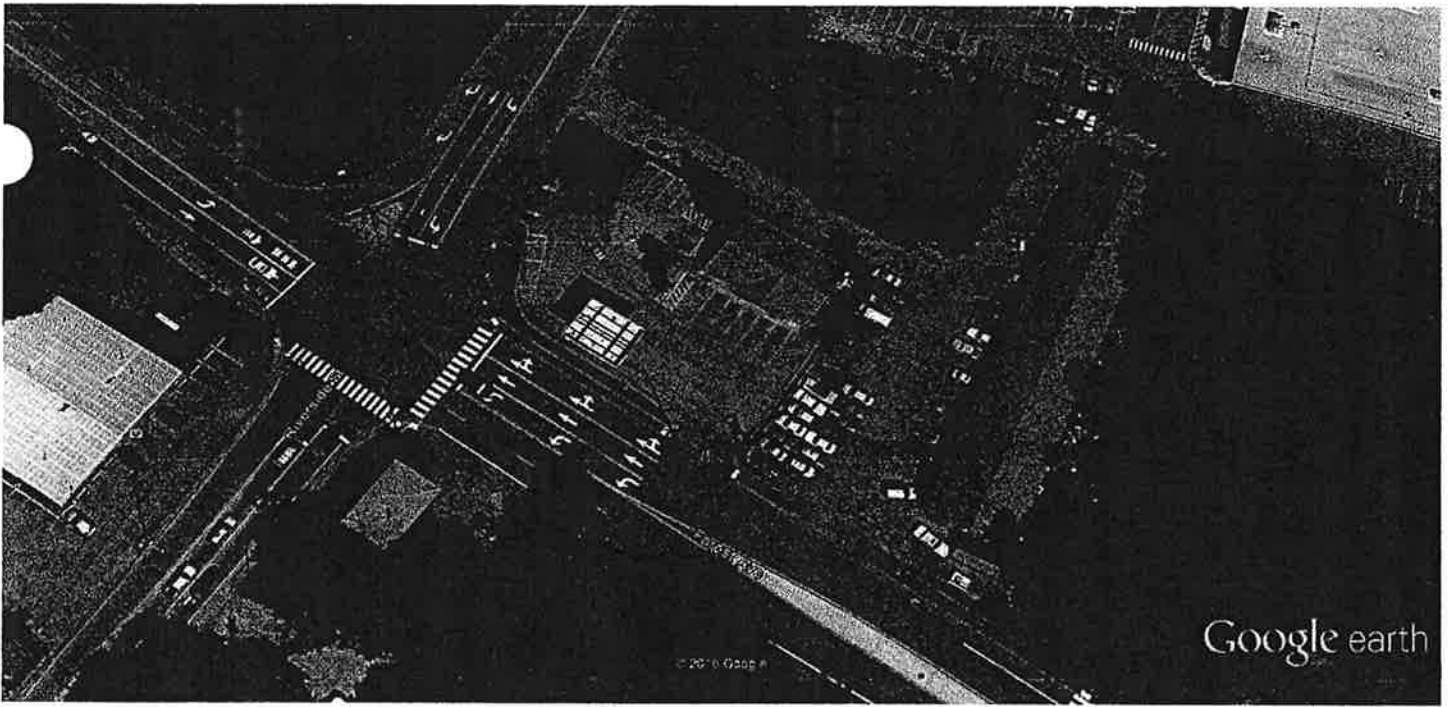
- | | |
|--------------------|------------------------|
| K = FATAL | B = NON-INCAPACITATING |
| A = INCAPACITATING | C = POSSIBLE INJURY |

SHEET 2 OF 2

DATE PREPARED 5-16-2016

[illegible]

↑ N



Google earth



City of Portland
2013/2015 Roadway Safety Summary Report
Capisic Street @ Frost Street
(Node# 13040)

[9 Crashes – 1.77 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle crash review for this location only identified a total of 8 vehicle collisions vs. the reported 9 crashes. The conducted safety review established a singular vehicle crash pattern involving winter road conditions. Four of the eight reported vehicle crashes occurred during periods of icy or slippery road conditions. Slippery and potentially hazardous road conditions have been a perennial winter maintenance issue at this location for a number of years.

Recommended Intersection Mitigation Measures

Improvements are not recommended for this location.

COLLISION DIAGRAM

SHEET 1 OF 2

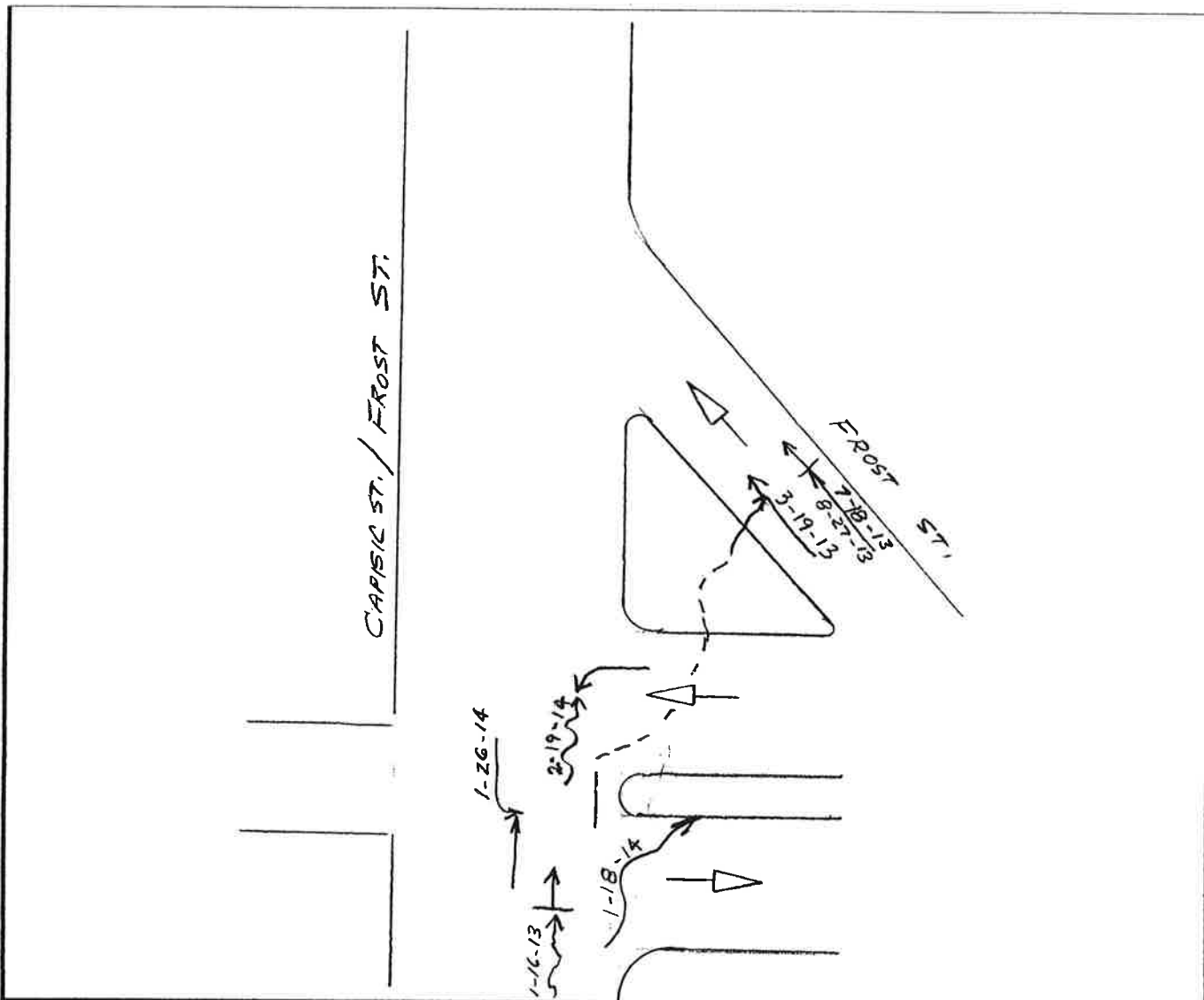
LOCATION CAPISIC ST. @ FROST ST.

TOWN PORTLAND

NODE NO(S) 13040

YEARS REVIEWED 2013 - 2015

DATE PREPARED 6-16-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. IMPROPER PASS-OVERTAKING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. IMPROPER TURN | 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL |
| 13. IMPEDING TRAFFIC | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. HIT AND RUN |
| 22. OTHER HUMAN VIOLATION FACTOR | 23. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| 51. UNKNOWN | | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

DATE PREPARED 6-16-2016

[illegible]

City of Portland
2013/2015 Roadway Safety Summary Report
Brighton Avenue @ Stevens Avenue
(Node# 12928)

[44 Crashes – 1.37 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

Three very clear crash patterns are identified for this heavily traveled signalized intersection. Eighteen (18) crashes are categorized as “*rear-end*” crashes occurring primarily (11) on either of the two Stevens Avenue approaches. The second pattern identified were 11 “*angle*” crashes involving a motorist entering the intersection on a red signal display. Seven of these accidents occurred on the west or outbound approach of Brighton Avenue. The third crash pattern with a total of (8) vehicle collisions were “*turning movement*” crashes primarily (six of the 8 crashes) involving motorist turning left from the eastbound approach of Brighton Avenue being struck by a vehicle traveling through westbound on Brighton Avenue.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Modify left-turn phasing on all approaches to a “*protected*” only phase.
- Extend as necessary the length of the dedicated left –turn lanes on all approaches.
(During peak travel periods motorists routinely cross the centerline to reach the dedicated left-turn lane especially on the westbound Brighton Avenue approach.)
- Optimize traffic signal timing at the intersection.
- Add overhead lane use signs with required left-turn signal signing.
- Paint left-turn roadway symbols on all approaches

COLLISION DIAGRAM

SHEET 1 OF 2

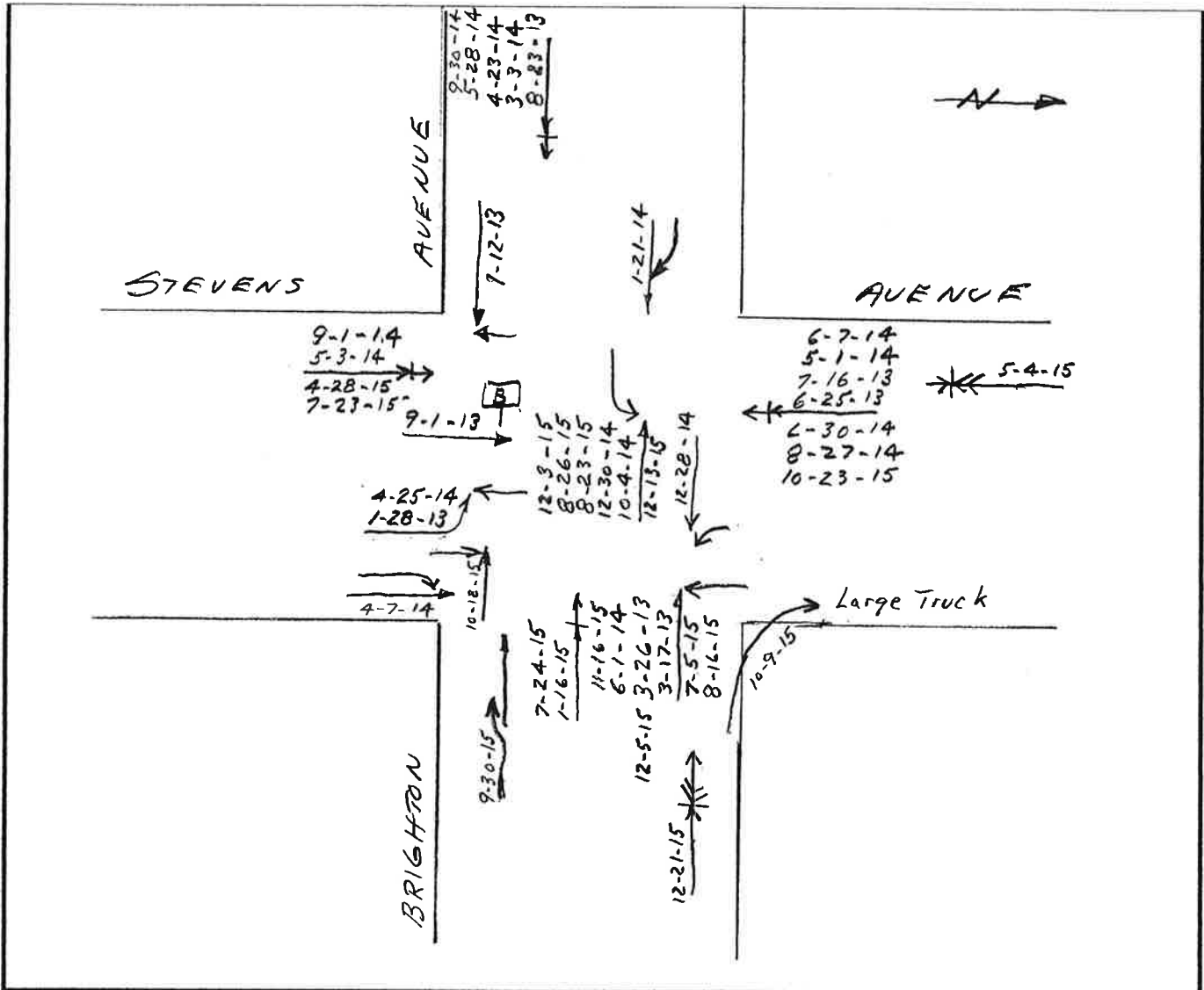
LOCATION BRIGHTON AVE. @ STEVENS AVE.

TOWN PORTLAND

NODE NO(S) 12928

YEARS REVIEWED 2013-2015

DATE PREPARED 6-15-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION BRIGHTON AVE. @ STEVENS AVE.TOWN PORTLAND NODE NO(S) 12928YEARS REVIEWED 2013-2015DATE PREPARED 6-15-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-153	1-12-13	17:45	—	—	—	—	4	2		Ran Red Light
13-337	1-28-13	15:59	—	—	—	—	2	SNOW	2	
13-929	3-17-13	12:05	—	—	—	—	2	1		Ran Red Light
13-1021	3-26-13	12:36	—	—	—	—	2	1		Ran Red Light
13-1811	6-25-13	15:56	—	—	—	—	2	1		
13-2025	7-16-13	18:11	—	—	—	—	2	1	4	
13-2396	8-23-13	16:50			1		2	1	4	
13-2477	9-1-13	17:00				1	2	1		BICYCLIST RAN RED LIGHT
14-286	1-21-14	11:22	—	—	—	—	2	1		Failed to Stay in proper lane
14-823	3-3-14	12:21				1	2	1	4	
14-1159	4-7-14	23:27	—	—	—	—	4	2	8	
14-1270	4-23-14	8:14				1	2	1	4	
14-1292	4-25-14	11:15				2	2	1	2	
14-1352	5-1-14	16:34	—	—	—	—	2	1	14	
14-1373	5-3-14	12:10				1	2	1	4	
14-1582	5-28-14	12:43				1	2	2	4, 14	
14-1613	6-1-14	12:56	—	—	—	—	2	2		Ran Red Light
1682	6-7-14	18:00				1	2	1	4, 14	
1893	6-30-14	17:55				1	2	1	14	
14-2526	8-27-14	7:17	—	—	—	—	2	1	14	
14-2584	9-1-14	11:44				1	2	1	4	
14-2883	9-30-14	17:30	—	—	—	—	2	1	4	
14-2928	10-4-14	15:42	—	—	—	—	2	2	2	
14-3832	12-28-14	12:42	—	—	—	—	2	1		Ran Red Light
14-3854	12-30-14	21:00	—	—	—	—	2	1	2	
15-240	1-16-15	16:30	—	—	—	—	3	Ice / Frost	4	
15-1579	4-28-15	8:46	—	—	—	—	2	1	4	
15-1635	5-4-15	6:47	—	—	—	—	2	1	11	
15-2303	7-5-15	16:20				1	2	1		Ran Red Light
15-2507	7-23-15	21:30				1	4	1		Reckless & aggressive driver
15-2509	7-24-15	13:55				1	2	1	4	
15-2746	8-16-15	9:23	—	—	—	—	2	1		Ran Red Light
15-2853	8-23-15	14:11	—	—	—	—	2	2	2	
15-2894	8-26-15	16:29				1	2	1	2	
15-3292	9-30-15	16:30	—	—	—	—	2	2	7	
15-3402	10-9-15	8:20	—	—	—	—	2	1		Large Truck over-steering
15-3497	10-18-15	9:32	—	—	—	—	2	1		Ran Red Light
15-3564	10-23-15	16:48	—	—	—	—	2	1	4	
15-3826	11-16-15	15:06	—	—	—	—	2	1		Ran Red Light
4019	12-3-15	7:09	—	—	—	—	2	2	2	
15-4062	12-5-15	11:14	—	—	—	—	2	1		Ran Red Light
15-4157	12-13-15	11:51	—	—	—	—	2	1	2	
15-4276	12-21-15	18:34	—	—	—	—	4	1	11	

City of Portland

2013/2015 Roadway Safety Summary Report

**Maine Turnpike Authority Toll Plaza –Riverside Street/Larrabee
Road Intersection to I-95 Ramp Junction**

(Nodes# 18673 to 65549)

[10 Crashes – 3.02 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle accident review completed for the Maine Turnpike Authority's Exit 48 Toll Plaza link shows a total of 10 roadway crashes have been reported for the study years of 2013 to 2015. Eight (8) of the reported 10 crashes occurred on the entry side of the Toll Plaza as either a "*lane change*" or "*side-swipe*" collision. Crash report details provided by the reporting police officer identified that construction activity occurring at the Toll Booths may have potentially contributed to at least two of the 8 vehicle accidents.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Remove **channelized** right-turn island on northbound Riverside Street approach and replace with a dedicated right-turn lane. Prohibit "*right-turn on red*" movements from the right-turn lane to the Toll Plaza.

COLLISION DIAGRAM

SHEET 1 OF 2

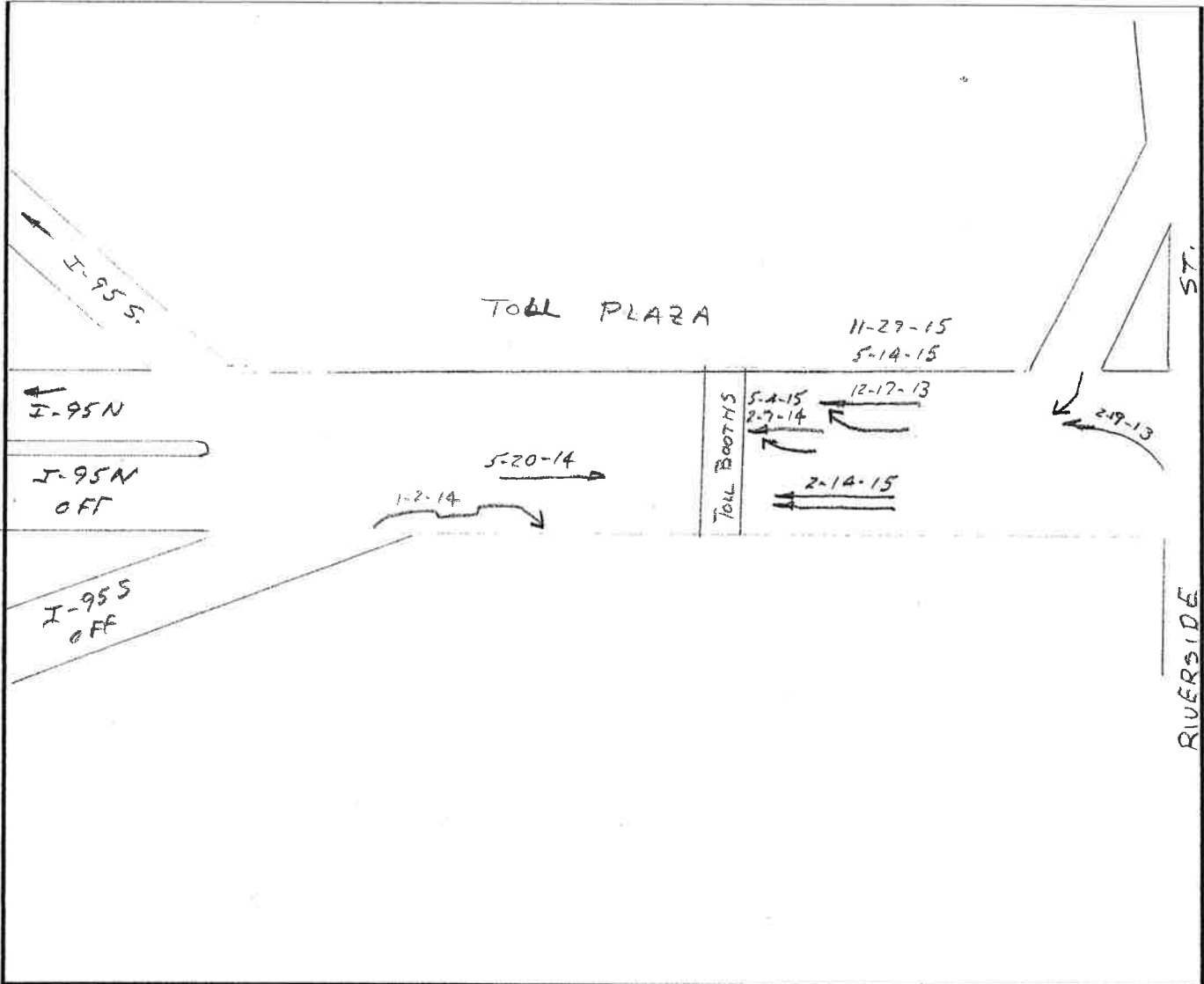
LOCATION I-95 RAMPS & PLAZA

TOWN PORTLAND

NODE NO(S) 18673-65549

YEARS REVIEWED 2013-2015

DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PHYSICAL IMPAIRMENT | 15. VISION OBSCURED-SUN/HEADLIGHTS |
| 16. PEDEST. VIOLATION ERROR | 17. VISION OBSCURED-SUN/HEADLIGHTS | 18. OTHER HUMAN VIOLATION FACTOR |
| 19. WINDSHIELD GLASS | 20. HIT AND RUN | 21. UNKNOWN |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | VEHICLE (MOVING) |
| FIXED OBJECT | SIDE SWIPE | BICYCLE |
| HEAD ON | TURNING MOVE | ANIMAL |
| OVERTURN | CHANGE LANE | SLED |
| PARKED VEHICLE | OUT OF CONTROL | |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION I-95 RAMP 1 PLAZA

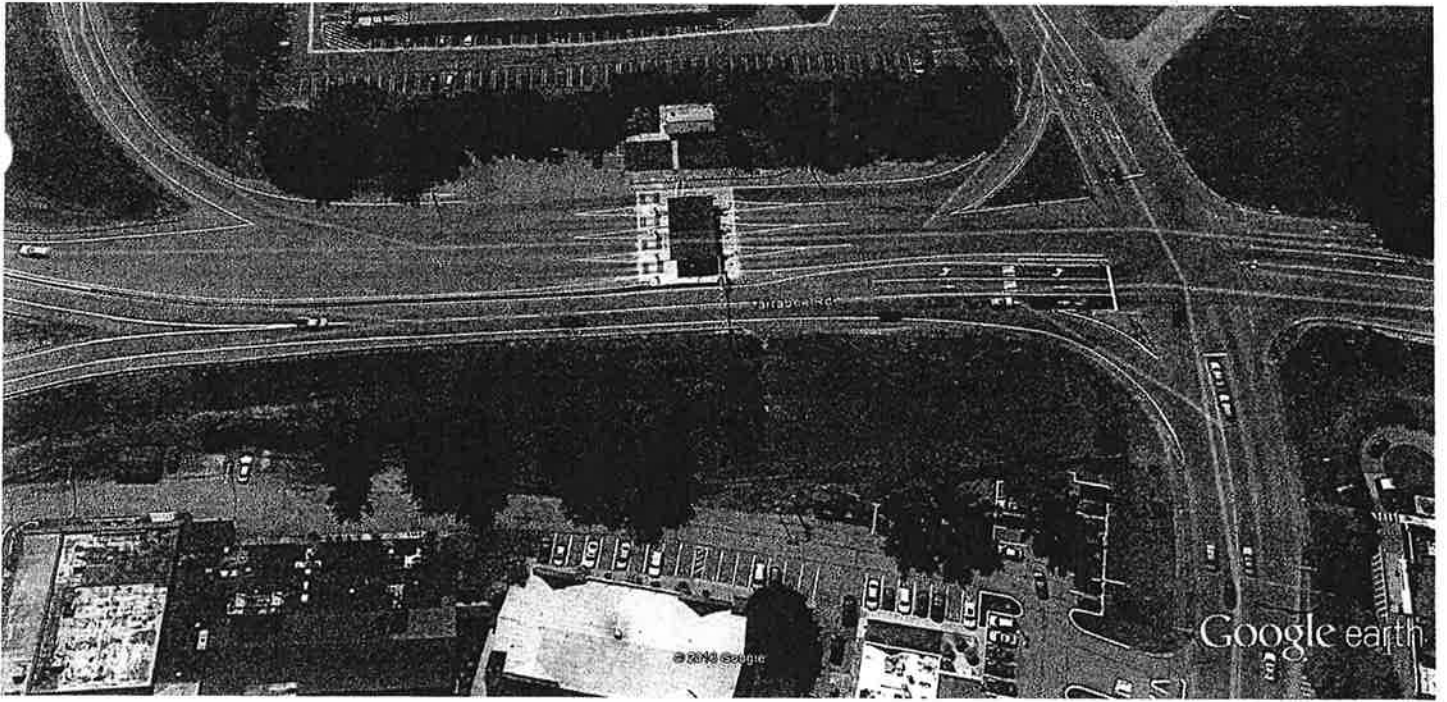
WN PORTLAND

NODE NO(S) 18673 - 65549

YEARS REVIEWED 2013-2015

DATE PREPARED 6-25-2016

[illegible]



Google earth



City of Portland

2013/2015 Roadway Safety Summary Report

**Riverside Street – Kohl's Shopping Plaza to Exit 48/Larrabee
Intersection**

(Nodes# 63966 to 65550)

[8 Crashes – 1.10 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle crash audit shows that a total of 8 vehicle crashes have been reported for this very short roadway section of 0.12 miles. Five (5) of the accidents were “*angle*” crashes occurring either at the driveway entrance to the Firestone Inn or at the vacant gas station located on the opposite side of Riverside Street. An additional single “*turning movement*” crash also occurred at the driveway entrance to the Firestone Inn entrance.

Recommended Intersection Mitigation Measures

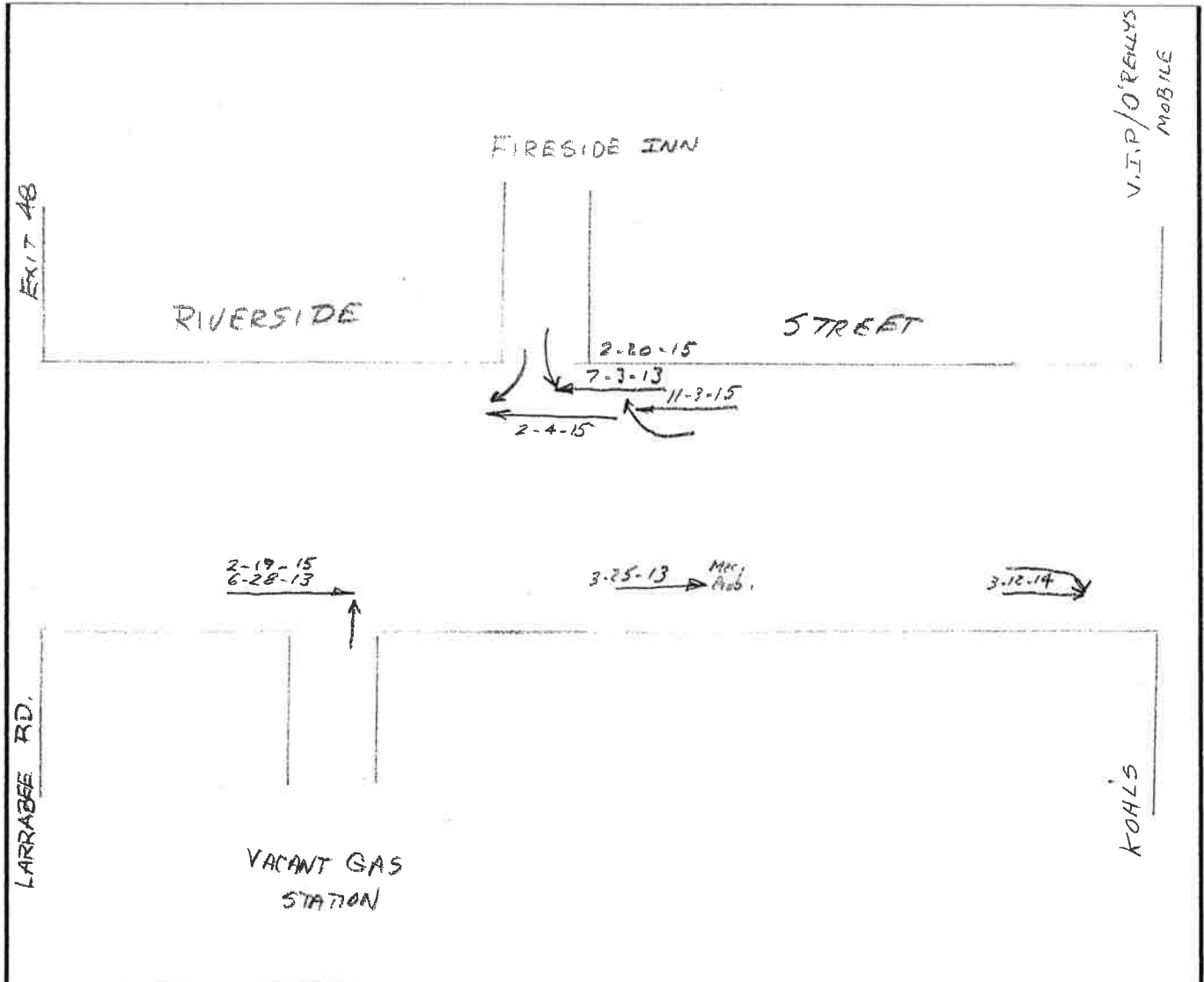
The following mitigation measures are recommended for this location:

- Widen Riverside Street as necessary to provide a continuous “*center two-way left-turn lane*” connecting to the existing dedicated left-turn lanes at both ending signalized intersections.
- Establish and construct future driveway access to vacant gas station.

COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION RIVERSIDE ST. [Kohl's to Exit 48]
 TOWN PORTLAND NODE NO(S) 63966-65550
 YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|---------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PACKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. IMP. UNSAFE LANE CHANGE | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. UNSAFE BACKING | 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 20. VISION OBSCURED-SUN/HEADLIGHTS | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. OTHER VISION OBSCUREMENT | 23. HIT AND RUN | 24. UNKNOWN |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | VEHICLE (MOVING) |
| FIXED OBJECT | SIDE SWIPE | BICYCLE |
| HEAD ON | TURNING MOVE | ANIMAL |
| OVERTURN | CHANGE LANE | SLED |
| PARKED VEHICLE | OUT OF CONTROL | |

WEATHER

- | | | |
|------------|----------|------------------|
| C = CLEAR | F = FOG | R = RAIN |
| SL = SLEET | S = SNOW | CL = CLOUDY |
| | | XW = CROSS WINDS |

INJURIES

- | | |
|--------------------|------------------------|
| K = FATAL | B = NON-INCAPACITATING |
| A = INCAPACITATING | C = POSSIBLE INJURY |

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION RIVERSIDE ST [Kohl's to EXIT 48]

VN PORTLAND NODE NO(S) 63966-65550

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016

[illegible]



Google earth

feet
meters



- 1.. Kohl's / Shaws Shopping Ctr.
- 2.. V&P / O'Reilly's & Gas Station (Mobile)
- 3.. Vacant gas station
- 4.. Fireside Inn

City of Portland

2013/2015 Roadway Safety Summary Report

Riverside Street –Larrabee Road/Exit 48 to Riverside Court

(Nodes# 15890 to 65548)

[24 Crashes – 1.59 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle accident review completed for this 0.15 mile section of Riverside Street shows a total of 24 roadway crashes reported for the study years of 2013 through 2015. Ten (10) of the crashes were driveway access collisions involving motorist either entering or exiting one of the numerous businesses located in the road section. An additional seven (7) crashes were “*rear-end*” accidents occurring in either direction of travel, within the road link. A final and secondary crash pattern identified for the road section was (5) “*lane-change*” or “*side-swipe*” incidents.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- The City may want to study and evaluate the effectiveness of implementing access management improvements within the road section. These access controls could include: driveway connectivity opportunities, combining driveways, turn restrictions, and or driveway closures.

COLLISION DIAGRAM

SHEET 1 OF 2

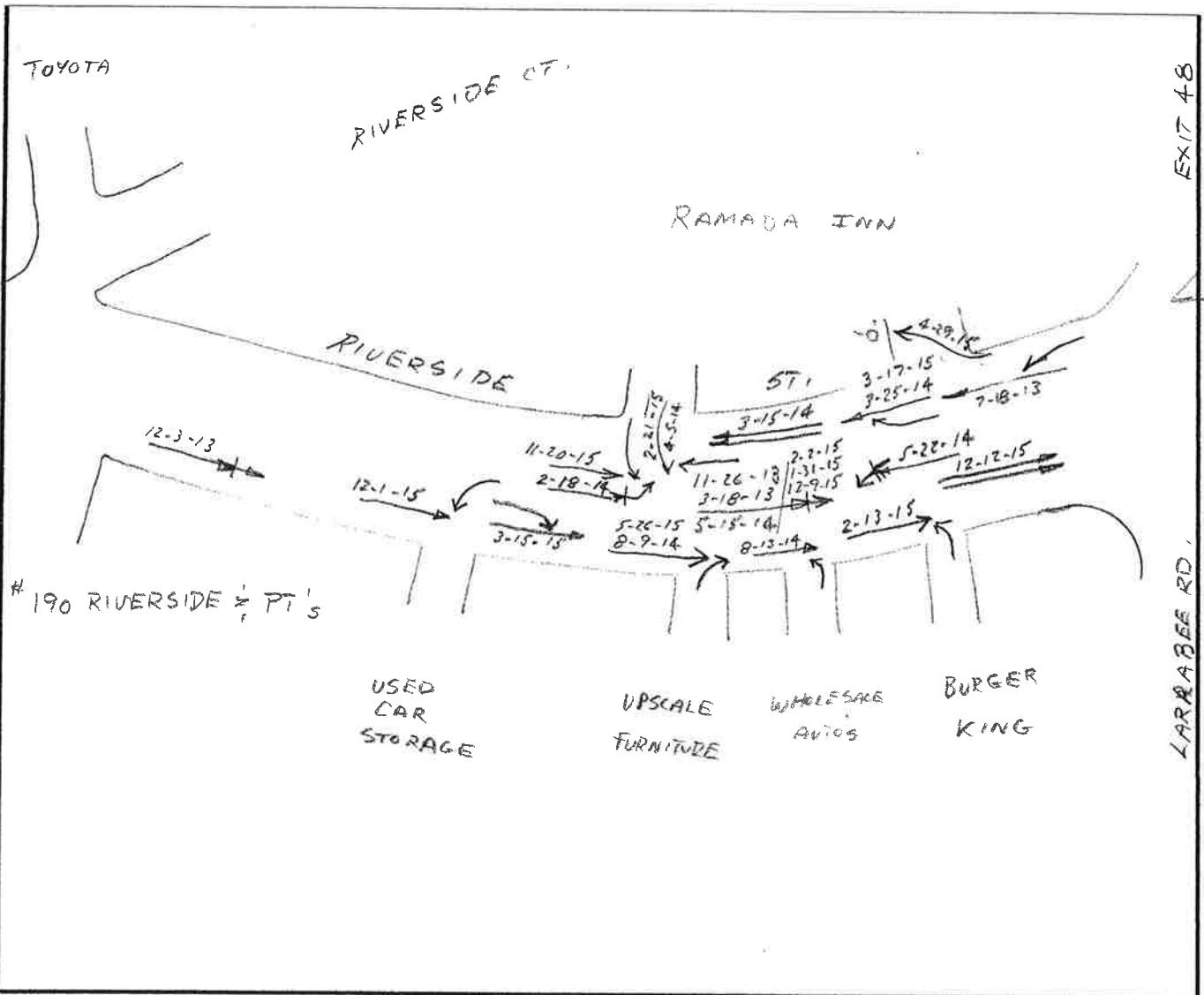
LOCATION RIVERSIDE ST. [LARRABEE RD to RIVERSIDE CT.]

TOWN PORTLAND

NODE NO(S) 65548-15890

YEARS REVIEWED 2013-2015

DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR

EQUIV. PROP. DAMAGE ACC/YEAR

ACC/MEV

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMP. UNSAFE LANE CHANGE |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PEDEST. VIOLATION ERROR | 15. DRIVER INEXPERIENCE |
| 16. WINDSHIELD GLASS | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-HEADLIGHTS |
| 19. OTHER VISION OBSCUREMENT | 20. OTHER HUMAN VIOLATION FACTOR | 21. HIT AND RUN |
| 22. UNKNOWN | | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| 51. UNKNOWN | | |

SYMBOLS

- | | | | | | |
|----------------|----|----------------|-----|------------------|--------|
| ANGLE | → | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | →← | REAR END | →→ | VEHICLE (MOVING) | → |
| FIXED OBJECT | → | SIDE SWIPE | →→ | BICYCLE | ---[B] |
| HEAD ON | →← | TURNING MOVE | →↗ | ANIMAL | ---[A] |
| OVERTURN | →↻ | CHANGE LANE | →↗ | SLED | ---[S] |
| PARKED VEHICLE | ↗ | OUT OF CONTROL | →↗ | | |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

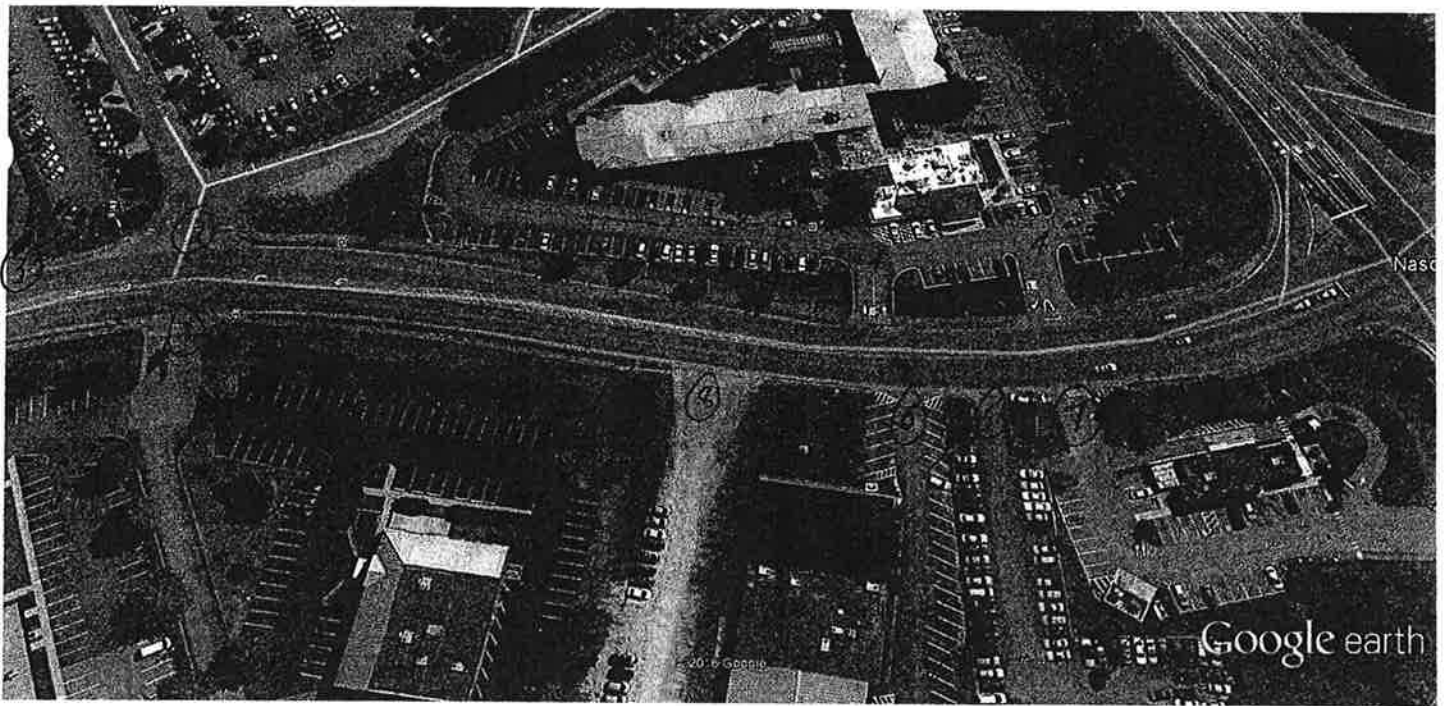
K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

SHEET 2 OF 2

NODE NO(S) 65548 - 15890

DATE PREPARED 6-25-2016

[illegible]



Google earth

feet 400
meters 100



- ① 190 Riverside (Commercial Office's, etc.)
190 Riverside
P.T's
- ② Toyota
- ③ Tire warehouse
- ④ Ramada Inn, Egg & I, Season's Grille
- ⑤ Wholesale Cars & Trucks
- ⑥ Upscale Furniture & Consignment
- ⑦ Burger King
- ⑧ Used Car Storage

City of Portland
2013/2015 Roadway Safety Summary Report
Riverside Street – Home Depot to Warren Avenue
(Nodes# 63963 to 15893)

[13 Crashes – 1.40 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

A total of thirteen crashes occurred within the defined limits of this very short (less than one tenth of mile) roadway segment during the most recent three-year study period. Six (6) of the crashes were either “*angle*” or “*turning movement*” crashes involving motorists turning from either the Irving Gas Station (total of 4 crashes) or the adjacent Jiffy Lube (2 crashes) business. The remaining seven (7) accidents occurred throughout the road section for a number of varying reasons.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Either close or construct a raised center traffic island in Riverside Street that prohibits left-turn movements to/from the most northerly driveway entrance to the Irving Gas Station.
- Examine the feasibility of driveway connectivity options; whereby egress from the Jiffy Lube business is accommodated through the Lockard Collision/Wall Board Supply approach which is controlled by a sequenced traffic signal at Home Depot and Riverside Street.

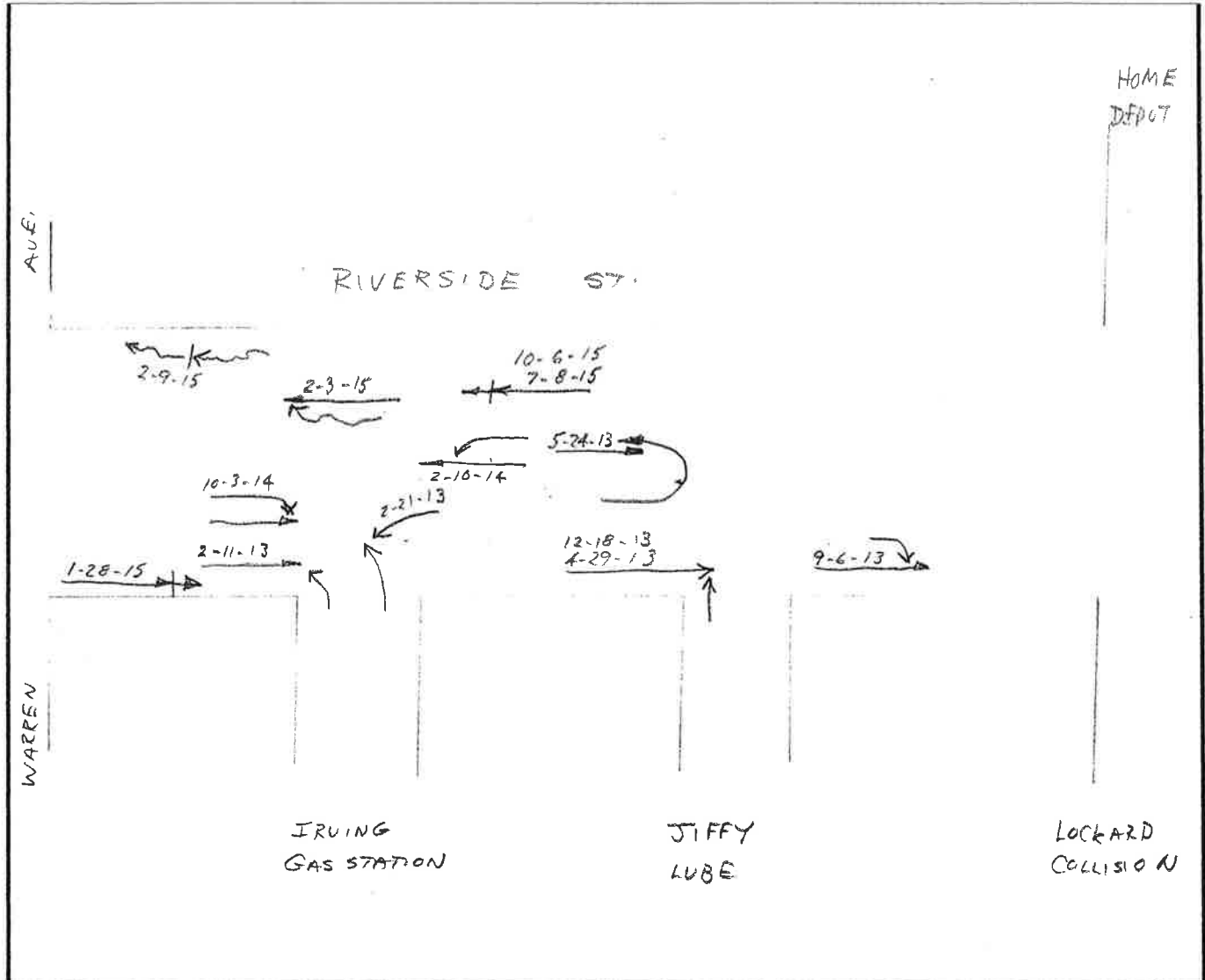
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION RIVERSIDE ST. [HOME DEPOT TO WARREN AVE.]

TOWN PORTLAND NODE NO(S) 63963-15893

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMP. PASS-OVERTAKING |
| 7. IMP. UNSAFE LANE CHANGE | 8. IMP. PARKING START/STOP | 9. IMPROPER TURN |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPEDING TRAFFIC |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PHYSICAL IMPAIRMENT | 15. DRIVER INEXPERIENCE |
| 16. PEDEST. VIOLATION ERROR | 17. VISION OBSCURED-SUN/HEADLIGHTS | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 20. OTHER VISION OBSCUREMENT | 21. OTHER HUMAN VIOLATION FACTOR |
| 22. HIT AND RUN | 23. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| 51. UNKNOWN | | |

SYMBOLS

- | | | | | | |
|----------------|---|----------------|-----|------------------|---------|
| ANGLE | ↓ | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | ↔ | REAR END | → | VEHICLE (MOVING) | → |
| FIXED OBJECT | ⊥ | SIDE SWIPE | → | BICYCLE | --- [B] |
| HEAD ON | ↔ | TURNING MOVE | ↗ | ANIMAL | --- [A] |
| OVERTURN | ↻ | CHANGE LANE | → | SLED | --- [S] |
| PARKED VEHICLE | □ | OUT OF CONTROL | ↗ | | |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION RIVERSIDE ST. [HOME DEPOT TO WARREN AVE]

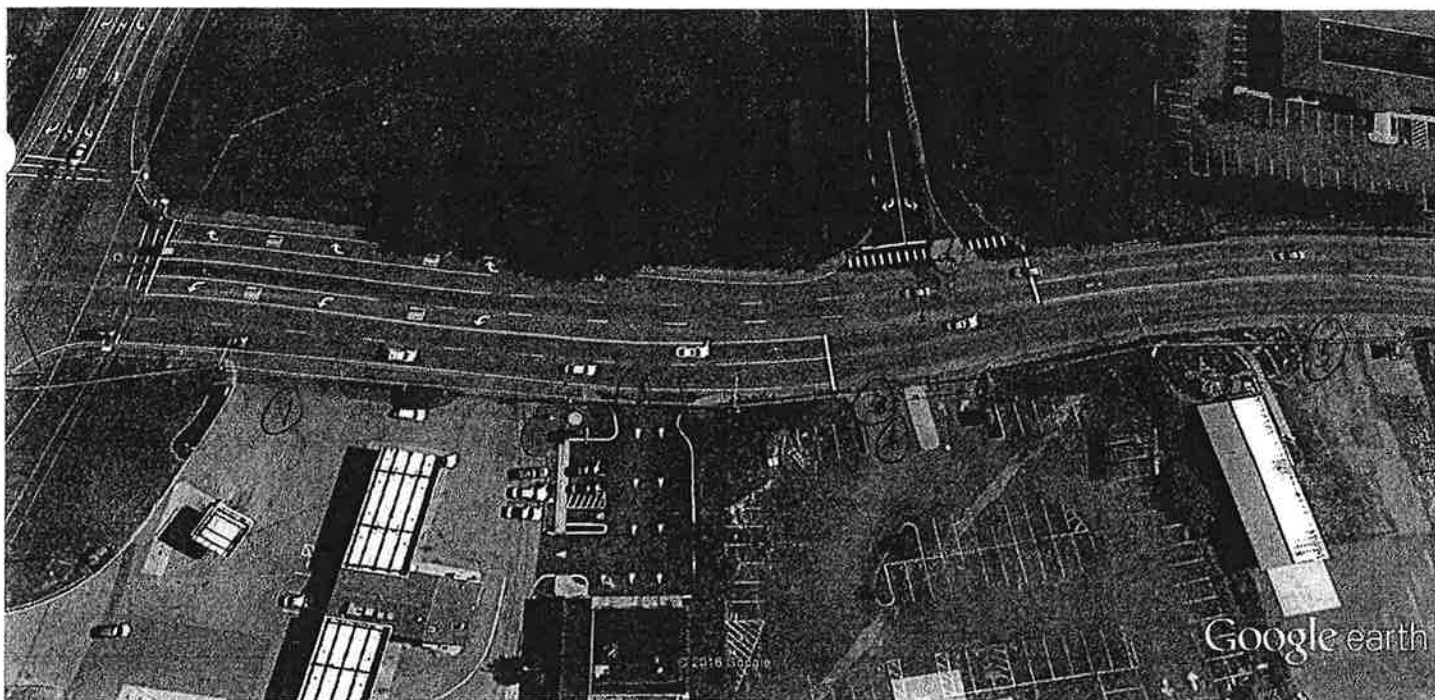
7 VN PORTLAND

NODE NO(S) 63763-15893

YEARS REVIEWED 2013-2015

DATE PREPARED 6-25-2016

[illegible]



Google earth

feet
meters

300
90



- ① Irving Gas Station's Conc. Store
- ② Home Depot
- ③ ~~Jiffy Lube~~ Jiffy Lube
- ④ Lockard Collision # 238-242
Wallboard supply
- ⑤ Portland Trap

City of Portland

2013/2015 Roadway Safety Summary Report

Warren Avenue –Riverside Street to Newcomb Street

(Nodes# 15895 to 15893)

[47 Crashes – 1.01 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle accident review completed for this 0.81 mile long road segment shows a total of 46 roadway crashes have been reported for this section of Warren Avenue (The remaining crash report was miss-coded) . The road section, as a result of the single miss-coded crash, falls below MaineDOT's threshold criteria as a high crash location. A vehicle collision report was prepared for the section regardless and that process identified two crash patterns that should be appropriately addressed. The first traffic crash pattern of significant concern is located at the driveway entrance to the Restore/Urban Garden Center site at #659 Warren Avenue. A total of seven vehicle accidents, each an "*angle*" collision have occurred at this driveway intersection during the three-year study period. Vehicle queues on the Warren Avenue westbound approach to the Riverside Street signalized intersection extend beyond the driveway entrance routinely throughout the day. Motorists, either turning into or exiting from the driveway approach must cross multi lanes of traffic to complete the desired turning movement.

The second higher than anticipated crash problem, identified within the road segment occurs at the entrance to BJ's Membership Club Store, where a total of five "*angle*" collisions were reported. Large gas pricing signs located within the public R.O.W. at the driveway entrance restrict motorist sightlines in a westerly direction.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Access management improvements should be considered to address the high frequency of traffic crashes reported for the #659 Warren Property. Potential options could include a center traffic island on Warren Avenue and/or a "*delta*" traffic island in the driveway approach limiting traffic movements to right turns only.
- Relocate gas pricing signs at BJ's Membership Club entrance.
- Install Stop Sign on BJ's driveway approach.
- Re-fresh driveway pavement markings including lane line and pavement arrows and symbols within the BJ's driveway approach.

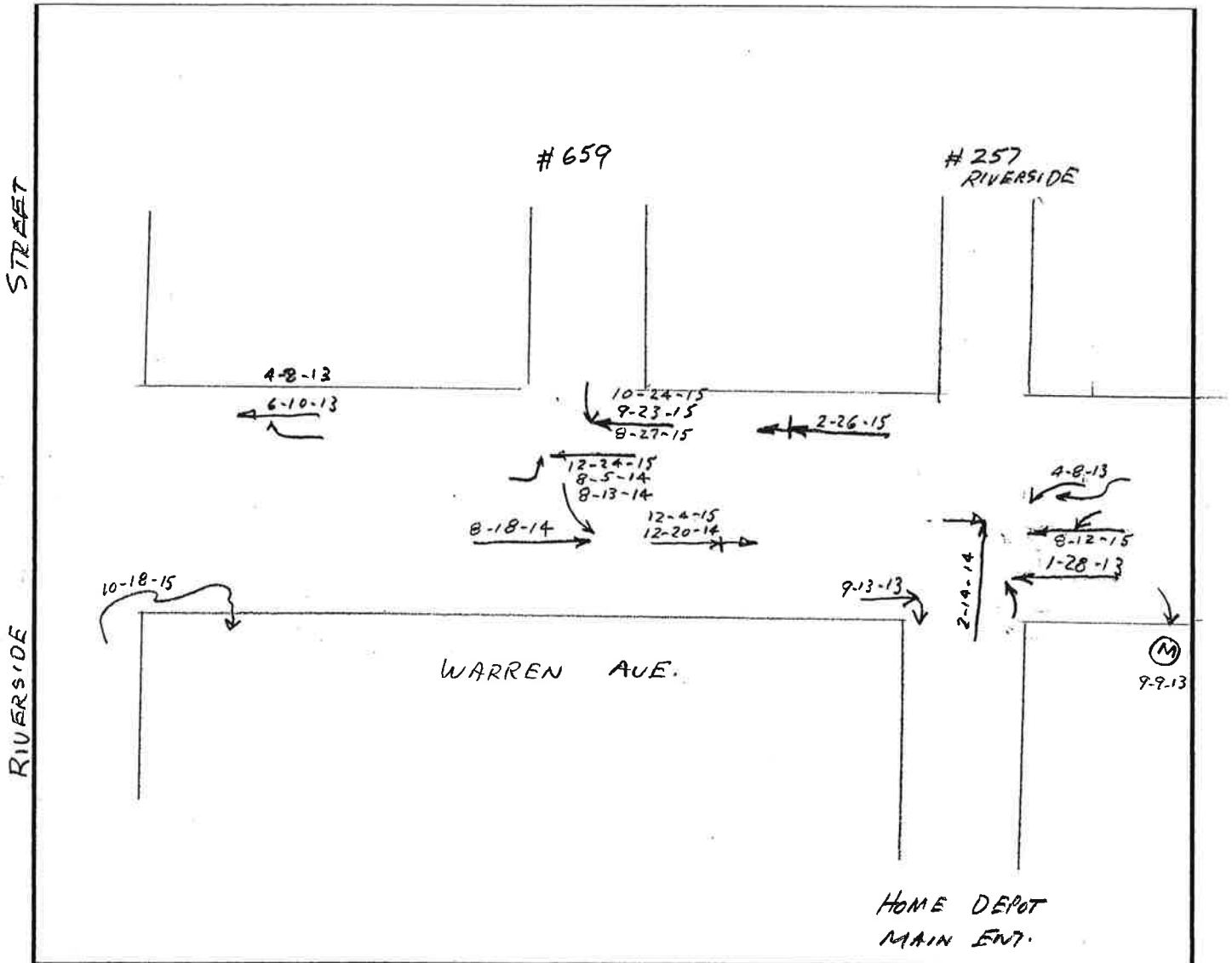
COLLISION DIAGRAM

SHEET 1 OF 5

LOCATION WARREN AVE. SECTION #1 [RIVERSIDE TO HANDYMAN DRIVE]

TOWN PORTLAND NODE NO(S) 15893, 15895

YEARS REVIEWED 2013 - 2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|----------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED- |
| 19. WINDSHIELD GLASS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

- VEHICULAR

- | | | |
|--------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| OR FACTOR | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

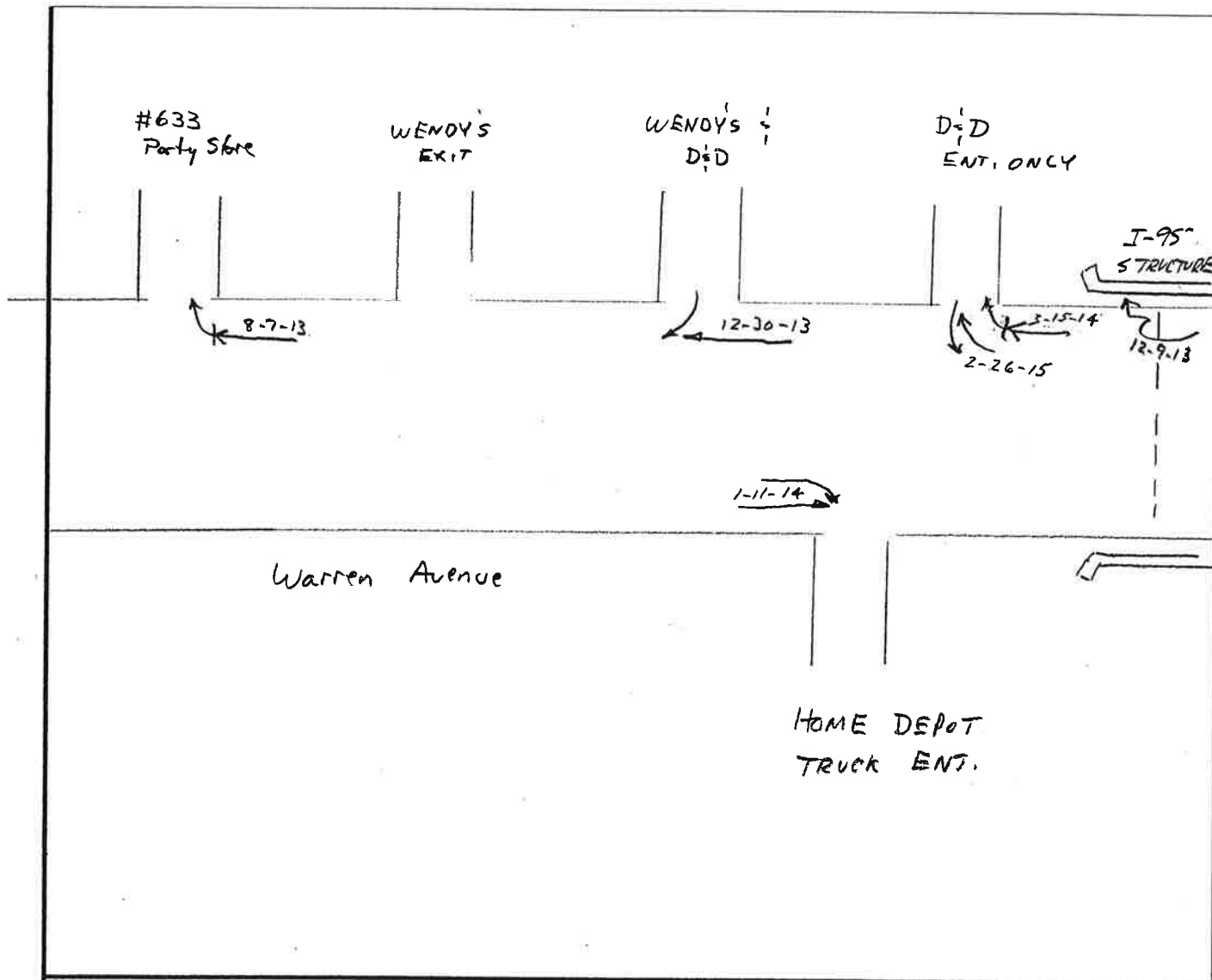
COLLISION DIAGRAM

SHEET 2 OF 5

LOCATION WARREN AVE - SECTION # 2 #633 (Partly Store to I-95 BRIDGE)

TOWN PORTLAND NODE NO(S) 15893 - 15895

YEARS REVIEWED 2013 - 2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAVED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 3 OF 5

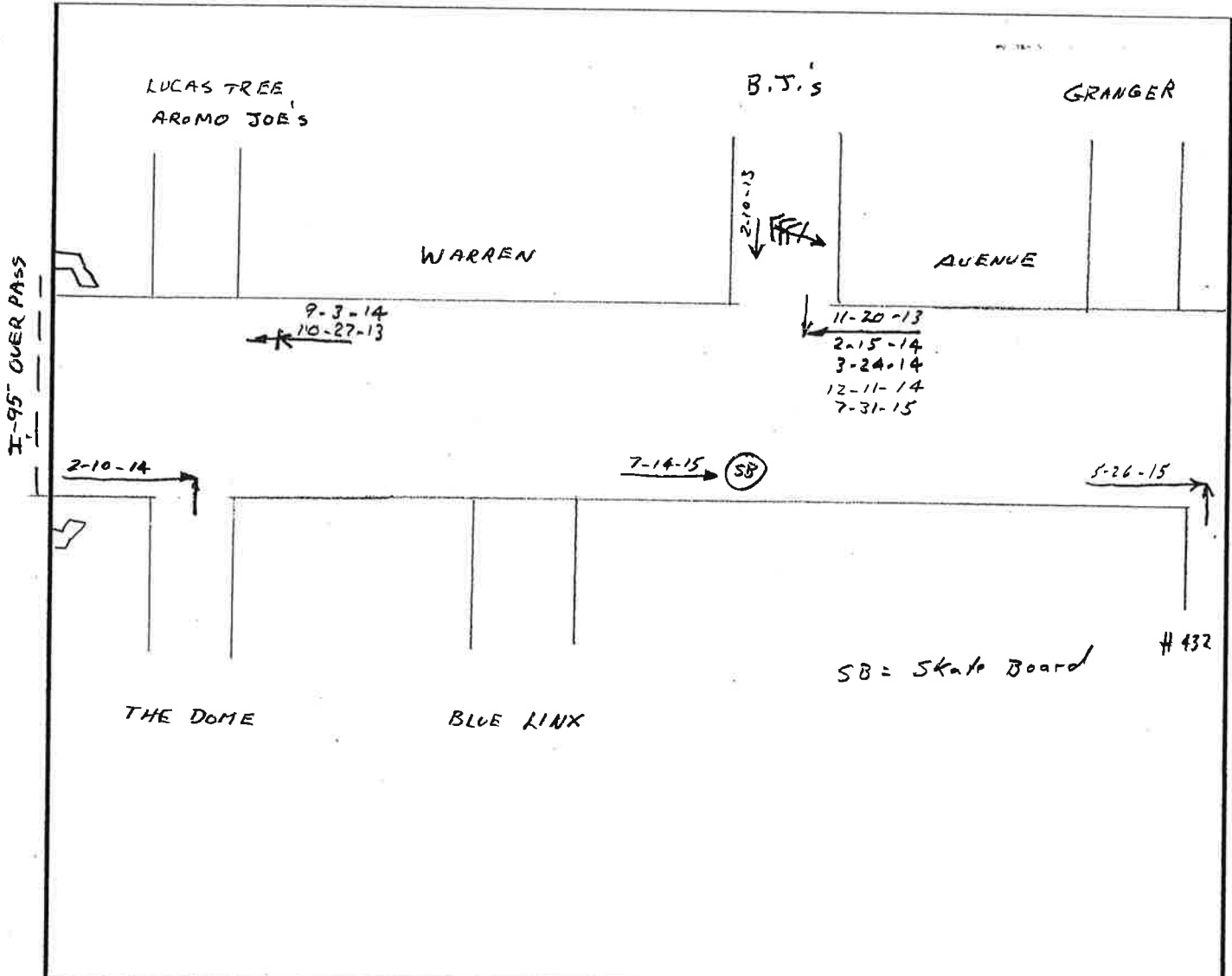
LOCATION WARREN AVE. - SECTION #3 [I-95 BRIDGE EAST TO GRANGERS]

TOWN PORTLAND

NODE NO(S) 15893-15895

YEARS REVIEWED 2013-2015

DATE PREPARED 6-26-2016



SB = Skate Board

#432

CRITICAL RATE FACTOR

EQUIV. PROP. DAMAGE ACC/YEAR

ACC/MEV

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|-----------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 7. IMPROPER PASS-OVERTAKING |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 10. IMPROPER TURN |
| 14. DRIVER INATTENTION-DISTRACTION | | 13. IMPEDING TRAFFIC |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 15. DRIVER INEXPERIENCE |
| 18. WINDSHIELD GLASS | 19. VISION OBSCURED-SUN/HEADLIGHTS | 18. VISION OBSCURED- |
| 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR | |
| 31. HIT AND RUN | 51. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|---|----------------|-----|------------------|---------|
| ANGLE | ↓ | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | ↔ | REAR END | → → | VEHICLE (MOVING) | → |
| FIXED OBJECT | → | SIDE SWIPE | → → | BICYCLE | --- [B] |
| HEAD ON | ↔ | TURNING MOVE | → ↗ | ANIMAL | --- [A] |
| OVERTURN | ↻ | CHANGE LANE | → → | SLED | --- [S] |
| PARKED VEHICLE | □ | OUT OF CONTROL | → → | | |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 4 OF 5

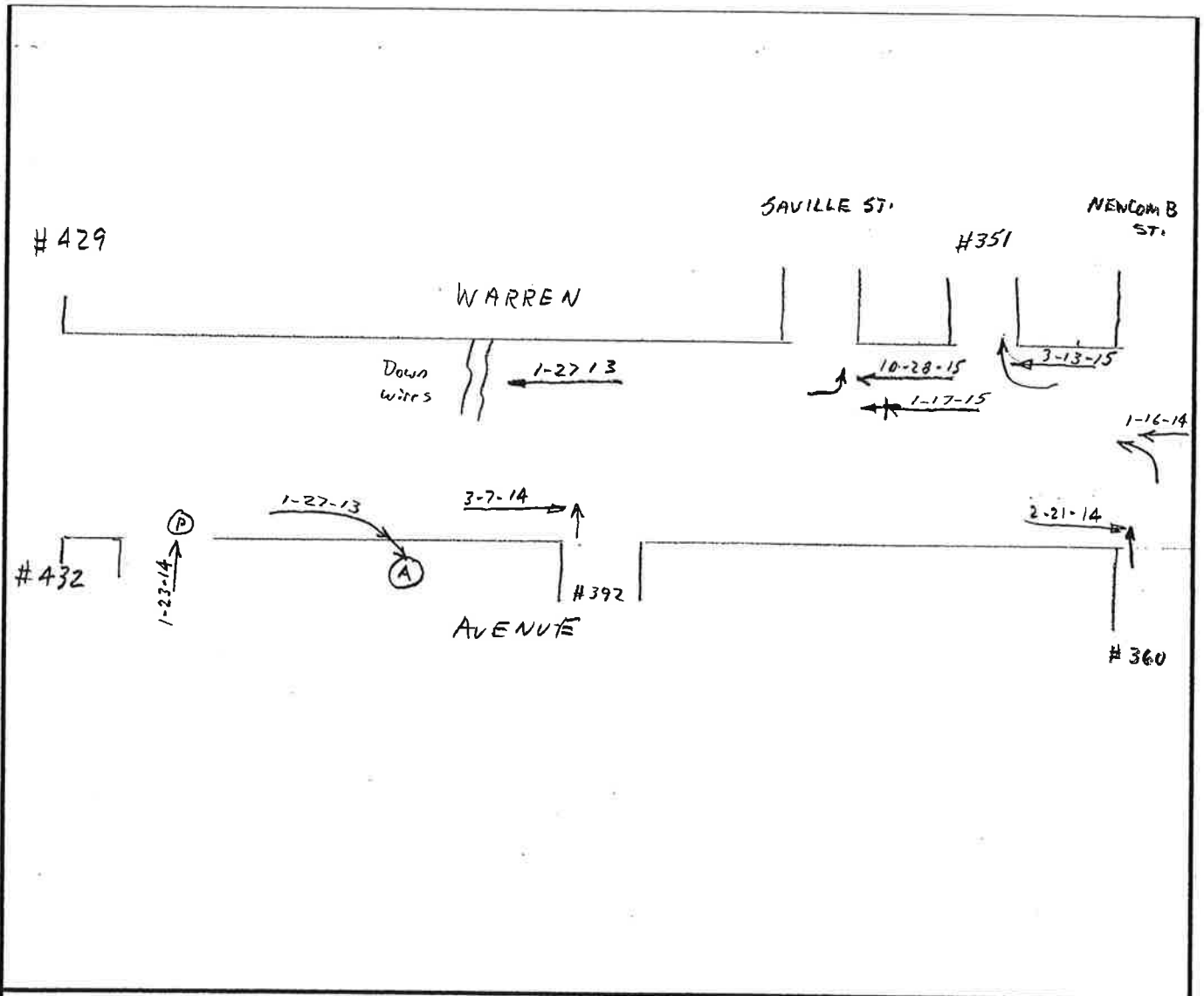
LOCATION WARREN AVE. - SECTION #4 #432 WARREN TO NEWCOMB ST.

TOWN PORTLAND

NODE NO(S) 15893-15895

YEARS REVIEWED 2013-2015

DATE PREPARED 6-26-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|-----------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | 6. IMPROPER PASS-OVERTAKING |
| 7. DRIVING LEFT OF CENTER-NO PASSING | 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP |
| 10. UNSAFE BACKING | 11. NO SIGNAL OR IMP. SIGNAL | 12. IMPROPER TURN |
| 13. DRIVER INATTENTION-DISTRACTION | 14. PEDEST. VIOLATION ERROR | 15. IMPEDING TRAFFIC |
| 16. WINDSHIELD GLASS | 17. PHYSICAL IMPAIRMENT | 18. DRIVER INEXPERIENCE |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 21. VISION OBSCURED- |
| 22. HIT AND RUN | 23. OTHER HUMAN VIOLATION FACTOR | 24. UNKNOWN |

- VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 46. OTHER VEHICLE DEFECT |
| | 47. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|-------|----------------|-------|------------------|-------|
| ANGLE | → | PEDESTRIAN | → [P] | FATAL ACCIDENT | ● |
| BACKING | →← | REAR END | → [R] | | |
| FIXED OBJECT | → [O] | SIDE SWIPE | → [S] | VEHICLE (MOVING) | → |
| HEAD ON | →← | TURNING MOVE | → [T] | BICYCLE | → [B] |
| OVERTURN | → [O] | CHANGE LANE | → [C] | ANIMAL | → [A] |
| PARKED VEHICLE | → [P] | OUT OF CONTROL | → [O] | SLED | → [S] |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW

R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING

B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 5 OF 5LOCATION WARREN AVETOWN PORTLANDNODE NO(S) 15893-15895YEARS REVIEWED 2013-2015DATE PREPARED 6-25-2016

REPORT NO.	DATE	TIME	INJURIES				LIGHT	ROAD SURFACE	ACF	OTHER
			K	A	B	C				
13-344	1-28-13	17:27	—	—	—	—	4	SNOW	2	
13-1128	4-8-13	10:30	—	—	—	—	2	1	2	
13-1132	4-8-13	16:45	—	—	—	—	2	1	8	
13-1672	6-10-13	9:45	—	—	—	—	2	1	8	
13-2223	8-7-13	10:24	—	—	—	—	2	1	4	
13-2602	9-13-13	19:32				1	4	2	4	
13-3550	12-9-13	19:30			1	1	4	SNOW	51	
13-3834	12-30-13	17:43				1	4	SLUSH	2	
14-164	1-11-14	1:24			1	1	4	2	7	
14-948	3-15-14	10:20	—	—	—	—	2	2	4	
14-3761	12-20-14	11:04	—	—	—	—	2	1	4	
15-972	2-26-15	11:28	—	—	—	—	2	1	4	
15-981	2-26-15	16:45				1	4	2	7, 14	
15-2707	8-12-15	16:25	—	—	—	—	2	1	51	
15-3195	9-23-15	13:43	—	—	—	—	2	1	2, 14	
15-3500	10-18-15	18:50	—	—	—	—	4	1	14	
15-4050	12-4-15	15:25				1	2	1	1	SWERVED TO AVOID CRASH
15-574	2-14-14	12:36	—	—	—	—	2	SLUSH	2, 14	
15-2556	9-9-13	19:53		1			4	1	ILLEGAL	PASSING OUT
15-4309	12-24-15	10:09	—	—	—	—	2	2	2, 14	
15-3572	10-24-15	15:46	—	—	—	—	2	1	2	
15-2906	8-27-15	12:23	—	—	—	—	2	1	2, 14	
14-2417	8-18-14	10:15			1		2	1	2	
14-2387	8-15-14	11:59	—	—	—	—	2	1	2, 14	
14-2354	8-13-14	16:28				1	2	2	2	
13-486	2-10-13	8:05	—	—	—	—	2	SNOW	51	
13-3032	10-27-13	20:00	—	—	—	—	5	1	4	
13-3304	11-20-13	15:47	—	—	—	—	2	1	2	
14-502	2-10-14	19:14				1	4	ICE/FROST	3	
14-587	2-15-14	12:20	—	—	—	—	2	2	2, 14	
14-1038	3-24-15	17:47	—	—	—	—	3	1	2, 14	
14-2603	9-3-14	18:03	—	—	—	—	2	1	4	
14-3645	12-11-14	10:53	—	—	—	—	2	2	2, 14	
15-2406	7-14-15	20:50				1	3	1	31	
15-2582	7-31-15	15:00	—	—	—	—	2	1	2, 14	
15-1863	5-26-15	11:20				1	2	1	2	
15-3632	10-28-15	19:29				1	5	2	2	
14-230	1-6-14	12:30	—	—	—	—	2	2	2	
14-316	1-23-14	17:13				1	5	1	2	Pedestrian
15-869	3-7-14	14:36	—	—	—	—	2	1	2, 14	
15-241	1-17-15	11:10	—	—	—	—	2	1	4	
15-1163	3-13-15	12:55	—	—	—	—	2	1	51	
13-321	1-27-13	3:30	—	—	—	—	?	1	DOG, 14	
13-332	1-27-13	3:33	—	—	—	—	4	1		



Google earth

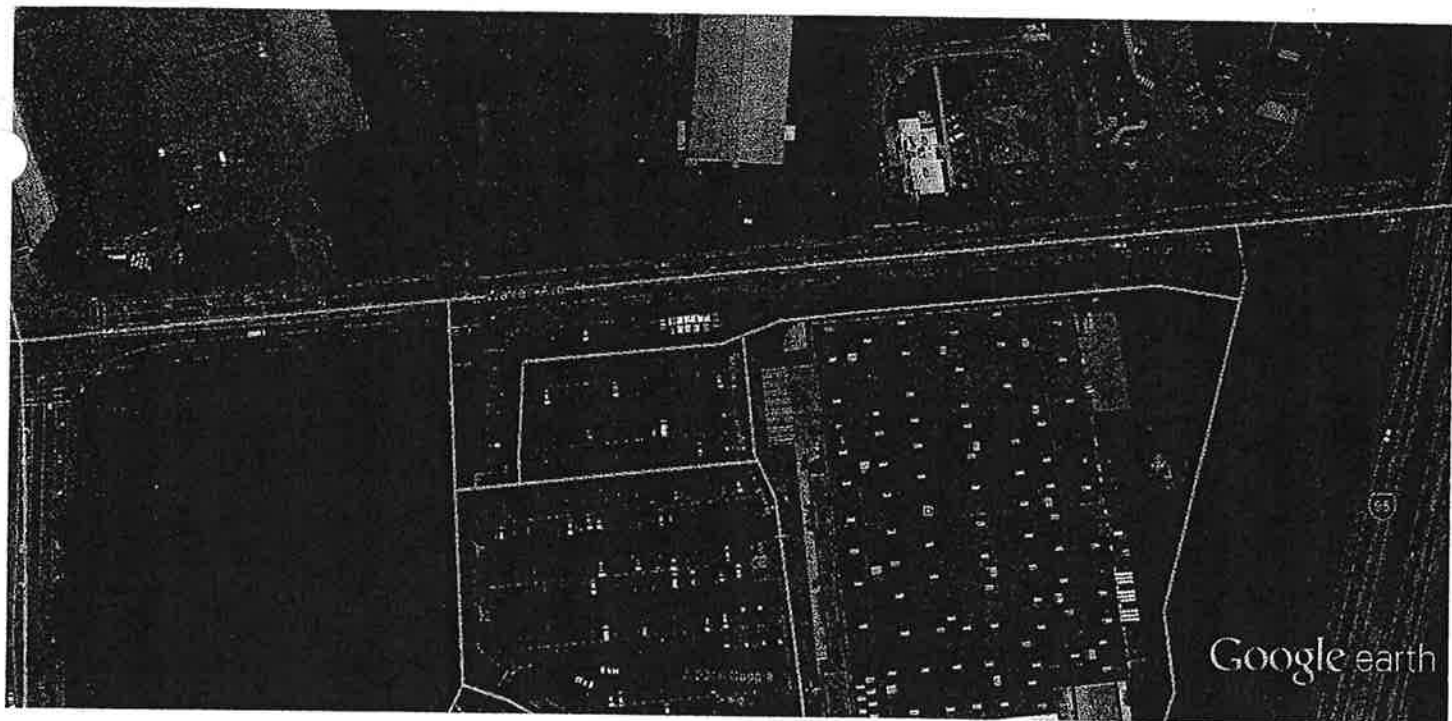
feet
meters

100

600

strip
Commercial devel.
(Warren Ave.
Trade Ctr.)

- ① #392 Cornelius Motor Works, Penske Truck Rental
- ② #340 Speedy Auto Top
- ③ A. Hausmann Assoc. Inc.
- ④ Warren Ave. Trade Ctr. #352
- ⑤ Sign Concepts.
- ⑥ Saville St.
- ⑦ Bayside Towing #355
- ⑧ Gifoux Energy
- ⑨ Hene
- ⑩ Vance Pools
- ⑪ Harbor Auto Body #401
- ⑫ New Bldg.
- (13) #429 Warren



Google earth



1. Home Depot entrance
2. " " truck delivery entrance
- Car Wash
4. D: D, Wendy's
5. Wendy's
6. # 633 Paper Party House
7. Handyman Rental # 357 Riverside
8. Restare, Urban Garden Ctr.

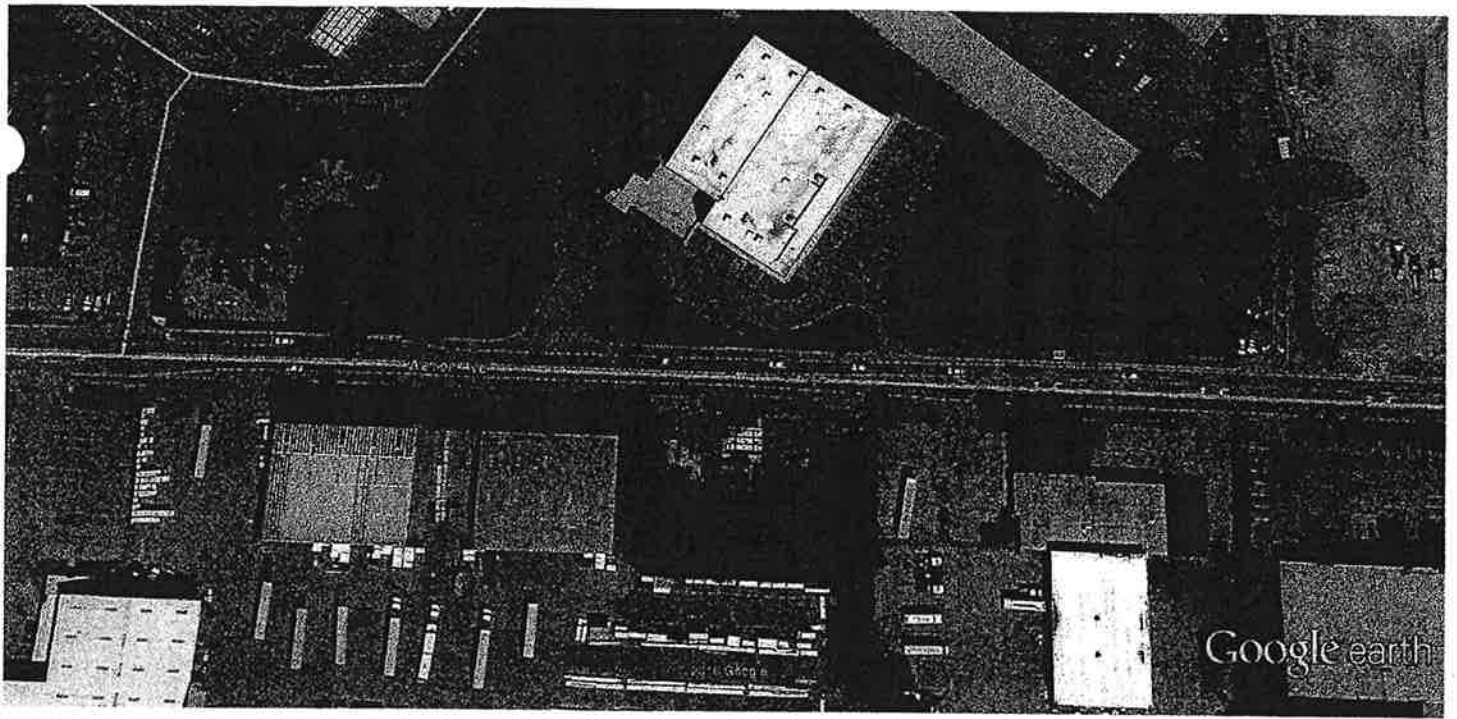


Google earth



- ① The Dome, Gold Room, Tufts, Fitness Factory, E.J. Prescott
- ② Blue Linx
- ③ Aroma Joe's, Lucas Tree

513 Warren Ave. B.J.'s entrance
510 Sakers, 550 also



Google earth

feet
meters 100 600



- (1) Vacant gas station
- (2) 432 New England Detroit Diesel, Allison Tran.
- (3) Application Sales #400
- (4) Granger
- (5) B.J's, Shed Happens, Yexa's, Karathee

City of Portland

2013/2015 Roadway Safety Summary Report

Warren Avenue – City Line to Riverside Street Intersection

(Nodes# 15135 to 15893)

[23 Crashes – 1.96 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle accident review completed for this 0.25 mile long road segment shows a total of 23 roadway crashes have occurred during the latest reporting time period. Sixteen (16) or nearly 70 percent of the vehicle accidents involved motorists turning to/from the Irving Gas Station and Convenience Store site. Three additional “angle” collisions were reported for the road section at the driveway entrances to Sullivan Tire and Hammond Lumber.

Two (2) single-vehicle crashes also occurred at the abrupt curb extension located in the westbound travel lane on Warren Avenue near the main entrance to Hammond Lumber.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Install a raised traffic island separating both directions of travel on Warren Avenue extending from the Riverside Street intersection to a point west of the driveway entrance to the Irving Gas Station; effectively restricting all traffic movements to a right-turn movement.
- Re-construct westbound departure lane on Warren Avenue eliminating the abrupt lane drop. Install appropriate signage and pavement markings as necessary.

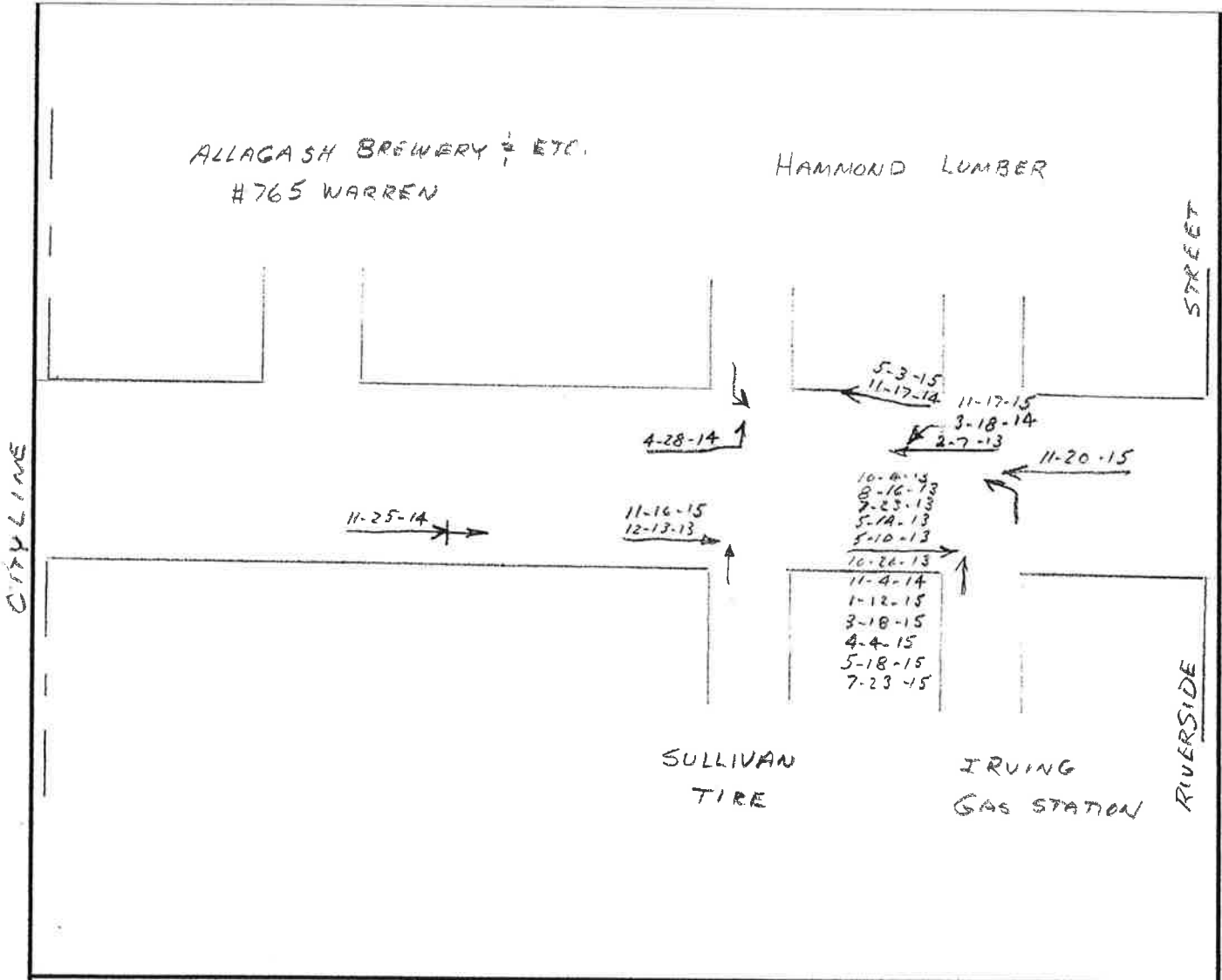
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION WARREN AVE - [RIVERSIDE ST. TO CITYLINE]

TOWN PORTLAND NODE NO(S) 15135-15893

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____

EQUIV. PROP. DAMAGE ACC/YEAR _____

ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAVED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 21. HIT AND RUN | 51. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | | | | |
|----------------|----|----------------|-----|------------------|---------|
| ANGLE | ↓ | PEDESTRIAN | → P | FATAL ACCIDENT | ● |
| BACKING | ←← | REAR END | →→ | | |
| FIXED OBJECT | → | SIDE SWIPE | →→ | VEHICLE (MOVING) | → |
| HEAD ON | →← | TURNING MOVE | →↗ | BICYCLE | --- [B] |
| OVERTURN | →○ | CHANGE LANE | →↘ | ANIMAL | --- [A] |
| PARKED VEHICLE | □ | OUT OF CONTROL | →~ | SLED | --- [S] |

WEATHER

- | | | |
|------------|----------|------------------|
| C = CLEAR | F = FOG | R = RAIN |
| SL = SLEET | S = SNOW | CL = CLOUDY |
| | | XW = CROSS WINDS |

INJURIES

- | | |
|--------------------|------------------------|
| K = FATAL | B = NON-INCAPACITATING |
| A = INCAPACITATING | C = POSSIBLE INJURY |

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION WARREN AVE. [RIVERSIDE ST. TO CITYLINE]

VN PORTLAND NODE NO(S) 15135-15893

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016

[illegible]



Google earth

feet
meters



1-2 - Hamner Lumber

3 - Allagash Brewery, Animal Hospital #765

4 - Sullivan Tire

5 - Irvings Gas, Conv. Store

City of Portland

2013/2015 Roadway Safety Summary Report

Riverside Street –Riverside Street to McAllister Farm Road

(Nodes# 10387 to 15893)

[13 Crashes – 1.08 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

The vehicle accident review completed for this very short (0.17 mile) road segment shows a total of 13 roadway crashes have been reported for this section of Riverside Street. The principal crash pattern (7 crashes) occurring on this section of Riverside Street was “*lane-change*” accidents in both the approach and departure lanes on Riverside Street. The remaining traffic accidents were generally isolated incidents occurring throughout the road section.

Recommended Intersection Mitigation Measures

The following mitigation measures are recommended for this location:

- Add a more prominent W9-2 sign on northbound travel lane on Riverside Street; consider supplemental BlinkerSign LED boarder lighting.
- Add lane reduction transition markings on northbound travel lane on Riverside Street.

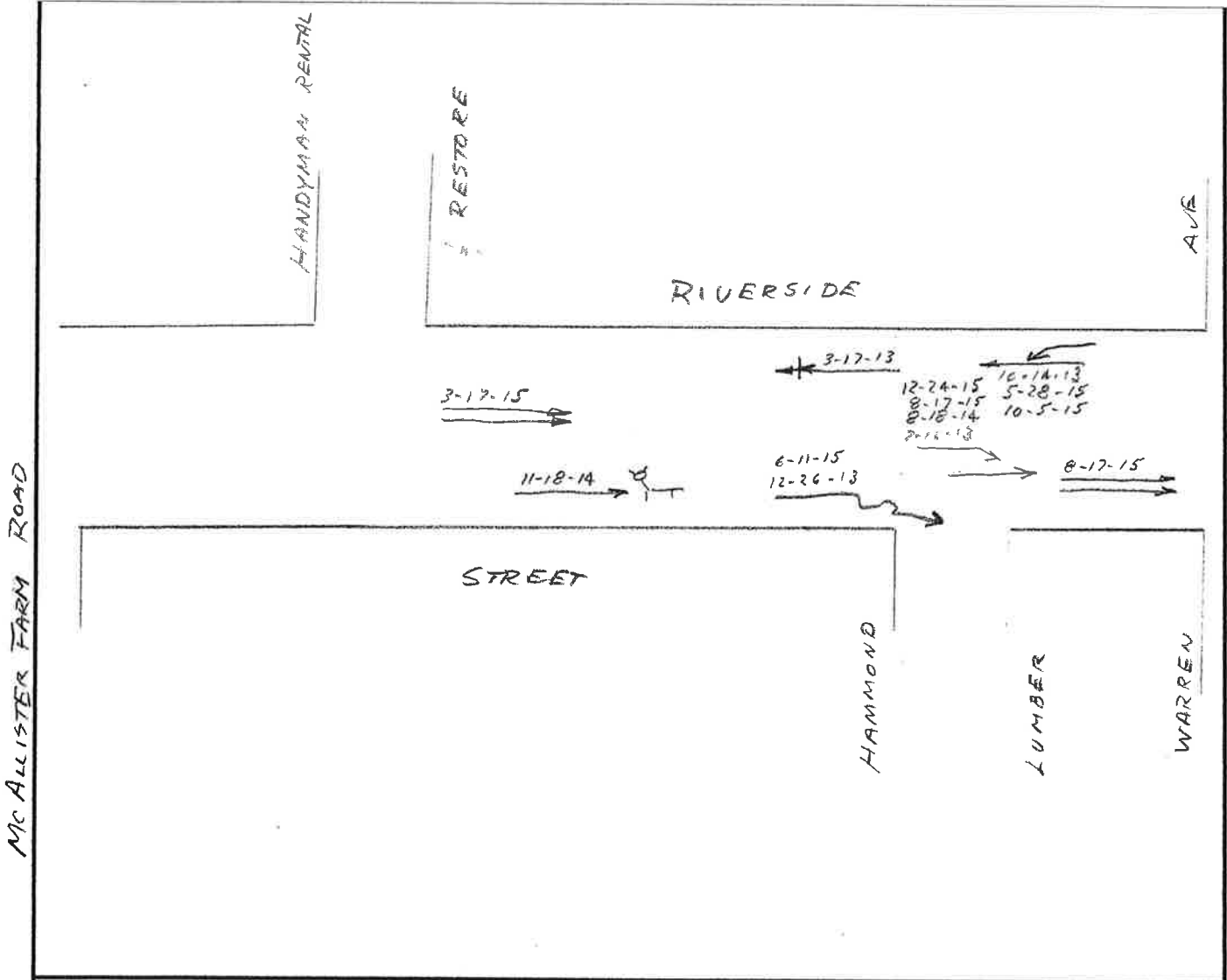
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION RIVERSIDE ST. / McALLISTER FARM RD. TO WARREN AVE

TOWN PORTLAND NODE NO(S) 15893-10387

YEARS REVIEWED 2013-2015 DATE PREPARED 6-25-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. DAWN (MORNING) | 2. DAYLIGHT | 3. DUSK (EVENING) |
| 4. DARK (ST. LIGHTS ON) | 5. DARK (NO ST. LIGHTS) | 6. DARK (ST. LIGHTS OFF) |
| 7. OTHER | | |

ROAD SURFACE

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. DRY | 2. WET | 3. SNOW/SLUSH-SANDED |
| 4. ICE/PAKED SNOW-SANDED | 5. MUDDY | 6. DEBRIS |
| 7. OILY | 8. SNOW/SLUSH-NOT SANDED | 9. ICE-PKD. SNOW-NOT SANDED |
| 10. OTHER | | |

APPARENT CONTRIBUTING FACTORS - HUMAN

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. NO IMPROPER ACTION | 2. FAIL TO YLD. RIGHT OF WAY | 3. ILLEGAL UNSAFE SPEED |
| 4. FOLLOW TOO CLOSE | 5. DISREGARD TRAFFIC CONTROL DEVICE | |
| 6. DRIVING LEFT OF CENTER-NO PASSING | 7. IMPROPER PASS-OVERTAKING | |
| 8. IMP. UNSAFE LANE CHANGE | 9. IMP. PARKING START/STOP | 10. IMPROPER TURN |
| 11. UNSAFE BACKING | 12. NO SIGNAL OR IMP. SIGNAL | 13. IMPEDING TRAFFIC |
| 14. DRIVER INATTENTION-DISTRACTION | 15. DRIVER INEXPERIENCE | |
| 16. PEDEST. VIOLATION ERROR | 17. PHYSICAL IMPAIRMENT | 18. VISION OBSCURED-WINDSHIELD GLASS |
| 19. VISION OBSCURED-SUN/HEADLIGHTS | 20. OTHER VISION OBSCUREMENT | 30. OTHER HUMAN VIOLATION FACTOR |
| 31. HIT AND RUN | 51. UNKNOWN | |

VEHICULAR

- | | | |
|------------------------------------|----------------------------|--------------------------|
| 41. DEFECTIVE BRAKES | 42. DEFECTIVE TIRE/FAILURE | 43. DEFECTIVE LIGHTS |
| 44. DEFECTIVE SUSPENSION OR FACTOR | 45. DEFECTIVE STEERING | 50. OTHER VEHICLE DEFECT |
| | 51. UNKNOWN | |

SYMBOLS

- | | | |
|----------------|----------------|------------------|
| ANGLE | PEDESTRIAN | FATAL ACCIDENT |
| BACKING | REAR END | |
| FIXED OBJECT | SIDE SWIPE | VEHICLE (MOVING) |
| HEAD ON | TURNING MOVE | BICYCLE |
| OVERTURN | CHANGE LANE | ANIMAL |
| PARKED VEHICLE | OUT OF CONTROL | SLED |

C = CLEAR
SL = SLEET

WEATHER

F = FOG
S = SNOW
R = RAIN
CL = CLOUDY
XW = CROSS WINDS

INJURIES

K = FATAL
A = INCAPACITATING
B = NON-INCAPACITATING
C = POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION RIVERSIDE ST. / McALLISTER FARM RD. TO WARREN AVE.

TWN PORTLAND

NODE NO(S) 15893 - 10387

YEARS REVIEWED 2013-2015-

DATE PREPARED 6-25-2016

[illegible]



Google earth

feet
meters

100 400



- ① Hammond Lumber
- ② Handiman Rental & Restore
- ③ Macalister Dr (Kamco)

City of Portland

2013/2015 Roadway Safety Summary Report

Brighton Avenue – Lomond Street to Rowe Avenue

(Nodes# 13050 to 13131)

[8 Crashes – 1.79 Critical Rate Factor]

Vehicle Collision Diagram Report Summary

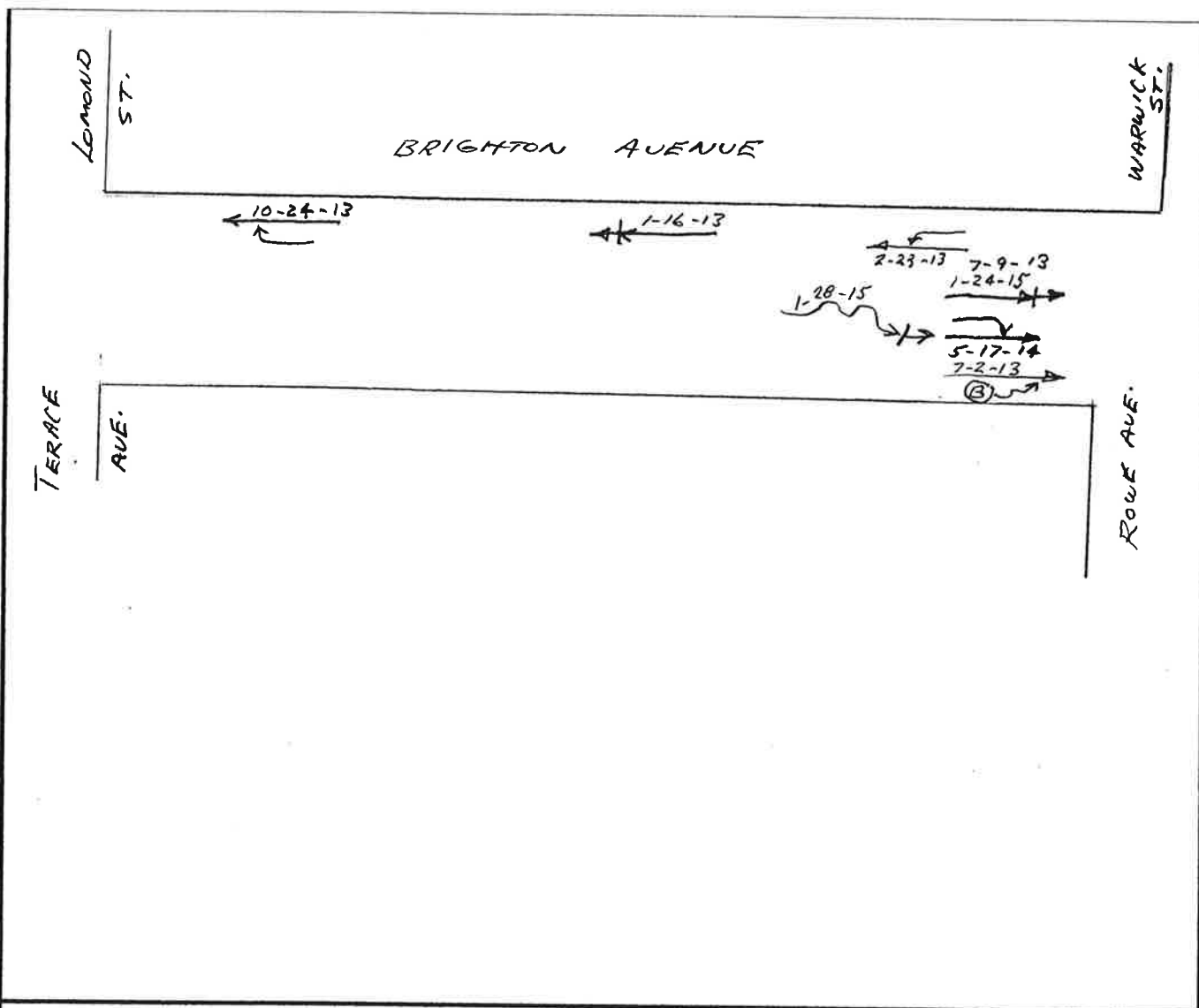
The vehicle crash review completed for this road segment determined that the (8) vehicle crashes generally occur somewhat randomly throughout the short roadway section with multiple traffic crash patterns. The only feature that appears worthy of note is that 4 of the 8 crashes occurred during the evening peak commuter hours (3:00 to 6:00PM) when traffic loadings are greatest.

Recommended Intersection Mitigation Measures

Intersection capacity improvements to the Brighton Avenue/Rowe Avenue/Warwick Street signalized intersection would have a profound impact on reducing peak hour traffic congestion leading to improved roadway safety. Aligning the Rowe Avenue approach directly opposite the Warwick Street approach would eliminate a traffic signal phase increasing potential green time allocation to the Brighton Avenue signal phase(s).

SHEET 1 OF 2

YEARS REVIEWED 2013-2015 DATE PREPARED 6-17-2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

41. DEFECTIVE BRAKES	42. DEFECTIVE TIRE/FAILURE	43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION	45. DEFECTIVE STEERING	50. OTHER VEHICLE DEFECT
OR FACTOR	51. UNKNOWN	

K = FATAL
A = INCAPACITATING

B = NON-INCAPACITATING
C = POSSIBLE INJURY

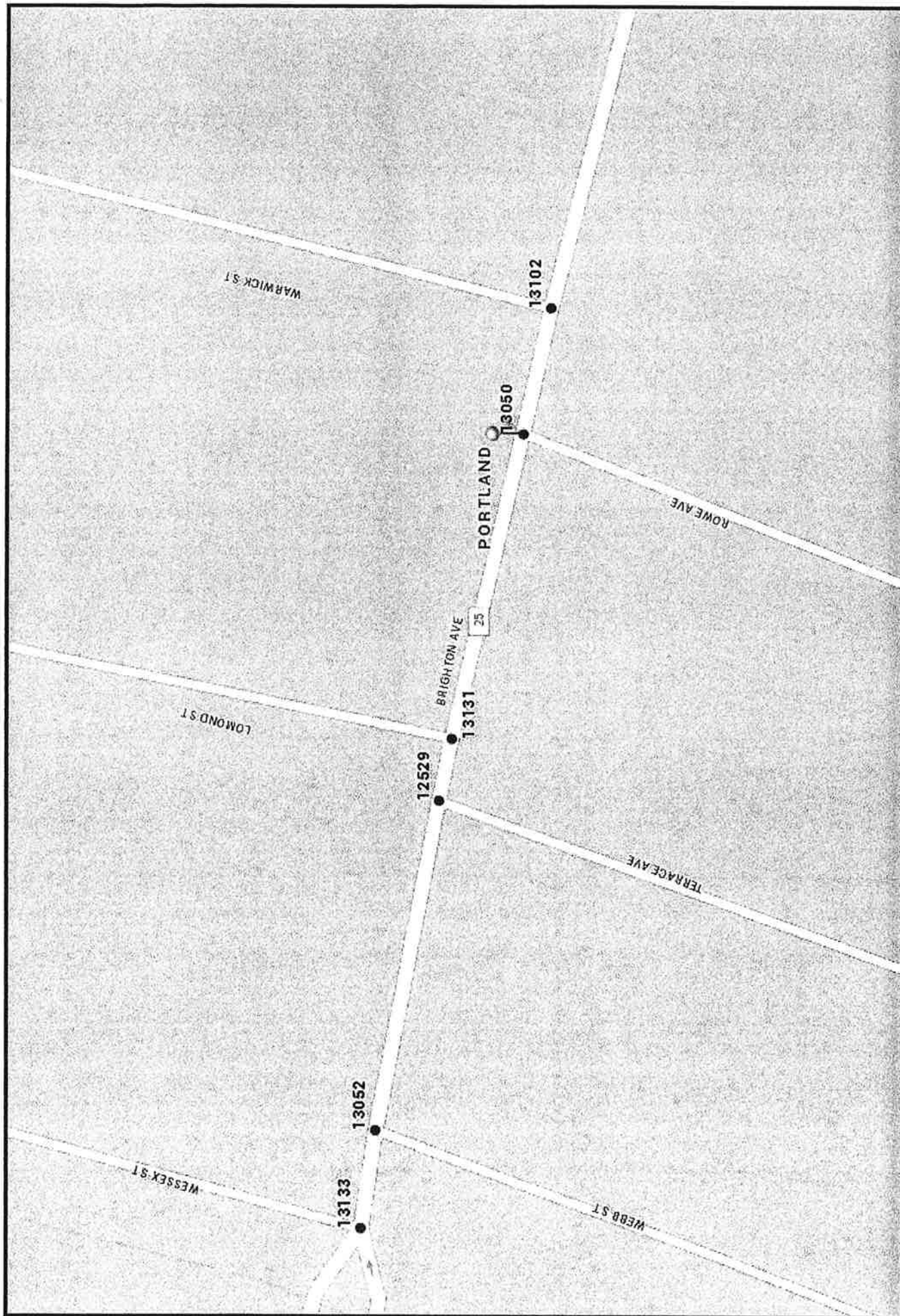
COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION BRIGHTON AVE. [LONOMO ST. to ROWE AVE]
T W PORTLAND NODE NO(S) 13131 to 13050
YEARS REVIEWED 2013-2015 DATE PREPARED 6-7-2016

[illegible]

313 553



Date: 6/14/2016
Time: 12:32:11 PM

0.025 Miles
1 inch = 0.02 miles

The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

September 7, 2016

Barbara Barhydt,
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101

Re: Site Plan and Subdivision Application, Dirigo Plaza; Dirigo Center Developers, LLC; Applicant's Narrative Response to the City of Portland's Off-Site Traffic Mitigation Comments

Dear Barbara:

I am writing to provide Applicant Dirigo Center Developers, LLC's ("Applicant") response regarding the City of Portland's Off-Site Traffic Mitigation Comments for the Dirigo Plaza project ("Project") provided to us by Jeremiah Bartlett on Friday, September 2, 2016. We appreciate the efforts by the City of Portland, the Maine Department of Transportation, the City of Westbrook, and the Maine Turnpike Authority to meet with us on September 1 to review MDOT's draft Traffic Movement Permit ("draft TMP") and other traffic and development concerns, and to prepare comments on the same so promptly. We understand that the City of Portland seeks the following items for incorporation into the finalized Traffic Movement Permit to be issued by MDOT, and our response follows each item listed below. Schematic plans prepared by Vanasse & Associates, Inc. ("VAI") to illustrate the Applicant's proposed work are enclosed.

1. Riverside Street from Berlin City to Exit 48

- *Provide consistent roadway width to allow for a center left turn lane to reduce crash frequency*

We understand from our meeting on September 1 that there is sufficient roadway width to permit us to restripe this area, and so the **Applicant agrees** to restripe this area, as requested by the City of Portland (see VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2).

- *Eliminate sidewalk gap on west side of street north of Burger King (i.e. result in sidewalks on both sides of Riverside between Exit 48 and Berlin City)*

The **Applicant agrees** to construct the sidewalk to eliminate sidewalk gap on west side of street north of Burger King, as requested by the City of Portland (see VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2).

2. Riverside Street at Larrabee Road and Exit 48

More specific recommendations for this location, as related to the mitigation plan, include:

- *Updated signal timing, coordination, and new signal structures (the City's position is that this intersection is too large for span wire)*
- *Updated wiring*
- *Controller cabinet*
- *Video detection that detects and accommodates bicyclists*
- *Signal heads with reflective back plates*
- *Overhead lane use signage as per MTA comments*
- *Countdown pedestrian heads*
- *Placement of ADA compliant ramps*
- *Use of durable pavement markings to supplement overhead provisions*
- *Establish queue detection for Exit 48 off-ramp to provide pre-emption capability as per MTA comments*

The Larrabee Road approach, proposed to be widened to provide a dual left turn lane, results in a wider intersection and is a costly improvement. The City would urge the Applicant to explore the need for two left turn lanes, or utilizing an existing through lane as a left turn lane to reduce costs and intersection size.

The **Applicant agrees** to construct the Exit 48 improvements as stated in the draft TMP and with the above detail, as requested by the City of Portland, and also **agrees** to review the Larrabee Road approach to provide lanes consistent with MDOT's findings and directions, all with the understanding that this work will be coordinated with scheduled MDOT and City of Portland projects for this intersection and that the City funding for this intersection will remain in place as proposed in the City's FY2017-FY2021 Capital Improvement Plan (CIP). (See VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2.)

3. Riverside Street at Westbrook Crossing

- *Updated signal timing, coordination*
- *Provision of detectable warning panels at pedestrian ramps*
- *Signal heads with reflective back plates*

The **Applicant agrees** to provide these improvements, as requested by the City of Portland. (See VAI Conceptual Improvement Plan, Riverside Street Corridor, Sheet 2 of 2.)

4. Riverside Street from Brighton Avenue to Exit 48

- *Explore potential for provision of bicycle lanes or the width within the project limits of Exit 48 work to allow for such lanes in the future.*

Actual construction of bicycle lanes along Riverside Street is not financially viable for the Applicant, but the Applicant understands that is not what the City is seeking here; the **Applicant agrees** to provide the City of Portland with the existing conditions data that will be prepared as part of the off-site mitigation, for the City's use in the conceptual design for bicycle improvements. The Applicant does not believe that the Exit 48 improvements it is undertaking will preclude the City from later establishing bicycle lanes. Bicycles can use the full travel lane similar to the bicycle use of Main Street in Westbrook and signage can be installed to promote this full lane use.

- *Provision of continuous sidewalk along east side of Riverside Street from Brighton Avenue to Exit 48, including filling the gap at the Fireside Inn frontage (much of this sidewalk currently exists)*

The **Applicant agrees** to construct the portion of the sidewalk along the **Fireside** Inn frontage from the driveway north to the existing guardrail, as requested by the City of Portland. (See VAI Conceptual Improvement Plan, Riverside Street at Larrabee Road and I-95 Exit 48 Ramps, Sheet 2 of 2.)

5. Riverside Street at Brighton Avenue

- *Examination of need for right turn slip lanes, primarily slip lane from Riverside to Brighton. City may be willing to partner financially on this aspect.*

The **Applicant does not agree** to make this a part of its mitigation plan, but would make a donation to the City for this and other Brighton Avenue improvements (see responses to Items 6 and 9 below).

- *Video detection that detects and accommodates bicyclists*
- *Signal heads with reflective back plates*
- *Up-to-date ADA provisions and corrections to immediately adjacent deficient sidewalk segments*

The **Applicant agrees** to these improvements as part of its mitigation plan, some elements of which are included in the Ransom Brighton Avenue improvements plan; the sidewalk location can be adjusted within the limits of the right of way. (See VAI Figure 14, Conceptual Improvement Plan, Sheet 5 of 5).

6. Brighton Avenue at Capisic Street

The City seeks mitigation at this location, as the TIS identifies a substandard LOS. Provision of updated ramps and pedestrian equipment may be a satisfactory outcome.

The **Applicant does not agree** to make this a part of its mitigation plan, but would make a donation to the City for this and other Brighton Avenue improvements (see responses to Item 5 above and Item 9 below).

7. Brighton Avenue at Woodford Street

The City seeks mitigation at this location, as the TIS identifies a substandard LOS. One option here would be modifications that would allow for a concurrent pedestrian crossing with a lead ped interval, which could be accomplished with ADA and signal equipment improvements. This would increase operational efficiency above and beyond the current exclusive pedestrian phase configuration. Potential implementation of Lead Pedestrian Interval walk lights to improve vehicular and pedestrian Level of Service.

The **Applicant does not agree** to make this part of its mitigation plan; this is not financially viable for this Project as the requested improvements would be located so far from the Project that they are not reasonably related to pedestrian concerns generated by the Project. This intersection was not identified in the MDOT draft TMP as traffic mitigation for the proposed Dirigo Plaza project.

8. Rand Road at Exit 47

The City understands that mitigation is likely required at this location. However, if alternative mitigation strategies can be determined, the City will be open, in consultation with Westbrook and the Turnpike Authority, to alternatives.

The **Applicant agrees**, as an alternative to the improvements at this intersection in the draft TMP, to either: 1) in conjunction with MDOT and MTA, and as a condition of the final TMP, monitor traffic conditions at this intersection following construction of the Project's North Campus and to undertake any improvements to Exit 47 deemed necessary by MDOT at the time of permitting of the South Campus of the Project; or 2) to forego constructing improvements to this intersection with the funds it would otherwise be required to expend on Exit 47 to be used for other mitigation measures as agreed upon by the City of Portland and the Applicant. (See VAI Rand Road at I-95 Exit 47 Ramps Conceptual Improvement Plan, Sheet 1 of 1 for MDOT draft TMP plan).

9. Sidewalks on Brighton Avenue

The City seeks improvements to the sidewalks on Brighton Avenue in order to encourage non-vehicular trips to and from the site. Specifically, the City requests that, where documented existing conditions are fair or poor, replacement concrete sidewalks on the west side of Brighton Avenue be provided from the site entrance south to Albion Street.

Because of the schedule for the Project and the need to complete offsite mitigation improvements before a certificate of occupancy can issue for the Project, the **Applicant agrees** to donate to the City of Portland an amount equal to the amount remaining from Lowe's payment for the Brighton Street streetscape improvements -- \$220,000 -- to fund this and the improvements described at Items 5 and 6 above as well as other improvements identified by Ransom that the City may wish to make.

10. Riverside Street at Warren Avenue (lower priority)

- *Reconfigure westbound Warren Avenue to consist of two left turn lanes and a shared through/right turn lane. This will consist primarily of restriping.*
- *Adjust phasing and timing to eliminate the split phasing structure for the Warren Avenue approaches*

The **Applicant agrees** to provide the existing conditions data that will be prepared as part of the off-site mitigation, for conceptual design of the intersection to be prepared by the City of Portland. Actual design and construction of the requested improvement is not financially viable for the Project and was not part of the MDOT draft TMP.

11. Riverside Street at Home Depot Drive (lower priority)

Signal heads with reflective back plates

- *Overhead lane use signage*
- *Countdown pedestrian heads*

The **Applicant does not agree** to the requested improvement; this was not identified by MDOT in the draft TMP and is not financially viable for the Project.

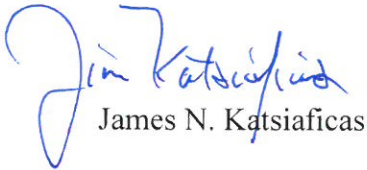
We acknowledge that the City of Portland has authority to seek off-site traffic mitigation measures through the subdivision and site plan ordinance processes to ensure that the Project will not cause unreasonable highway or public road congestion or unsafe conditions with regard to use of the public roads. Since these ordinance standards mirror the State traffic movement standards at 23 M.R.S. §704-A and Chapter 305, the improvements required by the draft TMP, which is intended to be regional in scope and which covers a two-mile radius, should form the basis for required traffic improvements for the Project. As explained during the September 1, 2016 meeting, we estimate that the total cost of traffic improvements required by the draft TMP is \$6.8 million, with \$3.365 attributable to "front door" access improvements and \$3.425 million attributable to regional off-site mitigation improvements (\$2.270 million in Portland and \$1.155 million in Westbrook).

However, in addition to carrying out the off-site mitigation tasks required by the draft TMP, we are, as noted in our responses above, agreeing to take on additional off-site traffic mitigation responsibilities as requested by the City of Portland by: 1) clarifying and amplifying the draft TMP requirements, and 2) offering to provide the additional installation, equipment, striping and

sidewalk work as stated above, to ensure that the intersections listed in the draft TMP **and** the street segments between them in the immediate Project area are improved appropriately. Also, as we have mentioned above, we agree to contribute the amount of \$220,000 to the City to match the amount of mitigation funding remaining from the Lowe's project so that the City can apply these funds towards Brighton Avenue streetscape improvements, as discussed in our responses to Items 5, 6 and 9 above.

We believe that City staff will find that these responses, and the significant contribution to the Project area's transportation infrastructure that they represent, address the reasonable off-site traffic mitigation needs generated by the Project as measured under State law and under Portland's land use ordinances.

Sincerely,



James N. Katsiaficas

cc: Jeremiah Bartlett, Transportation Systems Engineer, City of Portland
Jeff Levine, Planning & Urban Development Director, City of Portland
Jennie Franceschi, Director of Planning and Code Enforcement, City of Westbrook
Stephen Landry, Maine Department of Transportation, Traffic Engineering Division
Engineer, Maintenance and Operations Bureau, Maine Department of Transportation
Timothy Soucie, Region 1 Traffic Engineer, Maine Department of Transportation
Jeffrey Gove, Dirigo Center Developers, LLC
Wayne Morrill, Vice President, Jones & Beach Engineers, Inc.
David J. Tracy, Esq., Hinckley Allen
Philip Saucier, Esq., Bernstein Shur
Katherine Joyce, Esq., Bernstein Shur



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

MAINE GENERAL PERMIT (GP)
AUTHORIZATION LETTER AND SCREENING SUMMARY

J&J Gove Development, LLC
7 Swan Drive
Hampton Falls, NH 03844

CORPS PERMIT # NAE-2015-01814
CORPS GP ID# 16-141
STATE ID# L-02734-TG-D-N

DESCRIPTION OF WORK:

place temporary fill in 1,319 SF (.03 acres) and permanent fill in 64,218 SF (1.47 acres) of wetland in conjunction with the development of a retail shopping center and associated infrastructure on a 39 acre parcel off Main Street and Larrabee Road Westbrook and Portland, Maine as shown on the attached plans entitled "Dirigo Plaza 58 & 80 Main Street Westbrook, Maine" in 9 sheets by Jones & Beach Engineers, Inc.

LAT/LONG COORDINATES : 43.67505° N -70.33336° W USGS QUAD: Portland West, ME

I. CORPS DETERMINATION:

Based on our review of the information you provided, we have determined that your project will have only minimal individual and cumulative impacts on waters and wetlands of the United States. Your work is therefore authorized by the U.S. Army Corps of Engineers under the enclosed Federal Permit, the Maine General Permit (GP). Accordingly, we do not plan to take any further action on this project.

You must perform the activity authorized herein in compliance with all the terms and conditions of the GP [including any attached Additional Conditions and any conditions placed on the State 401 Water Quality Certification including any required mitigation]. Please review the enclosed GP carefully, including the GP conditions beginning on page 5, to familiarize yourself with its contents. You are responsible for complying with all of the GP requirements; therefore you should be certain that whoever does the work fully understands all of the conditions. You may wish to discuss the conditions of this authorization with your contractor to ensure the contractor can accomplish the work in a manner that conforms to all requirements.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

Condition 38 of the GP (page 16) provides one year for completion of work that has commenced or is under contract to commence prior to the expiration of the GP on October 13, 2020. You will need to apply for reauthorization for any work within Corps jurisdiction that is not completed by October 13, 2021.

This authorization presumes the work shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to the undersigned.

No work may be started unless and until all other required local, State and Federal licenses and permits have been obtained. This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.

II. STATE ACTIONS: PENDING [X], ISSUED [], DENIED [] DATE _____

APPLICATION TYPE: PBR: _____, TIER 1: _____, TIER 2: _____, TIER 3: X, LURC: _____, DMR LEASE: _____, NA: _____

III. FEDERAL ACTIONS:

JOINT PROCESSING MEETING: 3/17/16 LEVEL OF REVIEW: CATEGORY 1: _____ CATEGORY 2: X

AUTHORITY (Based on a review of plans and/or State/Federal applications): SEC 10 _____, 404 X, 10/404 _____, 103 _____

EXCLUSIONS: The exclusionary criteria identified in the general permit do not apply to this project.

FEDERAL RESOURCE AGENCY OBJECTIONS: EPA NO, USF&WS NO, NMFS NO

If you have any questions on this matter, please contact my staff at 207-623-8367 at our Manchester, Maine Project Office. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

RODNEY A. HOWE
SENIOR PROJECT MANAGER
MAINE PROJECT OFFICE

FRANK J. DEL GIUDICE
CHIEF, PERMITS & ENFORCEMENT BRANCH
REGULATORY DIVISION
DATE



**US Army Corps
of Engineers**
New England District

**PLEASE NOTE THE FOLLOWING CONDITIONS FOR
DEPARTMENT OF THE ARMY
GENERAL PERMIT
NO. NAE-2015-01814**

1. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).
2. The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and sub-contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.
3. Adequate sedimentation and erosion control devices, such as geotextile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.
4. All exposed soils resulting from the construction will be promptly seeded and mulched in order to achieve vegetative stabilization.
5. All areas of temporary fill shall be restored to their original contour and character upon completion of the project.
6. Instream work shall be conducted between July 15 through September 30 to minimize potential impacts to fisheries and local water quality.
7. No tree clearing activities shall occur from June 1- July 31 of any given year to minimize the potential effect to the Northern Long eared bat.
8. Mitigation shall consist of payment of \$276,137.40 to the Natural Resource Mitigation Fund. The Corps will provide a completed ILF Project Data Worksheet which must be mailed with a cashier's check or bank draft, made out to "Treasurer, State of Maine", with the permit number noted on the check. The check and worksheet should be mailed to: MEDEP, Attn: ILF PROGRAM ADMINISTRATOR, State House Station 17, Augusta, ME 04333. This authorization (permit) is not valid until the permittee provides the Corps with a copy of the check, with the permit number noted on the check. The ILF amount is only valid for a period of one year from the date on the authorization letter. After that time, the project would need to be reevaluated and a new amount determined.

MAR 15 2016

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

→ PLEASE TYPE OR PRINT IN BLACK INK ONLY

1. Name of Applicant:		J&J Gove Development, LLC		5 Name of Agent: (if applicable)		Gove Environmental Services, Inc. C/O Brendan Quigley							
2. Applicant's Mailing Address:		7 Swain Drive Hampton Falls, NH 03844		6 Agent's Mailing Address:		8 Continental Drive Bldg 2 Unit H Exeter, NH 03833							
3. Applicant's Daytime Phone #:		(603) 926-7662		7 Agent's Daytime Phone #:		(603) 778-0644							
4 Applicant's Email Address Required from either applicant or agent:				8. Agent's Email Address: bquigley@gesinc.biz									
9. Location of Activity: (Nearest Road, Street, Rt.#)		58 Main Street		10. Town:		Westbrook							
				11. County:		Cumberland							
12A. Significant Groundwater well?				☐ Yes OR ☒ No									
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:		Nasons Brook and unnamed freshwater wetland							
				14. Amount of Impact: (Sq.Ft.)		Fill: 1,319 Temp/64,218 Perm Dredging/Veg Removal/Other: see attached sheet							
15. Type of Wetland: (Check all that apply)		☒ Forested ☒ Scrub Shrub ☒ Emergent ☐ Wet Meadow ☐ Peatland ☐ Open Water ☐ Other _____		FOR FRESHWATER WETLANDS <table border="0"> <tr> <td style="text-align: center;"><i>Tier 1</i></td> <td style="text-align: center;"><i>Tier 2</i></td> <td style="text-align: center;"><i>Tier 3</i></td> </tr> <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> </table>				<i>Tier 1</i>	<i>Tier 2</i>	<i>Tier 3</i>	☐ 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
<i>Tier 1</i>	<i>Tier 2</i>	<i>Tier 3</i>											
☐ 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		Please see attached sheet											
17. Size of Lot or Parcel:		☐ square feet, or ☒ 81.08 acres		UTM Northing: 392607		UTM Easting: 4836509							
18. Title, Right or Interest:		☐ own ☐ lease ☒ purchase option ☐ written agreement											
19. Deed Reference Numbers:		Book#: _____ Page: _____ see attached sheet		20. Map and Lot Numbers:		Map #: _____ Lot #: _____ see attached sheet							
21. DEP Staff Previously Contacted:		Robert Green Mark Stebbins		22. Part of a larger project:		☐ 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:		The main access to the site is located at 58 Main Street in Westbrook. From Exit 48 on I-95 follow Larabee Road to the intersection of Main Street and Turn left, PIKE Industries is on the right immediately after the intersection											
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:		\$ 1,990.76											
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

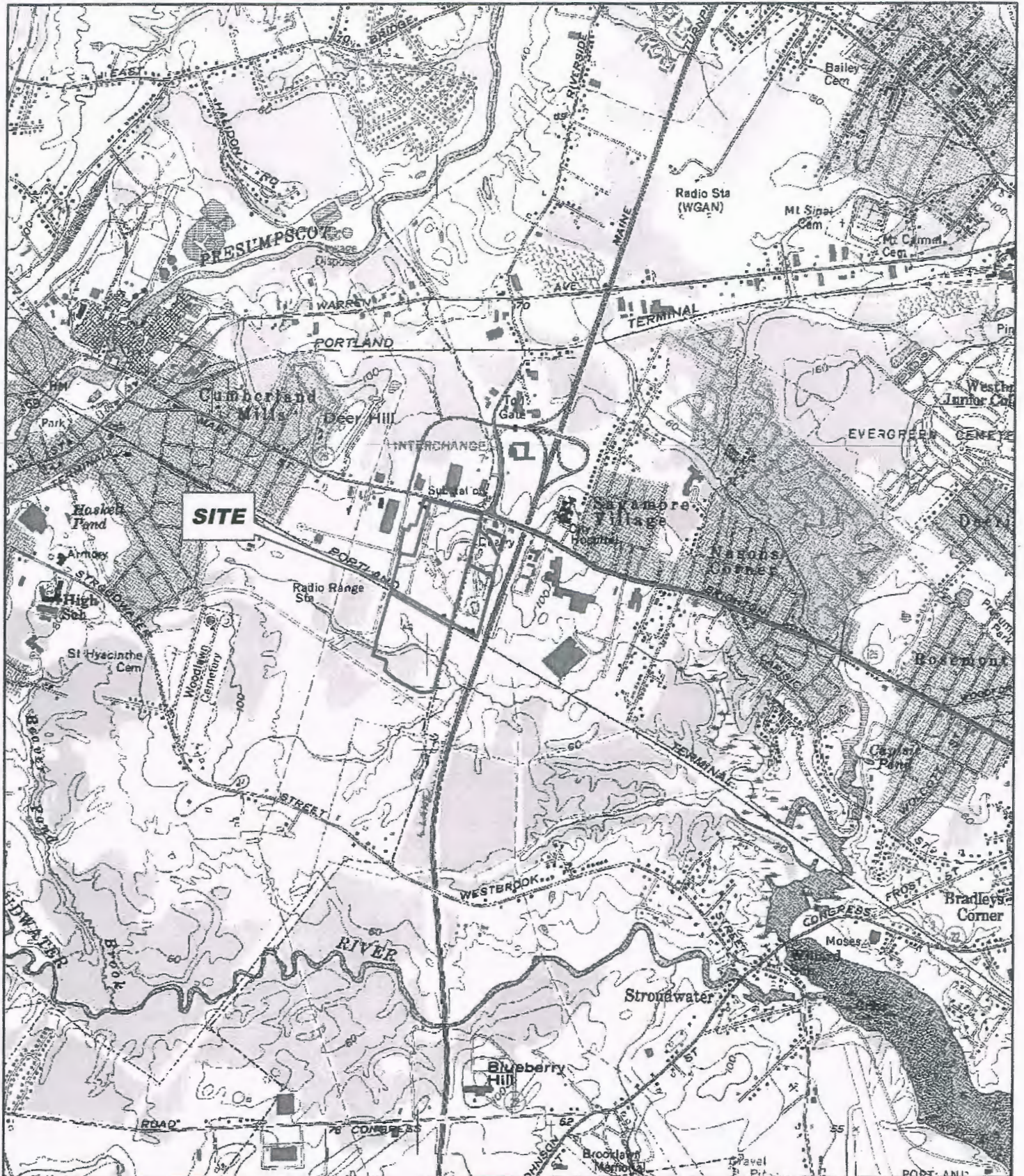
"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I 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: 3-3-2016

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.



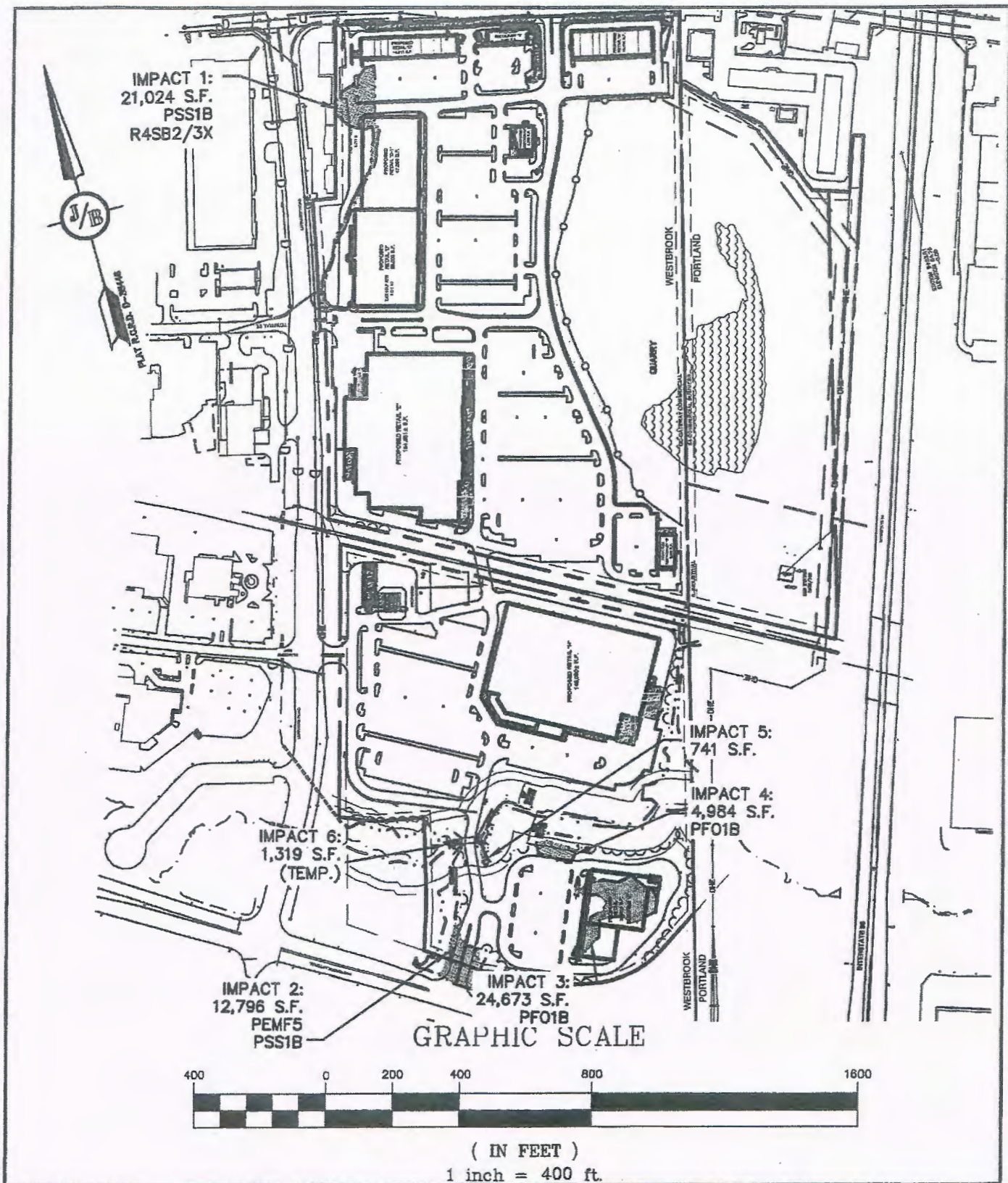
1 inch = 2,000 feet



Gove Environmental Services, Inc.
8 Commercial Drive, Hilly 2, Unit H, Hilly 2, ME 04103-1001

Locus Map

PIKE Quarry
58 Main Street
Westbrook, ME



J/B Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746

FAX: 603-772-0227

E-Mail: JBE@jonesandbeach.com

Drawing Name: OVERALL
WETLAND IMPACT PLAN

Project: "DIRIGO PLAZA"
58 & 80 MAIN STREET, WESTBROOK, ME 04092

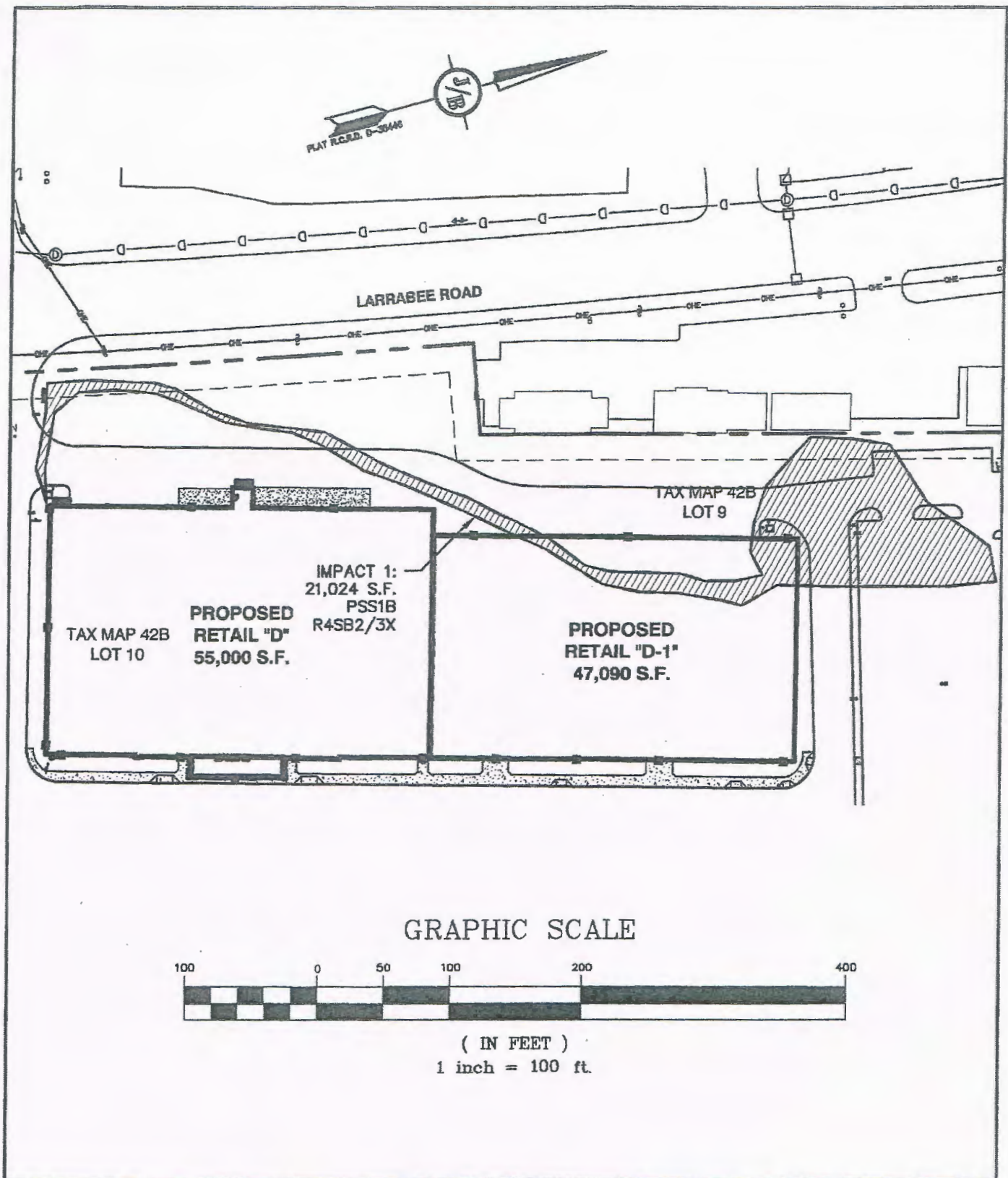
Owner of Record: PIKE INDUSTRIES, INC.
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP-O

SHEET 1 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)
1 inch = 100 ft.

J/B Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

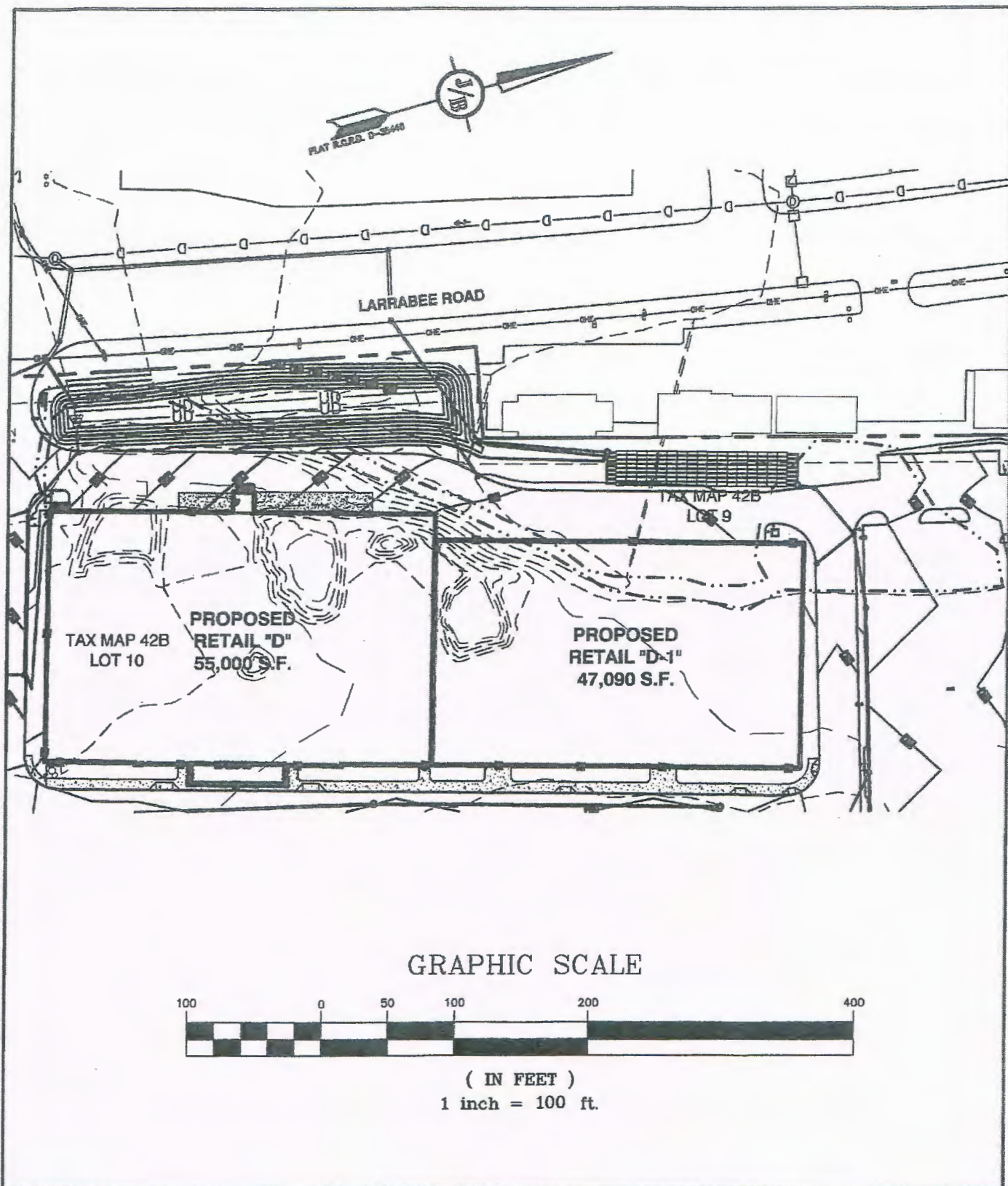
Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092
Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP1

SHEET 2 OF 9

JBE PROJECT
No. 14110



Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

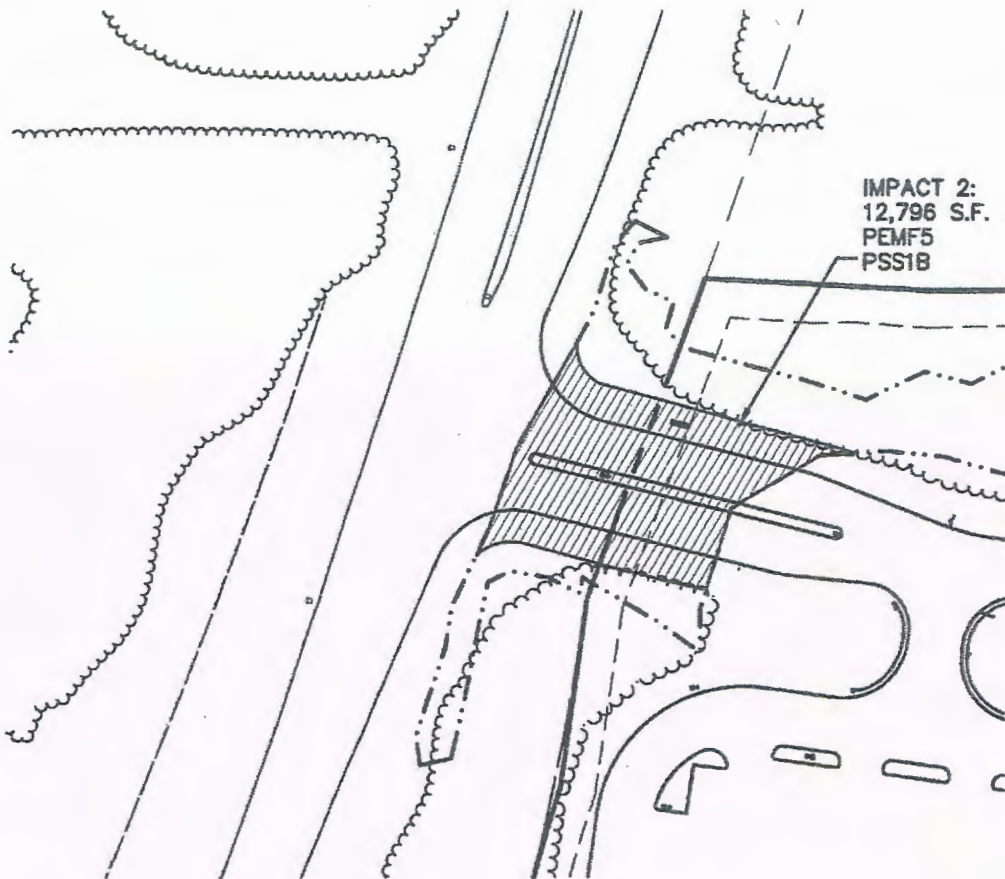
Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP2

SHEET 3 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.



Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746

FAX: 603-772-0227

E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP3

SHEET 4 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

J/B Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

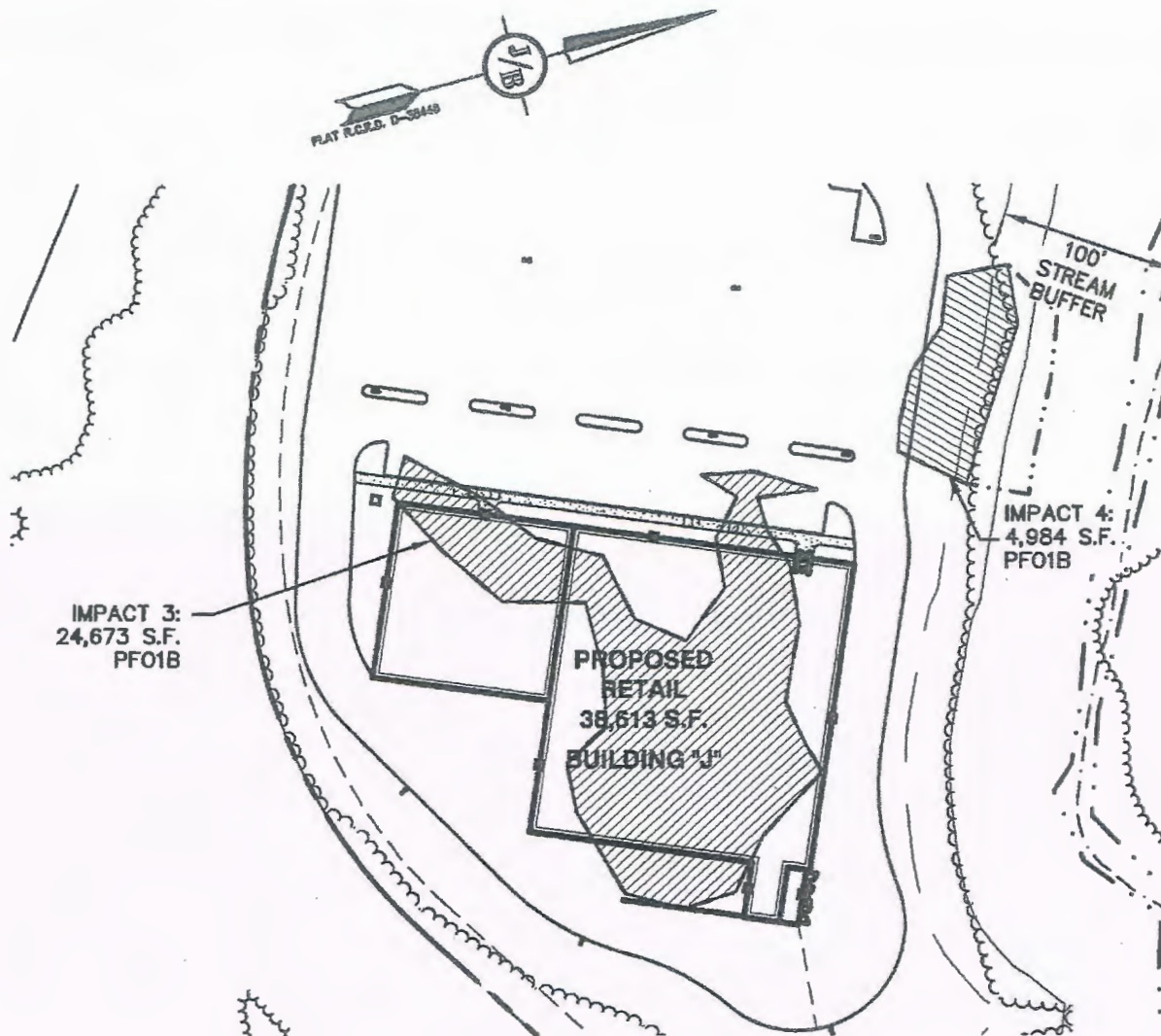
Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP4

SHEET 5 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

J/B Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
 PO Box 219
 Stratham, NH 03885

603-772-4746

FAX: 603-772-0227

E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
 58 & 80 MAIN STREET, WESTBROOK, ME 04092

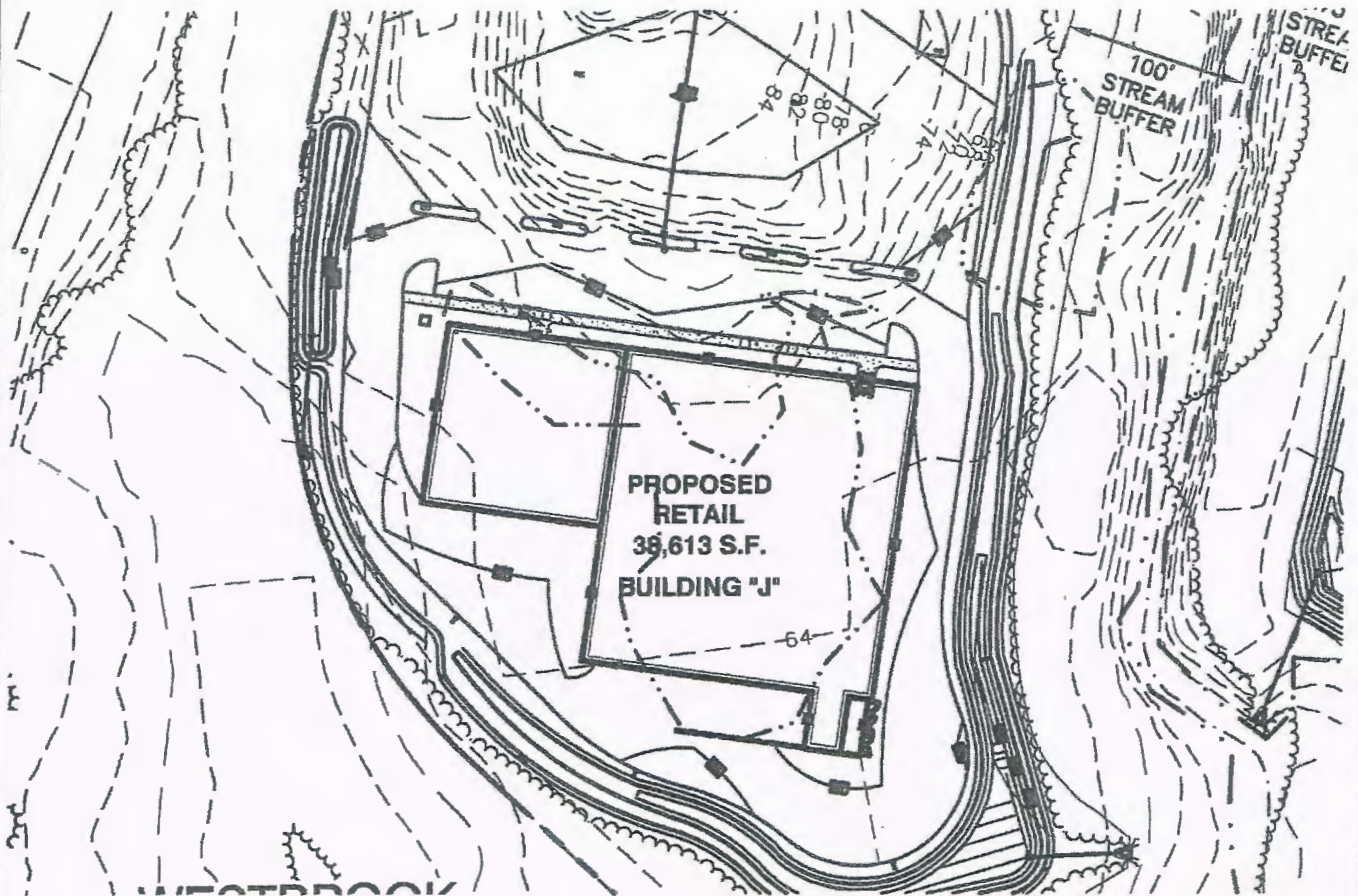
Owner of Record: **PIKE INDUSTRIES, INC.**
 3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP5

SHEET 6 OF 9

JBE PROJECT
 No. 14110



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.



Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746

FAX: 603-772-0227

E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

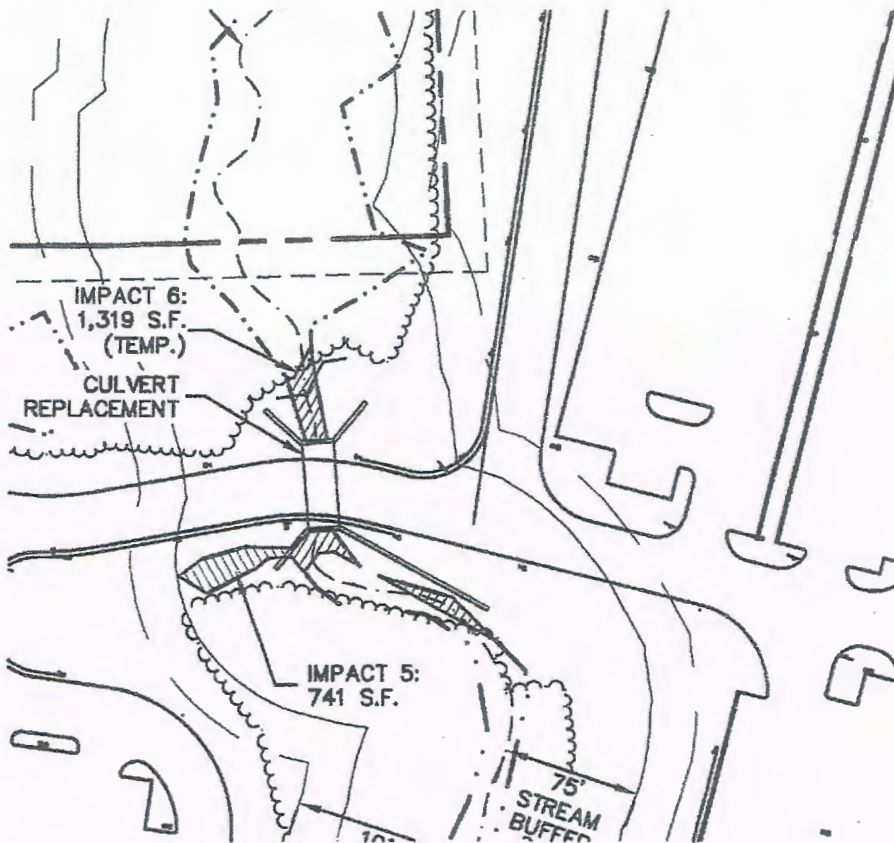
Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP6

SHEET 7 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)
1 inch = 100 ft.



Designed and Produced in NH
Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746

FAX: 603-772-0227

E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

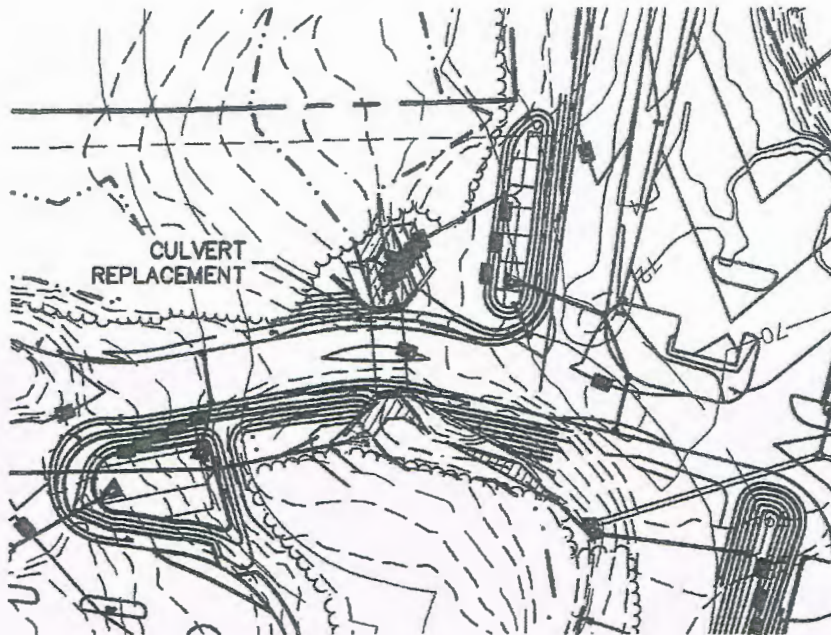
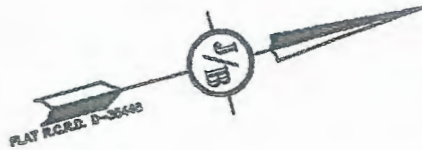
Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP7

SHEET 8 OF 9

JBE PROJECT
No. 14110



GRAPHIC SCALE



(IN FEET)
1 inch = 100 ft.

J/B Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name: **WETLAND IMPACT PLAN**

Project: **"DIRIGO PLAZA"**
58 & 80 MAIN STREET, WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC.**
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.

WIP8

SHEET 9 OF 9

JBE PROJECT
No. 14110



**US Army Corps
of Engineers®**
New England District

WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Corps of Engineers Permit No. NAE-2015-01814 was issued to J&J Gove Development, LLC.
The permit authorized the permittee to place temporary fill in 1,319 SF (.03 acres) and permanent fill in 64,218 SF (1.47 acres) of wetland in conjunction with the development of a retail shopping center and associated infrastructure on a 39 acre parcel off Main Street and Larrabee Road Westbrook and Portland, Maine. The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

Telephone Numbers: () _____ () _____

Proposed Work Dates: Start _____ Finish _____

Permittee's Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

FOR USE BY THE CORPS OF ENGINEERS

PM: Howe **Submittals Required:** _____

Inspection Recommendation: _____



**US Army Corps
of Engineers®**
New England District

(Minimum Notice: Permittee must sign and return notification
within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

USACE Project Number: NAE-2015-01814p

Name of Permittee: _____

Permit Issuance Date: _____

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

Printed Name

Date of Work Completion

() _____

() _____

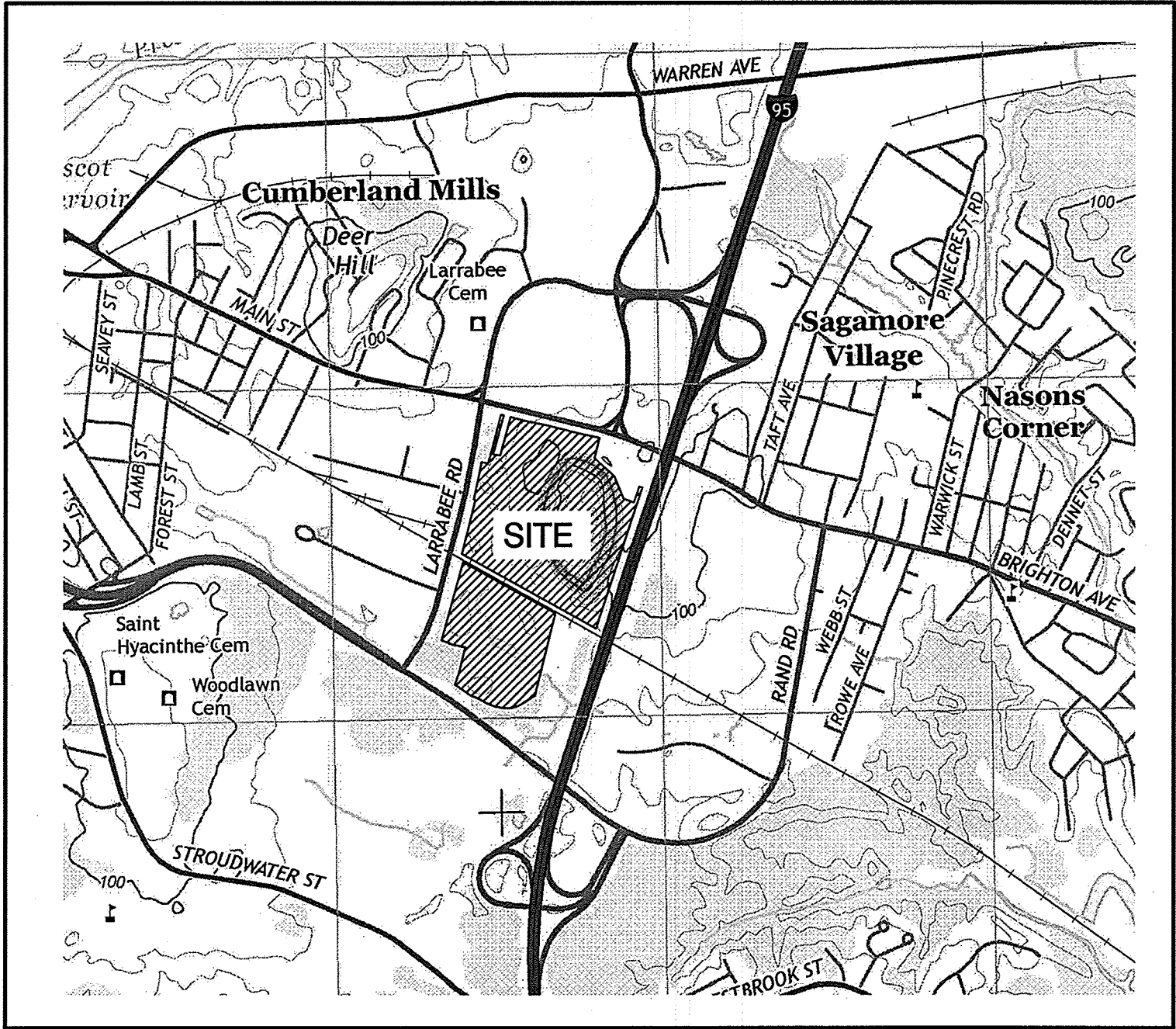
Telephone Number

Telephone Number

COMMERCIAL DEVELOPMENT
"DIRIGO PLAZA"
TAX MAP 42B, LOTS 9, 10, 11 & 14
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME

SHEET INDEX

CS	COVER SHEET
A1	EXISTING CONDITIONS PLAN
A2	EXISTING CONDITIONS DETAILS & NOTES
A3	SUBDIVISION / LOT CONSOLIDATION
C1-2-1 - C-1-2-2	DEMOLITION PLANS
C2	OVERALL SITE PLAN
C2-1	SITE PLAN - NORTH CAMPUS
C2-1-1 - C2-1-4	SITE PLANS - NORTH CAMPUS
C2-2	SITE PLAN - SOUTH CAMPUS
C2-2-1 - C2-2-2	SITE PLANS - SOUTH CAMPUS
C3	OVERALL GRADING AND DRAINAGE PLAN
C3-1	GRADING AND DRAINAGE PLAN - NORTH CAMPUS
C3-1-1 - C3-1-4	GRADING AND DRAINAGE PLANS - NORTH CAMPUS
C3-2	GRADING AND DRAINAGE PLAN - SOUTH CAMPUS
C3-2-1 - C3-2-2	GRADING AND DRAINAGE PLANS - SOUTH CAMPUS
C4	OVERALL UTILITY PLAN
C4-1	UTILITY PLAN - NORTH CAMPUS
C4-1-1 - C4-1-4	UTILITY PLANS - NORTH CAMPUS
C4-2	UTILITY PLAN - SOUTH CAMPUS
C4-2-1 - C4-2-2	UTILITY PLANS - SOUTH CAMPUS
C4-3-1 - C4-3-5	SEWER PLAN & PROFILES
L1.0	LANDSCAPE NOTES AND LEGENDS
L2.0	LANDSCAPE OVERALL PLAN
L3.0 - L3.2	HARDSCAPE PLANS
L4.0 - L4.1	HARDSCAPE DETAILS
L5.0 - L5.8	PLANTING PLAN - NORTH CAMPUS
L6.0 - L6.1	PLANTING PLAN ENLARGEMENTS
L7.0 - L7.1	PLANTING DETAILS
L8.0	LANDSCAPE SPECIFICATIONS
LP1	OVERALL LIGHTING PLAN
LP1-1 - LP1-7	LIGHTING PLANS
PP1 - PP8	PLAN AND PROFILE
D1 - D21	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS
EC-1 - EC-6	EROSION CONTROL SHEETS
	EXTERIOR ELEVATION BUILDING "A"
	EXTERIOR ELEVATION BUILDING "B"
	EXTERIOR ELEVATION BUILDING "C"
	EXTERIOR ELEVATION BUILDING "D"
	EXTERIOR ELEVATION BUILDING "E"
	EXTERIOR ELEVATION BUILDING "F"
	EXTERIOR ELEVATION BUILDING "G"
	EXTERIOR ELEVATION BUILDING "J"
PH1-1 - PH1-3	PHASE 1 PLANS
VA11-VA15	CONCEPTUAL IMPROVEMENT PLANS



LOCUS MAP
SCALE 1" = 2000'

PERMITS

TYPE OF PERMIT	STATUS	TYPE OF PERMIT	STATUS
WESTBROOK SITE PLAN APPROVAL: CITY OF WESTBROOK 2 YORK STREET WESTBROOK, ME 04092 (207)-854-9105 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 2/9/16 PERMIT NO. DATED: EXPIRATION:	SITE LOCATION OF DEVELOPMENT PERMIT: MDEP - SOUTHERN MAINE REGIONAL OFFICE 312 CANCO ROAD PORTLAND, ME 04103 (207)-822-6365 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 3/4/16 PERMIT NO. DATED: EXPIRATION:
WESTBROOK SUBDIVISION APPROVAL: CITY OF WESTBROOK 2 YORK STREET WESTBROOK, ME 04092 (207)-854-9105 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 2/9/16 PERMIT NO. DATED: EXPIRATION:	U.S. ARMY CORPS OF ENGINEERS: NEW ENGLAND DIVISION: 424 TRAPELO ROAD WALTHAM, MA 02254-9149 (800) 343-4789 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 3/4/16 PERMIT NO. NAE-2015-01814 DATED: EXPIRATION: 10/13/2020
WESTBROOK SPECIAL EXCEPTION: CITY OF WESTBROOK 2 YORK STREET WESTBROOK, ME 04092 (207)-854-9105 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 2/9/16 PERMIT NO. DATED: EXPIRATION:	NATURAL RESOURCE PROTECTION ACT PERMIT MDEP - SOUTHERN MAINE REGIONAL OFFICE 312 CANCO ROAD PORTLAND, ME 04103 (207)-822-6365 RESPONSIBLE CONSULTANT: GOVE ENVIRONMENTAL SERVICES	SUBMITTED: 3/4/16 PERMIT NO. DATED: EXPIRATION:
PORTLAND SUBDIVISION APPROVAL: CITY OF PORTLAND 389 CONGRESS STREET PORTLAND, ME 04101 (207)-874-8719 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: 3/22/16 PERMIT NO. DATED: EXPIRATION:	MAINE DOT TRAFFIC MOVEMENT PERMIT: STATE OF MAINE DEPARTMENT OF TRANSPORTATION - REGION 1 P.O. BOX 358 SCARBOROUGH, ME 04070-0358 (207)-885-7000 RESPONSIBLE CONSULTANT: VANASSE & ASSOCIATES	SUBMITTED: 12/22/15 PERMIT NO. DATED: EXPIRATION:

USEPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT,
NOTICE OF INTENT (NOI), AND NOTICE OF TERMINATION
(NOT) TO BE FILED IN ACCORDANCE WITH FEDERAL AND
LOCAL REGULATIONS PRIOR TO AND FOLLOWING CONSTRUCTION:
EPA STORMWATER NOTICE PROCESSING CENTER
MAIL CODE 4203M,
US EPA
1200 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20460
RESPONSIBLE CONSULTANT:
JONES & BEACH ENGINEERS, INC.

WETLANDS CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC
8 CONTINENTAL DRIVE
BLDG 2 UNIT H
EXETER, NH 03833
(603) 778-0644

CIVIL ENGINEER
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: WAYNE MORRILL
EMAIL: WMORRILL@JONESANDBEACH.COM

GEOTECH ENGINEER
S.W. COLE ENGINEERING, INC
286 PORTLAND ROAD
GRAY, ME 04039-9586
(207) 657-2866

SURVEYOR
KNIGHT HILL LAND SURVEYING SERVICES, INC.
34 OLD POST ROAD
NEWINGTON, NH 03801
(603) 436-1330

ARCHITECT
PHASE ZERO DESIGN
35 POND PARK ROAD, BAY 16
HINGHAM, MA 02043
(781) 452-7121 EXT. 205

WATER DISTRICT
MEANS GROUP
PORTLAND WATER DISTRICT
225 DOUGLAS STREET
PORTLAND, ME 04104
(207)-774-5961

CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, ME 04103
(800)-750-4000
CONTACT: JAMIE COUGH

UNITIL
1075 FOREST AVE
PORTLAND, ME 04103
(888)-301-7700
CONTACT: SCOTT CARPENTER

FAIRPOINT
5 DAVIS FARM ROAD
PORTLAND, ME 04103
(866)-984-3001
CONTACT: HARRY LORING

TRAFFIC ENGINEER
VANASSE & ASSOCIATES, INC.
35 N.E. BUSINESS CENTER DRIVE, SUITE 140
ANDOVER, MA 01810-1066
(978) 474-8800
CONTACT: JEFF DIRK
EMAIL: JDIRK@RDVA.COM

WESTBROOK WASTEWATER DIVISION
CITY OF WESTBROOK
371 SACO STREET
WESTBROOK, ME 04002
(207)-854-0660
CONTACT: ROGER JACKSON

APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14

CITY OF PORTLAND
TAX MAP 284, LOTS A002 & A004
TAX MAP 285, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG Draft: BWG Date: 10/20/15
Checked: WGM Scale: AS NOTED Project No.: 14110
Drawing Name: 14110-PLAN.dwg
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN
PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE).
ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE
AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM
Civil Engineering Services

Plan Name:	COVER SHEET
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

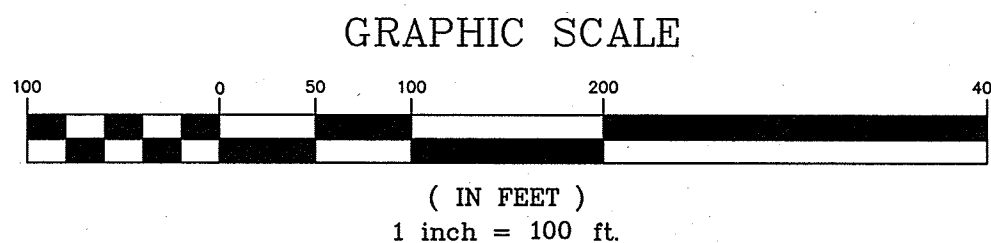
DRAWING No.
CS
SHEET 1 OF 120
JBE PROJECT NO. 14110

W:\14110-EX-CONDITIONS\14110-EX-CONDITIONS.dwg 10/7/2015 10:21:06 AM EDIT



CERTIFICATION:
THIS SURVEY MAP IS IN ACCORDANCE WITH CHAPTER 80, PARTS 1 & 2 OF THE STATE BOARD OF LICENSES FOR PROFESSIONAL LAND SURVEYORS EXCEPTING A WRITTEN REPORT.
Gordon D. Hislop, Jr. 6-25-2016
GORDON D. HISLOP, JR. PLS #2293 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

SOIL LEGEND		
SOIL SERIES SYMBOL	SOIL SERIES NAME	DESCRIPTION
CR	COMPACT RECLAIM OVER SANDY FILL	CRUSHED CONCRETE JUST & CHIPS, SOMETIMES WITH LAYERS OF OLD PAVEMENT AT THE SURFACE OR BURIED
En	ELMWOOD	VERY FINE SANDY LOAM OVER SILTY CLAY LOAM
QU	QUARRY	EXPOSED BEDROCK IN FORMER QUARRY, WITH STEEP SIDES, SOME SOIL/DEBRIS IN BOTTOM AREAS, PONDING WATER AT DEEPEST AREA
Rd	ROUNDBOUT	VERY FINE SANDY LOAM IN THE UPPER PART OVER STRATIFIED FINE SAND AND SILT TO SILT LOAM
SI	SILTY POORLY DRAINED FILL	GRAVELLY CRUSHED CONCRETE, STONE DUST, AND SEDIMENT OVERLIED FROM SEDIMENTATION TRAP OR ERODED INTO STREAM CHANNEL
SD		STONY LOAMY SAND TO SILT LOAM SOIL, WITH NONSTILL RECLAIMED PAVEMENT AND CRUSHED CONCRETE
SP	STONE DUST & WASH TAILINGS IN FILL	SILT FROM STONE DUST AND WASH TAILINGS
SV	STONE DUST & WASH TAILINGS	RECLAIMED ASPHALT, CRUSHED CONCRETE JUST AND CHIPS, AND WASH TAILINGS
UC	UNSTABLE CONCRETE WASTE	CRUSHED CONCRETE JUST AND CHIPS WITH LARGE SLABS OF CONCRETE OVERLYING SILT LOAM



PROJECT PARCEL
TOWN OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOT A002
TAX MAP 265, LOT A004
APPLICANT
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844
TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: WGM Draft: MJS Date: 2/23/15
Checked: WGM Scale: AS NOTED Project No.: 14110
Drawing Name: 14110-EX-CONDITIONS.DWG
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



REV.	DATE	REVISION	BY
1	6/23/16	REVISED PER ADDITIONAL SURVEY	ISM
0	2/2/16	ISSUED FOR REVIEW	BWG

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: EXISTING CONDITIONS PLAN
Project: "DIRIGO PLAZA"
58 & 80 MAIN STREET, WESTBROOK, ME
Owner of Record: PIKE INDUSTRIES, INC.
3 EASTGATE PARK ROAD, BELMONT, NH 03220

DRAWING No.
A1
SHEET 2 OF 120
JBE PROJECT NO. 14110

\\A1410-VESTBROOK-TEST.DWG - DO NOT USE GO TO V DRIVE\A1410-EX-CONDITIONS.dwg 10/7/2015 10:21:06 AM EDT

SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO CONSOLIDATE WESTBROOK TAX MAP 42B, LOTS 9, 10 & 11 INTO 1 LOT WITH 2 LEASE PARCELS B & E, AND TO SHOW THE EXTENT OF WESTBROOK TAX MAP 42B, LOT 14 AND PORTLAND TAX MAP 264, LOTS A002 AND A004 AND TAX MAP 265, LOTS A003.
2. OWNER OF RECORD: PIKE INDUSTRIES, INC. CORD BOOK 23504, PAGE 113, CORRECTED BY BOOK 23578, PAGE 296.
3. WESTBROOK TAX MAP 42B, LOT 14 REFERENCE DEED 8964/221, 2001/491, 2198/493.
4. WESTBROOK TAX MAP 42B, LOT 11 REFERENCE DEED 2198/493, 1737/445.
5. WESTBROOK TAX MAP 42B, LOT 10 REFERENCE DEED 21632/224, 4166/68.
6. WESTBROOK TAX MAP 42B, LOT 9 REFERENCE DEED DEED 1988/410.
7. PORTLAND TAX MAP 264, LOT A002 REFERENCE DEED 3162/899, 1921/59.
8. PORTLAND TAX MAP 264, LOT A004 REFERENCE DEED 2755/81.
9. WESTBROOK ZONING DISTRICT: GATEWAY COMMERCIAL DISTRICT
10. LOT AREA MINIMUM = 20,000 SF
11. LOT FRONTAGE MINIMUM = 200'
12. BUILDING SETBACKS (MINIMUM):
13. FRONT SETBACK = 20'
14. SIDE SETBACK = 20'
15. REAR SETBACK = 20'
16. MAX. BUILDING HEIGHT = 50'
17. PORTLAND ZONING DISTRICT: B-4 COMMERCIAL CORRIDOR ZONE
18. LOT AREA MINIMUM = 10,000 SF
19. LOT FRONTAGE MINIMUM = 80'
20. BUILDING SETBACKS (MINIMUM):
21. FRONT SETBACK = 20'
22. SIDE SETBACK 1-2 STORIES = 10'
23. SIDE SETBACK 3 OR MORE STORIES = 12'
24. REAR SETBACK = 20'
25. WETLAND SETBACK = 50'
26. MAX. BUILDING HEIGHT = 65'
27. MAX. SEALED SURFACE = 80%
28. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
29. BASIS OF BEARING FOR THIS SURVEY IS MAINE ME2000 STATE PLANE COORDINATES. ELEVATIONS ARE BASE ON NGVD 29. STATIONS "POR 4" AND "CHARTER" WERE USED TO ESTABLISH HORIZONTAL CONTROL. STATIONS "CHARTER", "GERALD" AND "GERALD RM 1" WERE USED TO ESTABLISHED VERTICAL CONTROL.
30. LOT AREAS:
31. MAP 42B LOT 9: 30,401 SQ. FT., 0.78 ACRES
32. MAP 42B LOT 10: 176,685 SQ. FT., 4.056 ACRES
33. MAP 42B LOT 11: 1,530,124 SQ. FT., 35.127 ACRES
34. MAP 42B LOT 14: 1,106,877 SQ. FT., 25.410 ACRES
35. MAP 264 LOT A002 (265/A003): 652,513 SQ. FT., 14.980 ACRES
36. MAP 264 LOT A004 (265/A005): 65,497 SQ. FT., 1.504 ACRES
37. TOTAL AREA: 3531897 SQ. FT., 81.077 ACRES
38. PART OF THE SUBJECT PROPERTY IS LOCATED WITHIN FEDERALLY DESIGNATED "C" ZONE - AREAS OF MINIMAL FLOODING. REFERENCE FEMA COMMUNITY PANEL NO. 230054 0008 B, DATED JANUARY 2, 1981; 230051 006 C, DATED DECEMBER 8, 1998; AND 230051 0012C, DATED DECEMBER 8, 1999.
39. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
40. ALL CONSTRUCTION MUST CONFORM TO TOWN AND CITY STANDARDS AND REGULATIONS, AND MEDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
41. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
42. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB, STRATHAM, N.H." AS SHOWN.
43. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY BRENDAN QUIGLEY OF GOVE ENVIRONMENTAL SERVICES DURING THE MONTH OF OCTOBER 2014, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
44. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
45. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
46. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
47. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
48. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
49. ALL BOOK AND PAGE NUMBERS REFER TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
50. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE CITY OF WESTBROOK AND CITY OF PORTLAND TAX RECORDS AND ARE SUBJECT TO CHANGE.
51. RESEARCH WAS PERFORMED AT THE CITY OF WESTBROOK ASSESSOR'S OFFICE, THE CITY OF PORTLAND ASSESSOR'S OFFICE, AND THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
52. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESRIPTIVE.
53. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
54. PER PLAN REFERENCE 6, WESTBROOK TAX MAP 42B LOT 11 IS ALLOWED ONE ENTRANCE TO STATE HIGHWAY 12, AND TAX MAP 42B LOT 14 IS ALLOWED TWO ENTRANCES TO STATE HIGHWAY 12.
55. SUBJECT LOT MAY BENEFIT FROM A "FARM CROSSING" SHOWN ON THE RAILROAD PLAN, REFERENCE 3. THE PLAN LOCATION IS SHOWN HEREON.
56. A SITE-SPECIFIC CLASS "B" HIGH INTENSITY SOIL SURVEY WAS PERFORMED BY MICHAEL CUOMO, SOIL SCIENTIST, DURING JUNE, 2015, BASED ON THE STANDARDS OF THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS. THE MAP IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY.

ABUTTERS

WESTBROOK

TAX MAP 9(1) LOT 5
PORTLAND WATER DISTRICT
PO BOX 3553
PORTLAND, ME 04104-3553

TAX MAP 9(1) LOT 6
LLEWELLYN A. RANDALL, SR, DEVISEES
C/O LLEWELLYN A. RANDALL, JR
681 STROUDWATER STREET
WESTBROOK, ME 04092
BK 2885/PG 105

TAX MAP 9(1) LOT 8B
MAINE TURNPIKE AUTHORITY
430 RIVERSIDE STREET
PORTLAND, ME 04103
BK 16036/PG 331

TAX MAP 42A LOT 8
WALLACE E. CAMPT, SR., TRUSTEE
CAMP SIBLING TRUST
PO BOX 109
WESTBROOK, ME 04098
BK 30134/PG 136

TAX MAP 42A LOT 10
PORTLAND ASSOC. LLC
C/O WS ASSET MANAGEMENT INC.
33 BOYLSTON STREET, SUITE 3000
CHESTNUT HILL, MA 02467
BK 25490/PG 39

TAX MAP 42B LOT 6
W E 100 LARRABEE ROAD LLC
C/O WINSTANLEY ENTERPRISES LLC
150 BAKER AVENUE EXT. SUITE 303
CONCORD, MA 01742
BK 28693/PG 280

TAX MAP 42B LOT 7
MIDAS PROPERTIES, INC.
C/O MARVIN F. POER & CO.
PO BOX 52427
ATLANTA, GA 30355
BK 8662/PG 169

TAX MAP 42B LOT 8
SHOEMAKER LLC
C/O CHARLOTTE SHOEMAKER
5100 SW 111 LANE ROAD
OCALA, FL 34473
BK 20854/PG 0074

TAX MAP 42B/LOT 9
LL LATHROP LLC
10 MOULTON STREET SUITE 4
PORTLAND, ME 04101
BK 21632/PG 224

TAX MAP 42B LOT 12B
DAVID B. MOORE REVOC. TRUST
DAVID B. MOORE, TRUSTEE
C/O HARCROS CHEMICAL INC.
5200 SPEAKER ROAD
KANSAS CITY, KS 66106
BK 20960/PG 218

TAX MAP 42B LOT 15
PORTLAND TERMINAL COMPANY
GUILFORD TRANSPORTATION
IRON HORSE PARK
NORTH BILLERICA, MA 01862-1681
BK 2590/PG 301

TAX MAP 42B LOTS 101 & 113
WWS PROPERTIES LLC
C/O BILL DODGE AUTO GROUP INC.
PO BOX 9567
WESTBROOK, ME 04098-5067

ABUTTERS

PORTLAND

TAX MAP 243 LOT B001001
CITY OF PORTLAND
389 CONGRESS STREET
PORTLAND, ME 04101

TAX MAP 264 LOT A001
ST PLEASAD LLC
1150 BRIGHTON AVENUE
PORTLAND, ME 04102
BK 29899/PG 331

TAX MAP 264 LOT A005
RAND ROAD HOLDINGS LLC
7 RAND ROAD
PORTLAND, ME 04104
BK 31342/PG 191

TAX MAP 265 LOT A001, A008 & A009
PORTLAND HOTELS REALTY INC.
1200 BRIGHTON AVENUE
PORTLAND, ME 04102
BK 26152/PG 307

TAX MAP 266 LOT C002
CENTRAL MAINE POWER CO.
LOCAL TAX
70 FARM VIEW DRIVE
NEW GLOUCESTER, ME 04260

MAINE DEPT. OF TRANSPORTATION
REGION 1
51 PLEASANT HILL ROAD
SCARBOROUGH, ME 04070-0358

MAINE DEPT. OF TRANSPORTATION
REGION 3
PO BOX 817
ROUTE 2
DIXFIELD, ME 04224

GENERAL LEGEND

EXISTING	DESCRIPTION
	PROPERTY LINES
	SETBACK LINES
	TREE LINE
	MAJOR CONTOUR
	MINOR CONTOUR
	EDGE OF PAVEMENT
	OVERHEAD ELECTRIC
	IRON PIPE/IRON ROD
	CONCRETE BOUND BENCHMARK (TBM)
	UTILITY POLE
	SOIL BOUNDARY

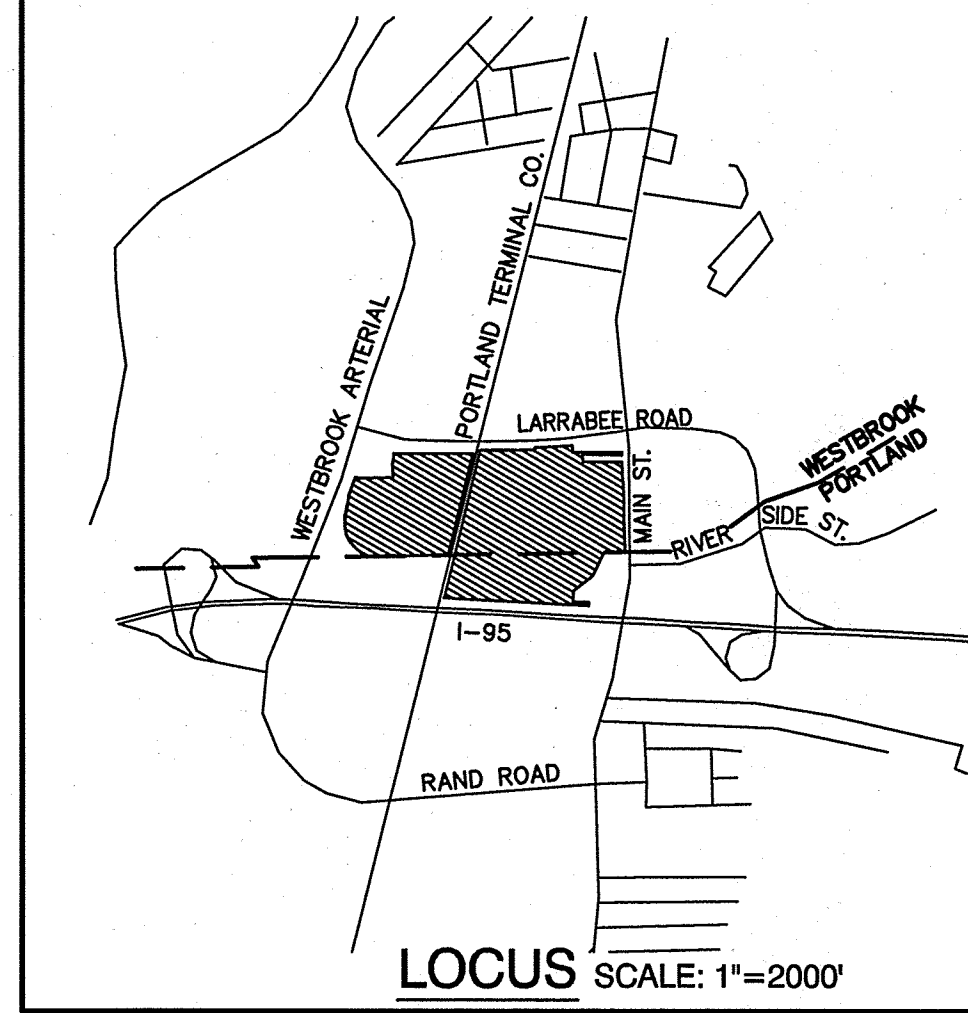
LINE TABLE		
LINE	LENGTH	BEARING
L1	3.12'	S78°35'19"E
L2	25.35'	N68°25'34"W
L3	15.00'	N77°29'27"W
L4	4.90'	N13°44'59"E
L5	50.23'	S76°01'52"E

CURVE TABLE				
CURVE	LENGTH	DELTA	RADIUS	CHORD BEARING
C1	11524.16	0°02'09"	11524.16'	7.23' N12°31'38"E

PLAN REFERENCES

1. "PROPERTY OF BLUE ROCK QUARRY, WESTBROOK, MAINE" DATED: FEBRUARY 24, 1965, SCALE 1" = 100', BY ENGINEERING LABORATORY SERVICE. CORD PAGE 68 VOLUME 40.
2. "ALTA/ASCM LAND TITLE SURVEY FOR SUSSE CHALET PROJECT, B&C SITE NO. 97620-6, 1200 BRIGHTON AVENUE, PORTLAND, MAINE" DATED: MAY 2, 1997, SCALE 1" = 30', BY BOCK & CLARK'S NATION SURVEYORS NETWORK.
3. "RIGHT-OF-WAY AND TRACK MAP, THE PORTLAND & OGDENSBURY RY., OWNED & OPERATED BY THE PORTLAND TERMINAL COMPANY, STATION 158+40 TO STATION 211+20" DATED: JUNE 10, 1916, SCALE 1" = 100', OFFICE OF CHIEF ENGINEER, PORTLAND, MAINE. SHEET V-2/4.
4. "MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP, STATE HIGHWAY '12' PORTLAND-WESTBROOK CUMBERLAND COUNTY, STATE PROJECT NO U-012-1(502)" DATED: AUGUST 1963, SCALE 1" = 50'. S.H.C FILE NO 3-165. CORD PLAN BOOK 74, PAGES 3-4.
5. "MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP, STATE HIGHWAY '12' WESTBROOK CUMBERLAND COUNTY, FEDERAL AID PROJECT NO SU-0127(2) SECT. II" DATED: MAY 1968, SCALE 1" = 50'. S.H.C FILE NO 3-190. CORD PLAN BOOK 103, PAGE 26.
6. "MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP, STATE HIGHWAY '12' WESTBROOK CUMBERLAND COUNTY, FEDERAL AID PROJECT NO F-012-1(9)" DATED: OCTOBER 1972, SCALE 1" = 50'. S.H.C FILE NO 3-189. CORD PLAN BOOK 127, PAGES 25-26.
7. "MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, SECTION 2-PORTLAND TO AUGUSTA, PROPERTY PLAN, CITY OF PORTLAND CUMBERLAND COUNTY" SHEET 4. DATED: AUGUST 18, 1952, SCALE 1" = 100'.
10. "MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, SECTION 2-PORTLAND TO AUGUSTA, PROPERTY PLAN, CITY OF PORTLAND CUMBERLAND COUNTY" SUPPLEMENTAL SHEET 14, DATED: JANUARY 1955, SCALE 1" = 200'.
11. "MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, PROPERTY AND RIGHT-OF-WAY PLAN, SECTION 2 - PORTLAND TO AUGUSTA, BRIDGE REPLACEMENT PROJECT, BRIGHTON AVENUE UNDERPASS, PORTLAND, MAINE. SUPPLEMENTAL DRAWING 1 OF 1. DATED: APRIL 2004, SCALE 1" = 25'.
12. "MIDAS REALTY CORP., BOUNDARY AND TOPOGRAPHIC SURVEY, MAIN ST. AND LARRABEE ROAD, WESTBROOK, MAINE" DATED: APRIL 15, 1980, SCALE 1" = 20', BY TIMOTHY O. BROWN PE.
13. "PLAN OF STATE AID ROAD, LOWER MAIN STREET, CITY OF WESTBROOK, MAINE" DATED: JUNE 1916, SCALE 1" = 50', BY D. R. DURAN. ON FILE AT CITY OF WESTBROOK ENGINEERING OFFICE.
14. "CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS, TOWN LINE BETWEEN PORTLAND AND WESTBROOK" DATED JANUARY 3, 1946, SCALE 1" = 500', CITY OF PORTLAND PLAN 471/45.
15. "CITY OF PORTLAND MAINE DEPT. OF PUBLIC WORKS, BRIGHTON AT RIVERSIDE" DATED OCTOBER 1, 1973, SCALE 1" = 30', CITY OF PORTLAND PLAN 574/1.
16. "BOUNDARY & TOPOGRAPHIC SURVEY AT 1200 BRIGHTON AVENUE, PORTLAND, MAINE FOR WALSH ENGINEERING, 1 KAREN DRIVE #2A, WESTBROOK, MAINE 04092" DATED: JULY 2, 2014, SCALE 1" = 30', BY OWEN HASKELL, INC.
17. "CITY OF PORTLAND PROPERTY REVALUATION SHEET" SHEETS 141 AND 142. SCALE 1" = 300'.

SOIL LEGEND		
SOIL SERIES SYMBOL	SOIL SERIES NAME	DESCRIPTION
CR	COMPACT RECLAIM OVER SANDY FILL	CRUSHED CONCRETE DUST & CHIPS, SOMETIMES WITH LAYERS OF OLD PAVEMENT AT THE SURFACE OR BURIED
En	ELMWOOD	VERY FINE SANDY LOAM OVER SILTY CLAY LOAM
GU	QUARRY	EXPOSED BEDROCK IN TURNER QUARRY, WITH STEEP SLOPES, SOME SOIL DEPOSITS IN BOTTOM AREAS, PONDING WATER AT DEEPEST AREA
Rd	ROUNDABOUT	VERY FINE SANDY LOAM IN THE UPPER PART OVER STRATIFIED FINE SAND AND SILT TO SILT LOAM
SI	SILTY POORLY DRAINED FILL	GRAVELLY CRUSHED CONCRETE, STONE DUST, AND SEDIMENT OVERFLOWED FROM SEDIMENTATION TRAP OR ERODED INTO STREAM CHANNEL
SD		STONY LOAMY SAND TO SILT LOAM SOIL, WITH MINOR RECLAIMED PAVEMENT AND CRUSHED CONCRETE
SP	STONE DUST & WASH TAILINGS IN FILL	SILT FROM STONE DUST AND WASH TAILINGS
SV	STONE DUST & WASH TAILINGS	RECLAIMED ASPHALT, CRUSHED CONCRETE DUST AND CHIPS, AND WASH TAILINGS
UC	UNSTABLE CONCRETE WASTE	CRUSHED CONCRETE DUST AND CHIPS WITH LARGE SLABS OF CONCRETE OVERLYING SILT LOAM



CERTIFICATION:

THIS SURVEY MAP IS IN ACCORDANCE WITH CHAPTERS 90, PARTS 1 & 2 OF THE STATE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS EXCEPTING A WRITTEN REPORT.

GORDON D. HISLOP, JR. PLS #2293 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF WESTBROOK
TAX MAP 42B, LOTS 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOT A003

APPLICANT
J & J GOVE DEVELOPMENT
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,179 SQ. FT.
81.78 ACRES

Design: WGM	Draft: MJS	Date: 2/23/15
Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: EX-CONDITIONS-DWGNAME.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		

REV.	DATE	REVISION	BY
0	2/2/16	ISSUED FOR REVIEW	BWG

J/B Jones & Beach Engineers, Inc.

Designed and Produced in NH

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

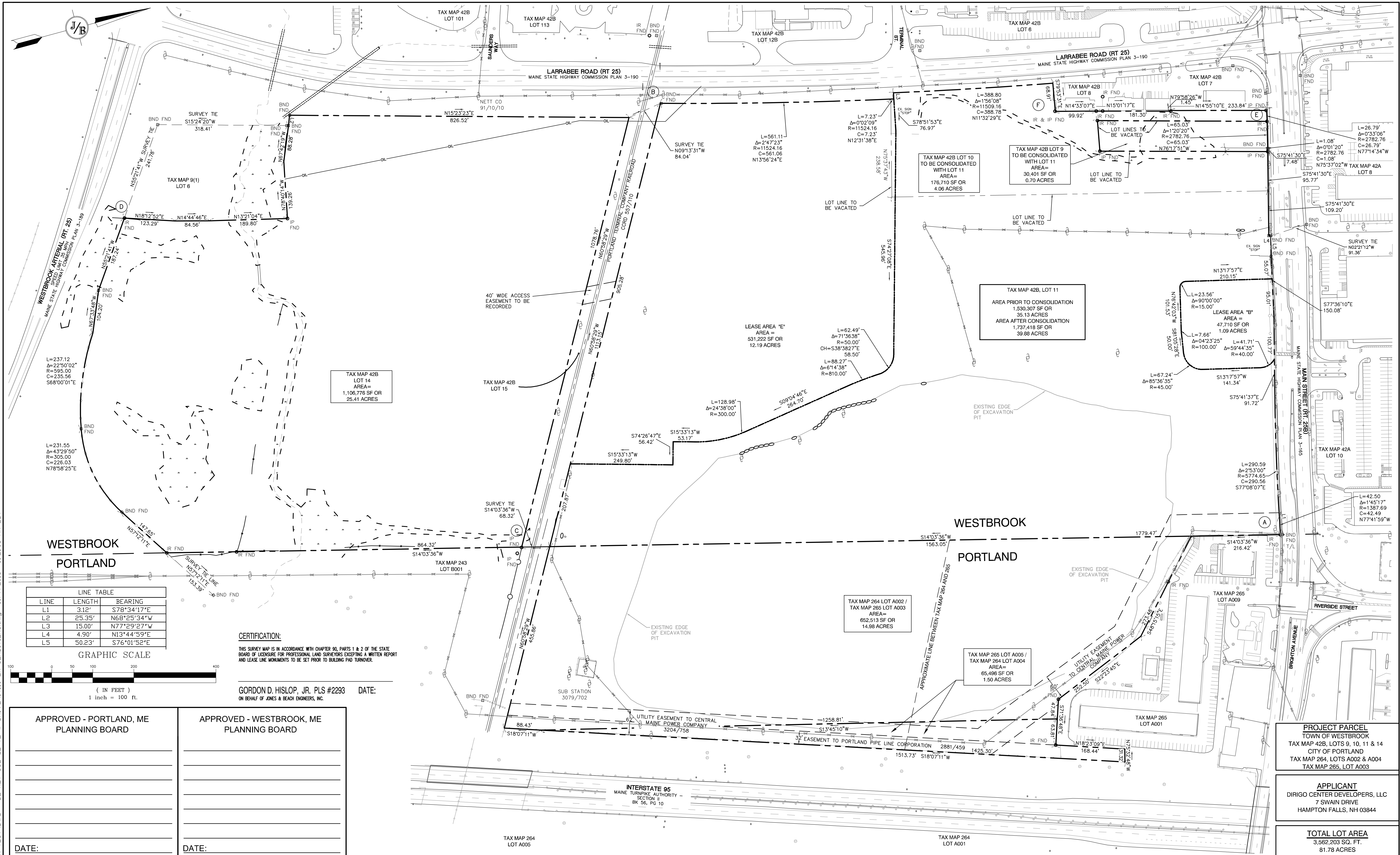
Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION - LOT CONSOLIDATION PLAT
Project:	"DIRIGO PLAZA" 58 & 80 MAIN STREET, WESTBROOK, ME
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.
A2
SHEET 1 OF X JBE PROJECT NO. 14110

W:\14110-WESTBROOK-TEST.DWG - DO NOT USE GO TO W DRIVE\14110-EX-CONDITIONS.dwg 10/7/2015 10:21:06 AM EDT



Design: WGM	Draft: MJS	Date: 2/23/15
Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-LLC.DWG		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		

3	9/12/16	MINOR PLAN REVISIONS	ISM
2	5/11/16	REVISED BOUNDARY AND LOT AREAS	MJS
1	4/20/16	REVISED PORTLAND LOT AREA	MJS
0	2/2/16	ISSUED FOR REVIEW	BWG
REV.	DATE	REVISION	BY

J/B

Jones & Beach Engineers, Inc.

Designed and Produced in NH

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

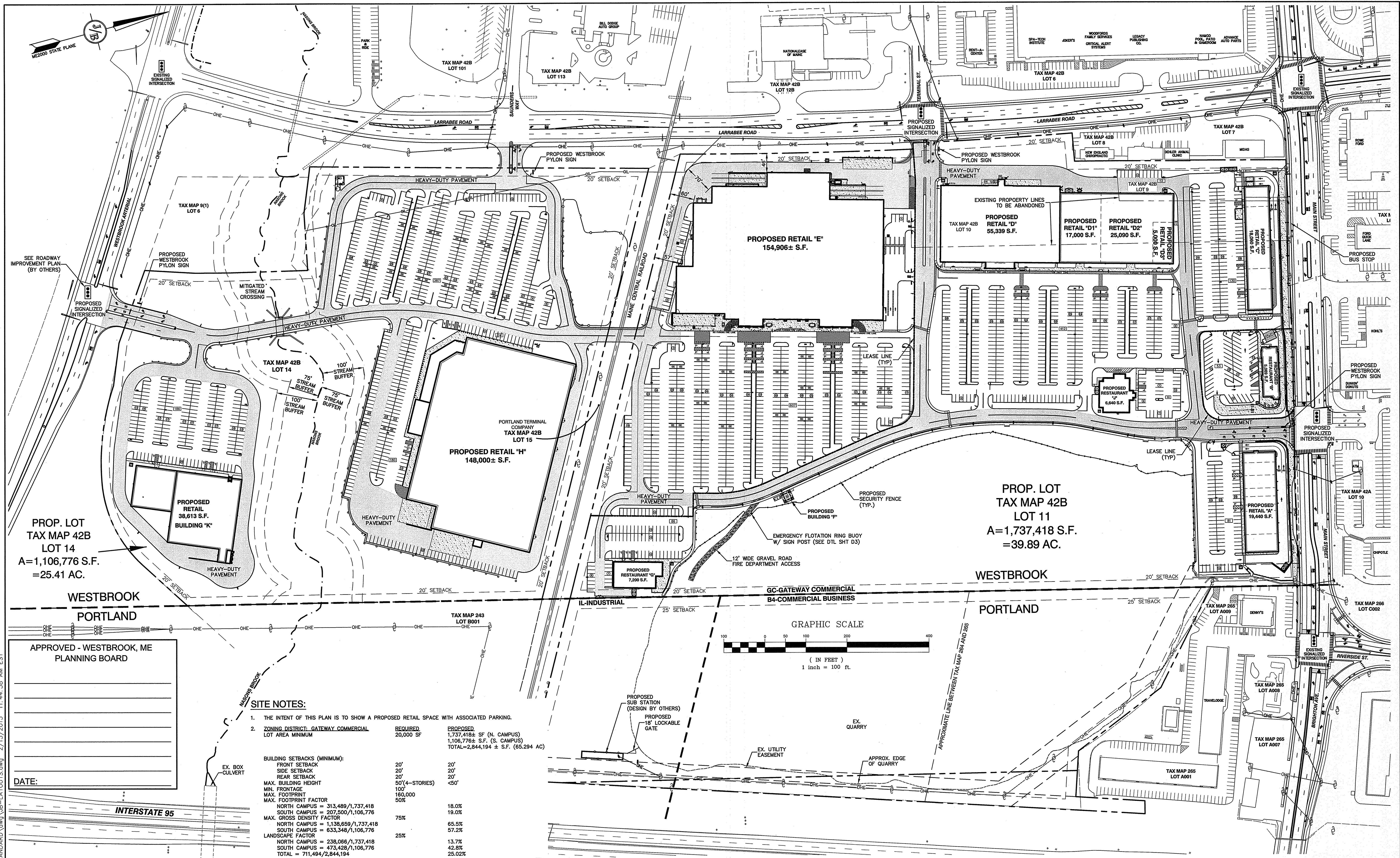
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION - LOT CONSOLIDATION PLAT
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

A3

SHEET 4 OF 120
JBE PROJECT NO. 14110



Design: BWG Draft: BWG Date: 10/20/15
Checked: WGM Scale: AS SHOWN Project No.: 14110
Drawing Name: 14110-PLAN.dwg
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-Mail: JBE@JONESANDBEACH.COM

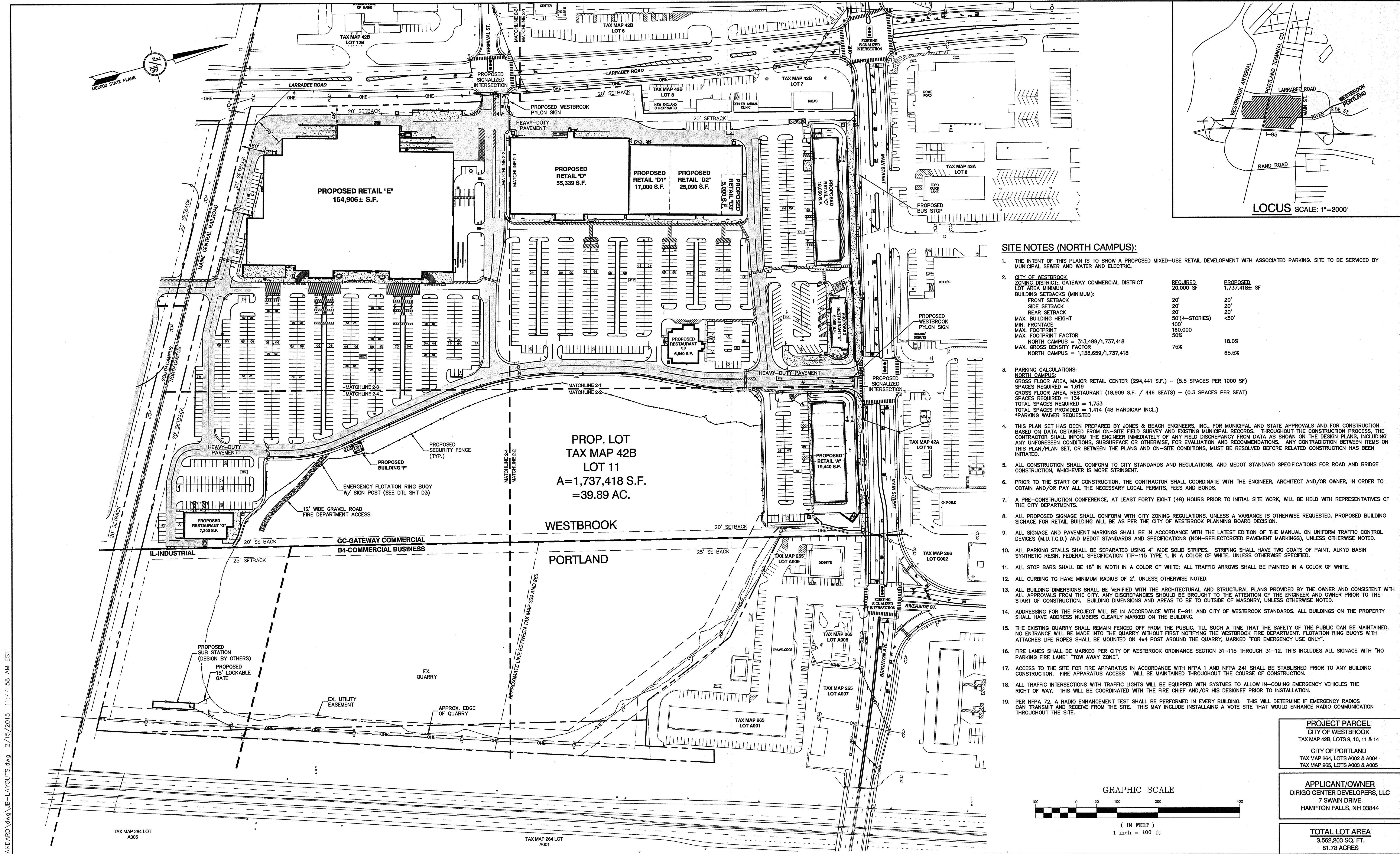
Plan Name: **OVERALL SITE PLAN**

Project: **"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092**

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101**

DRAWING No. **C2**

SHEET 7 OF 120
JBE PROJECT NO. 14110



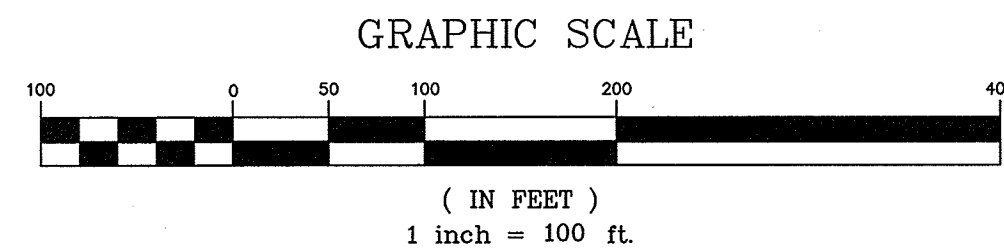
SITE NOTES (NORTH CAMPUS):

- THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED MIXED-USE RETAIL DEVELOPMENT WITH ASSOCIATED PARKING. SITE TO BE SERVED BY MUNICIPAL SEWER AND WATER AND ELECTRIC.
- CITY OF WESTBROOK**
ZONING DISTRICT: GATEWAY COMMERCIAL DISTRICT
LOT AREA MINIMUM: 20,000 SF
BUILDING SETBACKS (MINIMUM):
FRONT SETBACK: 20'
SIDE SETBACK: 20'
REAR SETBACK: 20'
MAX. BUILDING HEIGHT: 50' (4-STORIES)
MIN. FRONTAGE: 100'
MAX. FOOTPRINT: 160,000
MAX. FOOTPRINT FACTOR: 50%
NORTH CAMPUS = 313,489 / 1,737,418
MAX. GROSS DENSITY FACTOR: 75%
NORTH CAMPUS = 1,138,659 / 1,737,418
- PARKING CALCULATIONS:**
NORTH CAMPUS
GROSS FLOOR AREA, MAJOR RETAIL CENTER (294,441 S.F.) - (5.5 SPACES PER 1000 SF)
SPACES REQUIRED = 1,619
GROSS FLOOR AREA, RESTAURANT (18,909 S.F. / 446 SEATS) - (0.3 SPACES PER SEAT)
SPACES REQUIRED = 134
TOTAL SPACES REQUIRED = 1,753
TOTAL SPACES PROVIDED = 1,414 (48 HANDICAP INCL.)
*PARKING WAIVER REQUESTED
- THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- ALL CONSTRUCTION SHALL CONFORM TO CITY STANDARDS AND REGULATIONS, AND MEDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
- A PRE-CONSTRUCTION CONFERENCE, AT LEAST FORTY EIGHT (48) HOURS PRIOR TO INITIAL SITE WORK, WILL BE HELD WITH REPRESENTATIVES OF THE CITY DEPARTMENTS.
- ALL PROPOSED SIGNAGE SHALL CONFORM WITH CITY ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED. PROPOSED BUILDING SIGNAGE FOR RETAIL BUILDING WILL BE AS PER THE CITY OF WESTBROOK PLANNING BOARD DECISION.
- ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND MEDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
- ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYD BASIN SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE, UNLESS OTHERWISE SPECIFIED.
- ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
- ALL CURBING TO HAVE MINIMUM RADIUS OF 2', UNLESS OTHERWISE NOTED.
- ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER AND CONSISTENT WITH ALL APPROVALS FROM THE CITY. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
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- THE EXISTING QUARRY SHALL REMAIN FENCED OFF FROM THE PUBLIC, TILL SUCH A TIME THAT THE SAFETY OF THE PUBLIC CAN BE MAINTAINED. NO ENTRANCE WILL BE MADE INTO THE QUARRY WITHOUT FIRST NOTIFYING THE WESTBROOK FIRE DEPARTMENT. FLATIRON RING BUOYS WITH ATTACHES LIFE ROPES SHALL BE MOUNTED ON 4x4 POST AROUND THE QUARRY, MARKED "FOR EMERGENCY USE ONLY".
- FIRE LANES SHALL BE MARKED PER CITY OF WESTBROOK ORDINANCE SECTION 31-115 THROUGH 31-12. THIS INCLUDES ALL SIGNAGE WITH "NO PARKING FIRE LANE" "TOW AWAY ZONE".
- ACCESS TO THE SITE FOR FIRE APPARATUS IN ACCORDANCE WITH NFPA 1 AND NFPA 241 SHALL BE ESTABLISHED PRIOR TO ANY BUILDING CONSTRUCTION. FIRE APPARATUS ACCESS WILL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION.
- ALL TRAFFIC INTERSECTIONS WITH TRAFFIC LIGHTS WILL BE EQUIPPED WITH SYSTEMS TO ALLOW IN-COMING EMERGENCY VEHICLES THE RIGHT OF WAY. THIS WILL BE COORDINATED WITH THE FIRE CHIEF AND/OR HIS DESIGNEE PRIOR TO INSTALLATION.
- PER NFPA 72, A RADIO ENHANCEMENT TEST SHALL BE PERFORMED IN EVERY BUILDING. THIS WILL DETERMINE IF EMERGENCY RADIOS CAN TRANSMIT AND RECEIVE FROM THE SITE. THIS MAY INCLUDE INSTALLING A VOTE SITE THAT WOULD ENHANCE RADIO COMMUNICATION THROUGHOUT THE SITE.

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES



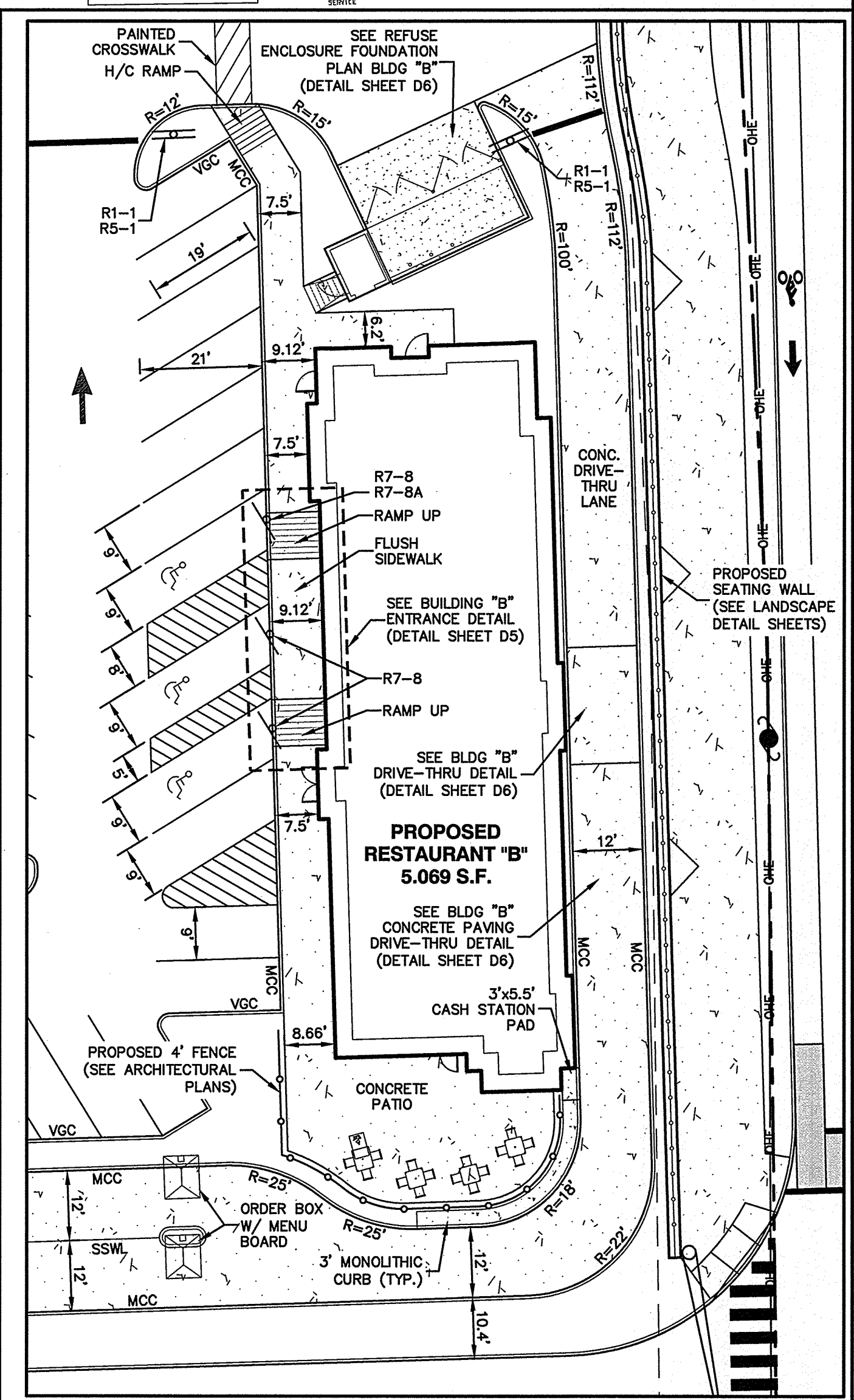
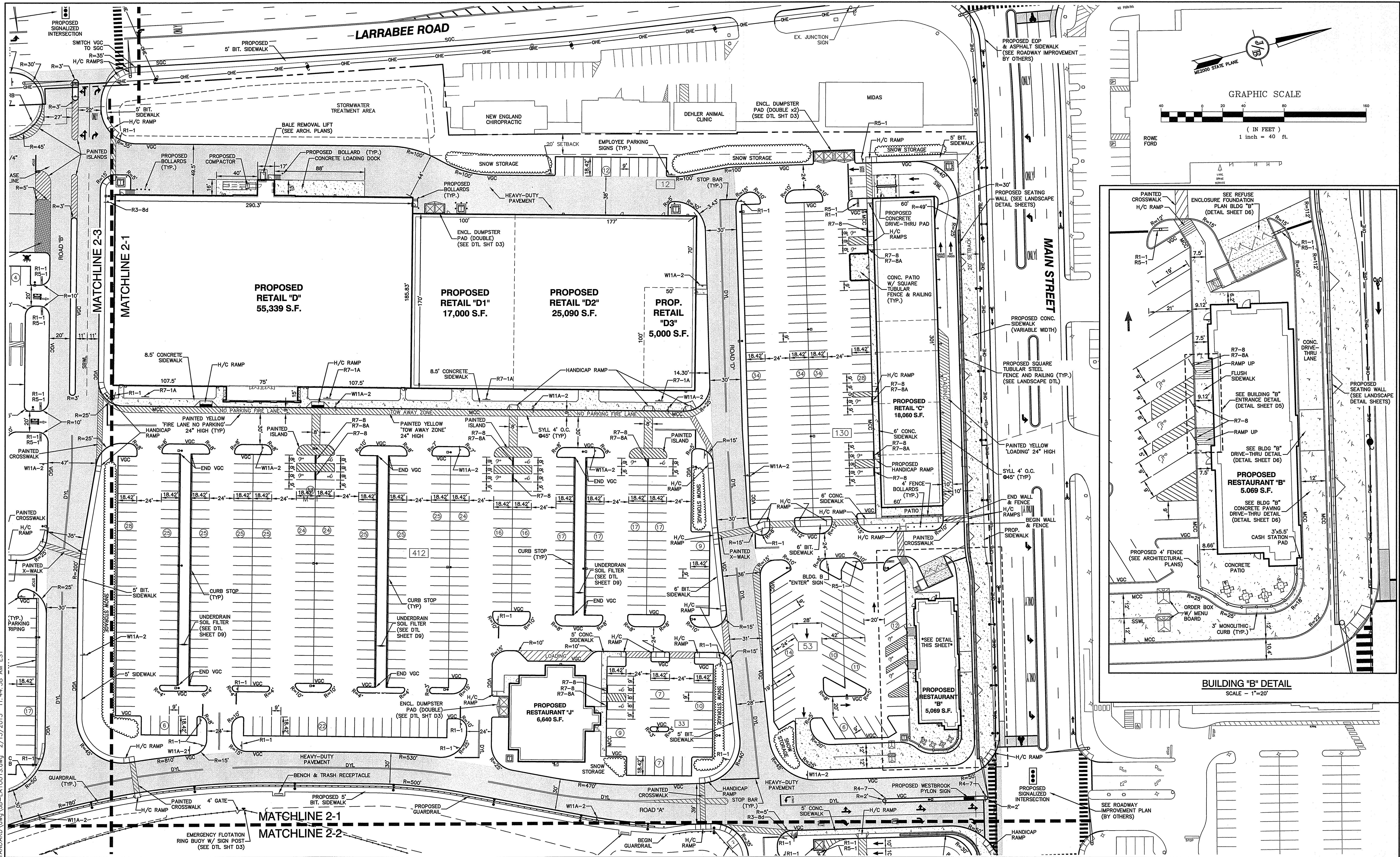
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J/B Jones & Beach Engineers, Inc.
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Stratham, NH 03885
Designed and Produced in NH
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **OVERALL SITE PLAN - NORTH CAMPUS**
Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.
C2-1
SHEET 8 OF 120
JBE PROJECT NO. 14110



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Plan Name: **SITE PLAN - NORTH CAMPUS**

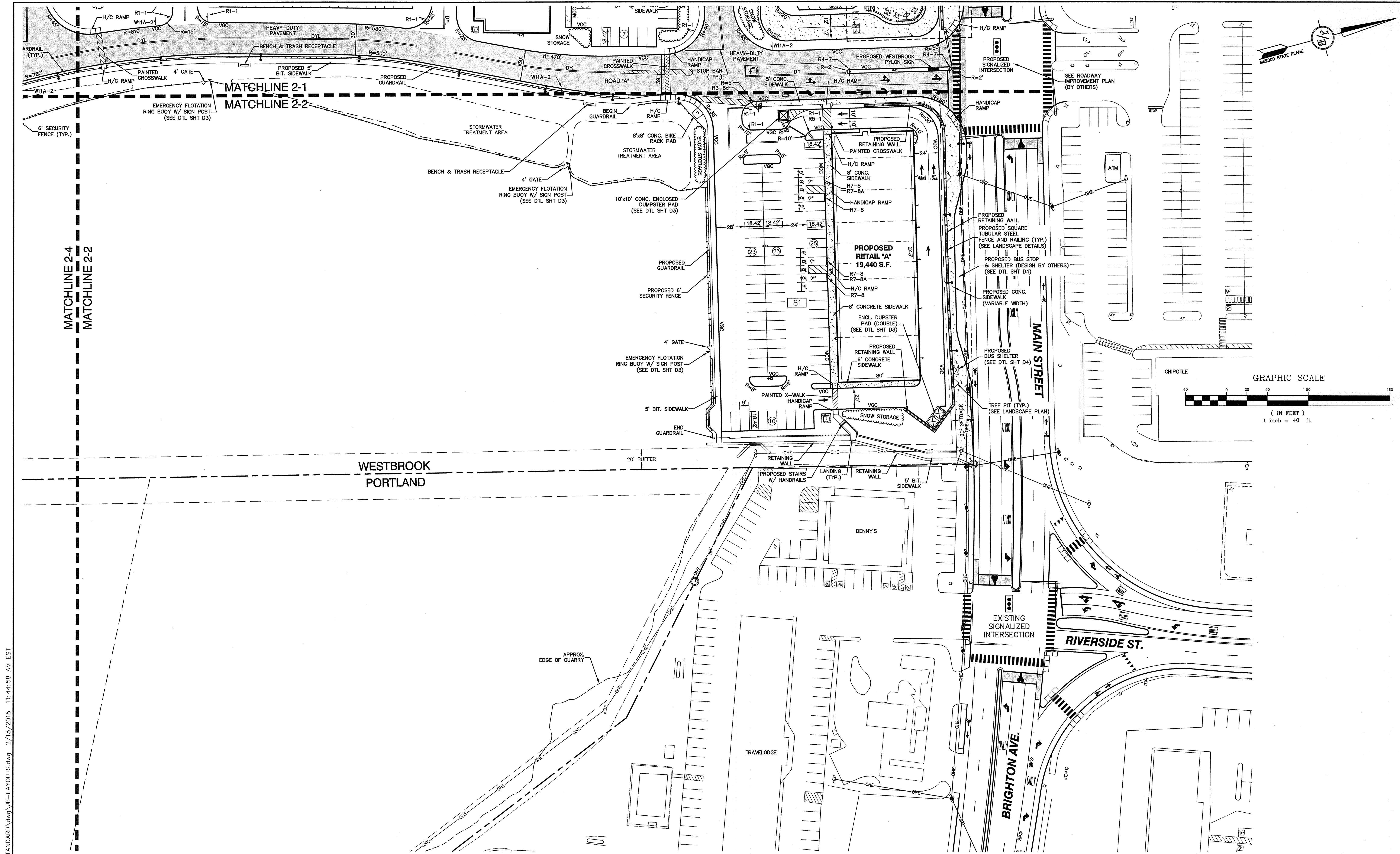
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DRAWING No.

C2-1-1

SHEET 9 OF 120
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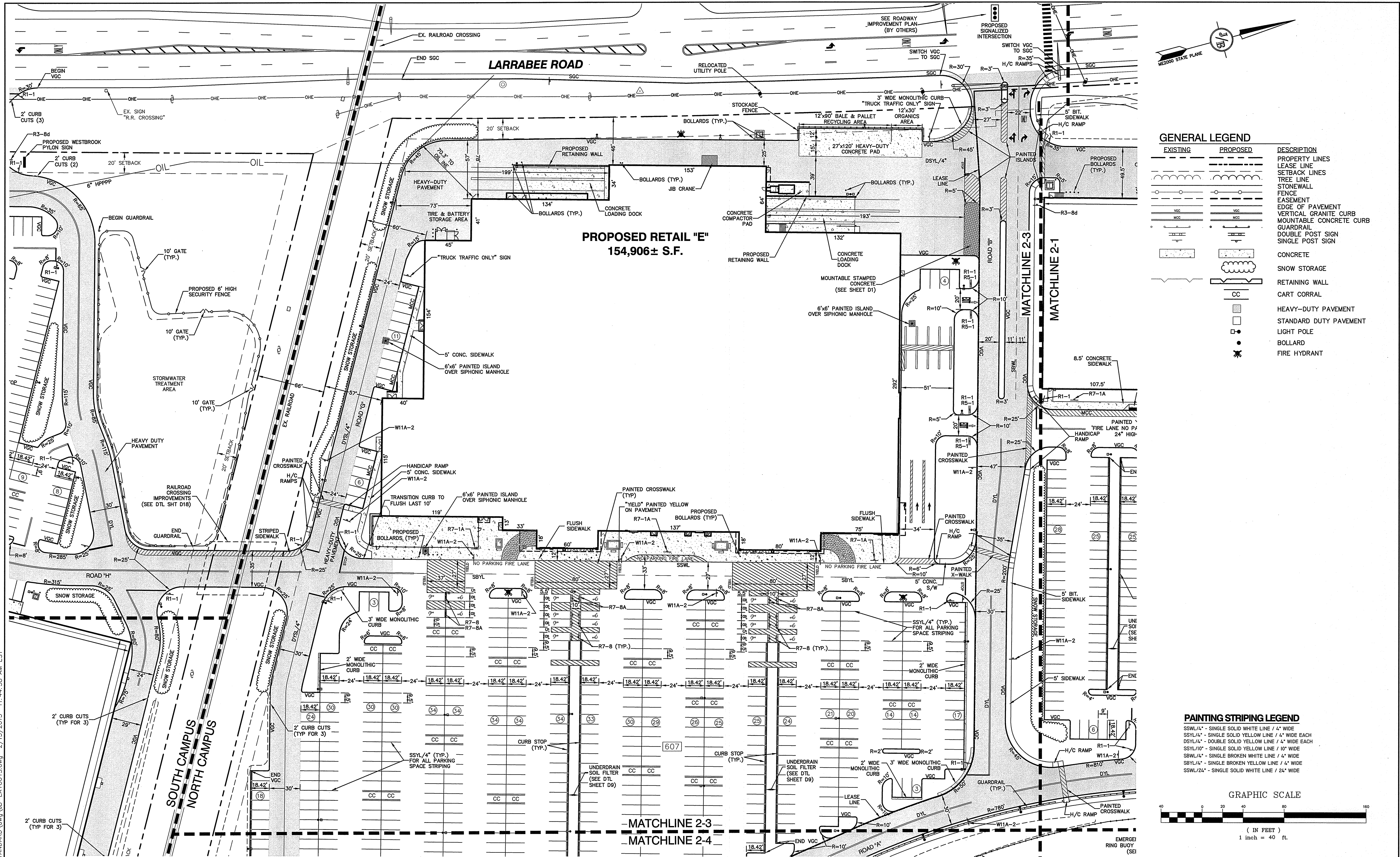
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SHEET 10 OF 120
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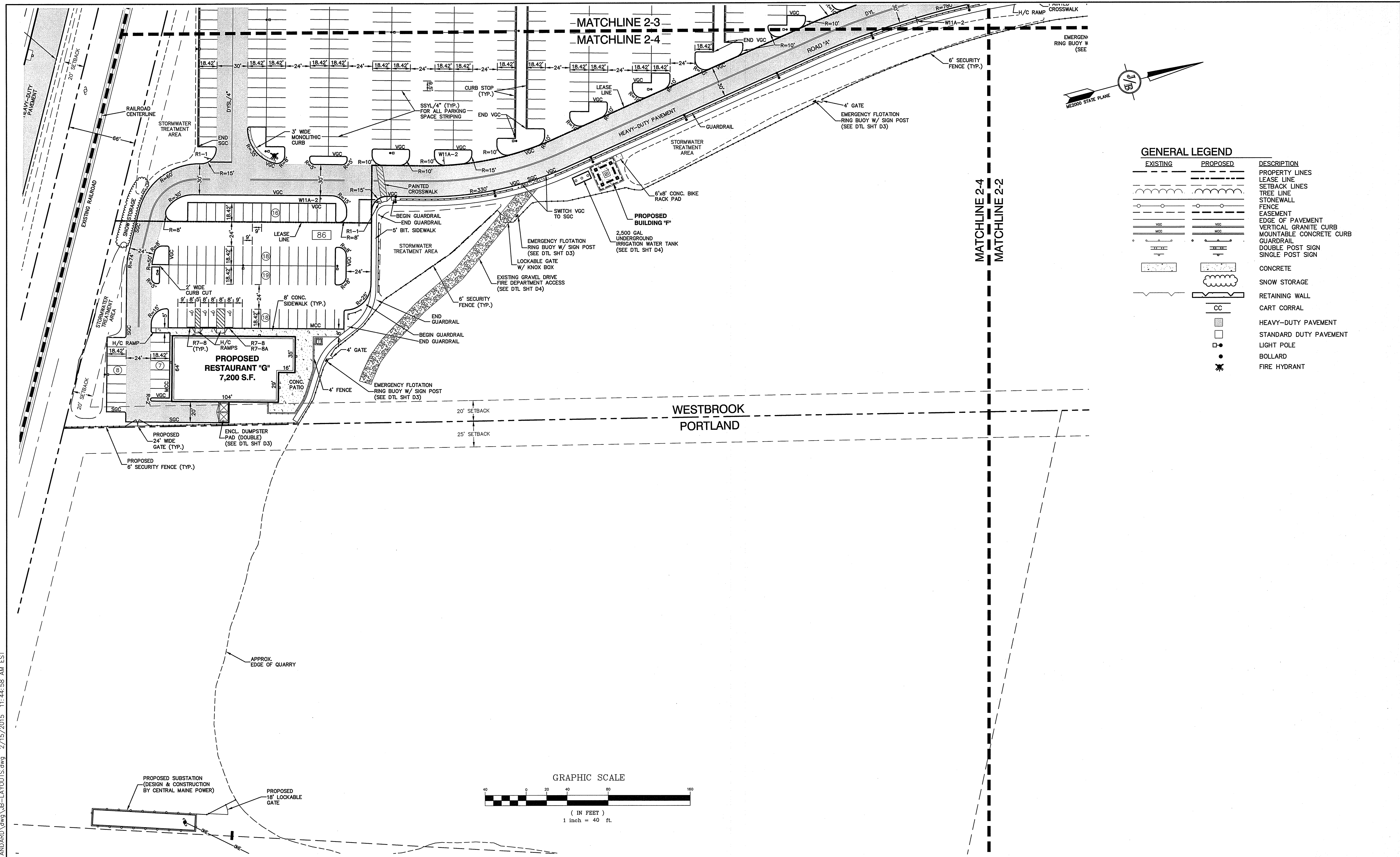
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Drawing No. **C2-1-3**
SHEET 11 OF 120
JBE PROJECT NO. 14110



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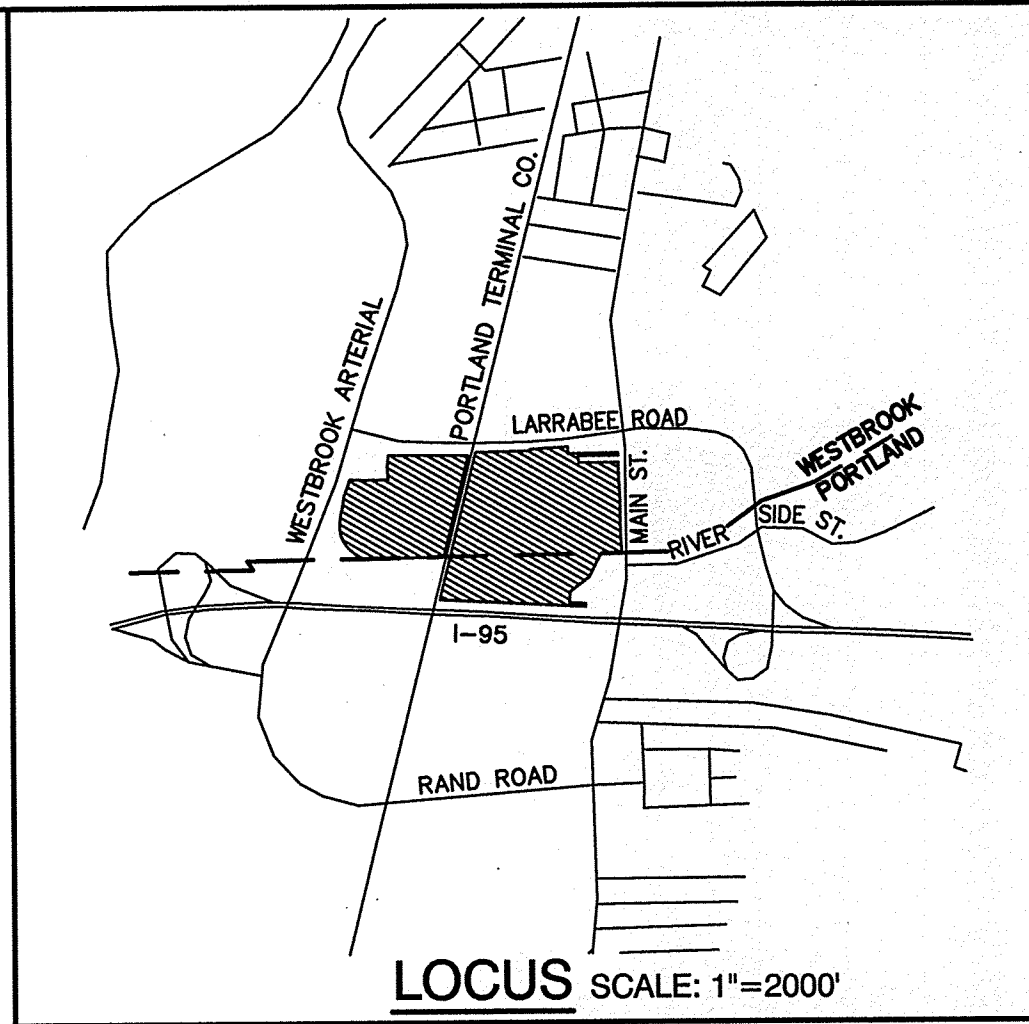
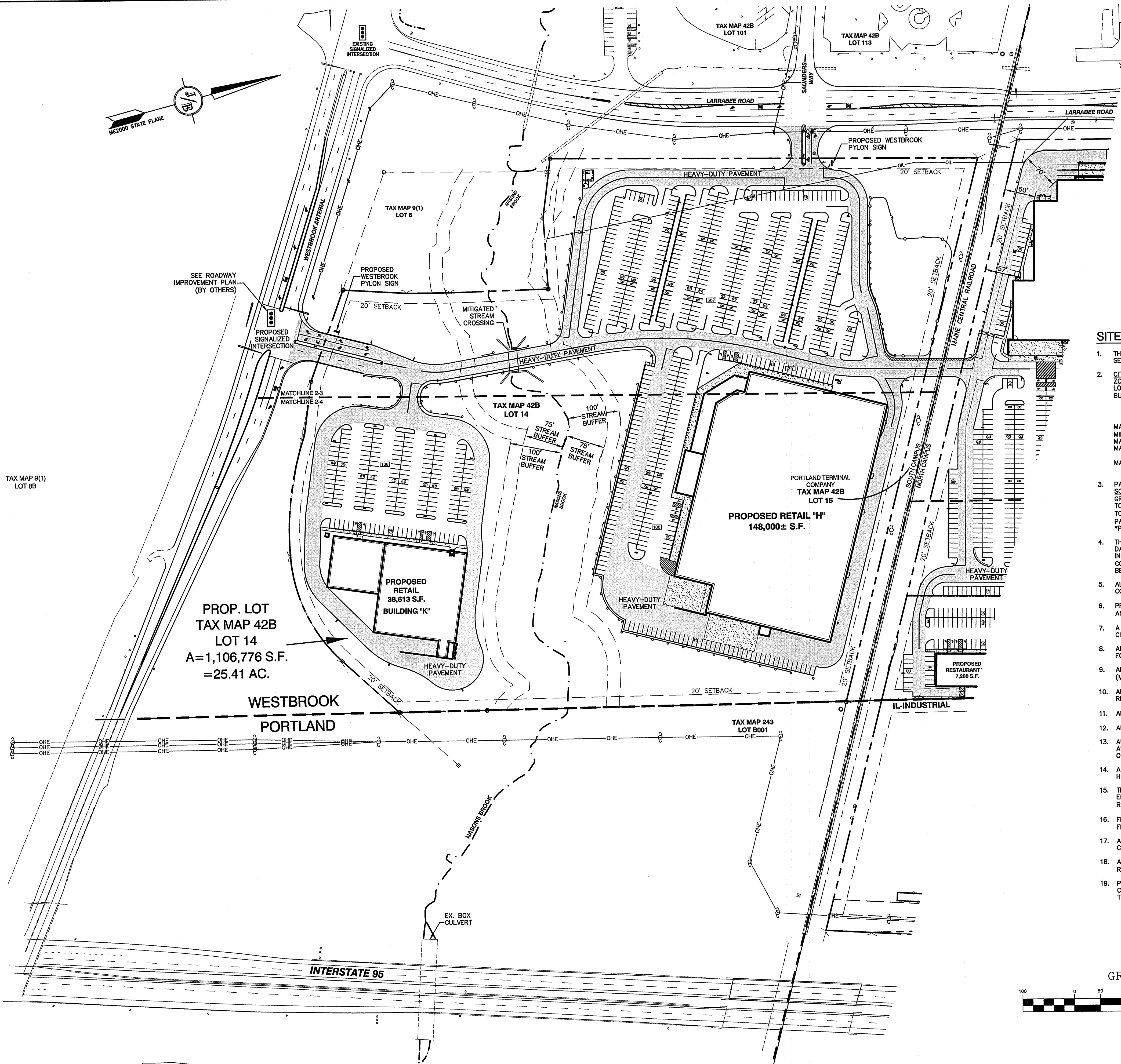
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Project:	80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

C2-1-4

SHEET 12 OF 120
JBE PROJECT NO. 14110



SITE NOTES:

- THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED MIXED-USE RETAIL DEVELOPMENT WITH ASSOCIATED PARKING. SITE TO BE SERVICED BY MUNICIPAL SEWER AND WATER AND ELECTRIC.
- | CITY OF WESTBROOK ZONING DISTRICT: GATEWAY COMMERCIAL DISTRICT | REQUIRED | PROPOSED |
|--|----------------|---------------|
| LOT AREA MINIMUM | 20,000 SF | 1,106,776± SF |
| BUILDING SETBACKS (MINIMUM): | | |
| FRONT SETBACK | 20' | 20' |
| SIDE SETBACK | 20' | 20' |
| REAR SETBACK | 20' | 20' |
| MAX. BUILDING HEIGHT | 50'(4-STORIES) | <50' |
| MIN. FRONTAGE | 100' | |
| MAX. FOOTPRINT | 160,000 | |
| MAX. FOOTPRINT FACTOR | 50% | |
| SOUTH CAMPUS = 186,613/1,106,776 | | 16.9% |
| MAX. GROSS DENSITY FACTOR | 75% | 60.2% |
| SOUTH CAMPUS = 666,755/1,106,776 | | |
- PARKING CALCULATIONS:

SOUTH CAMPUS:

GROSS FLOOR AREA, MAJOR RETAIL CENTER (186,613 S.F.) - (5.5 SPACES PER 1,000 S.F.)

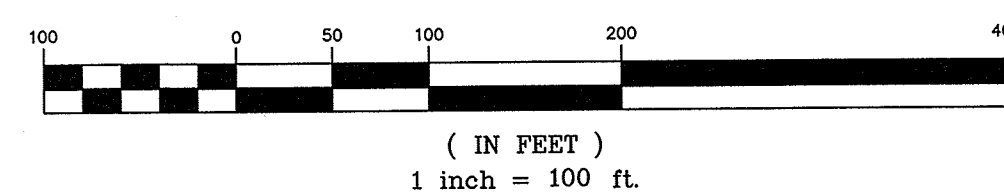
TOTAL SPACES REQUIRED = 1,026

TOTAL SPACES PROVIDED = 777 (13 HANDICAP INCL.)

PARKING DIMENSIONS= 18'-5" x 9' (EXCEPT RETAIL BUILDING "E" - 18'-5" x 9'-6")

*PARKING WAIVER REQUESTED
- THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- ALL CONSTRUCTION SHALL CONFORM TO CITY STANDARDS AND REGULATIONS, AND MEDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
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GRAPHIC SCALE



PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14

CITY OF PORTLAND
TAX MAP 204, LOTS A002 & A004
TAX MAP 205, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

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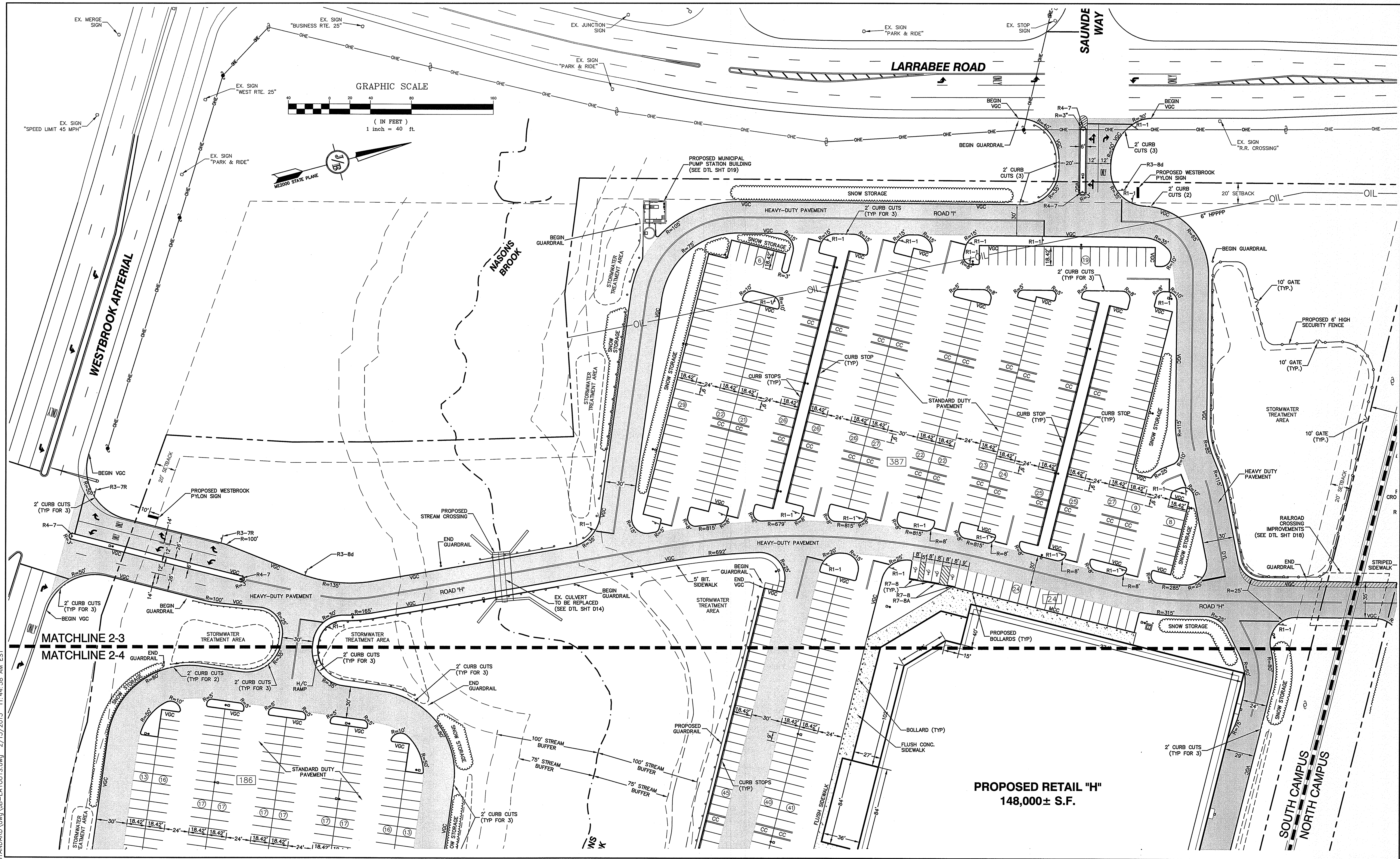
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Plan Name: **OVERALL SITE PLAN - SOUTH CAMPUS**

Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.
C2-2
SHEET 13 OF 20
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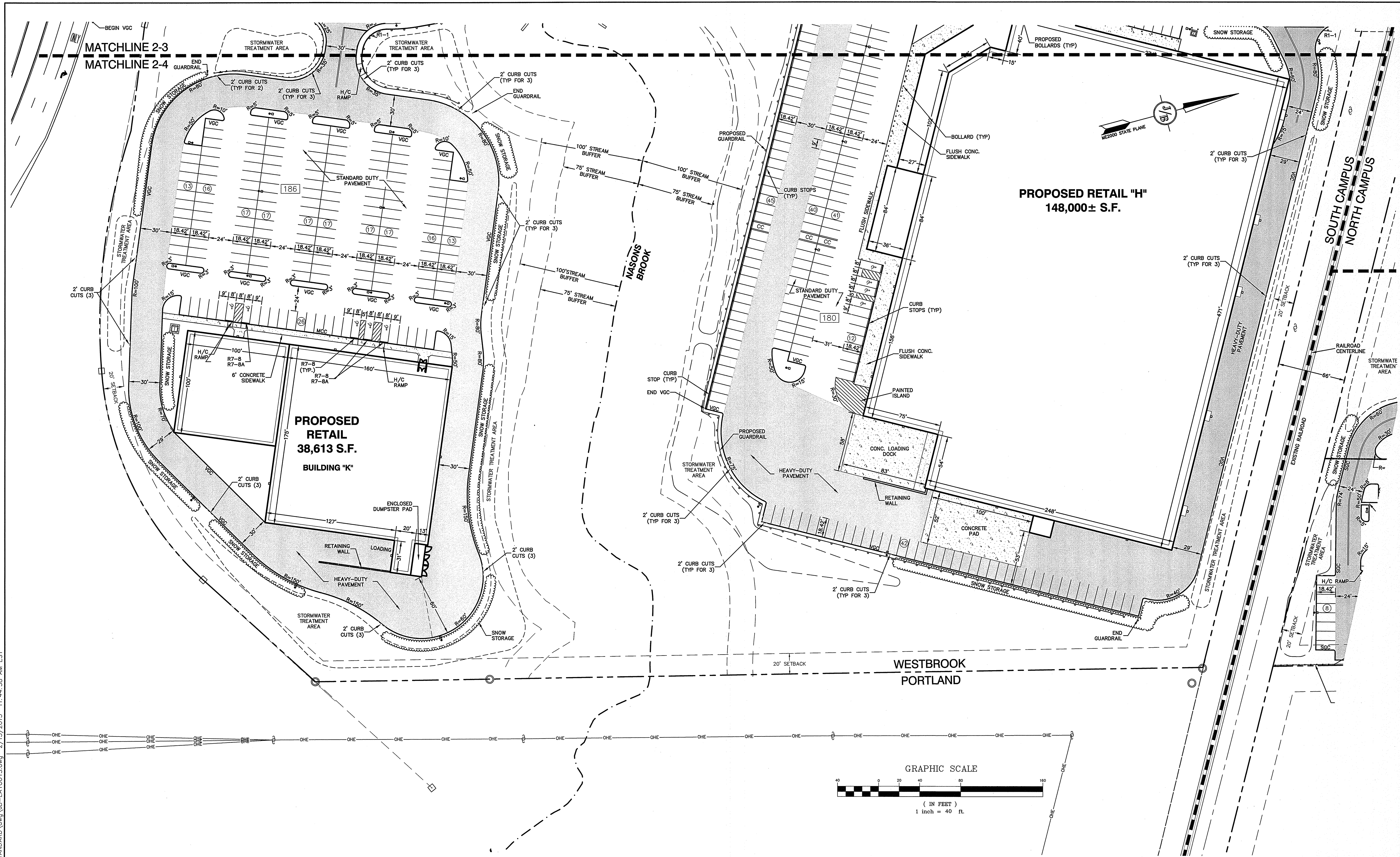
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SHEET 14 OF 120
JBE PROJECT NO. 14110

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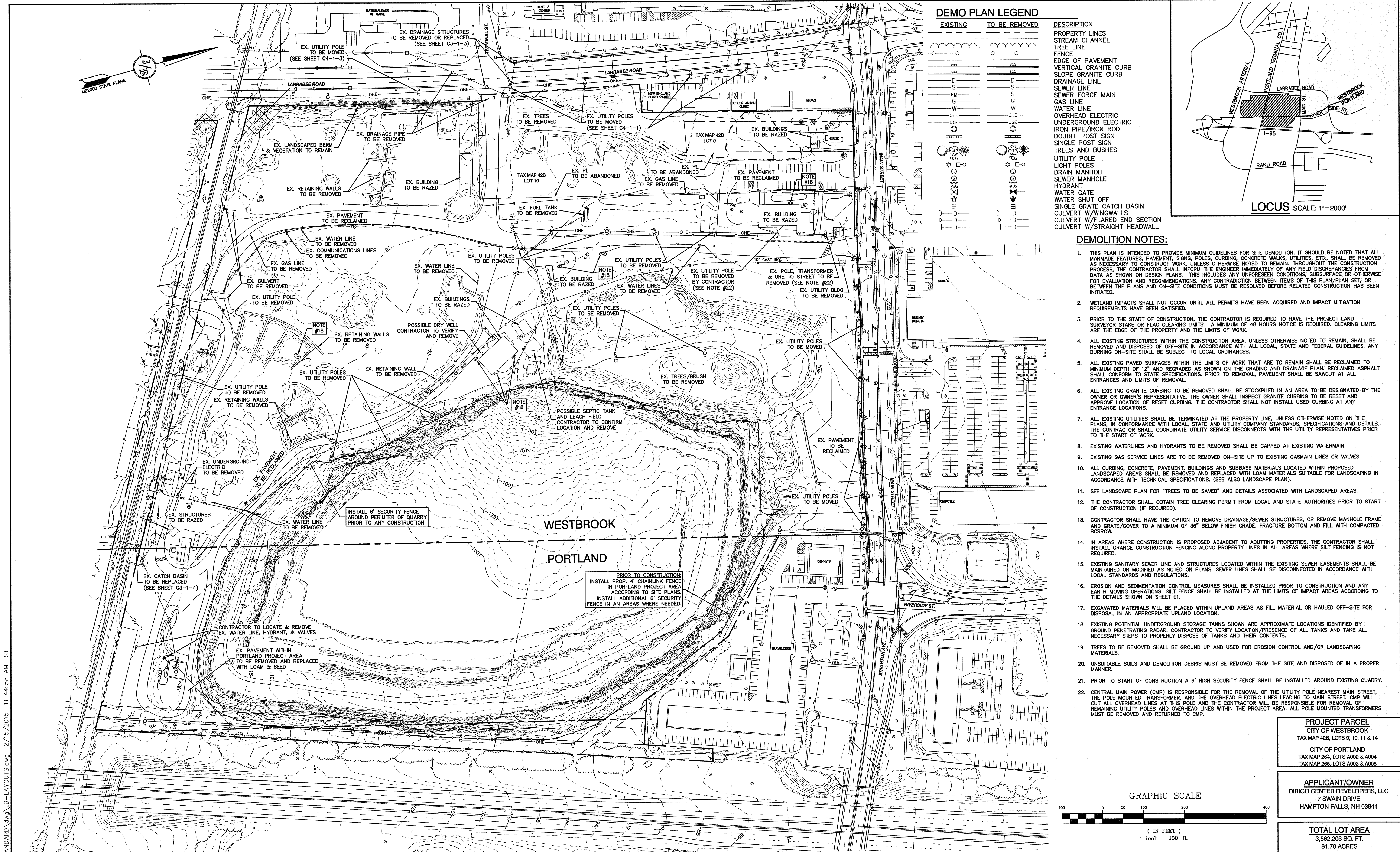
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J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Designed and Produced in NH
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	DEMOLITION PLAN - NORTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

C1-2-1

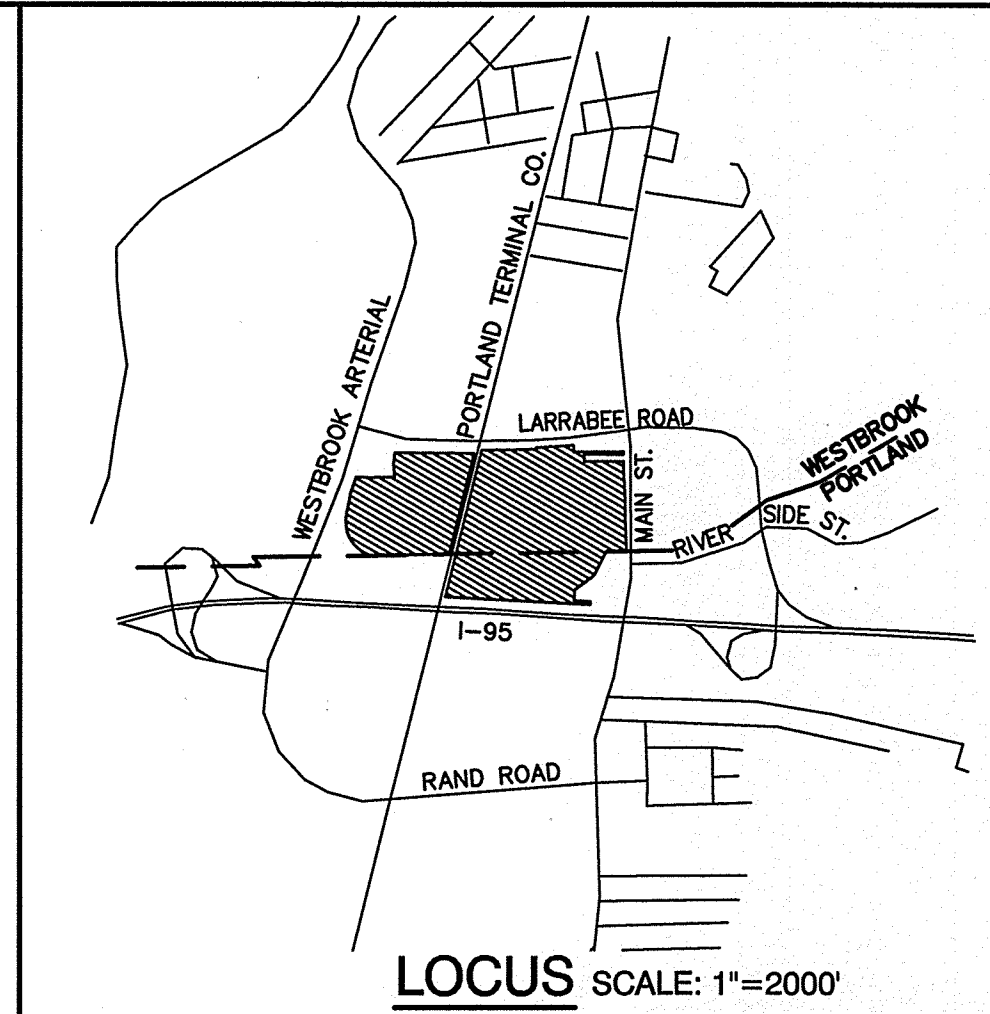
SHEET 5 OF 120
JBE PROJECT NO. 14110

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

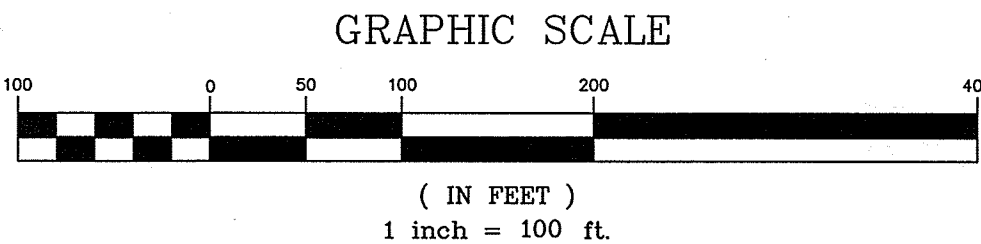
TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

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DEMOLITION NOTES:

- THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- WETLAND IMPACTS SHALL NOT OCCUR UNTIL ALL PERMITS HAVE BEEN ACQUIRED AND IMPACT MITIGATION REQUIREMENTS HAVE BEEN SATISFIED.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED. CLEARING LIMITS ARE THE EDGE OF THE PROPERTY AND THE LIMITS OF WORK.
- ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
- ALL EXISTING PAVED SURFACES WITHIN THE LIMITS OF WORK THAT ARE TO REMAIN SHALL BE RECLAIMED TO MINIMUM DEPTH OF 12" AND REGRADED AS SHOWN ON THE GRADING AND DRAINAGE PLAN. RECLAIMED ASPHALT SHALL CONFORM TO STATE SPECIFICATIONS. PRIOR TO REMOVAL, PAVEMENT SHALL BE SAWCUT AT ALL ENTRANCES AND LIMITS OF REMOVAL.
- ALL EXISTING GRANITE CURBING TO BE REMOVED SHALL BE STOCKPILED IN AN AREA TO BE DESIGNATED BY THE OWNER OR OWNER'S REPRESENTATIVE. THE OWNER SHALL INSPECT GRANITE CURBING TO BE RESET AND APPROVE LOCATION OF RESET CURBING. THE CONTRACTOR SHALL NOT INSTALL USED CURBING AT ANY ENTRANCE LOCATIONS.
- ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
- EXISTING WATERLINES AND HYDRANTS TO BE REMOVED SHALL BE CAPPED AT EXISTING WATERMAIN.
- EXISTING GAS SERVICE LINES ARE TO BE REMOVED ON-SITE UP TO EXISTING GASMAIN LINES OR VALVES.
- ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
- SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.
- THE CONTRACTOR SHALL OBTAIN TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES PRIOR TO START OF CONSTRUCTION (IF REQUIRED).
- CONTRACTOR SHALL HAVE THE OPTION TO REMOVE DRAINAGE/SEWER STRUCTURES, OR REMOVE MANHOLE FRAME AND GRATE/COVER TO A MINIMUM OF 36" BELOW FINISH GRADE, FRACTURE BOTTOM AND FILL WITH COMPACTED BORROW.
- IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
- EXISTING SANITARY SEWER LINE AND STRUCTURES LOCATED WITHIN THE EXISTING SEWER EASEMENTS SHALL BE MAINTAINED OR MODIFIED AS NOTED ON PLANS. SEWER LINES SHALL BE DISCONNECTED IN ACCORDANCE WITH LOCAL STANDARDS AND REGULATIONS.
- EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND ANY EARTH MOVING OPERATIONS. SILT FENCE SHALL BE INSTALLED AT THE LIMITS OF IMPACT AREAS ACCORDING TO THE DETAILS SHOWN ON SHEET E1.
- EXCAVATED MATERIALS WILL BE PLACED WITHIN UPLAND AREAS AS FILL MATERIAL OR HAULED OFF-SITE FOR DISPOSAL IN AN APPROPRIATE UPLAND LOCATION.
- EXISTING POTENTIAL UNDERGROUND STORAGE TANKS SHOWN ARE APPROXIMATE LOCATIONS IDENTIFIED BY GROUND PENETRATING RADAR. CONTRACTOR TO VERIFY LOCATION/PRESENCE OF ALL TANKS AND TAKE ALL NECESSARY STEPS TO PROPERLY DISPOSE OF TANKS AND THEIR CONTENTS.
- TREES TO BE REMOVED SHALL BE GROUND UP AND USED FOR EROSION CONTROL AND/OR LANDSCAPING MATERIALS.
- UNSUITABLE SOILS AND DEMOLITION DEBRIS MUST BE REMOVED FROM THE SITE AND DISPOSED OF IN A PROPER MANNER.
- PRIOR TO START OF CONSTRUCTION A 6' HIGH SECURITY FENCE SHALL BE INSTALLED AROUND EXISTING QUARRY.



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TAX MAP 42B, LOTS 9, 10, 11 & 14

CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 285, LOTS A003 & A005

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Drawing Name: 14110-PLAN.dwg

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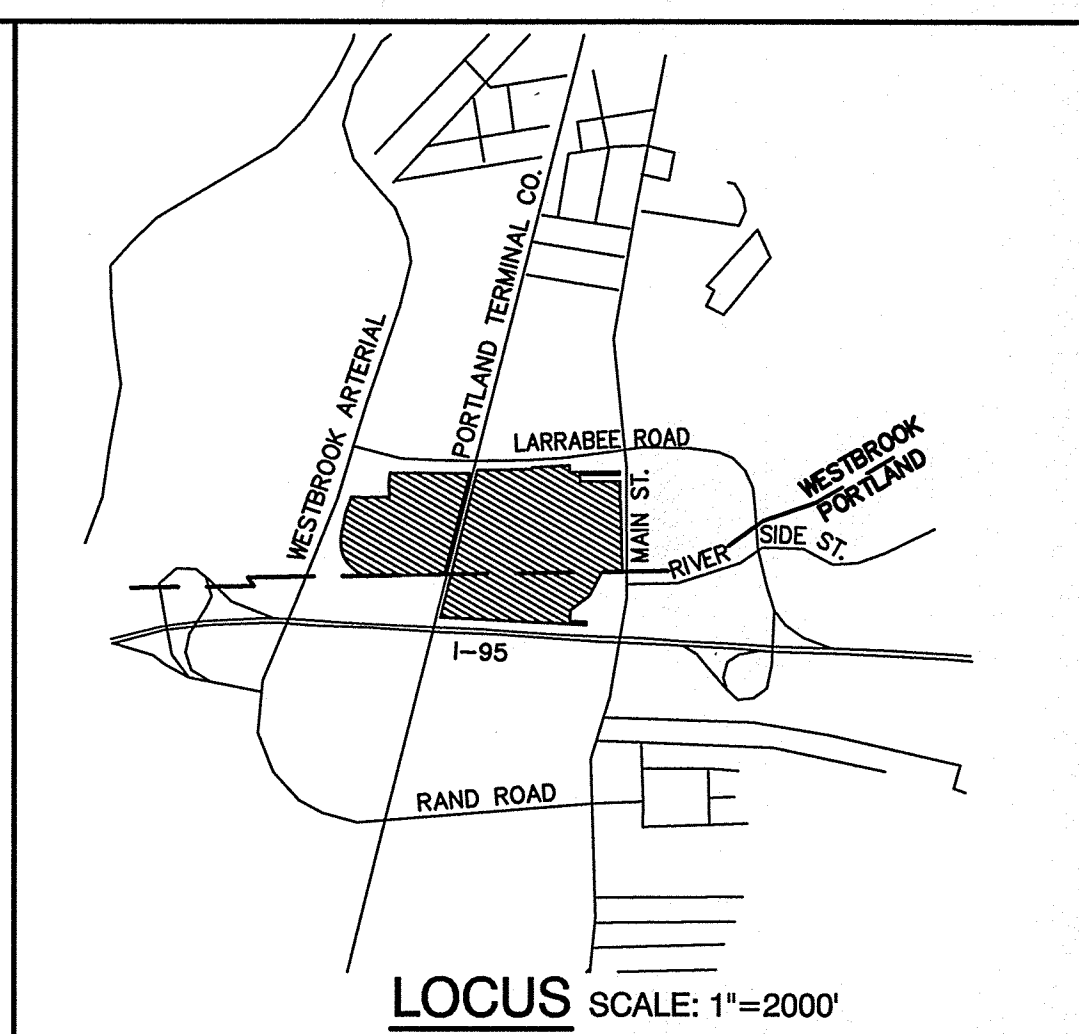
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Plan Name: **DEMOLITION PLAN - SOUTH CAMPUS**
Project: **"DIRIGO PLAZA"
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092**
Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101**

DRAWING No.

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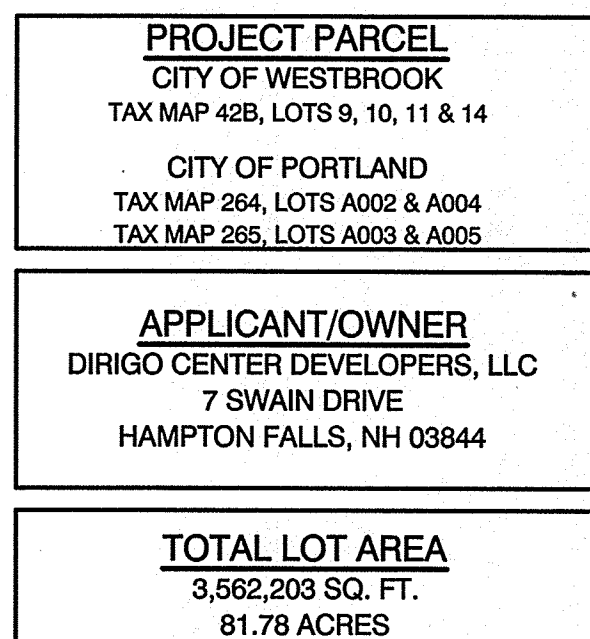
SHEET 6 OF 120
JBE PROJECT NO. 14110



1. UNDERGROUND FACILITIES UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. VERTICAL DATUM: NAVD29
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
4. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1 AND SHEETS EC-1 THROUGH EC-8.
5. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
6. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
7. ALL STORMWATER TREATMENT FEATURES ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
9. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4" MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
11. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEETS C3-1-1 - C3-1-4, C3-2-1 & C3-2-2 FOR DRAINAGE STRUCTURE SCHEDULE AND DETAIL SHEETS. UNLESS OTHERWISE SPECIFIED.
12. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
13. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO $+/-\frac{1}{2}"$ PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
14. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
15. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED.
16. INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
17. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
18. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
19. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
20. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
21. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
22. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
23. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
24. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
25. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
26. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
27. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
28. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.

SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1 AND EROSION & SEDIMENT CONTROL SHEETS EC-1 THROUGH EC-8.

30. FOR STORMWATER TREATMENT CALCULATIONS, SEE SHEETS W2-1 & W2-2 WITHIN DRAINAGE CALCULATIONS.

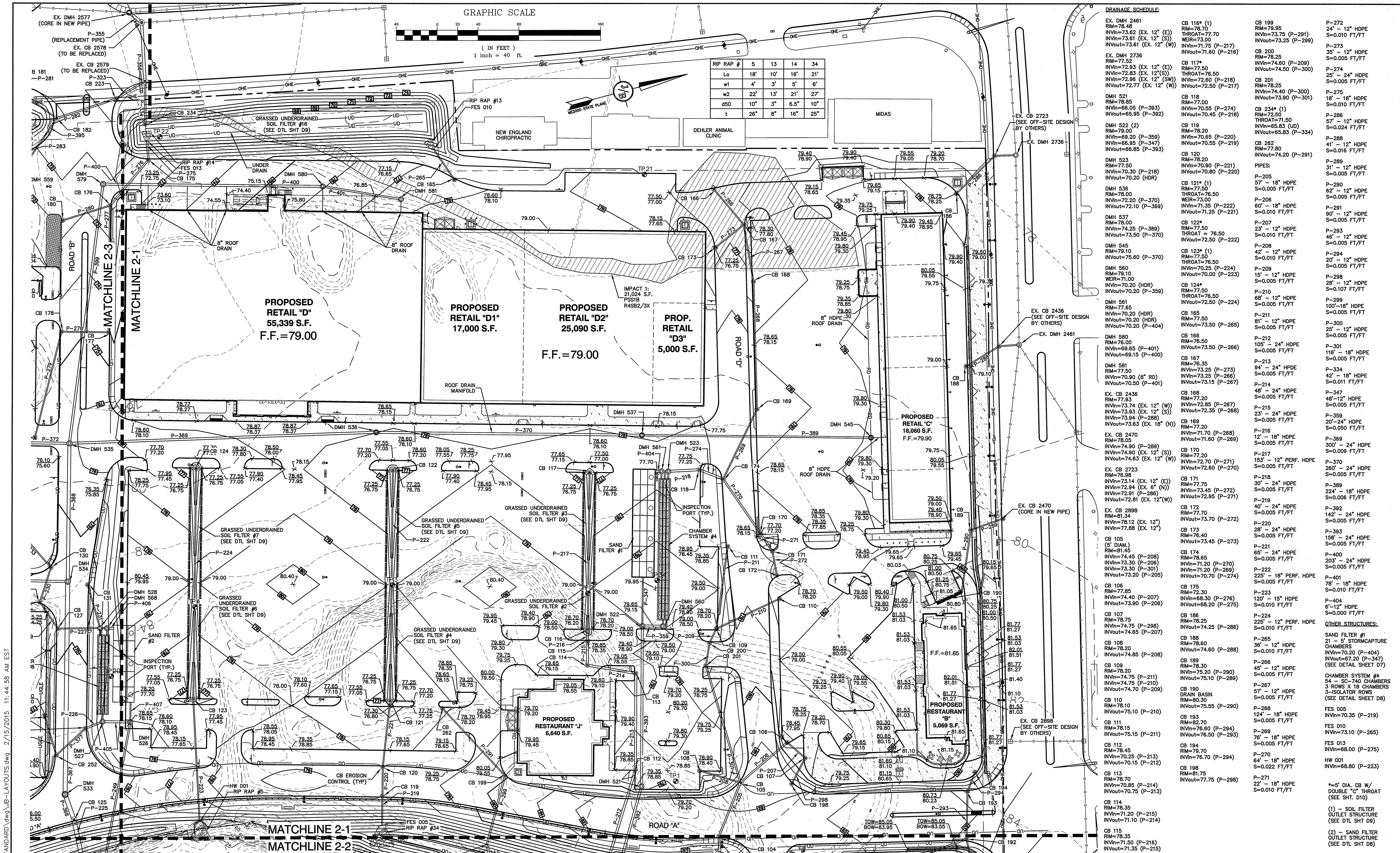


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SHEET 17 OF 120

IRF PROJECT NO. 14110



Design: BWG
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Drawing Name: 14110-PLAN.dwg

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Scale: AS SHOWN
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Plan Name: GRADING & DRAINAGE PLAN

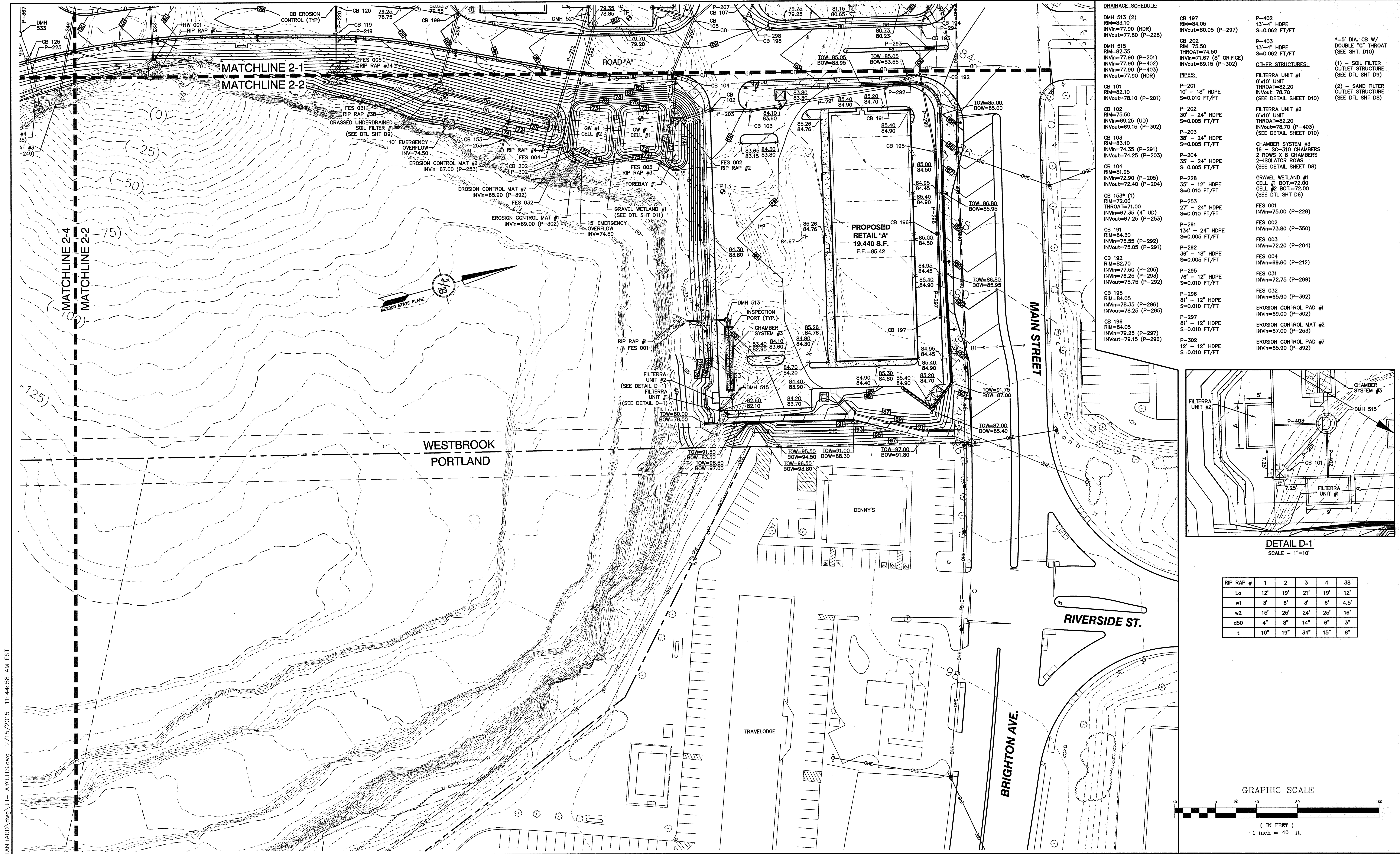
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Owner of Record: PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220
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SHEET 18 OF 120
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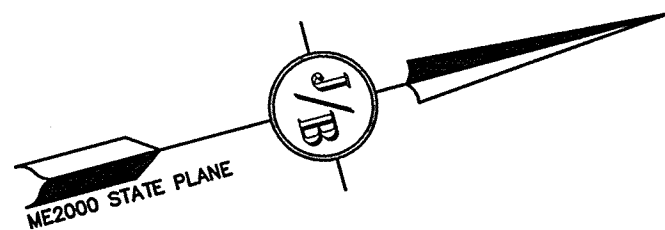
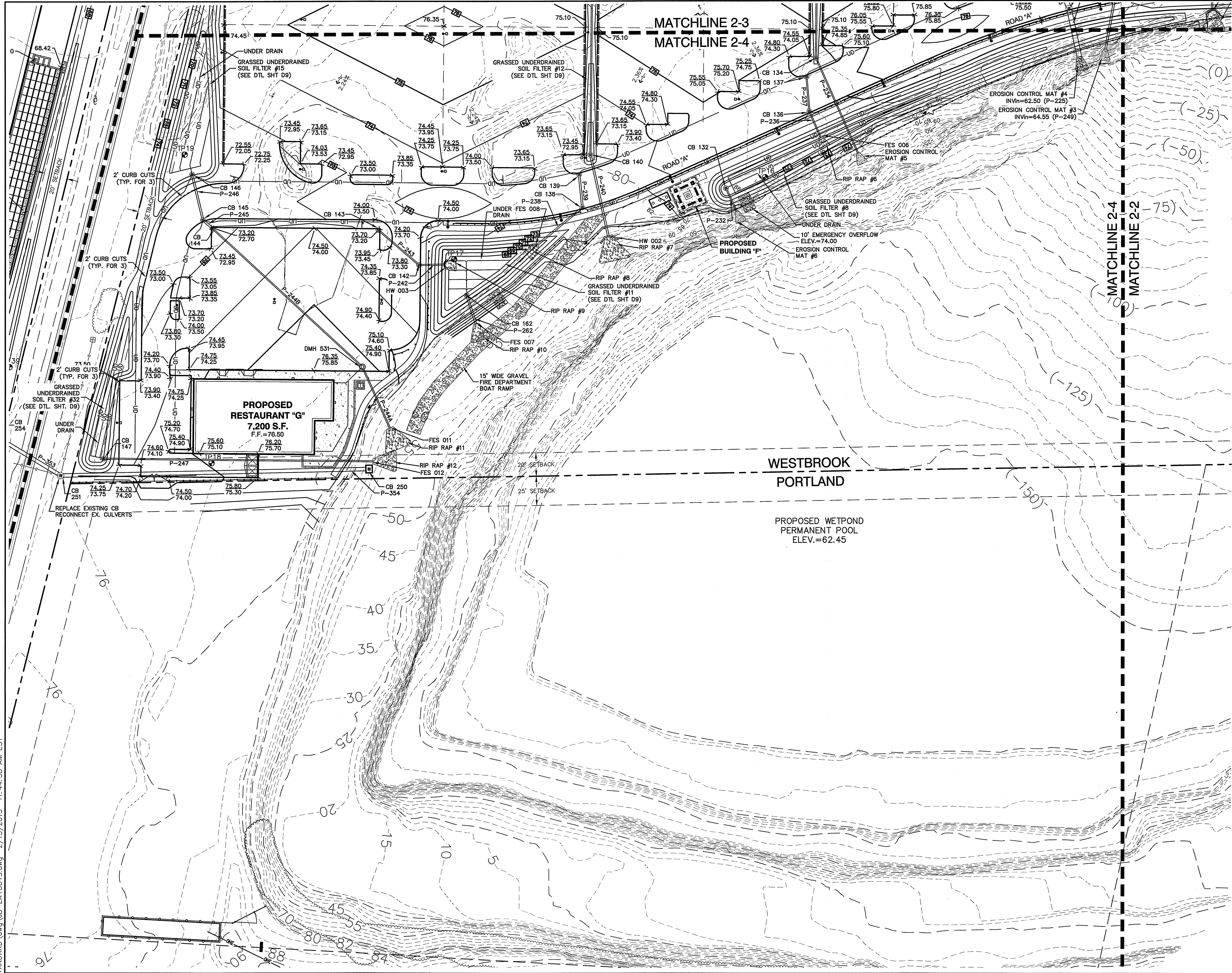
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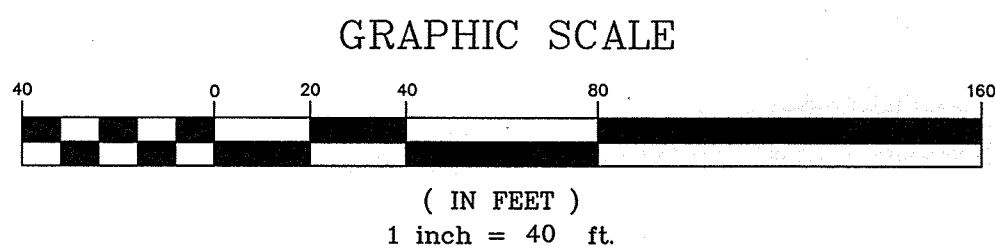
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SHEET 19 OF 120
JBE PROJECT NO. 14110



DRAINAGE SCHEDULE:		P-232	FES 006
DMH 531	RIM=75.25	27' - 12" HDPE	INVin=70.70 (P-236)
INVin=61.45 (ROOF)		S=0.013 FT/FT	FES 007
INVin=65.35 (P-244B)	P-234		INVin=64.70 (P-262)
INVout=61.35 (P-244A)	79' - 18" HDPE	S=0.010 FT/FT	FES 008
			INVin=69.30 (P-238)
CB 132* (1)	P-236		FES 011
RIM=73.00	23' - 12" RCP	S=0.010 FT/FT	INVin=61.05 (P-244A)
THROAT=72.00			FES 012
INVin=68.33 (4" UD)	P-237		INVin=63.00 (P-359)
INVout=68.30 (P-232)	30' - 12" RCP	S=0.010 FT/FT	HW 002
			INVin=66.85 (P-240)
CB 134* (1)	P-238		HW 003
RIM=75.05	50' - 15" RCP	S=0.005 FT/FT	INVin=68.30 (P-242)
THROAT=74.05			EROSION CONTROL MAT #3
INVin=67.70 (P-235)	P-239		INVin=66.55 (P-249)
INVout=67.60 (P-234)	29' - 12" RCP	S=0.005 FT/FT	EROSION CONTROL MAT #4
			INVin=62.50 (P-225)
CB 136	P-240		EROSION CONTROL MAT #5
RIM=74.35	72' - 24" RCP	S=0.005 FT/FT	INVin=66.80 (P-234)
INVin=71.05 (P-237)			EROSION CONTROL MAT #6
INVout=70.95 (P-236)	P-242		INVin=67.95 (P-232)
CB 137	P-243		
RIM=74.35	46' - 12" RCP	S=0.010 FT/FT	
INVout=71.35 (P-237)			
CB 139	P-244A		
RIM=72.95	57' - 24" HDPE	S=0.005 FT/FT	
INVout=69.95 (P-239)			
CB 140* (1)	P-244B		
RIM=73.70	139' - 18" HDPE	S=0.008 FT/FT	
THROAT=72.70			
INVin=67.35 (P-241)	P-245		
INVout=67.25 (P-240)	11' - 18" HDPE	S=0.010 FT/FT	
CB 142	P-246		
RIM=73.10	40' - 18" HDPE	S=0.010 FT/FT	
INVin=68.70 (P-243)			
INVout=68.60 (P-242)	P-247		
	231' - 12" HDPE	S=0.023 FT/FT	
CB 143			
RIM=73.20	P-262		
INVout=69.20 (P-243)	25' - 18" HDPE	S=0.040 FT/FT	
CB 144	P-353		
RIM=72.70	101' - 36" HDPE	S=0.005 FT/FT	
INVin=66.85 (P-245)			
INVout=66.75 (P-244B)			
CB 145	P-354		
RIM=71.97	265' - 36" HDPE	S=0.005 FT/FT	
INVin=67.10 (P-246)			
INVout=67.00 (P-245)			
CB 146* (1)			
RIM=72.50			
THROAT=71.50			
INVin=67.83 (4" UD)			
INVout=67.50 (P-246)			
CB 147* (1)			
RIM=73.50			
THROAT=72.50			
INVin=68.83 (4" UD)			
INVout=68.30 (P-247)			
CB 162 (1)			
RIM=70.45			
THROAT=69.45			
INVin=65.83 (6" UD)			
INVout=65.70 (P-262)			
CB 250			
RIM=70.00			
INVout=62.45 (P-354)			
(SEE DTL SHT D7)			
CB 251			
RIM=74.47			
5" DIAM.			
INVin=61.10 (P-354)			
INVin=68.48 (EX. 8")			
INVout=68.37 (EX. 18")			
INVout=61.00 (P-353)			

RIP RAP #	6	7	8	9	10	11	12
Ls	10'	21'	12'	9'	15'	19'	8'
w1	3'	8'	4'	3'	5'	6'	3'
w2	13'	27'	16'	12'	19'	25'	11'
d50	3"	11"	3"	3"	4"	8"	3"
t	8"	26"	8"	8"	11"	19"	8"



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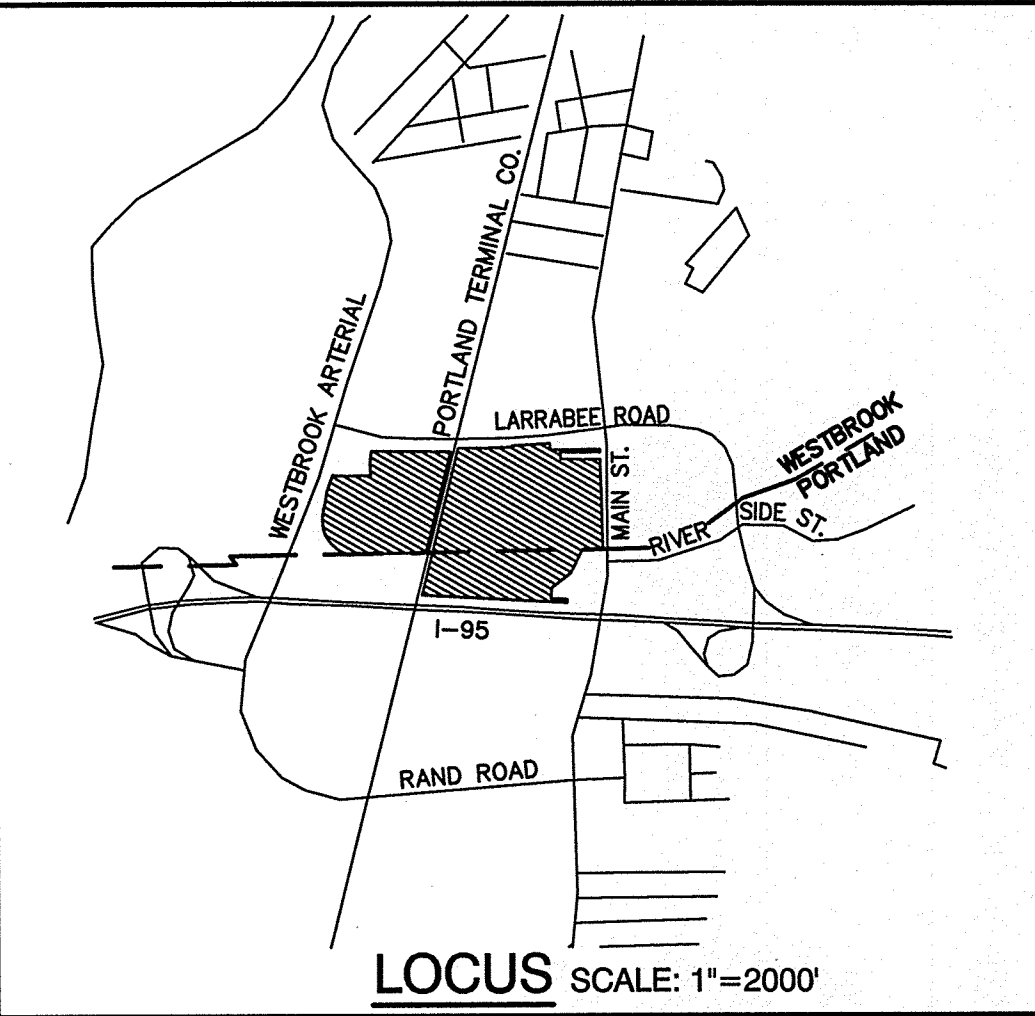
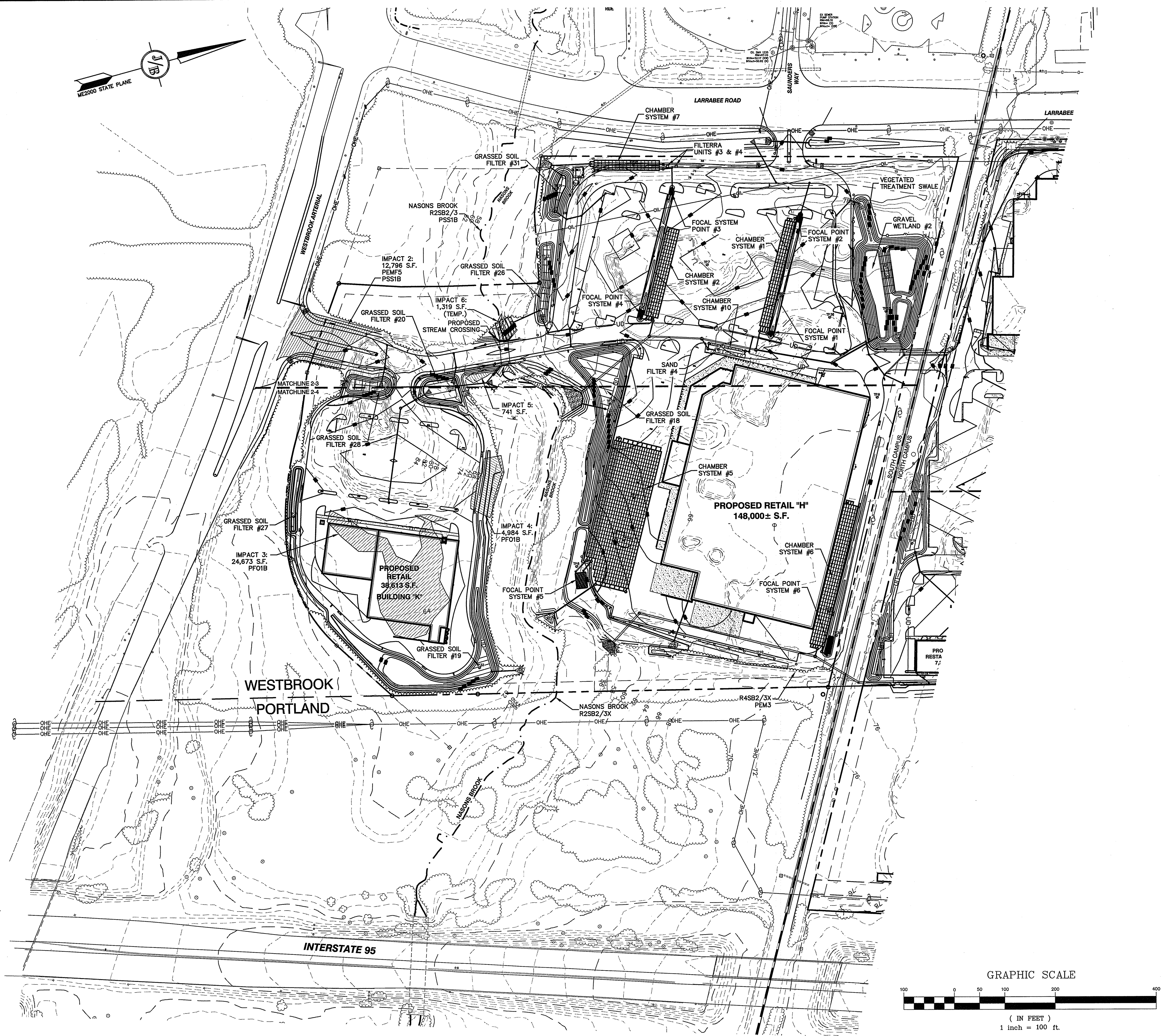
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PROJECT PARCEL
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TAX MAP 265, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG Draft: BWG Date: 10/20/15
Checked: WGM Scale: AS SHOWN Project No.: 14110
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Designed and Produced in NH
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85 Portsmouth Ave.
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E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **GRADING & DRAINAGE PLAN - SOUTH CAMPUS**
Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.
C3-2
SHEET 22 OF 120
JBE PROJECT NO. 14110

OTHER STRUCTURES:

FES 014
INVin=61.32 (P-314)

FES 015
INVin=63.85 (P-328)

FES 018
INVin=63.00 (P-328)

FES 019
INVin= 63.65 (P-331)

FES 025
INVin=61.90 (P-335)

HW 004
INVin=63.00 (P-365)

HW 005
INVin=62.80 (P-365)

HW 024
INVin=58.70 (P-339)

*=5' DIA. CB, 8" W/
DOUBLE "C" THROAT
(SEE SHT. D10)

(1) - SOIL FILTER
OUTLET STRUCTURE
(SEE DTL SHT D09)

(2) - SAND FILTER
OUTLET STRUCTURE
(SEE DTL SHT D08)

(3) - W/ DOME GRATE

(4) - FOCAL POINT
OUTLET STRUCTURE
(SEE DTL SHT D11)



100' STRUT SETBACK

75' STRUT SETBACK

60

62

STREAM CENTERLINE

Plan view of the proposed road layout. The road alignment is shown as a dashed line. Key features include:

- EX. 60" CULVERT**: Existing culvert structure.
- RIP RAP #37**: Rip rap structure with **L=12'**.
- EL. SPREADER**: Elevation spreader structure.
- SOIL FILTER #31**: Soil filter structure.
- UNDER DRAIN**: Under drain structure.
- RIP RAP #20**: Rip rap structure.
- FES 019**: Feature elevation structure.
- OIL LINE**: Oil line structure with **TOP=+59.57** and **INV.=+59.07**.
- STREAM**: Stream structure.
- 30' STREAM RETBACK**: 30-foot stream setback line.

CHAMBER SYSTEM #7
72 - SC-740 CHAMBERS
4 ROWS x 18 CHAMBERS
2-ISOLATOR ROW
(SEE DETL SHT D6)

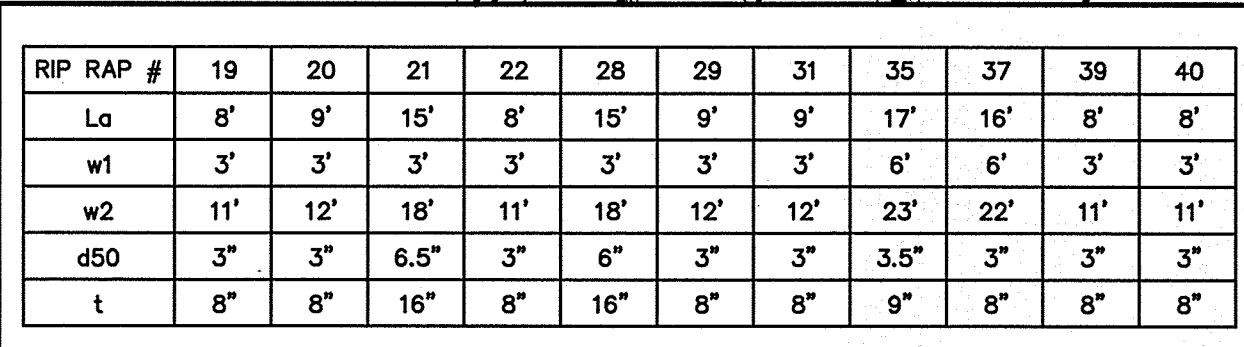
OHE
 FILTERRA UNIT #4
 THROAT=67.20
 Yout=63.70 (R=416)
 (SEE DETAIL D-2)

DMH 571
 DMH 570
 CB 207
 OIL
 68.90
 68.40
 68.15
 67.65
 67.90
 67.40
 68.55
 68.55

Plan view of the proposed road layout. The drawing shows the intersection of Road "A" and Road "B". Key features include:

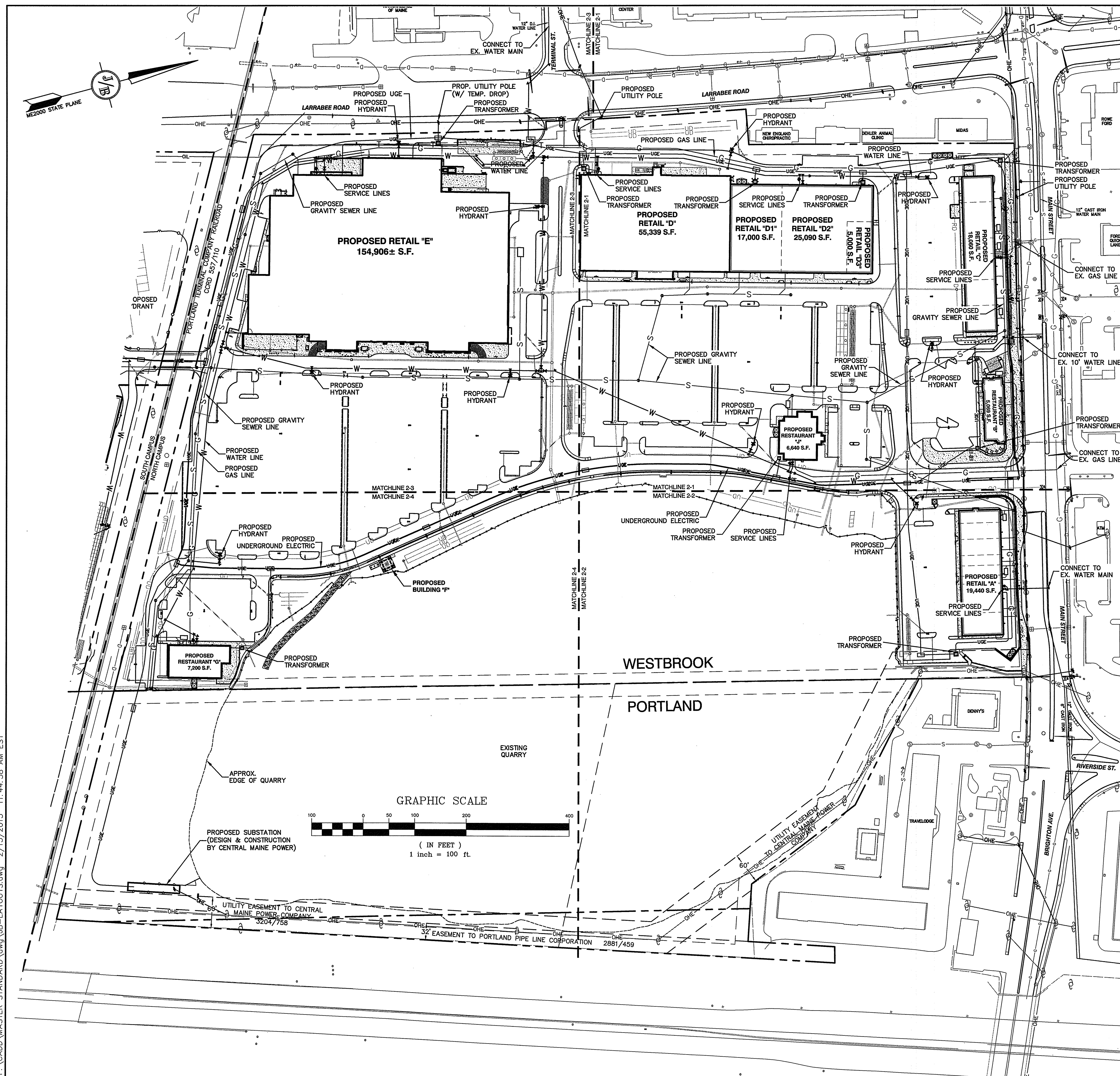
- Stationing:** Road "A" is marked with stationing 68.25, 67.75, 68.70, 69.25, and 69.45. Road "B" is marked with stationing 69.20 and 68.70.
- Offsets:** A 6' offset is indicated for the RIP-RAP shoulder.
- Note:** "INSTALL RIP-RAP SHOULDER w1=10' w2=10' d50=6" t=12"
- Other Labels:** "GHE", "RIP RAP", "ROAD 'A'", "ROAD 'B'", and "ROAD 'C'" are visible.

Technical drawing of a bridge structure. The top portion is a cross-section showing a pier labeled "P-415" and a "FILLET UNIT" with a width of 10'. The base of the pier and fillet unit is divided into two 5' sections. Below this is a plan view showing the bridge deck with a centerline (CHE) and a right-of-way line (D-2) with a width of 10'. The drawing also shows a gravel wetland area with a 10' buffer zone and a 10' buffer zone for the right-of-way.

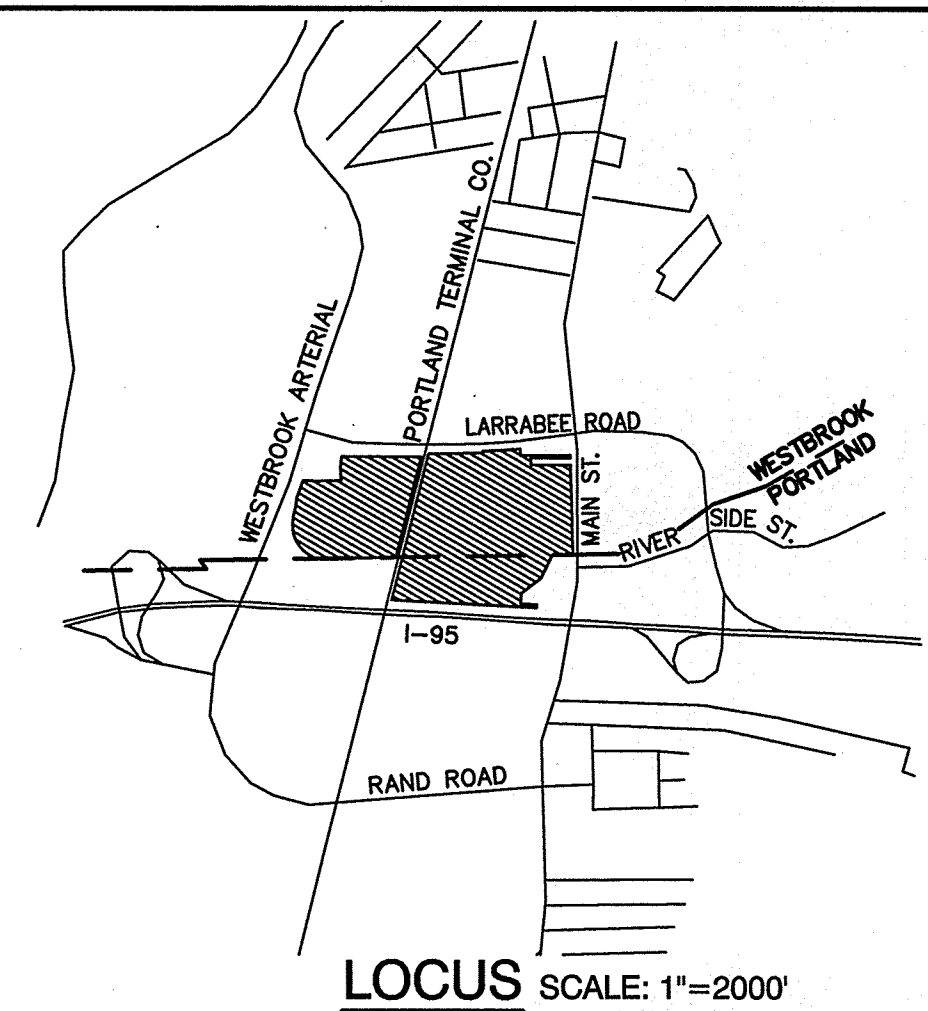


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UTILITY NOTES:



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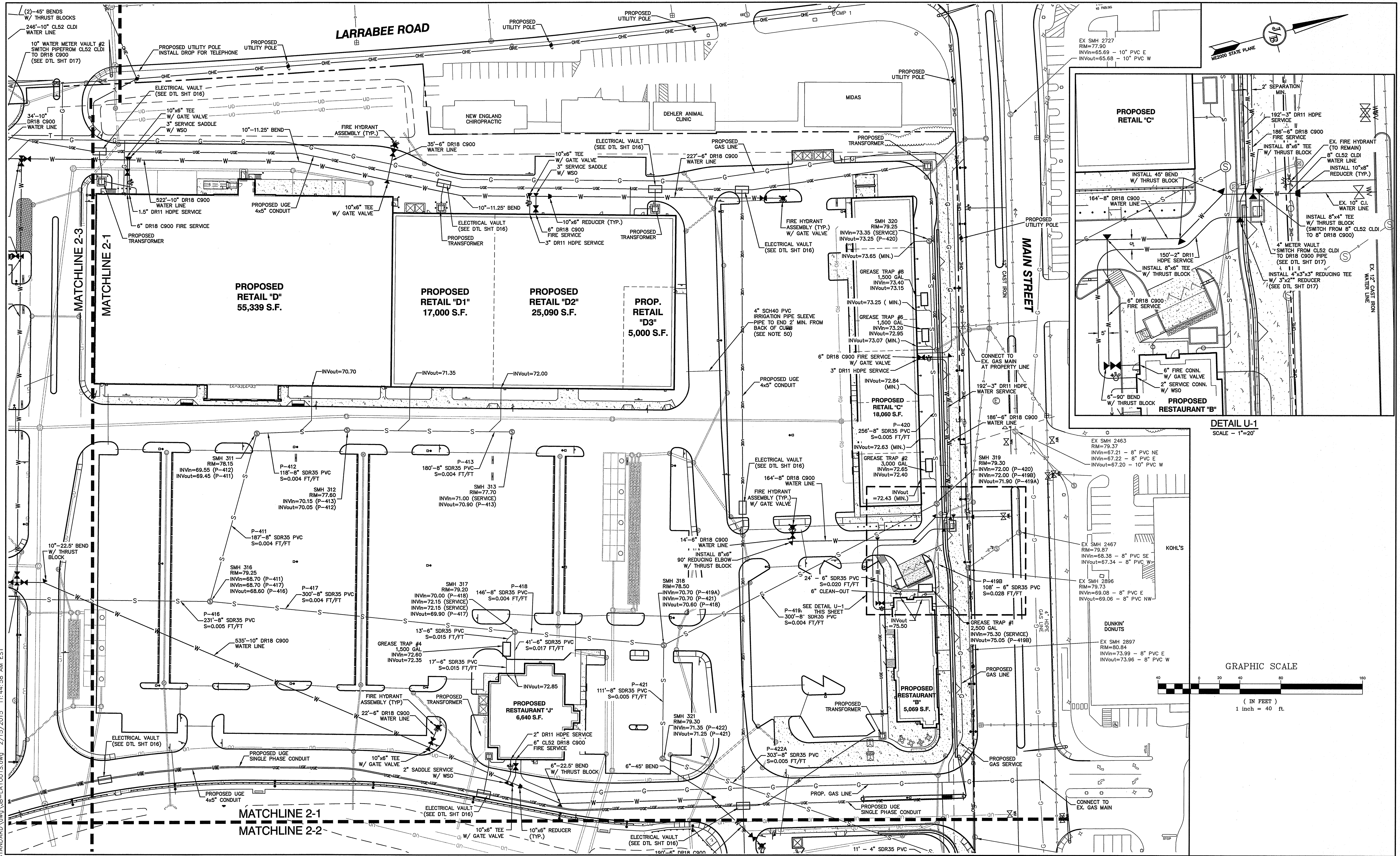
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DRAWING No.

C4-1

SHEET 26 OF 120

JRB PROJECT NO. 14110



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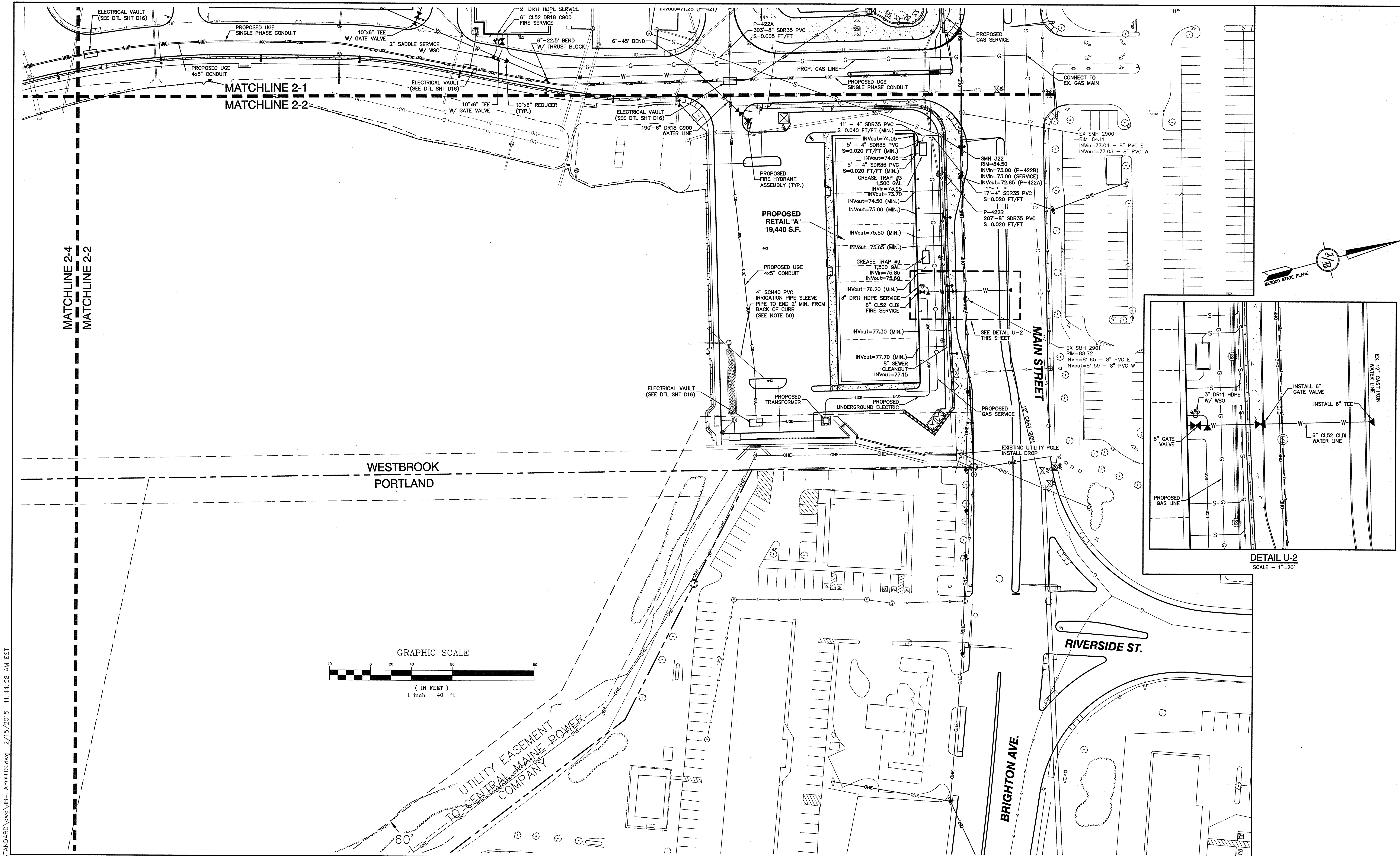
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DRAWING No.
C4-1-1
SHEET 27 OF 120
JBE PROJECT NO. 14110



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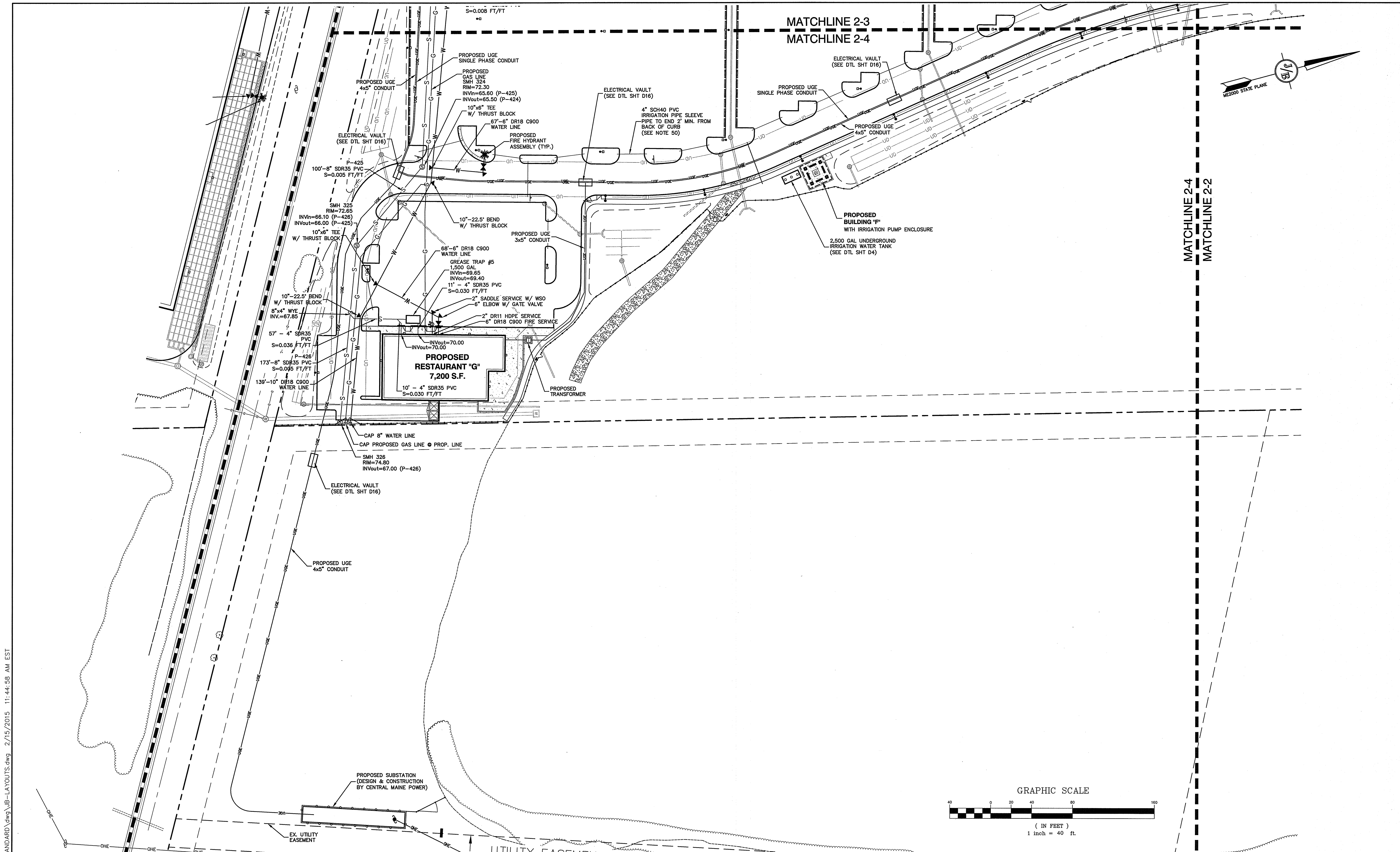
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DRAWING No.

C4-1-2

SHEET 28 OF 120
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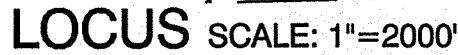
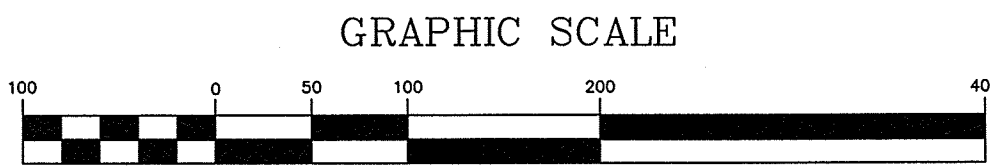
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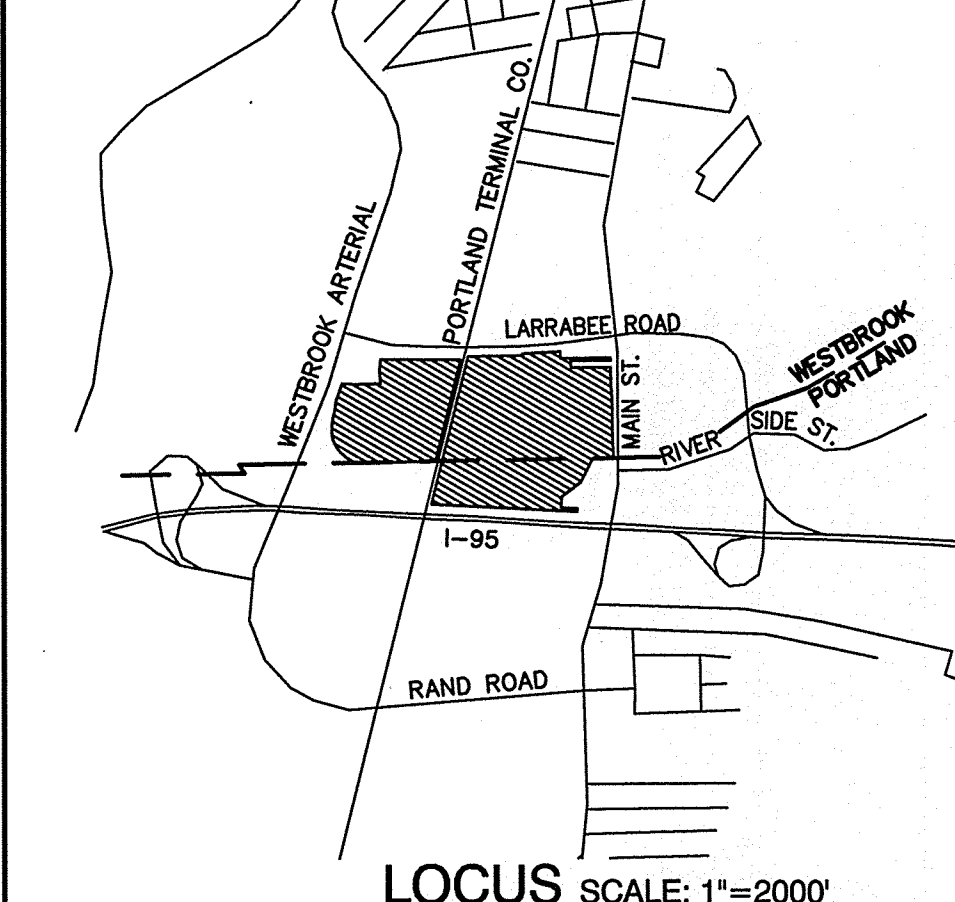
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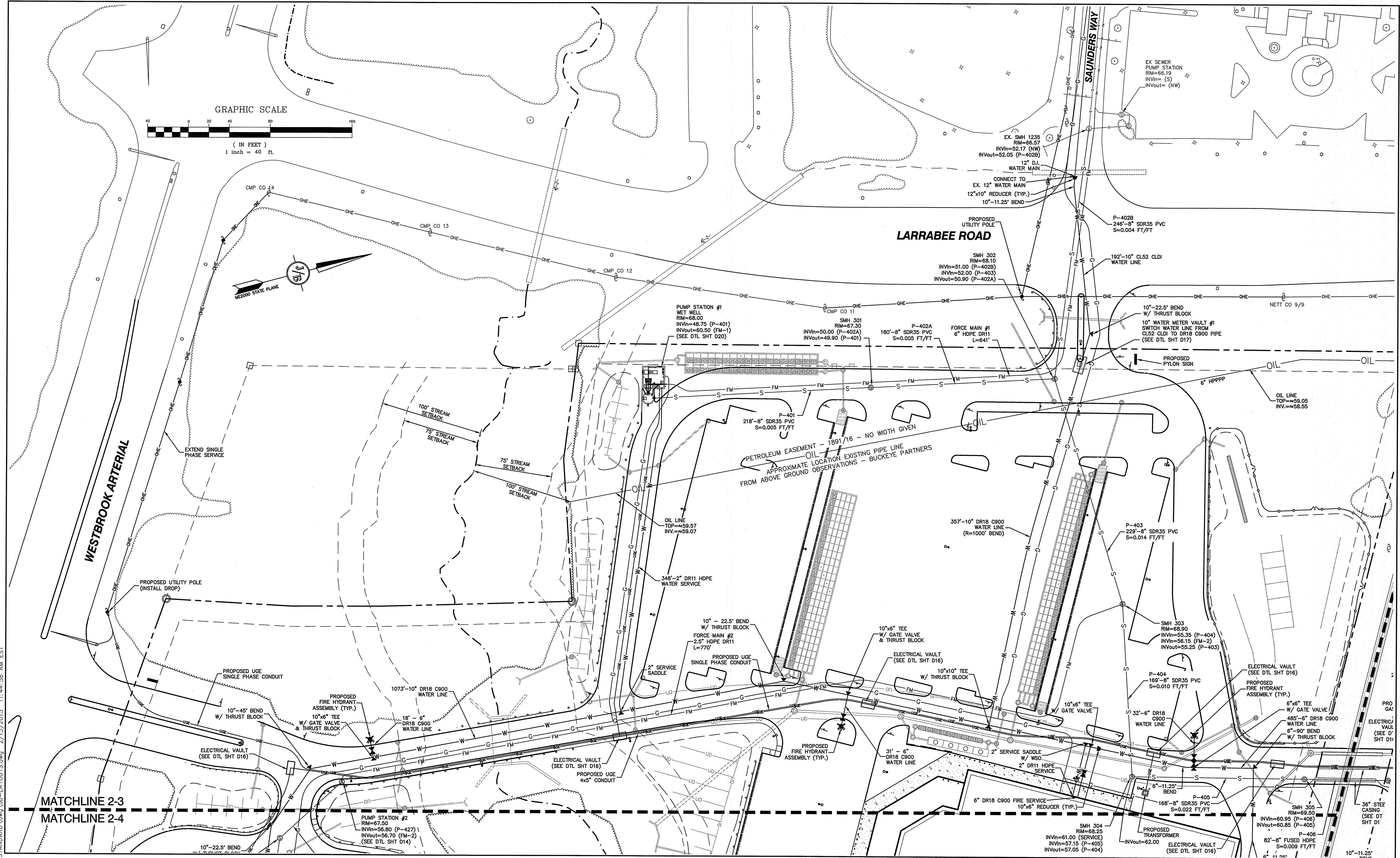
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DRAWING No.
C4-1-4
SHEET 30 OF 120
JBE PROJECT NO. 14110



- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUDS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. CONTRACTOR TO PROVIDE UNDERDRAIN, AS NECESSARY, AT DISCRETION OF THE PROJECT ENGINEER.
11. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
12. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA. CLEAR OPENING. THE WORD "SEWER" OR "DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS. THE CASTING SHALL BE OF EVEN-GRAINED CAST IRON, SMOOTH, AND FREE OF SCALE, LAC, DISCOLORATIONS, SAND HOLES, AND DEFECTS. CONTACT SURFACES OF COVERS AND FRAMES SHALL BE MACHINED AT THE FOUNDRY TO PREVENT ROCKING OF COVERS IN ANY ORIENTATION. CASTINGS SHALL BE EQUAL TO CLASS 30, CONFORMING TO ASTM A48 / 48M-03.
13. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
14. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
15. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4" MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
16. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
17. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
18. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICHEVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
19. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
20. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
21. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
22. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
23. FIRE LINE SHALL BE STUBBED UP 1' ABOVE FINISH FLOOR ELEVATION IN SPRINKLER ROOM.
24. AN APPROVED AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH 101 LIFE SAFETY CODE/NFPA 1 AND LOCAL REGULATIONS. FIRE DEPARTMENT CONNECTION SHALL BE FIELD VERIFIED BY LOCAL FIRE DEPARTMENT TO ENSURE OPTIMUM PLACEMENT.
25. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
26. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
27. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
28. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
29. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES WITH WATER OVER SEWER.
30. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED.
31. SEWER AND WATER INFRASTRUCTURE ON PRIVATE PROPERTY IS TO REMAIN PRIVATE, HOWEVER, THE TOWN RESERVES THE RIGHT TO ENTER THE PROPERTY IN ORDER TO INSPECT, REPAIR AND/OR TERMINATE INDIVIDUAL SEWER OR WATER SERVICES (AT OWNER'S EXPENSE). THIS RIGHT IS TO BE CONVEYED TO THE TOWN IN THE SITE'S DECLARATION OF CONDOMINIUM DOCUMENTS, AND IN ALL INDIVIDUAL DEEDS.
32. ALL FIRE HYDRANTS SHALL BE PROVIDED WITH AN APPROVED GATE VALVE A MAXIMUM OF 5'-0" FROM HYDRANT.
33. THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE TOWN SEWER DEPARTMENT.
34. THE CONTRACTOR SHALL MAINTAIN WATER SERVICE TO USERS AT ALL TIMES. REQUIREMENTS BY THE TOWN WATER DEPARTMENT REGARDING NOTIFICATION FOR INTERRUPTION OF SERVICE TO BE INCLUDED (TYPICALLY 24 HOURS) AND ALLOWABLE INTERRUPTION DURATION, WATER TESTING AND DISINFECTION REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH TOWN AND STATE REGULATIONS.
35. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
36. ALL SEWER PIPING AND APPURTENANCE SHALL CONFORM TO MEDEP SPECIFICATIONS.
37. NEW CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE DRILLED.
38. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
39. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
40. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
41. MINIMUM COVER OVER WATERLINES SHALL BE 5'.
42. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
43. ALL CONCRETE FOR ENCASEMENT SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.
44. REFER TO INTERIOR PLUMBING DRAWINGS FOR TIE-IN OF ALL UTILITIES.
45. PROPOSED STRUCTURES WILL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE MAINE UNIFORM BUILDING AND ENERGY CODE (MUBEC) SECTION (IRC) 5501.3 AND ALL OTHER STATE AND LOCAL CODES, ORDINANCES, AND STANDARDS.
46. THE PROPOSED BUILDINGS WILL MEET THE FIRE PROTECTION REQUIREMENTS AS DETERMINED BY THE FIRE/RESCUE DEPARTMENT, UPON SUBMITTAL OF BUILDING PLANS.
47. THE FIRE DEPARTMENT SHALL APPROVE ALL FIRE PROTECTION AND LIFE SAFETY SYSTEMS EQUIPMENT AND MATERIALS.
48. FIRE LANES SHALL BE MARKED PER CITY OF WESTBROOK ORDINANCE SECTION 31-115 THROUGH 31-12. THIS INCLUDES ALL SIGNAGE WITH "NO PARKING FIRE LANE" "TOW AWAY ZONE".
49. FINAL FIRE DEPARTMENT CONNECTION SHALL BE COORDINATED WITH THE FIRE CHIEF OR HIS DESIGNEE PRIOR TO ANY SPRINKLER INSTALLATIONS.
51. CONTRACTOR TO PROVIDE 4" PVC SCH40 PIPE FROM BUILDING "F" TO EACH LANDSCAPE ISLAND FOR IRRIGATION SYSTEM. 4" PVC PIPE TO END 2' (MIN.) BEHIND CURB WITHIN LANDSCAPED ISLANDS. SEE SHEETS 4-1-1 THROUGH 4-1-4 FOR APPROXIMATE LOCATIONS (PIPE AT RAILROAD CROSSING TO BE STEEL PIPE PER RAILROAD CROSSING DESIGN BY OTHERS).
52. FIRE HYDRANTS SHALL BE INSTALLED WITHIN THE DEVELOPMENT WITH THE LOCATION AND NUMBER TO BE DETERMINED BY THE FIRE/RESCUE DEPARTMENT. FIRE FLOWS FOR THE PROJECT WILL BE IN ACCORDANCE WITH NFPA 1 STANDARDS. THE FIRE HYDRANTS SHALL BE TESTED BY THE PORTLAND WATER DISTRICT OR ANOTHER ACCEPTABLE AUTHORITY APPROVED BY THE FIRE/RESCUE DEPARTMENT PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATION OF OCCUPANCY FOR THE PROJECT. FIRE HYDRANTS SHALL BE MAINTAINED CLEAR OF SNOW AND ICE DURING WINTER MONTHS. HYDRANTS SHALL HAVE PROTECTION PROVIDED IN TRAFFIC AREAS.
- 
- LOCUS SCALE: 1"=2000'

SHEET 31 OF 120
JBE PROJECT NO. 14110



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80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

C4-2-1

SHEET 32 OF 120
JBE PROJECT NO. 14110

GENERAL PROJECT NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, DETAILS, AND SPECIFICATIONS, AND PER ALL APPLICABLE CODES AND REQUIREMENTS.
2. THE CONTRACTOR SHALL CAREFULLY INSPECT THE SITE AND VERIFY ALL CONDITIONS PRIOR TO BEGINNING ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES WITH THESE DOCUMENTS PRIOR TO BEGINNING ANY CONSTRUCTION.
3. THE CONTRACTOR SHALL CARRY ALL WORKER'S COMPENSATION, PUBLIC LIABILITY, AND PROPERTY DAMAGE INSURANCE AS REQUIRED BY THE OWNER.
4. HOLD HARMLESS AND INDEMNIFICATION CLAUSE - THE CONTRACTOR SHALL AGREE THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY TO ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE LANDSCAPE ARCHITECT HARMLESS FROM ANY AND ALL LIABILITY; REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE LANDSCAPE ARCHITECT.
5. DAMAGE RESPONSIBILITY - CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE IMPOSED, INTENTIONALLY OR ACCIDENTALLY, TO EXISTING UTILITIES, BUILDINGS, OR OTHER AMENITIES, DUE TO THE ACTIONS OF THE CONTRACTOR, CONTRACTOR'S EMPLOYEES, AND/OR CONTRACTOR'S SUB CONTRACTORS. CONTRACTOR SHALL AT ALL TIMES PROTECT HIS WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGE OR STOLEN PARTS AT HIS EXPENSE UNTIL THE WORK IS ACCEPTED IN WRITING FROM THE OWNER.
6. UNAUTHORIZED CHANGES TO PLANS - THE LANDSCAPE ARCHITECT PREPARING THESE PLANS SHALL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF ANY WORK.
7. REVISED LANDSCAPE PLANS MUST BE SUBMITTED FOR APPROVAL IF ANY REVISIONS ARE MADE TO THE DEVELOPMENT PLAN OR PLAT FOR PAVING, GRADING, OR IMPROVEMENT PLANS.
8. THE CONTRACTOR SHALL APPLY, OBTAIN, AND PAY FOR ALL REQUIRED PERMITS TO COMPLETE THE SCOPE OF WORK.
9. TRADE COORDINATION - CONSTRUCTION AND INSTALLATION OF ALL ITEMS WITHIN THESE DOCUMENTS SHALL REQUIRE CLOSE COORDINATION BETWEEN TRADES INVOLVED IN UNDERGROUND AND UTILITY INSTALLATION, AND TREE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE TO INSURE PROPER COORDINATION BETWEEN TRADES TO INSURE AND AVOID CONSTRUCTION DELAYS OR DAMAGE TO ANY IMPROVEMENTS OR UTILITIES.
10. UNDERGROUND SERVICE ALERT - CONTRACTOR SHALL NOTIFY BLUE STAKE 48 HOURS PRIOR TO DIGGING AT 1-800-STAKE-IT. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN WORKING NEAR EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION AND CONDITION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
11. INSPECTIONS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE MUNICIPAL REPRESENTATIVE AT LEAST 48 HOURS IN ADVANCE PRIOR TO ANY REQUIRED MUNICIPAL INSPECTION.
12. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AT LEAST 48 HOURS IN ADVANCE PRIOR TO ANY REQUIRED OR DESIRED INSPECTION. CONTACT NUMBER IS (978) 764-8155.
13. THESE DRAWINGS AND SPECIFICATIONS ARE PROPERTY AND COPYRIGHT OF AMORY LAND DESIGN, LLC. THESE DRAWINGS SHALL NOT TO BE USED ON ANY OTHER WORK EXCEPT BY WRITTEN AUTHORIZATION FROM AMORY LAND DESIGN, LLC.
14. WRITTEN DIMENSIONS TAKE PREFERENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.
15. ALL QUANTITIES INDICATED ON THE PLANS ARE PROVIDED AS A COURTESY ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE QUANTITIES SHOWN BY CONDUCTING A INDEPENDENT QUANTITY TAKE OFF.
16. THE LANDSCAPE ARCHITECT SHALL DECIDE ALL QUESTIONS RELATING TO THE INTERPRETATION OF THE DRAWINGS AND THE ACCEPTABLE FULFILLMENT OF THE CONTRACT DOCUMENTS.
17. THE CONTRACTOR SHALL MAINTAIN THE PREMISES CLEAN AND FREE OF EXCESS EQUIPMENT, MATERIALS, AND RUBBISH INCIDENTAL OF HIS WORK AT ALL TIMES INCLUDING WEEKENDS AND HOLIDAYS. ALL RUBBLE, TRASH, OR DISPOSABLE ITEMS RESULTING FOR THE DEMOLITION OF CONSTRUCTION SHALL BE DISPOSED OF IN A LEGAL, LAWFUL, AND SAFE MANNER TO AN APPROVED DISPOSAL SITE.
18. PLANT MATERIAL TO BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ALL TREES SHALL HAVE A NUMBERED TAG.
19. ALL PLANT MATERIAL TO BE STAKED BY THE LANDSCAPE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ANY HOLES BEING DUG.
20. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FINISHED GRADES.
21. THE LANDSCAPE CONTRACTOR SHALL VERIFY BERM AND RETENTION BASIN LOCATIONS SHOWN ON THESE PLANS WITH THOSE ON THE CIVIL ENGINEERING PLANS. SHOULD A DISCREPANCY EXIST BETWEEN THE PLANS, THIS OFFICE SHALL BE NOTIFIED IMMEDIATELY.
22. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS DURING THE FINISH GRADING PROCESS.

23. NO SLOPES TO EXCEED 4:1 IN LANDSCAPE AREAS UNLESS OTHERWISE NOTED ON THE PLAN.
24. UNDER NO CIRCUMSTANCES SHALL ANY TREE BE PLANTED WITHIN 6' OF ANY BUILDING WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT. TREES MUST BE LOCATED AT LEAST 10' FROM A SEWER LINE EASEMENT CENTERLINE. PLANT MATERIALS WITH INTRUSIVE ROOT SYSTEMS SHALL NOT BE PLACED WITHIN DRAINAGE BASINS WITH ENGINEERED BOTTOMS.
25. ALL PLANT MATERIAL WITHIN SIGHT VISIBILITY TRIANGLES SHALL BE PLACED SO AS NOT TO INTERFERE WITH A VISIBILITY PLANE DESCRIBED BY TWO HORIZONTAL LINES LOCATED 30 INCHES AND 72 INCHES ABOVE FINISHED GRADE OF THE ROADWAY SURFACE.
26. IT IS RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO INFORM THE LANDSCAPE ARCHITECT / OWNER / OWNER REPRESENTATIVE OF ANY PLANT MATERIAL CONCERNS BASED ON PLANTING SEASON (E.G. WINTER, SUMMER). SHOULD THE LANDSCAPE CONTRACTOR HAVE ANY CONCERNS ABOUT PLANT MATERIAL DUE TO FROST OR EXPOSURE, HE SHALL REQUEST A SUBSTITUTION OR DELAY IN PLANTING. ONCE PLANTED, ALL PLANT MATERIAL IS SUBJECT TO SPECIFIED WARRANTIES.
27. REFER SHEET L8.0 FOR ADDITIONAL SPECIFICATIONS.

LANDSCAPE NOTES

1. AREAS OF ORGANIC MULCH WITHOUT PLANT MATERIALS SHALL NOT EXCEED DIMENSIONS OF MORE THAN 7 FEET IN ANY ONE DIRECTION, MEASURED BETWEEN PLANT CANOPIES AND / OR COVERAGE.
2. A SINGLE TRUNK TREE'S CALIPER SIZE, THAT IS TO BE EQUAL TO OR LESS THAN 4-INCHES, SHALL BE DETERMINED BY UTILIZING THE SMALLEST DIAMETER OF THE TRUNK 6-INCHES ABOVE FINISHED GRADE ADJACENT TO THE TRUNK.
3. A TREES CALIPER SIZE, FOR SINGLE TRUNK TREES THAT ARE TO HAVE A DIAMETER GREATER THAN 4-INCHES, SHALL BE DETERMINED BY UTILIZING THE SMALLEST DIAMETER OF THE TRUNK 12-INCHES ABOVE FINISHED GRADE ADJACENT TO THE TRUNK.
4. A MULTIPLE TRUNK TREE'S CALIPER SIZE IS MEASURED AT 6" ABOVE THE LOCATION THAT THE TRUNK SPLITS ORIGINATES, OR 6" ABOVE THE FINISHED GRADE IF ALL TRUNKS ORIGINATE FROM THE SOIL.
5. AREA WITHIN THE SIGHT DISTANCE TRIANGLE IS TO BE CLEAR OF LANDSCAPING, SIGNS, OR OTHER VISIBILITY OBSTRUCTIONS WITH A HEIGHT GREATER THAN 2 FEET. TREES WITHIN THE SAFETY TRIANGLE SHALL HAVE A CANOPY THAT BEGINS AT 7 FEET IN HEIGHT UPON INSTALLATION. ALL HEIGHTS ARE MEASURED FROM NEAREST STREET LINE ELEVATION.
6. RETENTION / DETENTION BASINS SHALL BE CONSTRUCTED SOLELY FROM THE APPROVED CIVIL PLANS WITH PLANT MATERIAL AS SPECIFIED. ANY ALTERATION OF THE APPROVED DESIGN (ADDITIONAL FILL, CHANGE OF GRADE, ECT.) SHALL REQUIRE ADDITIONAL FINAL PLANS STAFF REVIEW AND APPROVAL.
7. ALL SIGNS MAY REQUIRE SEPERATE PERMITS AND APPROVALS.
8. NEW LANDSCAPING, INCLUDING SALVAGED PLANT MATERIAL, AND LANDSCAPING INDICATED TO REMAIN, WHICH IS DESTROYED, DAMAGED, OR EXPIRED DURING CONSTRUCTION SHALL BE REPLACED WITH LIKE SIZE, KIND, AND QUANTITY.

LIMIT OF WORK NOTES

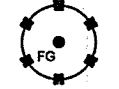
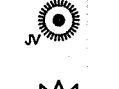
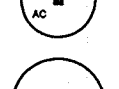
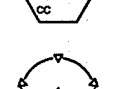
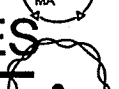
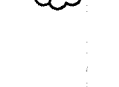
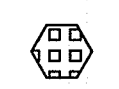
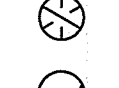
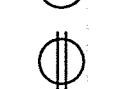
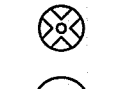
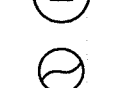
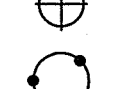
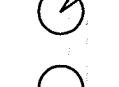
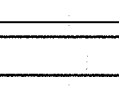
1. LIMIT OF WORK (LOWL) AS DESIGNATED ON THE CIVIL DRAWINGS:
2. ALL AREAS OUTSIDE OF THE LOWL AREA REQUIRED TO BE REVEGETATED DUE TO CONSTRUCTION ACTIVITIES SHALL BE WATERED UNTIL PLANT MATERIAL IS ESTABLISHED.
3. NO CONSTRUCTION ACTIVITY SHALL ENCROACH INTO AREAS NOT DELINEATED BY EROSION CONTROL UNLESS PREVIOUSLY AUTHORIZED OR REQUIRED FOR THE INSTALLATION OF SITE IMPROVEMENTS SHOWN OUTSIDE OF THE EROSION CONTROL BARRIER.
4. ALL AREA OUTSIDE OF THE LIMIT OF WORK SHALL BE PROTECTED FROM DAMAGE PRIOR TO AND DURING CONSTRUCTION.
5. IF REQUIRED, A REGISTERED LAND SURVEYOR SHALL STAKE ALL LOWL AND AREAS BASED ON CIVIL DRAWINGS.
6. ALL PLANT MATERIAL OUTSIDE OF THE LOWL LINE SHALL REMAIN UNLESS OTHERWISE SHOWN.

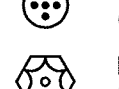
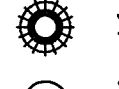
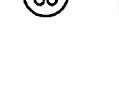
SITE PREPARATION AND DEMOLITION NOTES

1. REFER TO COVER SHEET AND CIVIL DRAWINGS FOR ADDITIONAL GENERAL NOTES.
2. LOCATION OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY. EXISTING UTILITIES MAY NOT BE SHOWN. CONTACT OWNER, PROPER LOCAL AUTHORITIES, OR RESPECTIVE UTILITY COMPANY TO CONFIRM LOCATION OF UTILITIES BEFORE COMMENCING WORK. REPAIR DAMAGE TO EXISTING UTILITIES DUE TO EXECUTION OF WORK.
3. COORDINATE DEMOLITION AND RELOCATION OF UTILITIES WITH ALL TRADES.
4. BE RESPONSIBLE FOR DAMAGE TO EXISTING ITEMS TO BE PROTECTED AND TO REMAIN. CONTRACTOR IS TO PAY FOR DAMAGES TO EXISTING ITEMS TO BE PROTECTED AND TO REMAIN. REPLACE DAMAGED ITEMS AT NO ADDITIONAL COST TO OWNER.
5. REMOVE ITEMS REQUIRING REMOVAL TO FULL DEPTH, INCLUDING BASE MATERIALS AND FOOTINGS AND DISPOSE OF LEGALLY OFF-SITE AND SAVE, RELOCATE, STOCKPILE AND PROTECT ON-SITE ITEMS NOTED AND AS DESIGNATED BY OWNER.
6. PERFORM DEMOLITION AND SALVAGE UNDER DRIP LINE OF EXISTING TREE CANOPIES, THAT ARE TO REMAIN, IN A MANNER THAT DOES NOT DAMAGE TREE.
7. LAYOUT THE LIMITS OF CLEARING, AND GRUBBING, AS WELL AS TREES TO REMAIN, PRIOR TO COMMENCING WORK. RECEIVE OWNER APPROVAL PRIOR TO CONSTRUCTION.
8. PROTECT EXISTING PLANT MATERIAL DESIGNATED TO REMAIN OR BE TRANSPLANTED FROM DAMAGE CAUSED BY CUTTING OF LIVE ROOTS OR BRANCHES OR OTHER MEANS. DO NOT PARK OR OPERATE VEHICLES WITHIN DRIP LINE OF TREES OR WHERE DAMAGE MAY RESULT WITHOUT OWNER APPROVAL. DO NOT STORE OR DISPOSE OF CONSTRUCTION MATERIALS BENEATH TREES TO BE PROTECTED OR TO REMAIN AS DESIGNATED ON THE SITE PREPERATION PLANS.
9. REFER TO CIVIL DRAWINGS FOR UTILITY WORK:

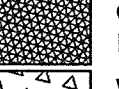
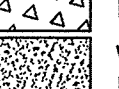
JONES AND BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
P.O. BOX 219
STRATHAM, NH 03885
CONTACT: GIFFORD COLBURN, P.E.
PHONE: (603) 7772-4746 EXT. 12
EMAIL: GCOLBURN@JONESANDBEACH.COM

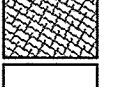
PLANT LEGEND

SHADE TREES	SIZE	NOTES	QTY
 Acer rubrum 'Red Sunset' Red Maple	2.0" - 2.5" Cal.	Zone: 4 Salt: Low	16
 Carya ovata Shagbark Hickory	2.0" - 2.5" Cal.	Zone: 3 Salt: Tolerant	4
 Catalpa speciosa Northern Catalpa	2.0" - 2.5" Cal.	Zone: 4 Salt: Moderate	29
 Liriodendron tulipifera Tuliptree	2.0" - 2.5" Cal.	Zone: 4 Salt: Moderate	14
 Magnolia acuminata Cucumber tree	2.0" - 2.5" Cal.	Zone: 4 Salt: Low	4
 Quercus palustris 'Green Pillar' Pin Oak	2.0" - 2.5" Cal.	Zone: 4 Salt: Tolerant	6
 Zelkova serrata 'Green Vase' Zelkova	2.0" - 2.5" Cal.	Zone: 4 Salt: Moderate	15
CONIFER TREES	SIZE	NOTES	QTY
 Juniperus virginiana Eastern Redcedar	12' - 14'	Zone: 2 Salt: Moderate	52
 Picea omorika Serbian Spruce	6' - 8'	Zone: 5 Salt: Low	10
 Pinus rigida Pitch Pine	12' - 14'	Zone: 4 Salt: Tolerant	9
MEDIUM TREES	SIZE	NOTES	QTY
 Carya ovata Shagbark Hickory	1.5" - 2.0" Cal.	Zone: 3 Salt: Tolerant	7
 Celtis occidentalis Common Hackberry	1.5" - 2.0" Cal.	Zone: 3 Salt: Moderate	37
 Cercidiphyllum japonicum Katsuratreue	1.5" - 2.0" Cal.	Zone: 4 Salt: Moderate	34
 Gleditsia triacanthos inermis 'Skyline' Thornless Honeylocust	1.5" - 2.0" Cal.	Zone: 4 Salt: Tolerant	25
ORNAMENTAL TREES	SIZE	NOTES	QTY
 Acer campestre Hedge Maple	1.5" - 2.0" Cal.	Zone: 5 Salt: Moderate	12
 Amelanchier arborea Dwarf Serviceberry	1.5" - 2.0" Cal.	Zone: 3 Salt: Moderate	5
 Carpinus caroliniana American Hornbeam	1.5" - 2.0" Cal.	Zone: 3 Salt: Low	26
 Maackia amurensis Amur Maackia	1.5" - 2.0" Cal.	Zone: 4 Salt: Moderate	20
 Ostrya virginiana Eastern Hophornbeam	1.5" - 2.0" Cal.	Zone: 3 Salt: Tolerant	11
 Oxydendron arboreum Sourwood	1.5" - 2.0" Cal.	Zone: 5 Salt: Tolerant	6
DECIDUOUS SHRUBS	SIZE	NOTES	QTY
 Aronia arbutifolia Red Chokeberry	3 Gallon	Zone: 4 Salt: Tolerant	128
 Clethra alnifolia Summersweet Clethra	3 Gallon	Zone: 4 Salt: Moderate	60
 Comptonia peregrina Sweetfern	3 Gallon	Zone: 3 Salt: Tolerant	76
 Cornus sericea Red Osier Dogwood	2 Gallon	Zone: 5 Salt: Moderate	18
 Fothergilla gardenii Dwarf Fothergilla	3 Gallon	Zone: 5 Salt: Moderate	64
 Hypericum prolificum Shrubby St. John's Wort	3 Gallon	Zone: 4 Salt: Moderate	49
 Ilex verticillata 'Nana' Common Winterberry	3 Gallon	Zone: 3 Salt: Tolerant	164
 Leucothoe fontanesiana Drooping Leucothoe	3 Gallon	Zone: 4 Salt: Moderate	6
 Lindera benzoin Spicebush	3 Gallon	Zone: 4 Salt: Tolerant	74
 Myrica gale Sweetgale	2 Gallon	Zone: 3 Salt: Moderate	167
 Rhus aromatica 'Gro-low' Dwarf Fragrant Sumac	3 Gallon	Zone: 3 Salt: Tolerant	174
 Spiraea x bumalda 'Froebeli' Dwarf Froebel Spiraea	3 Gallon	Zone: 3 Salt: Moderate	237
 Vaccinium corymbosum Highbush Blueberry	3 Gallon	Zone: 4 Salt: Moderate	2
 Viburnum trilobum American Cranberrybush	3 Gallon	Zone: 2 Salt: Moderate	4

EVERGREEN SHRUBS	SIZE	NOTES	QTY
 Kalmia latifolia Mountain Laurel	5 Gallon	Zone: 5 Salt: Low	47
 Juniperus communis 'Depressa' Common juniper	5 Gallon	Zone: 3 Salt: Moderate	24
 Rhododendron catawbiense Rhododendron 'Grandiflorum'	5 Gallon	Zone: 5 Salt: Low	55
 Viburnum acerifolium Mapleleaf Viburnum	3 Gallon	Zone: 2 Salt: Moderate	56
GRASSES	SIZE	NOTES	QTY
 Eragrostis spectabilis Purple lovegrass	2 Gallon	Zone: 4 Salt: Low	20
 Juncus bufonius Toad Rush	2 Gallon	Zone: 3 Salt: Low	246
 Schizachyrium scoparium Little Bluestem	2 Gallon	Zone: 4 Salt: Tolerant	0
GROUNDCOVERS	SIZE	NOTES	QTY
 Arctostaphylos uva-ursi Bearberry	2 Gallon	Zone: 3 Salt:	114
 Cornus canadensis Bunchberry Dogwood	2 Gallon	Zone: 3 Salt: Moderate	74
 Cotoneaster horizontalis 'Perpusillus' Prostrate Rockspray Cotoneaster	2 Gallon	Zone: 4 Salt: Tolerant	329
 Hedera helix English Ivy	Flat	Zone: 3 Salt: Low	0
 Juniperus chinensis 'Sargentii' Sargent juniper	3 Gallon	Zone: 3 Salt: Low	116
 Vinca minor Periwinkle	Flat	Zone: 3 Salt: Low	0

VINES	SIZE	NOTES	QTY
 Aristolochia macrophylla Dutchman's Pipe	1 Gallon	Zone: 4	4
 Wisteria frutescens American Wisteria	1 Gallon	Zone: 5	4

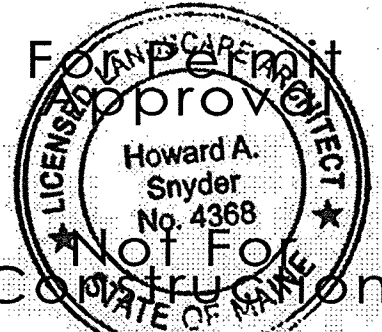
TURF AND SEED MIX	QTY
 Conservation Seed Mix Refer Detail 10 / Sheet L-7.1 for specification	10,450 S.F.
 Wetland Seed Mix Refer Detail 11 / Sheet L-7.1 for specification	48,583 S.F.
 Wildflower Seed Mix Refer Detail 12 / Sheet L-7.1 for specification	28,066 S.F.

LANDSCAPE MATERIALS		QTY
	Bark Mulch	3" depth 162,970 S.F.
	Shredded Organic Bark Mulch	all planting areas
	Landscape Border	594 LN. FT.
	Landscape edging material	

- NOTES:
1. Installation of an irrigation system to be determined prior to City of Westbrook approval.
2. Landscaping shall be maintained in a healthy condition. If within two years from the date of installation any plant is in a deteriorating state or is dead it shall be replaced in kind in a timely manner. Refer Sheet L8.0 for additional specifications.

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: AS-NOTED Project No.: 14110
ALD Project No.: 15.016

AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



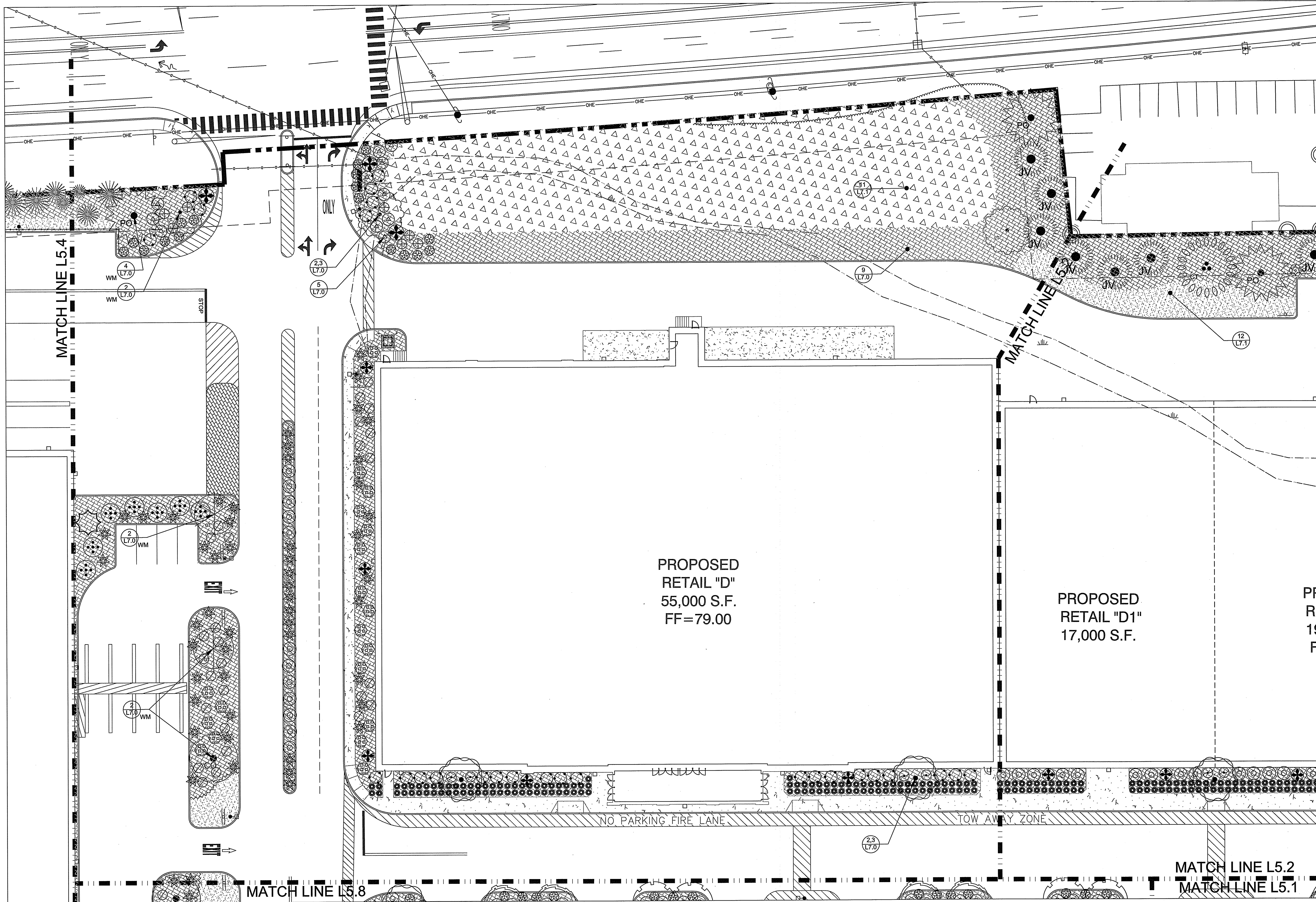
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1	---	REVISED PER	---
0	---	REVISED PER	---
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-Mail: JBE@JONESANDBEACH.COM

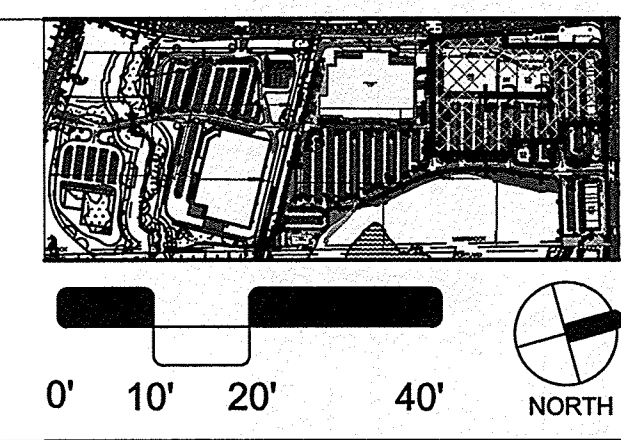
Designed and Produced in NH
Civil Engineering Services

Plan Name:	LANDSCAPE NOTES AND LEGENDS
Project:	WESTBROOK PIKE LARRABEE ROAD & MAIN STREET, WESTBROOK, ME
Owner of Record:	J & J GOVE DEVELOPMENT, LLC 7 SWAIN DRIVE, HAMPTON FALLS, NH 03844

DRAWING No.
L-1.0
SHEET 39 OF 140
JBE PROJECT NO. 14110



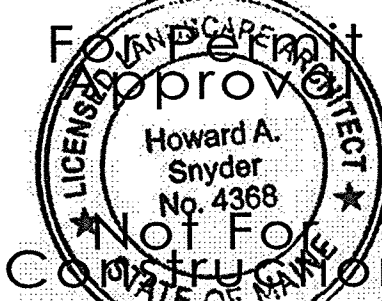
PLANT LEGEND				
SHADE TREES	SIZE	NOTES	QTY	
Asar aburn	2.0' - 2.5' Cal.	Zone 4	10	
Red Silver Red Maple	2.0' - 2.5' Cal.	Zone 4	4	
Coryla ovata	2.0' - 2.5' Cal.	Zone 3	4	
Shagbark Hickory	2.0' - 2.5' Cal.	Zone 3	4	
Quercus prinus	2.0' - 2.5' Cal.	Zone 4	29	
Red Oak	2.0' - 2.5' Cal.	Zone 4	14	
White Oak	2.0' - 2.5' Cal.	Zone 4	4	
Quercus prinus	2.0' - 2.5' Cal.	Zone 4	4	
White Oak	2.0' - 2.5' Cal.	Zone 4	4	
Quercus prinus	2.0' - 2.5' Cal.	Zone 4	10	
CONIFER TREES				
SIZE	NOTES	QTY		
12' - 14'	Zone 2	62		
12' - 14'	Zone 2	10		
12' - 14'	Zone 2	9		
MEDIUM TREES				
SIZE	NOTES	QTY		
1.0' - 1.5' Cal.	Zone 3	7		
1.0' - 1.5' Cal.	Zone 3	37		
1.0' - 1.5' Cal.	Zone 3	34		
1.0' - 1.5' Cal.	Zone 3	25		
ORNAIMENTAL TREES				
SIZE	NOTES	QTY		
1.0' - 1.5' Cal.	Zone 3	5		
1.0' - 1.5' Cal.	Zone 3	20		
1.0' - 1.5' Cal.	Zone 3	11		
1.0' - 1.5' Cal.	Zone 3	6		
DECIDUOUS SHRUBS				
SIZE	NOTES	QTY		
3' Galien	Zone 4	100		
3' Galien	Zone 4	60		
3' Galien	Zone 4	70		
3' Galien	Zone 4	10		
3' Galien	Zone 4	64		
3' Galien	Zone 4	49		
3' Galien	Zone 4	154		
3' Galien	Zone 4	6		
3' Galien	Zone 4	74		
3' Galien	Zone 4	167		
3' Galien	Zone 4	174		
3' Galien	Zone 4	237		
3' Galien	Zone 4	2		
3' Galien	Zone 4	4		
EVERGREEN SHRUBS				
SIZE	NOTES	QTY		
3' Galien	Zone 4	47		
3' Galien	Zone 4	24		
3' Galien	Zone 4	50		
3' Galien	Zone 4	58		
GRASSES				
SIZE	NOTES	QTY		
3' Galien	Zone 4	20		
3' Galien	Zone 4	248		
3' Galien	Zone 4	0		
GROUNDCOVERS				
SIZE	NOTES	QTY		
3' Galien	Zone 4	114		
3' Galien	Zone 4	74		
3' Galien	Zone 4	329		
3' Galien	Zone 4	0		
3' Galien	Zone 4	110		
3' Galien	Zone 4	0		
VINES				
SIZE	NOTES	QTY		
3' Galien	Zone 4	4		
3' Galien	Zone 4	4		
TURF AND SEED MIX				
SIZE	NOTES	QTY		
3' Galien	Zone 4	10,450 S.F.		
3' Galien	Zone 4	48,500 S.F.		
3' Galien	Zone 4	28,000 S.F.		
LANDSCAPE MATERIALS				
QTY				
100,000 S.F.				
500 LK. FT.				



APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE: _____

Design: HAS
Checked: HAS
ALD Project No.: 15.016
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



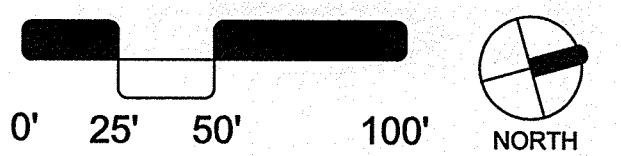
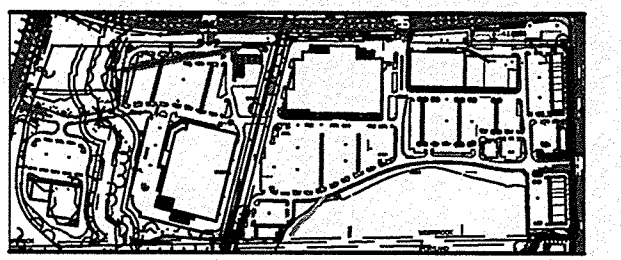
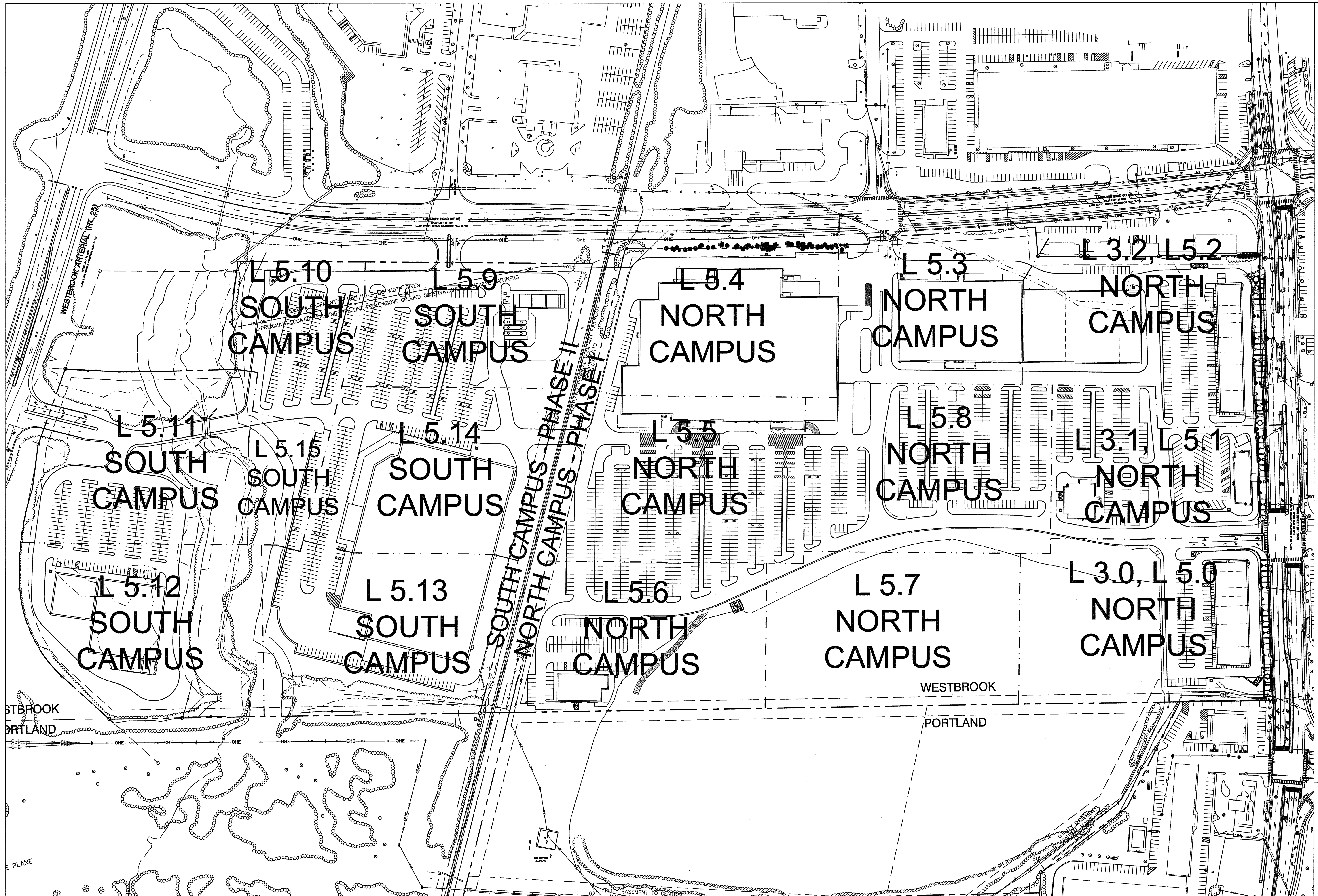
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0	---	REVISED PER	---

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK, PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-5.3
SHEET 48 OF 148 L22
JBE PROJECT NO. 14110

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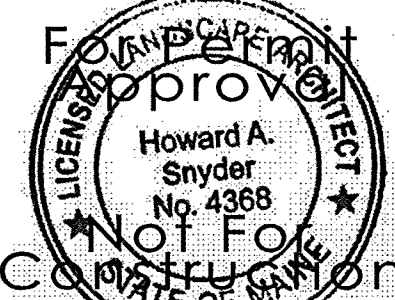


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PLANNING BOARD

DATE:

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 100' Project No.: 14110
ALD Project No.: 15.016

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68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233

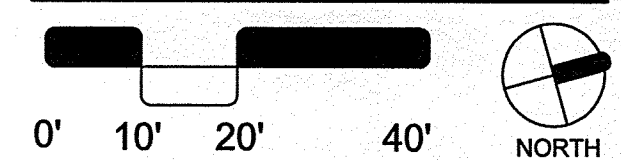
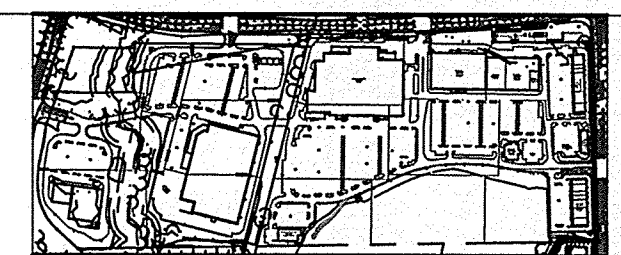
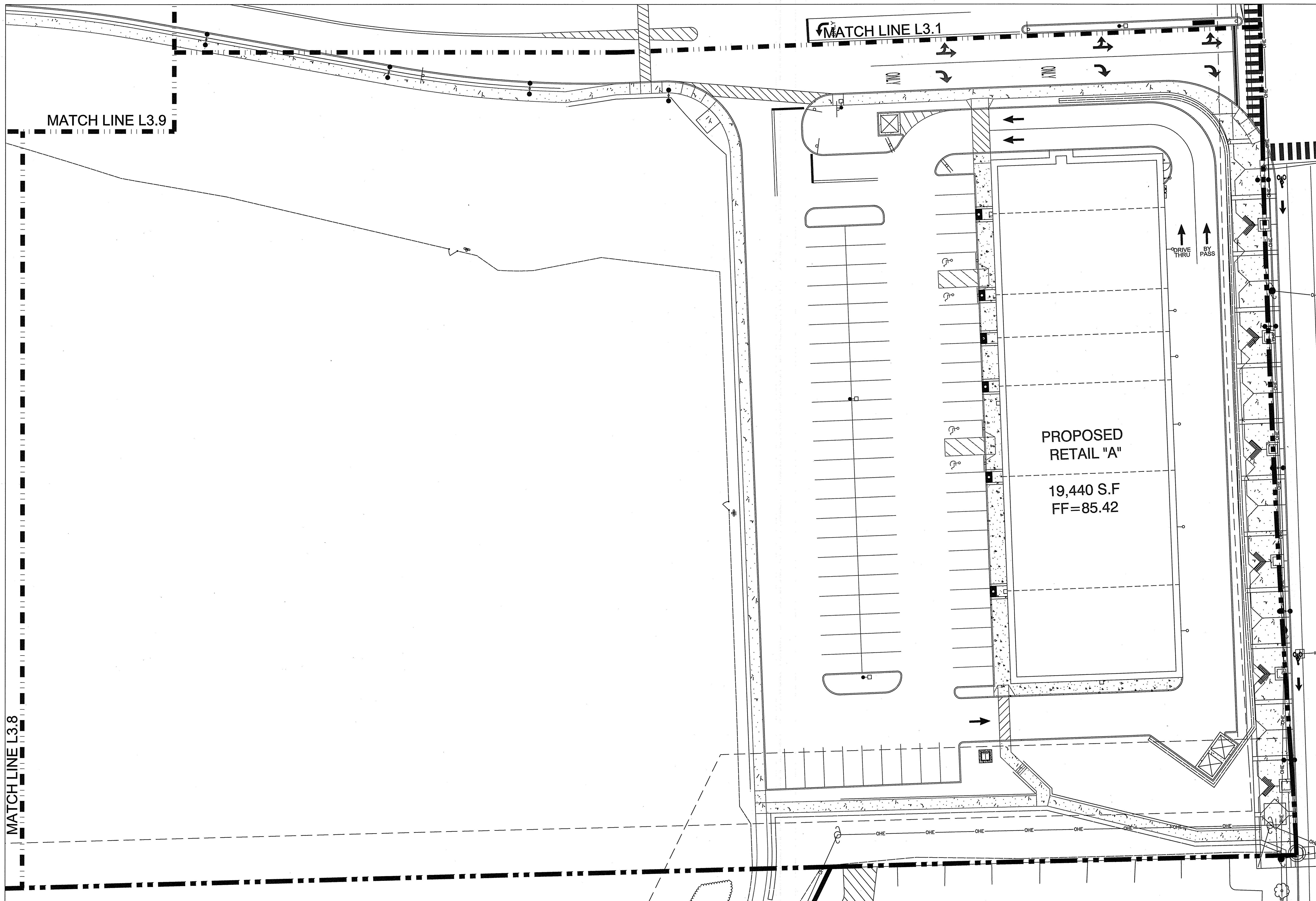


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2	---	REVISED PER	---
1	---	REVISED PER	---
0	---	REVISED PER	---
REV.	DATE	REVISION	BY

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **LANDSCAPE OVERALL PLAN**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

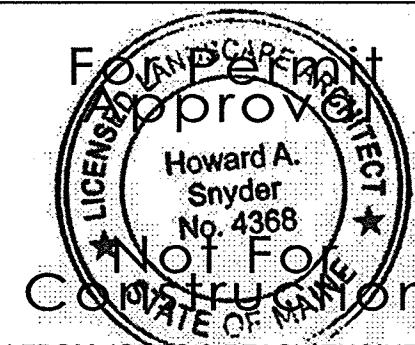
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SHEET 40 OF 141
JBE PROJECT NO. 14110



APPROVED - WESTBROOK, ME
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Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' Project No.: 14110
ALD Project No.: 15,016
AMORY LAND DESIGN, LLC
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NEWBURYPORT, MA
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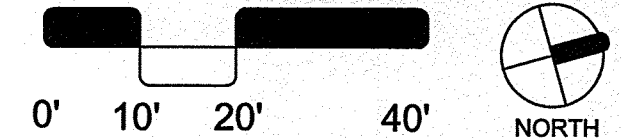
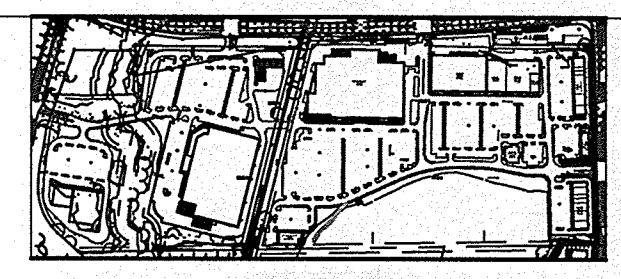
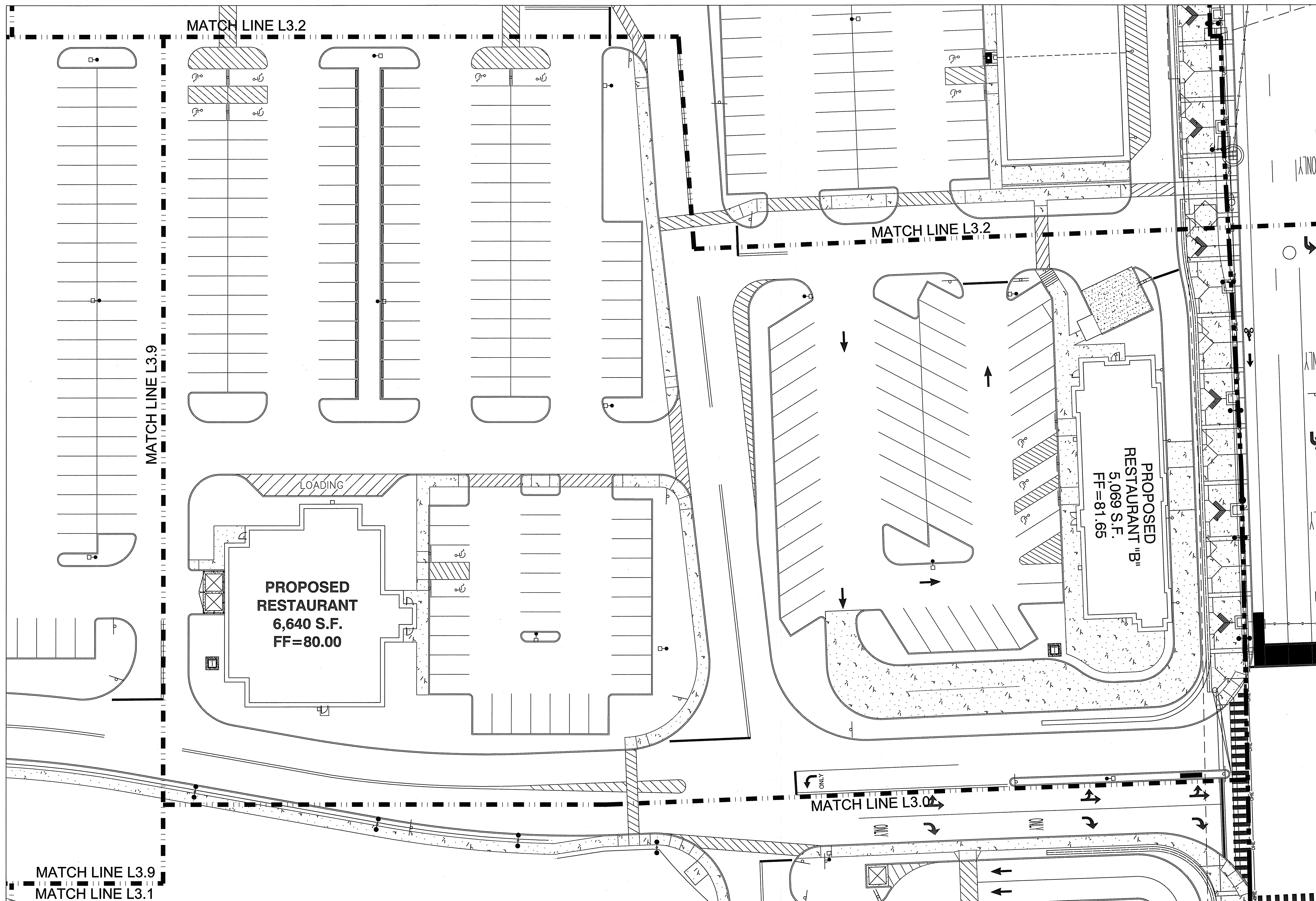
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2	---	REVISED PER	---
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0	---	REVISED PER	---

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Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **HARDSCAPE PLAN**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-3.0
SHEET 4 OF 120
JBE PROJECT NO. 14110

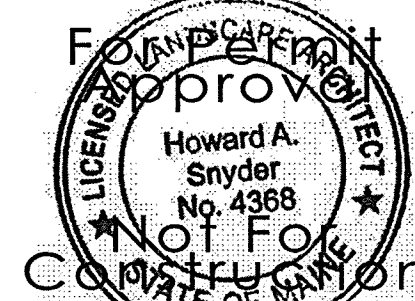
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DATE: _____

Design: HAS Draft: PB Coord Set Date: 08/24/2016
 Checked: HAS Scale: 1" = 20' Project No.: 14110
 ALD Project No.: 15.016
AMORY LAND DESIGN, LLC
 68 WARREN STREET
 NEWBURYPORT, MA
 01950 - 2233



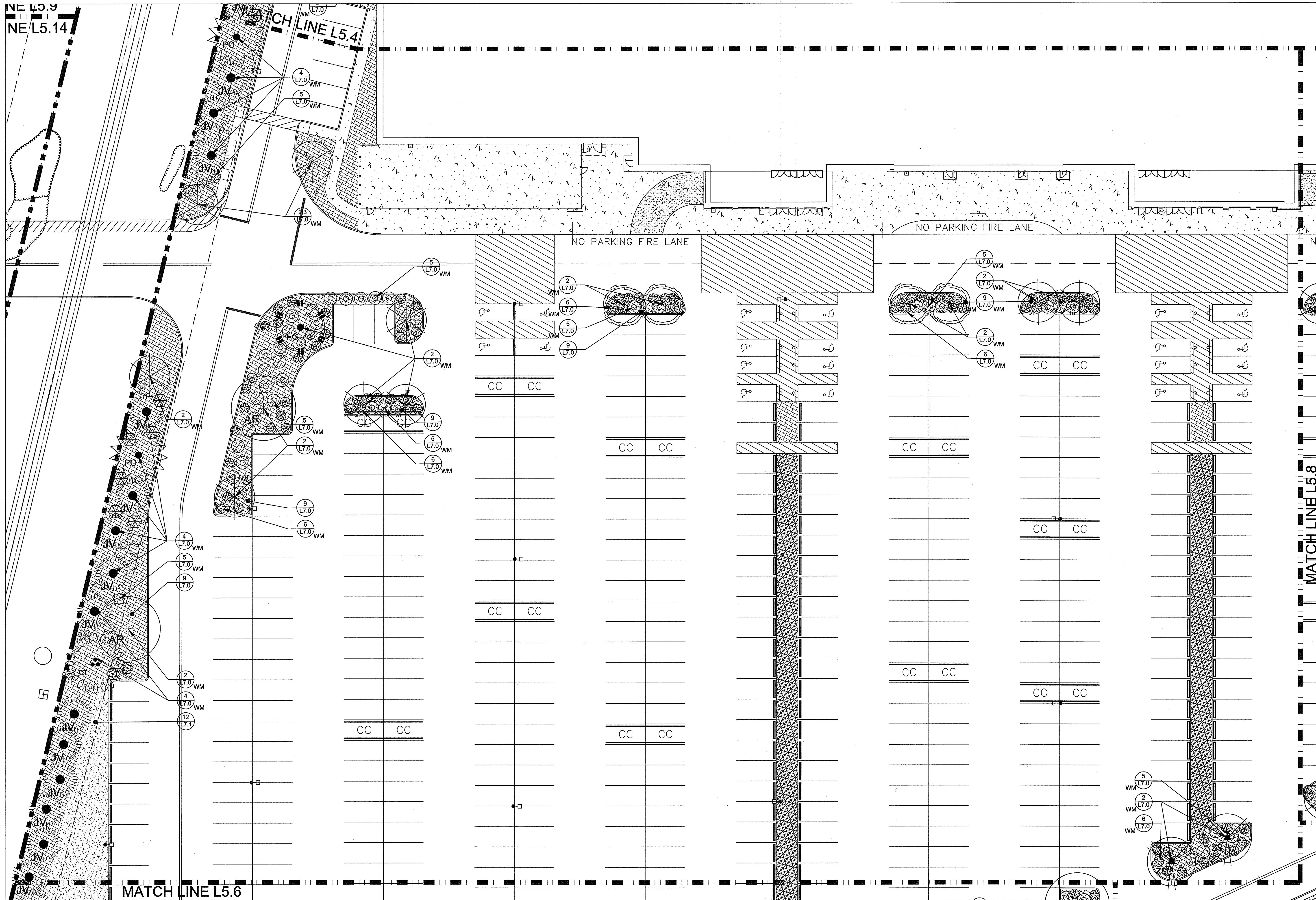
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REV.	DATE	REVISION	BY	

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 85 Portsmouth Ave.
 PO Box 219
 Stratham, NH 03885
 603-772-4746
 FAX: 603-772-0227
 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **HARDSCAPE PLAN**
 Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
 Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

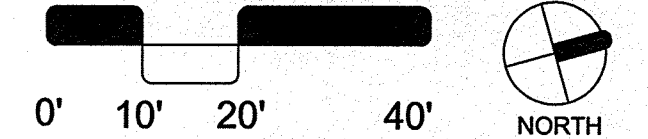
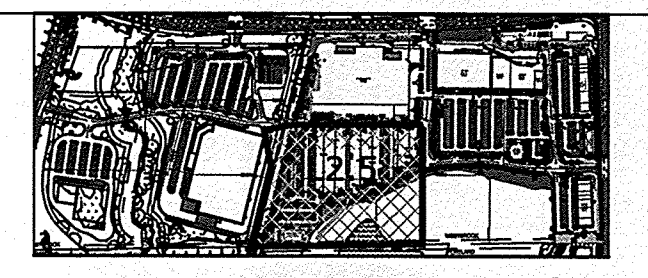
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L-3.1
 SHEET 42 OF 148 (2)
 JBE PROJECT NO. 14110

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PLANT LEGEND				
SYMBOL	SHADE TREES	SIZE	NOTES	QTY
	Acer rubrum	2.0" - 2.5" Cal.	Zone 4	16
	Red Sweetgum	2.0" - 2.5" Cal.	Zone 4	4
	Corymba alternifolia	2.0" - 2.5" Cal.	Zone 3	4
	Quercus spicata	2.0" - 2.5" Cal.	Zone 4	20
	Liriodendron tulipifera	2.0" - 2.5" Cal.	Zone 4	14
	Magnolia acuminata	2.0" - 2.5" Cal.	Zone 4	4
	Quercus prinus	2.0" - 2.5" Cal.	Zone 4	8
	Quercus spicata	2.0" - 2.5" Cal.	Zone 4	15
	Quercus spicata	2.0" - 2.5" Cal.	Zone 4	15
CONIFER TREES				
SYMBOL	CONIFER TREES	SIZE	NOTES	QTY
	Juniperus horizontalis	12" - 14"	Zone 2	62
	Thuja occidentalis	8" - 10"	Zone 5	10
	Thuja occidentalis	12" - 14"	Zone 4	8
MEDIUM TREES				
SYMBOL	MEDIUM TREES	SIZE	NOTES	QTY
	Corymba alternifolia	1.0" - 2.0" Cal.	Zone 3	7
	Salix mucronata	1.0" - 2.0" Cal.	Zone 3	37
	Liriodendron tulipifera	1.0" - 2.0" Cal.	Zone 4	34
	Liriodendron tulipifera	1.0" - 2.0" Cal.	Zone 4	25
ORNAMENTAL TREES				
SYMBOL	ORNAMENTAL TREES	SIZE	NOTES	QTY
	Acer canadense	1.0" - 2.0" Cal.	Zone 5	12
	Acer canadense	1.0" - 2.0" Cal.	Zone 5	5
	Cornus canadensis	1.0" - 2.0" Cal.	Zone 3	20
	Maackia amurensis	1.0" - 2.0" Cal.	Zone 4	28
	Corymba alternifolia	1.0" - 2.0" Cal.	Zone 3	11
	Corymba alternifolia	1.0" - 2.0" Cal.	Zone 3	6
DECIDUOUS SHRUBS				
SYMBOL	DECIDUOUS SHRUBS	SIZE	NOTES	QTY
	Corymba alternifolia	3 Gal.	Zone 4	128
	Corymba alternifolia	3 Gal.	Zone 4	10
	Corymba alternifolia	3 Gal.	Zone 3	78
	Corymba alternifolia	3 Gal.	Zone 3	13
	Corymba alternifolia	3 Gal.	Zone 3	64
	Corymba alternifolia	3 Gal.	Zone 4	134
	Corymba alternifolia	3 Gal.	Zone 3	154
	Corymba alternifolia	3 Gal.	Zone 4	6
	Corymba alternifolia	3 Gal.	Zone 4	74
	Corymba alternifolia	3 Gal.	Zone 3	157
	Corymba alternifolia	3 Gal.	Zone 3	174
	Corymba alternifolia	3 Gal.	Zone 3	237
	Corymba alternifolia	3 Gal.	Zone 4	2
	Corymba alternifolia	3 Gal.	Zone 2	4
EVERGREEN SHRUBS				
SYMBOL	EVERGREEN SHRUBS	SIZE	NOTES	QTY
	Kalmia latifolia	3 Gal.	Zone 5	47
	Kalmia latifolia	3 Gal.	Zone 5	24
	Kalmia latifolia	3 Gal.	Zone 3	55
	Kalmia latifolia	3 Gal.	Zone 3	25
	Kalmia latifolia	3 Gal.	Zone 2	56
GRASSES				
SYMBOL	GRASSES	SIZE	NOTES	QTY
	Festuca ovina	3 Gal.	Zone 4	30
	Festuca ovina	3 Gal.	Zone 3	248
	Festuca ovina	3 Gal.	Zone 4	0
GROUNDCOVERS				
SYMBOL	GROUNDCOVERS	SIZE	NOTES	QTY
	Anemone hepatica	2 Gal.	Zone 3	114
	Anemone hepatica	2 Gal.	Zone 3	74
	Anemone hepatica	2 Gal.	Zone 4	320
	Anemone hepatica	2 Gal.	Zone 3	0
	Anemone hepatica	2 Gal.	Zone 3	116
	Anemone hepatica	2 Gal.	Zone 3	0
VINES				
SYMBOL	VINES	SIZE	NOTES	QTY
	Wisteria floribunda	1 Gal.	Zone 4	4
	Wisteria floribunda	1 Gal.	Zone 5	4
TURF AND SEED MIX				
SYMBOL	TURF AND SEED MIX	SIZE	NOTES	QTY
	Turf and Seed Mix	10,000 S.F.		10,000 S.F.
	Turf and Seed Mix	45,000 S.F.		45,000 S.F.
	Turf and Seed Mix	25,000 S.F.		25,000 S.F.
LANDSCAPE MATERIALS				
SYMBOL	LANDSCAPE MATERIALS	SIZE	NOTES	QTY
	Rock Mass	2" depth	100,000 S.F.	100,000 S.F.
	Rock Mass	2" depth	100,000 S.F.	100,000 S.F.

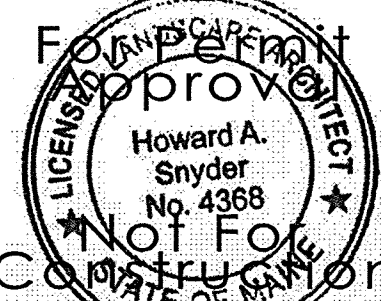
NOTES:
1. Installation of an irrigation system to be determined prior to City of Westbrook approval.
2. Landscaping shall be maintained in a healthy condition. If within two years from the date of installation any plant is in a deteriorating state or is dead it shall be replaced in kind in a timely manner. Refer Sheet L5.6 for additional specifications.



APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE: _____

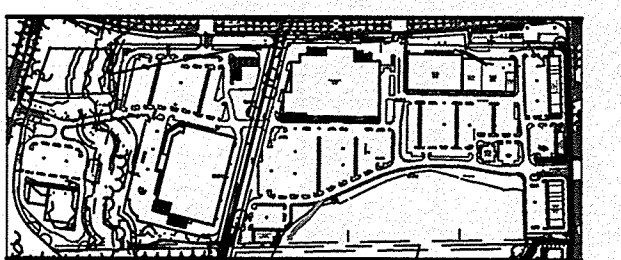
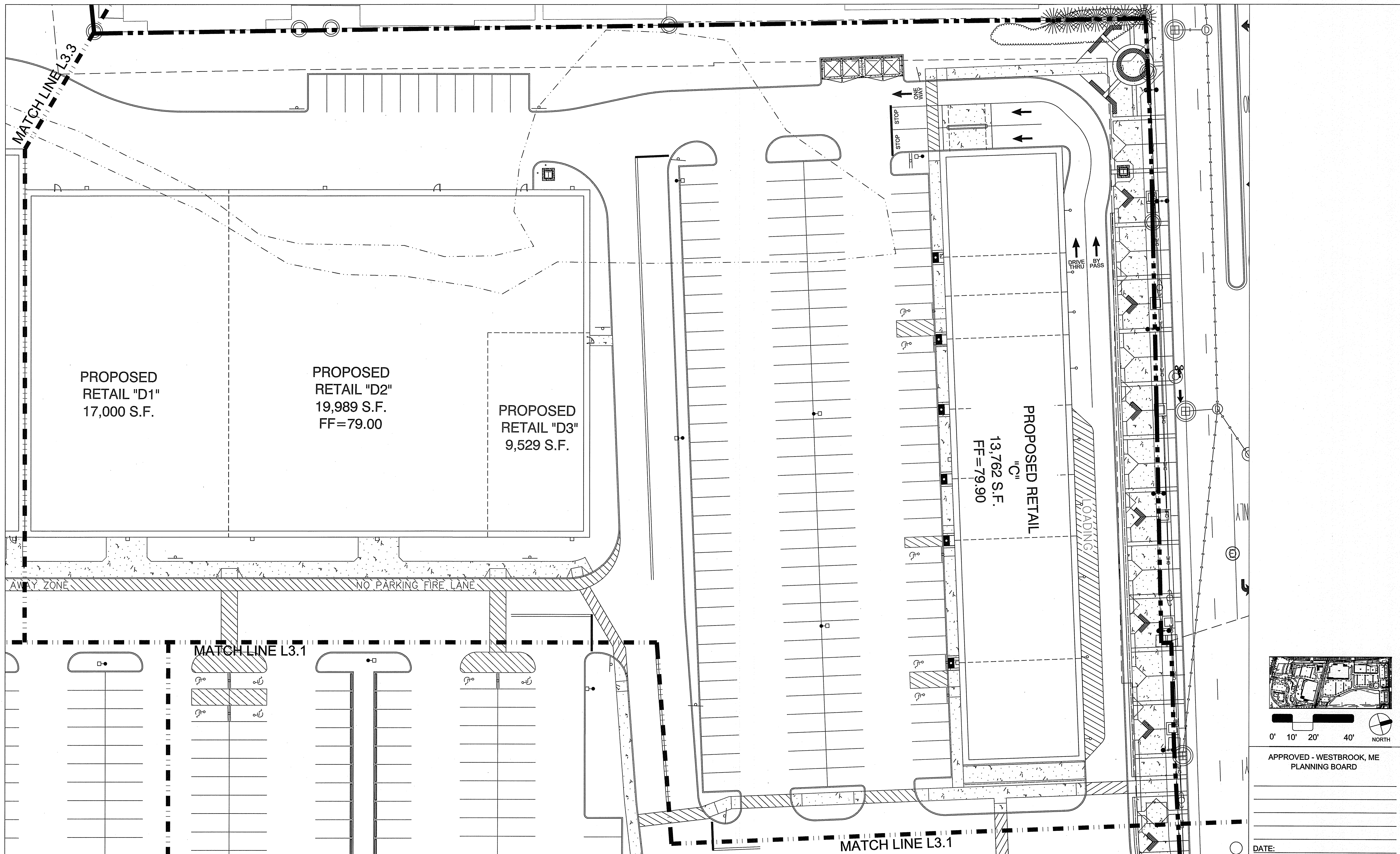
Design: HAS
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ALD Project No.: 15.016
Draft: PB Coord Set
Date: 08/24/2016
Scale: 1" = 20' - 0"
Project No.: 14110
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



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4	---	REVISED PER	---
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1	---	REVISED PER	---
0	---	REVISED PER	---

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

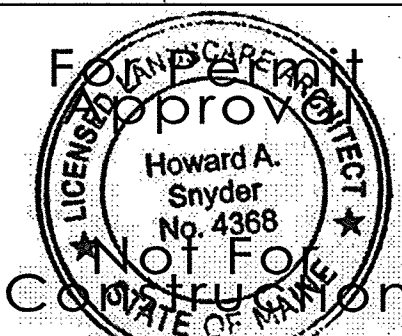
Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**
DRAWING No. **L-5.5**
SHEET 51 OF 343 I20
JBE PROJECT NO. 14110



APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE:

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' - [Project No.: 14110]
ALD Project No.: 15.016
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233

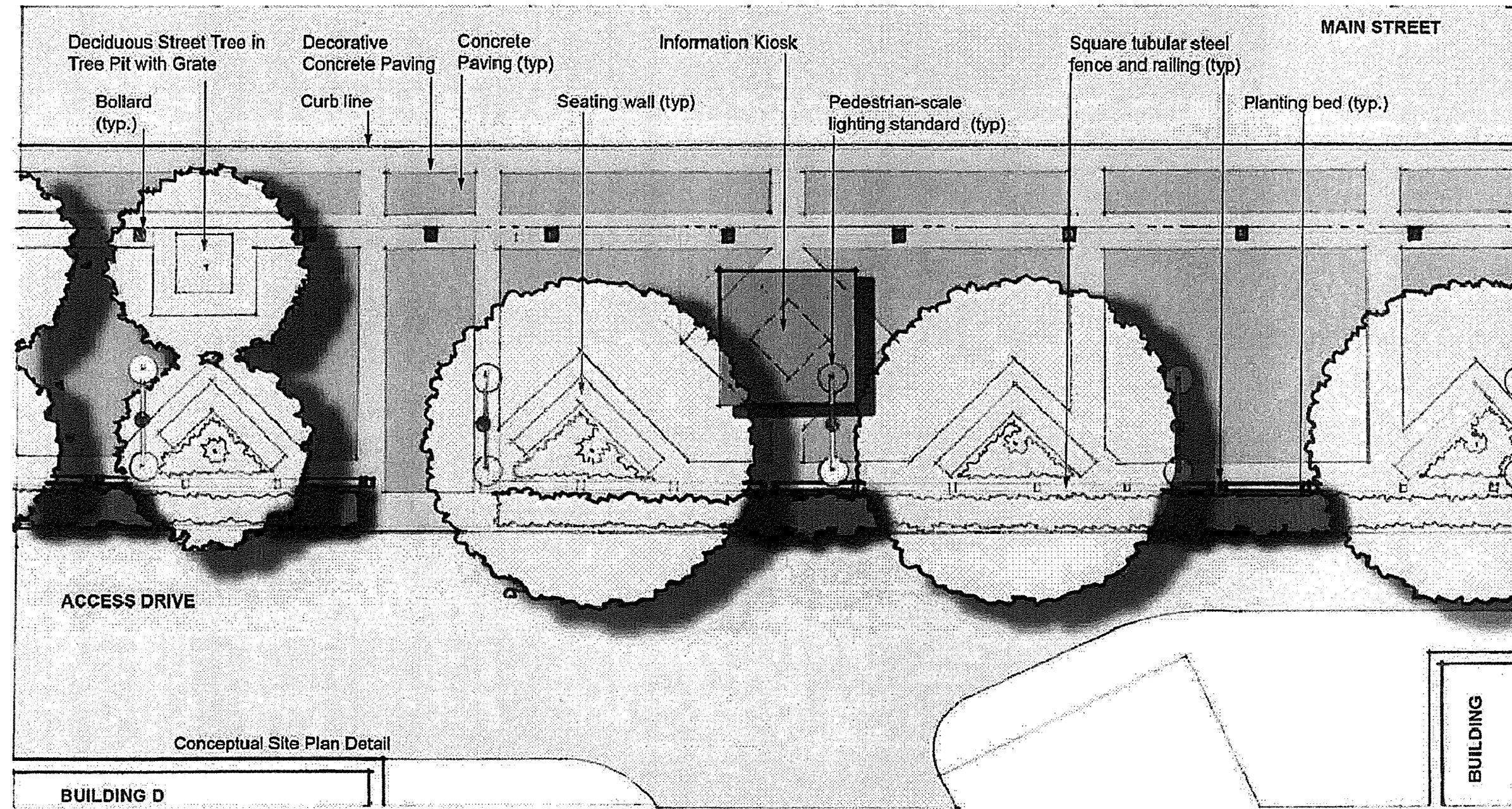


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REV.	DATE	REVISION	BY	

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Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

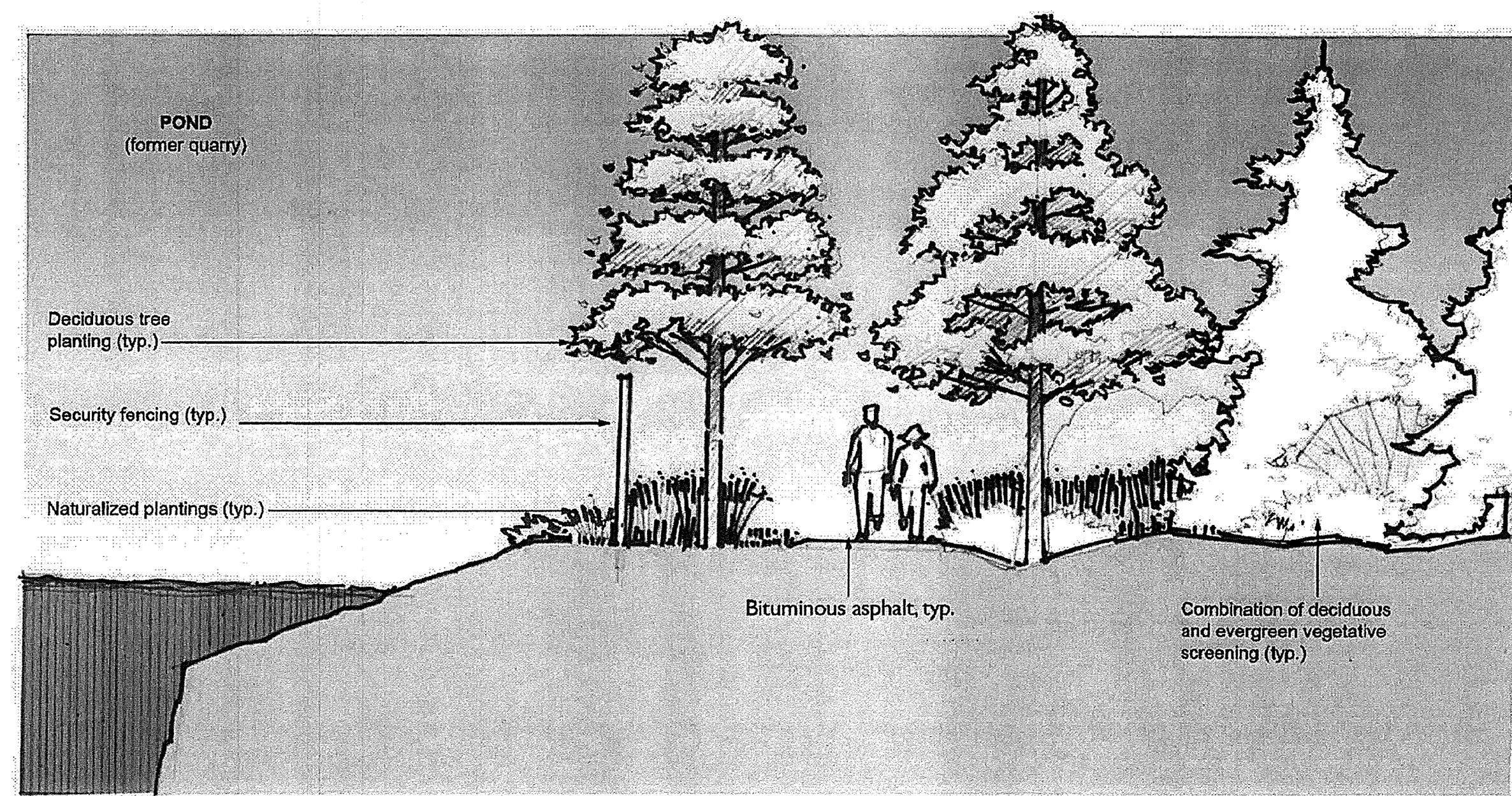
Plan Name: **HARDSCAPE PLAN**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-3.2
SHEET 43 OF 143 [2]
JBE PROJECT NO. 14110



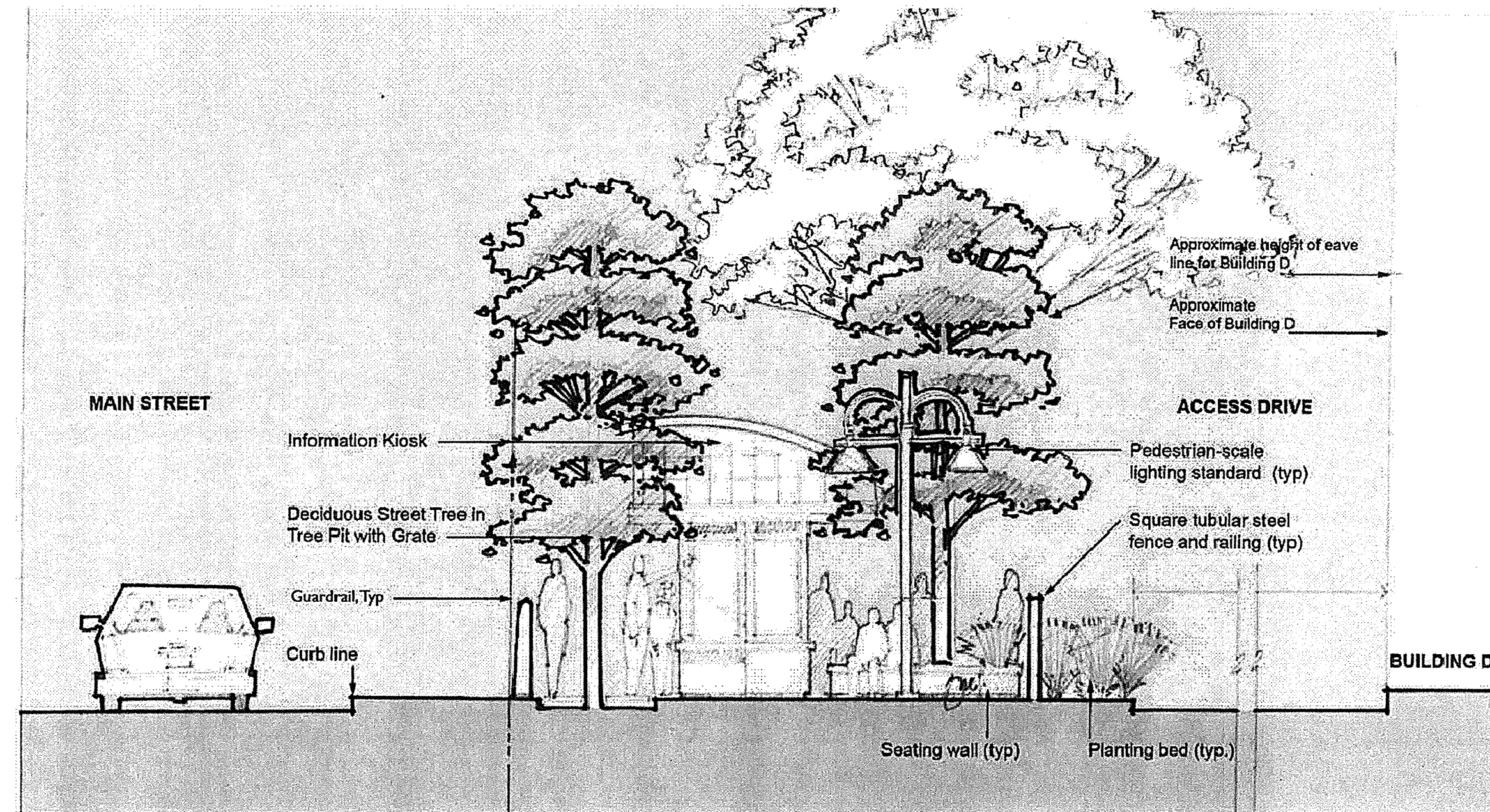
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SCALE: NTS



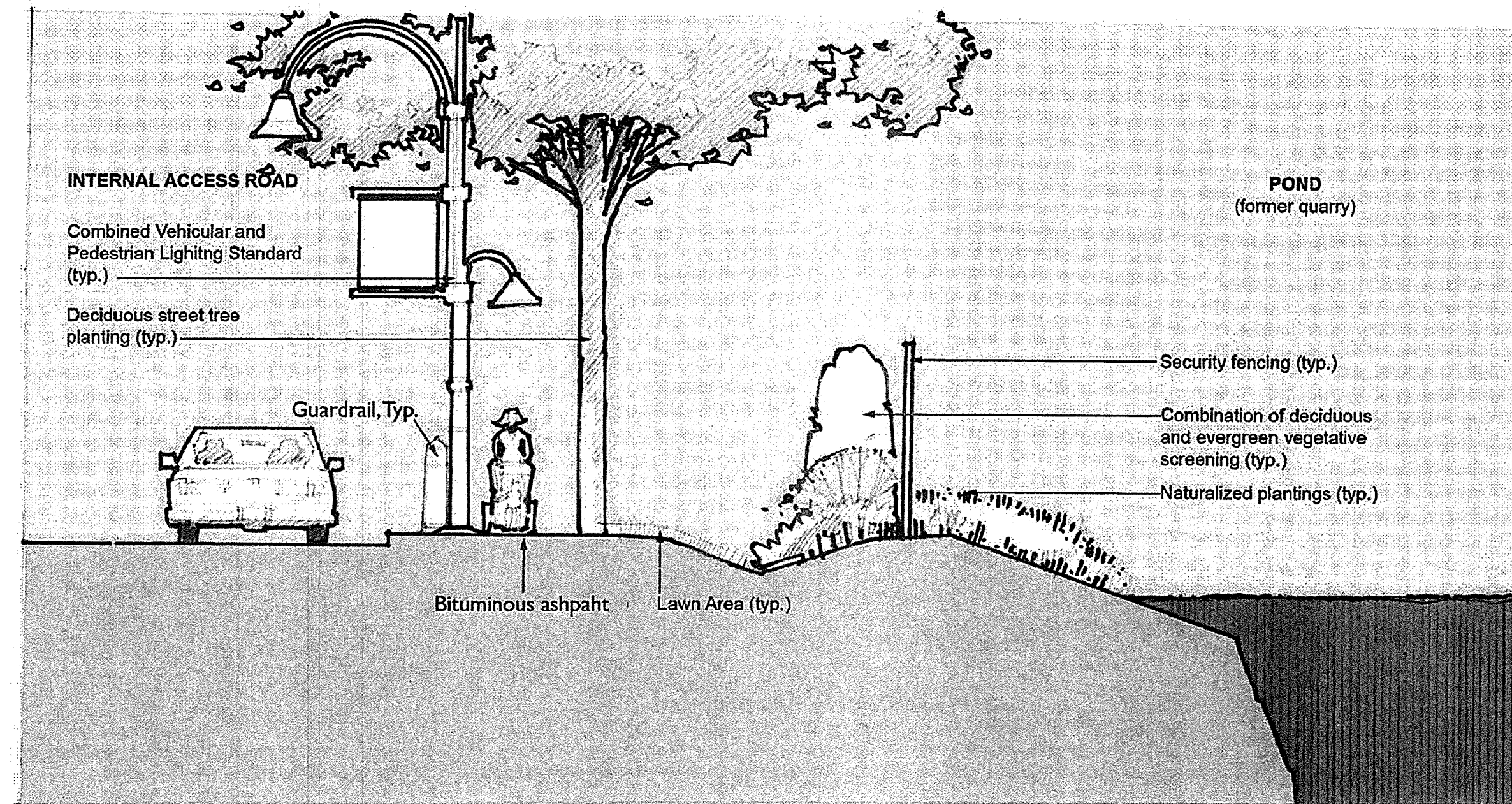
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SCALE: NTS



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SCALE: NTS

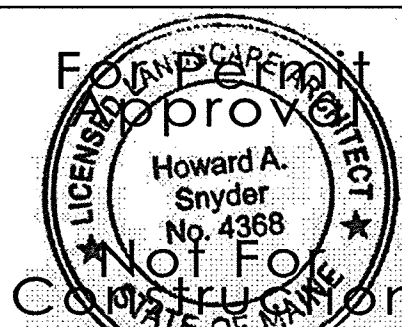


4 POND: SIDEWALK ALONG WEST SIDE - SECTION

SCALE: NTS

Design: HAS
Checked: HAS
ALD Project No.: 15,016

Draft: PB Coord Set
Scale: AS-NOTED
Date: 08/24/2016
Project No.: 14110



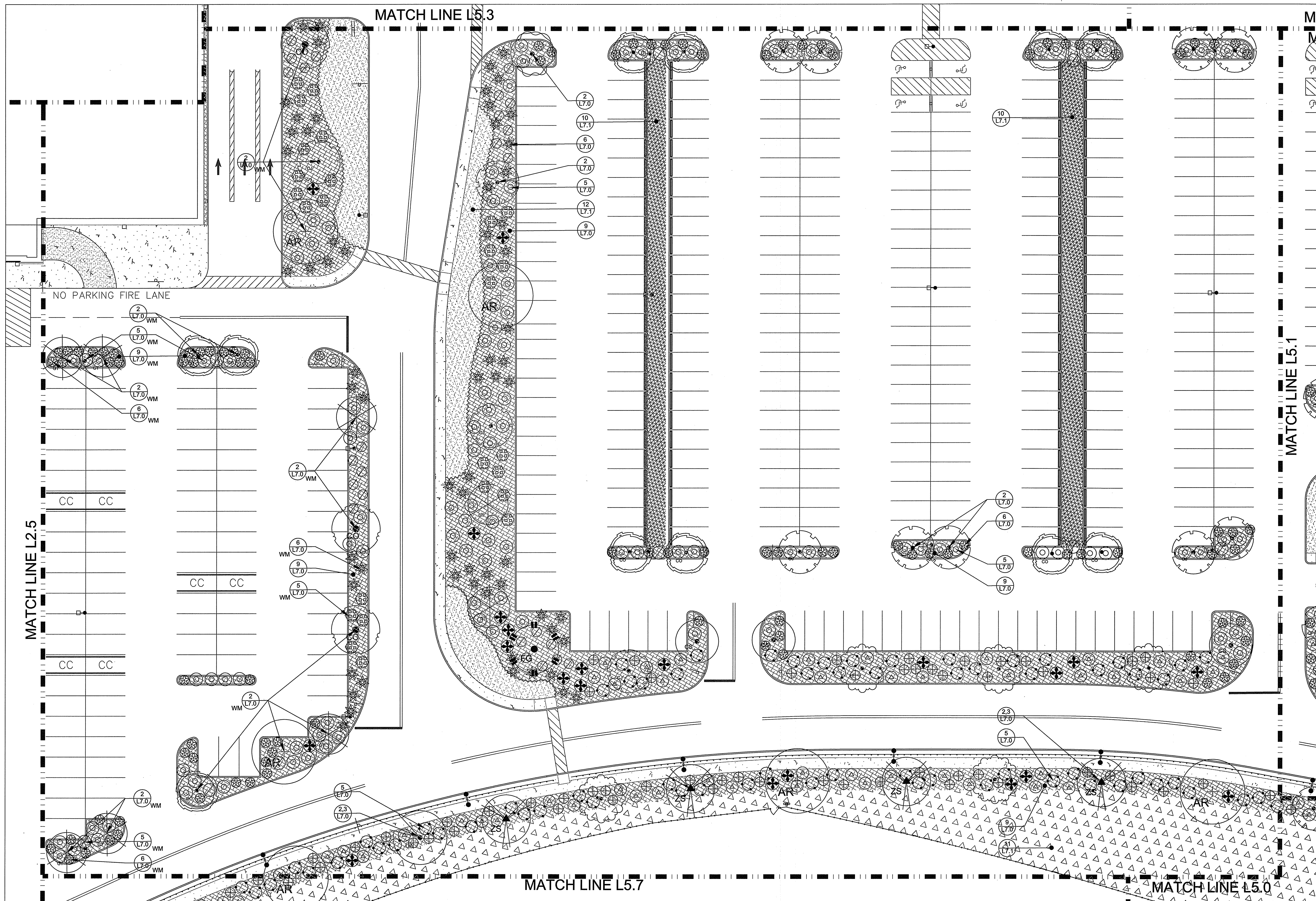
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Stratham, NH 03885
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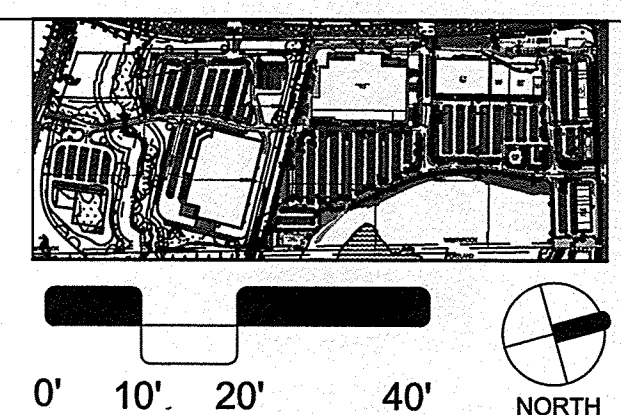
Plan Name: **HARDSCAPE DETAILS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-4.0
SHEET 44 OF 143 (2)
JBE PROJECT NO. 14110

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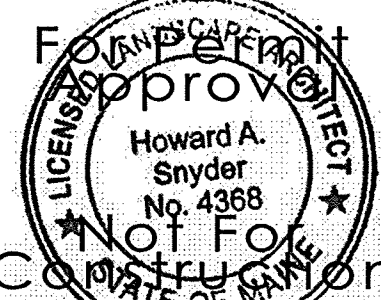
PLANT LEGEND				
SYMBOL	NAME	SIZE	NOTES	QTY
SHADE TREES				
	American Elm	2.0' - 2.5' Cal.	Zone 4	15
	Red-Striped Maple	2.0' - 2.5' Cal.	Zone 4	15
	Green Oak	2.0' - 2.5' Cal.	Zone 3	4
	Shagbark Hickory	2.0' - 2.5' Cal.	Zone 3	4
	White Oak	2.0' - 2.5' Cal.	Zone 4	25
	Black Oak	2.0' - 2.5' Cal.	Zone 4	14
	White Birch	2.0' - 2.5' Cal.	Zone 4	4
	Green Ash	2.0' - 2.5' Cal.	Zone 4	4
	Green Elm	2.0' - 2.5' Cal.	Zone 4	4
	Green Ash	2.0' - 2.5' Cal.	Zone 4	15
CONIFER TREES				
	Japanese Sugi	12' - 14'	Zone 2	52
	Blue Spruce	8' - 10'	Zone 5	10
	Blue Spruce	12' - 14'	Zone 4	9
MEDIUM TREES				
	Carroll's Honeylocust	1.0' - 2.0' Cal.	Zone 3	7
	Carroll's Honeylocust	1.0' - 2.0' Cal.	Zone 3	37
	Carroll's Honeylocust	1.0' - 2.0' Cal.	Zone 4	34
	Carroll's Honeylocust	1.0' - 2.0' Cal.	Zone 4	25
ORNAMENTAL TREES				
	American Elm	1.0' - 2.0' Cal.	Zone 4	12
	American Elm	1.0' - 2.0' Cal.	Zone 3	5
	American Elm	1.0' - 2.0' Cal.	Zone 3	20
	American Elm	1.0' - 2.0' Cal.	Zone 4	28
	American Elm	1.0' - 2.0' Cal.	Zone 3	11
	American Elm	1.0' - 2.0' Cal.	Zone 5	6
DECIDUOUS SHRUBS				
	Red Chokeberry	3 Gal.	Zone 4	123
	Red Chokeberry	3 Gal.	Zone 3	90
	Red Chokeberry	3 Gal.	Zone 3	75
	Red Chokeberry	3 Gal.	Zone 3	64
	Red Chokeberry	3 Gal.	Zone 4	49
	Red Chokeberry	3 Gal.	Zone 3	154
	Red Chokeberry	3 Gal.	Zone 4	6
	Red Chokeberry	3 Gal.	Zone 4	74
	Red Chokeberry	3 Gal.	Zone 3	157
	Red Chokeberry	3 Gal.	Zone 3	174
	Red Chokeberry	3 Gal.	Zone 3	237
	Red Chokeberry	3 Gal.	Zone 3	2
	Red Chokeberry	3 Gal.	Zone 3	4
EVERGREEN SHRUBS				
	Red Chokeberry	3 Gal.	Zone 3	47
	Red Chokeberry	3 Gal.	Zone 3	24
	Red Chokeberry	3 Gal.	Zone 3	55
	Red Chokeberry	3 Gal.	Zone 2	56
GRASSES				
	Purple Topgrass	2 Gal.	Zone 4	20
	Purple Topgrass	2 Gal.	Zone 3	248
	Purple Topgrass	2 Gal.	Zone 4	0
GROUNDCOVERS				
	Carroll's Honeylocust	2 Gal.	Zone 3	114
	Carroll's Honeylocust	2 Gal.	Zone 3	74
	Carroll's Honeylocust	2 Gal.	Zone 4	329
	Carroll's Honeylocust	2 Gal.	Zone 3	0
	Carroll's Honeylocust	2 Gal.	Zone 3	115
	Carroll's Honeylocust	2 Gal.	Zone 3	0
VINES				
	American Elm	1 Gal.	Zone 4	4
	American Elm	1 Gal.	Zone 6	4
TURF AND SEED MIX				
	Carroll's Honeylocust	15,400 S.F.		
	Carroll's Honeylocust	45,000 S.F.		
	Carroll's Honeylocust	25,000 S.F.		
LANDSCAPE MATERIALS				
	Red Chokeberry	100 LBS.		
	Red Chokeberry	100 LBS.		



APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE: _____

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' - 0" Project No.: 14110
ALD Project No.: 15.016
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



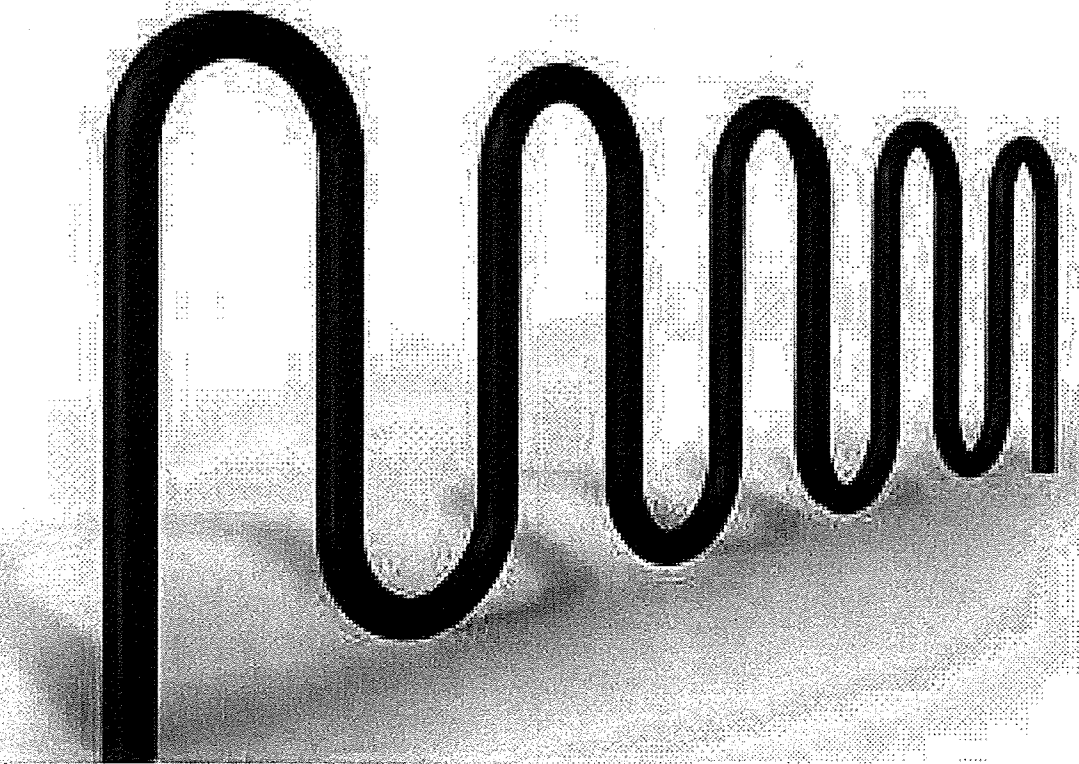
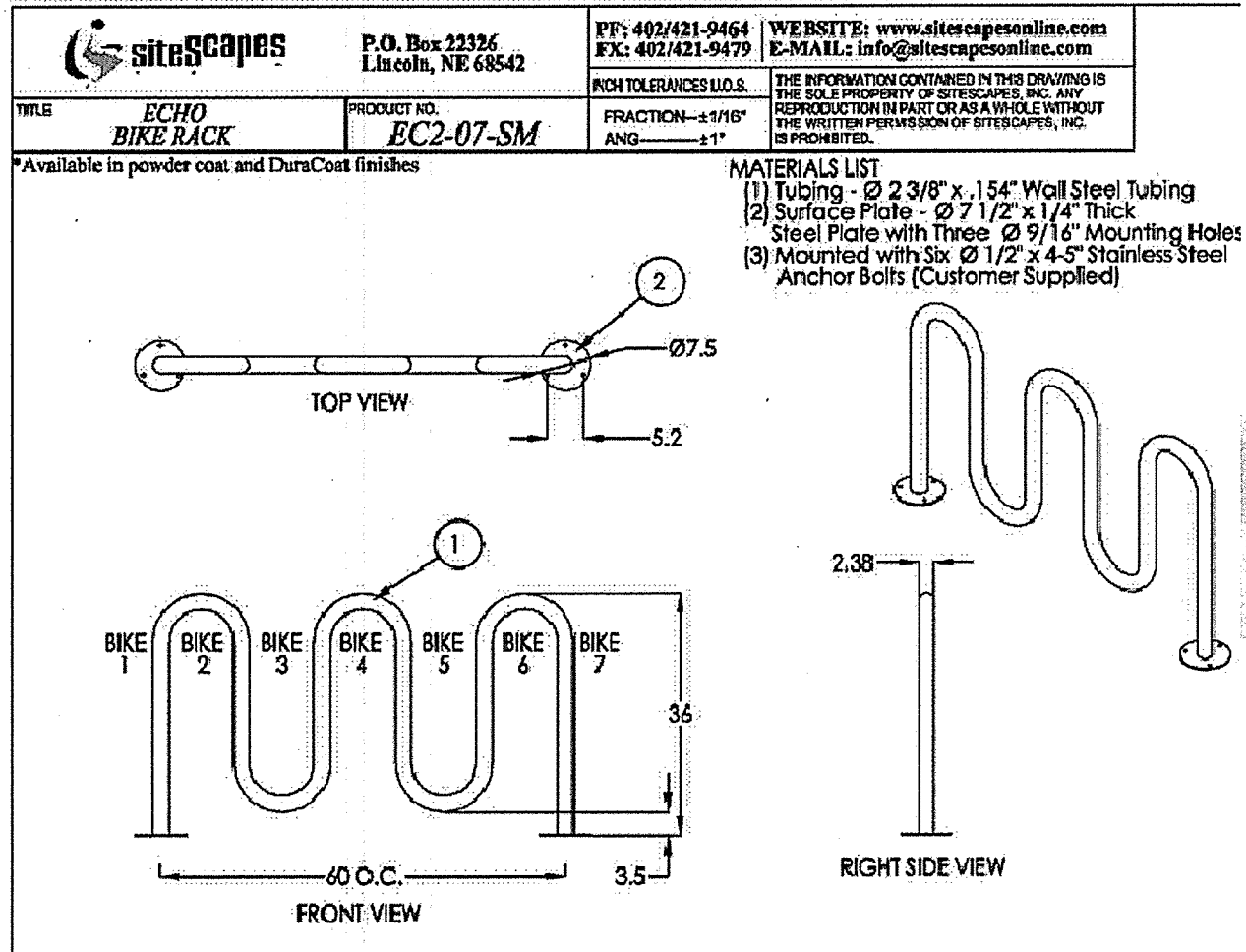
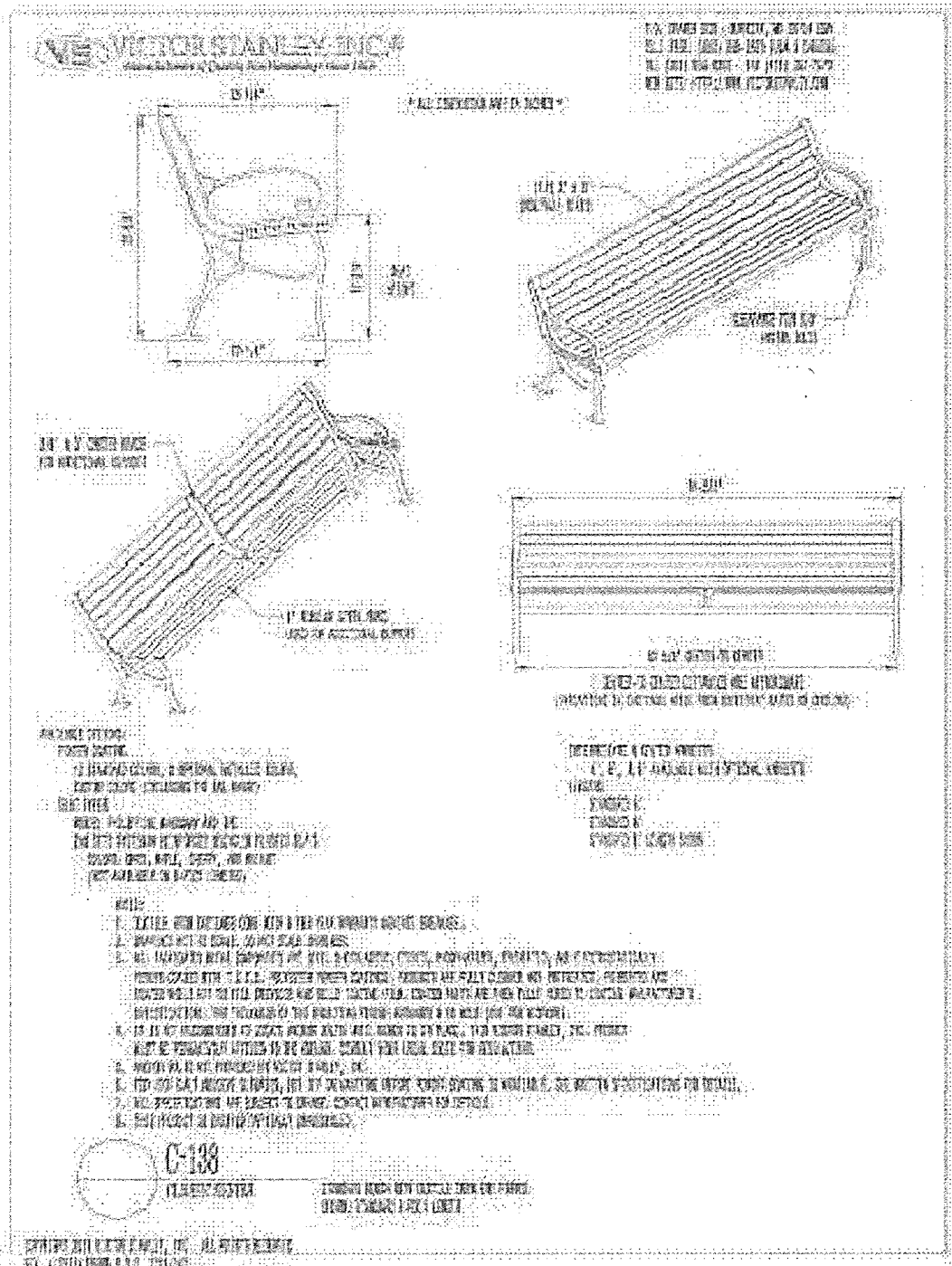
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3	---	REVISED PER	---
2	---	REVISED PER	---
1	---	REVISED PER	---
0	---	REVISED PER	---

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-5.8
SHEET 54 OF 148/120
JBE PROJECT NO. 14110

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE) AND AMORY LAND DESIGN (ALD) ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE AND ALD.

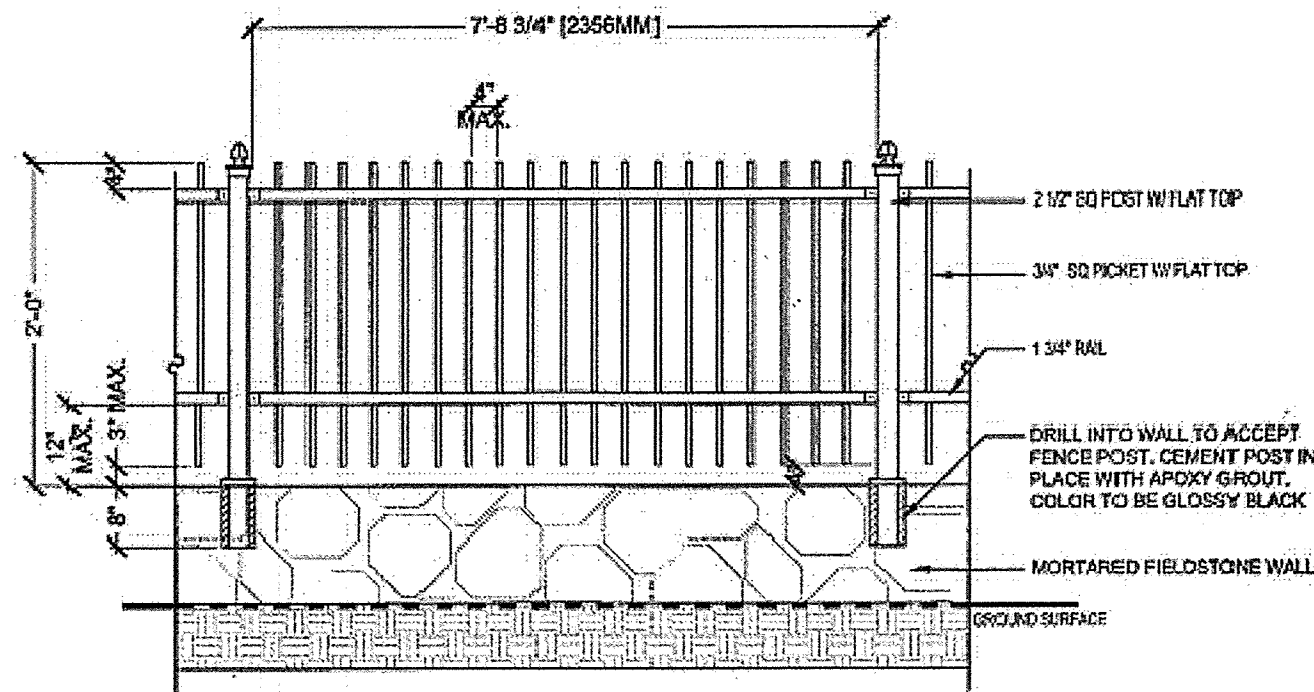
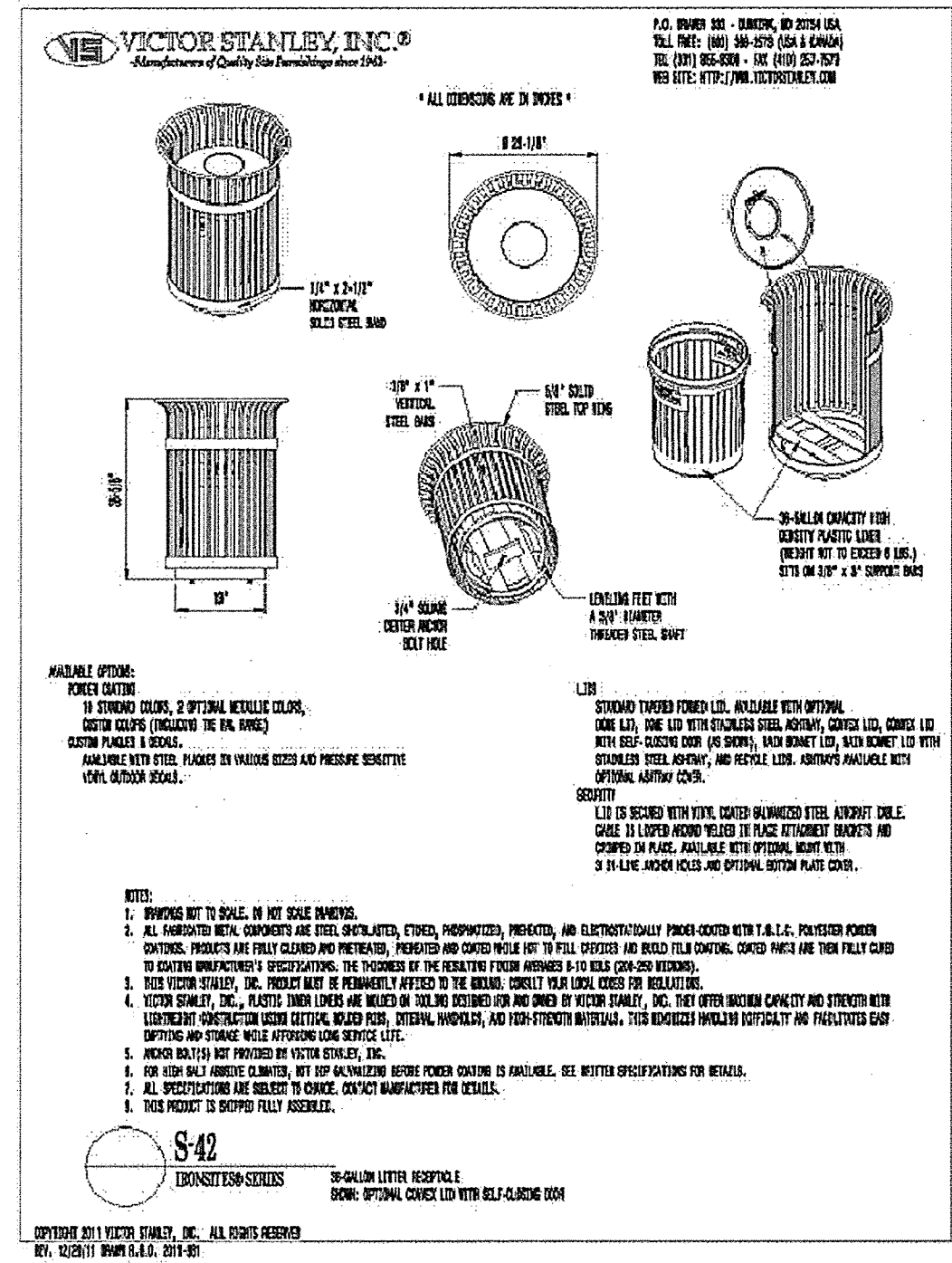


5 SITE FURNISHING: BENCH

SCALE: NTS

7 SITE FURNISHING: BICYCLE RACK

SCALE: NTS



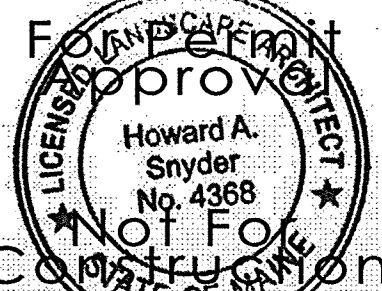
6 SITE FURNISHING: REFUSE CONTAINER

SCALE: NTS

8 METAL FENCE

SCALE: NTS

Design: HAS	Draft: PB Coord Set	Date: 08/24/2016
Checked: HAS	Scale: AS-NOTED	Project No.: 14110
ALD Project No.: 15.016		
AMORY LAND DESIGN, LLC 68 WARREN STREET NEWBURYPORT, MA 01950 - 2233		



4	---	REVISED PER	---
3	---	REVISED PER	---
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1	---	REVISED PER	---
0	---	REVISED PER	---
REV.	DATE	REVISION	BY

Designed and Produced in NH		
J/B Jones & Beach Engineers, Inc.		
85 Portsmouth Ave.	Civil Engineering Services	603-772-4746
PO Box 219		FAX: 603-772-0227
Stratham, NH 03885		E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	HARDSCAPE DETAILS
Project:	WESTBROOK PIKE LARRABEE ROAD & MAIN STREET, WESTBROOK, ME
Owner of Record:	J & J GOVE DEVELOPMENT, LLC 7 SWAIN DRIVE, HAMPTON FALLS, NH 03844

DRAWING No.
L-4.1
SHEET 45 OF 143 (22)
JBE PROJECT NO. 14110

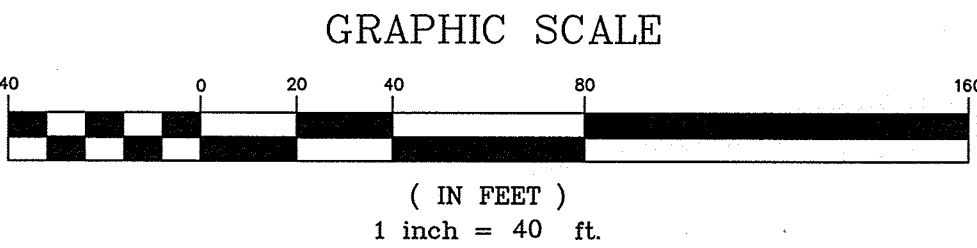


Luminaire Schedule		Filename: JBE 14110 WESTBROOK ME-rev081516.AGI		
Symbol	Qty	Label	Arrangement	Description
14	P1	7x13	2-EMM-E01-LED-E1-SL2/BOF 10' & 16' AFG	
12	P2	BACK-BACK	2-EMM-E01-LED-E1-SL2/BOF 10' AFG	
3	P2-E	BACK-BACK	2-EMM-E01-LED-E1-SL2/BOF 10' AFG/ EMBEDDED POLE	
18	S3	SINGLE	VTS-E06-LED-E1-SL3/ 20' AFG	
1	S3T	SINGLE	VTS-E06-LED-E1-T3/ 20' AFG	
6	S4	SINGLE	VTS-E06-LED-E1-SL4/ 20' AFG	
87	S5	SINGLE	VTS-E08-LED-E1-SW0/ 20' AFG	
4	T4	SINGLE	VTS-E02-LED-E1-SL4/ 20' AFG	
22	W	SINGLE	QS-2W-O-19LED-40K-120V-WM-XXX-LNS	
62	W1	SINGLE	ISS-E02-LED-E1-BL3/ WALL MTD 15' AFG	
5	W2	SINGLE	ISS-E02-LED-E1-BL4/ WALL MTD 15' AFG	

StatArea_1	StatArea_2	StatArea_3	StatArea_4
Illuminance (Fc) Average = 2.60 Maximum = 6.0 Minimum = 0.7 Avg/Min Ratio = 3.71 Max/Min Ratio = 8.57	Illuminance (Fc) Average = 1.97 Maximum = 4.5 Minimum = 0.6 Avg/Min Ratio = 3.28 Max/Min Ratio = 7.50	Illuminance (Fc) Average = 1.95 Maximum = 6.5 Minimum = 0.5 Avg/Min Ratio = 3.90 Max/Min Ratio = 13.00	Illuminance (Fc) Average = 2.38 Maximum = 4.2 Minimum = 0.7 Avg/Min Ratio = 3.40 Max/Min Ratio = 6.00
StatArea_5	StatArea_6	StatArea_7	
Illuminance (Fc) Average = 1.89 Maximum = 4.8 Minimum = 0.5 Avg/Min Ratio = 3.78 Max/Min Ratio = 9.60	Illuminance (Fc) Average = 2.08 Maximum = 5.5 Minimum = 0.6 Avg/Min Ratio = 3.47 Max/Min Ratio = 9.17	Illuminance (Fc) Average = 1.78 Maximum = 4.0 Minimum = 0.5 Avg/Min Ratio = 3.56 Max/Min Ratio = 8.00	

LIGHTING AND ELECTRICAL NOTES:

- SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
- CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
- ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
- LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
- ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
- LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
- ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
- NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
- SEE SHEET LP1-7 FOR LIGHTING DETAILS.
- CONTRACTOR SHALL COORDINATE WITH SIGN SUPPLIER TO INSTALL AND SUPPLY THE APPROPRIATE CONDUITS AND POWER TO PROPOSED SIGN LOCATION.
- THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.
- LIGHTS ALONG THE MAIN ACCESS ROADS WITH ELECTRICAL CONNECTIONS BETWEEN THEM WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND WILL BE LIT FROM DUSK TO DAWN. LIGHTS WITHIN LEASED AREAS WILL BE THE RESPONSIBILITY OF THE LESSEE AND WILL REQUIRE CONDUIT TO CONNECT ALL LIGHTS WITHIN THE LEASED AREA TO AN INTERNAL SWITCH.
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Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS SHOWN	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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REV.	DATE	REVISION	BY
7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	9/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

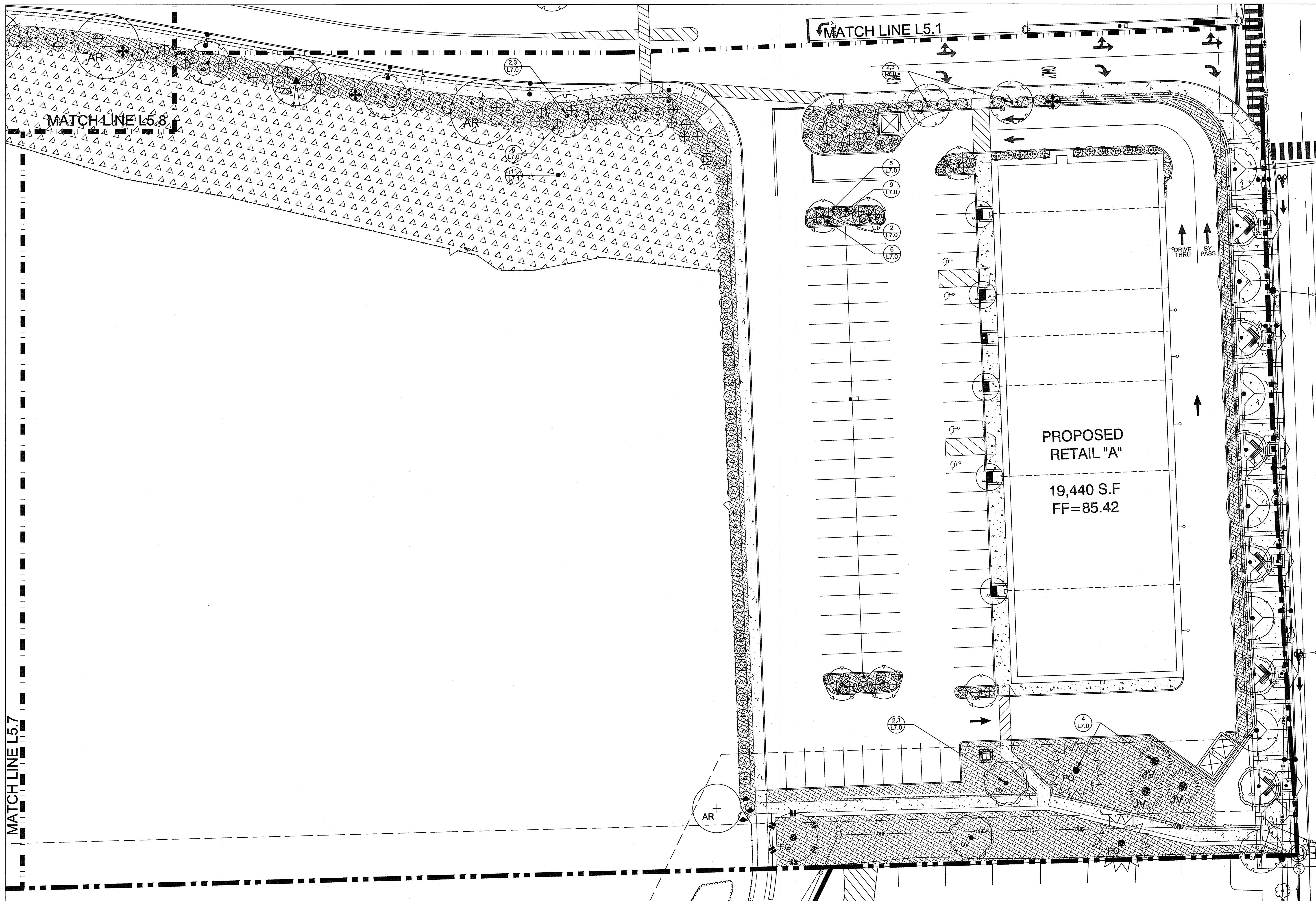
J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Designed and Produced in NH
Civil Engineering Services
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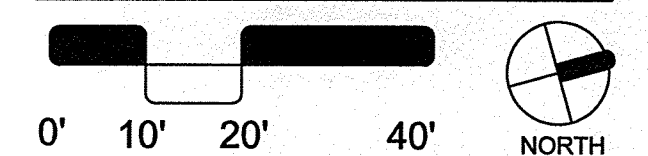
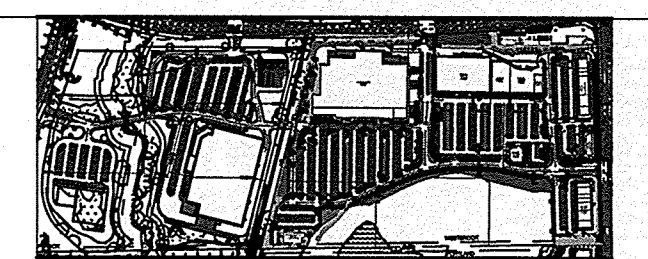
Plan Name:	LIGHTING PLAN - NORTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.	LP1-1
SHEET 61 OF 120 JBE PROJECT NO. 14110	



PLANT LEGEND				
SHADE TREES		SIZE	NOTES	QTY
	Acer rubrum	2.0' - 2.5' Cal.	Zone 4	16
	Arbutus menziesii	2.0' - 2.5' Cal.	Zone 4	4
	Corylus rostrata	2.0' - 2.5' Cal.	Zone 3	4
	Ulmus americana	2.0' - 2.5' Cal.	Zone 4	14
	Magnolia grandiflora	2.0' - 2.5' Cal.	Zone 4	4
	Quercus pubescens	2.0' - 2.5' Cal.	Zone 4	6
	Zelkova serrata	2.0' - 2.5' Cal.	Zone 4	15
CONIFER TREES				
	Juniperus horizontalis	12' - 14'	Zone 2	82
	Eastern Red Cedar	8' - 10'	Zone 4	10
	Thuja occidentalis	12' - 14'	Zone 4	9
MEDIUM TREES				
	Quercus alba	1.0' - 1.5' Cal.	Zone 3	37
	Carya ovata	1.0' - 1.5' Cal.	Zone 4	24
	Quercus macrocarpa	1.0' - 1.5' Cal.	Zone 4	25
ORNAMENTAL TREES				
	Acer glabrum	1.0' - 1.5' Cal.	Zone 5	12
	Acer platanoides	1.0' - 1.5' Cal.	Zone 3	5
	Acer negundo	1.0' - 1.5' Cal.	Zone 3	26
	Acer saccharinum	1.0' - 1.5' Cal.	Zone 4	20
	Carya virginiana	1.0' - 1.5' Cal.	Zone 3	11
	Quercus macrocarpa	1.0' - 1.5' Cal.	Zone 5	6
DECIDUOUS SHRUBS				
	Quercus alba	3 Gal.	Zone 4	128
	Cornus pennsylvanica	3 Gal.	Zone 3	75
	Cornus sericea	2 Gal.	Zone 5	19
	Fuchsia procumbens	3 Gal.	Zone 5	64
	Hypericum perforatum	3 Gal.	Zone 4	49
	Box verticillata 'Tape'	3 Gal.	Zone 3	164
	Lonicera xylosteum	3 Gal.	Zone 4	6
	Lonicera xylosteum	3 Gal.	Zone 4	74
	Lonicera xylosteum	3 Gal.	Zone 4	167
	Lonicera xylosteum	3 Gal.	Zone 4	174
	Lonicera xylosteum	3 Gal.	Zone 4	227
	Lonicera xylosteum	3 Gal.	Zone 4	2
	Lonicera xylosteum	3 Gal.	Zone 4	4
EVERGREEN SHRUBS				
	Nandina domestica	5 Gal.	Zone 5	47
	Juniperus communis 'Draped'	5 Gal.	Zone 3	24
	Rhododendron canadense	5 Gal.	Zone 5	55
	Magnolia grandiflora	3 Gal.	Zone 2	58
GRASSES				
	Eragrostis speciosa	2 Gal.	Zone 4	20
	Anemone pulsatilla	2 Gal.	Zone 3	248
	Schizanthus pinnatifidus	2 Gal.	Zone 4	0
GROUNDCOVERS				
	Anemone pulsatilla	2 Gal.	Zone 3	114
	Anemone pulsatilla	2 Gal.	Zone 3	74
	Anemone pulsatilla	2 Gal.	Zone 3	329
	Anemone pulsatilla	2 Gal.	Zone 3	0
	Anemone pulsatilla	2 Gal.	Zone 3	119
	Anemone pulsatilla	2 Gal.	Zone 3	0
VINES				
	Anemone pulsatilla	1 Gal.	Zone 4	4
	Anemone pulsatilla	1 Gal.	Zone 5	4
TURF AND SEED MIX				
	Turf Mix	10' x 10' x 10'	Zone 4	16,000 S.F.
	Seed Mix	10' x 10' x 10'	Zone 4	48,000 S.F.
	Seed Mix	10' x 10' x 10'	Zone 4	28,000 S.F.
LANDSCAPE MATERIALS				
	Landscape Material	2' depth	102,000 S.F.	
	Landscape Material	2' depth	102,000 S.F.	

NOTES:
1. Installation of an irrigation system to be determined prior to City of Westbrook approval.
2. Landscaping shall be maintained in a healthy condition. If within two years from the date of installation any plant is in a deteriorating state or is dead it shall be replaced in kind in a timely manner. Refer Sheet L5.0 for additional specifications.

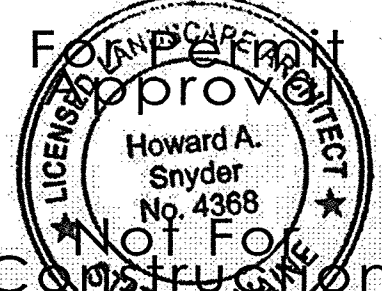


APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE:

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' - 0" Project No.: 14110
ALD Project No.: 15.016

AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233

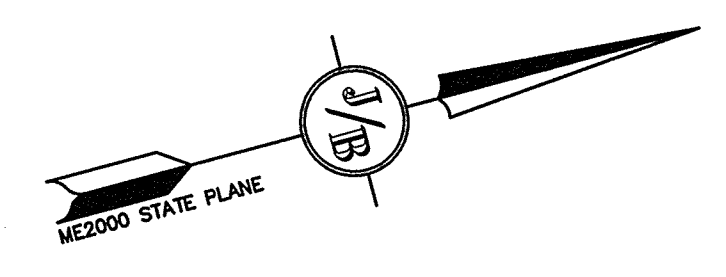
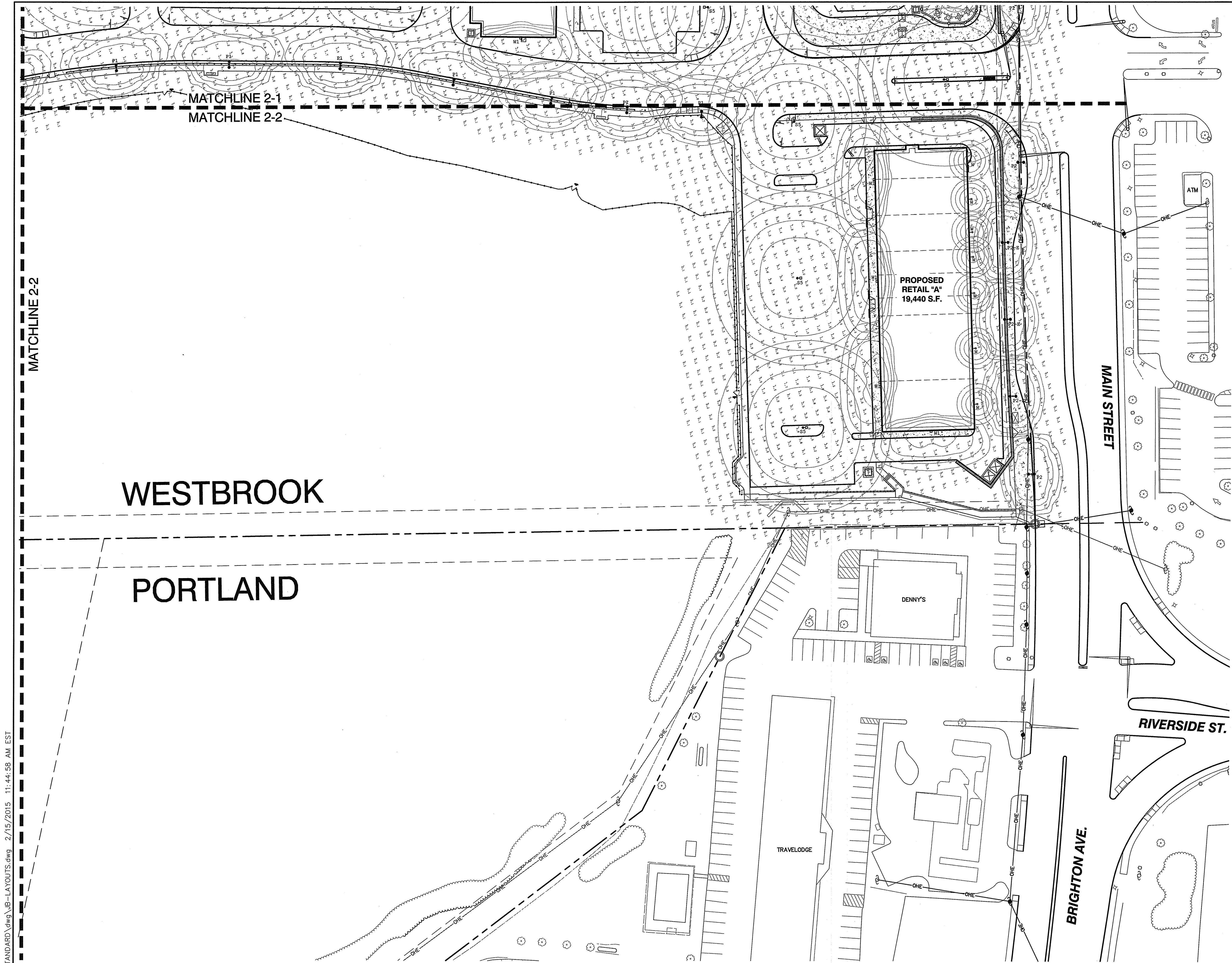


REV.	DATE	REVISION	BY
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3	---	REVISED PER	---
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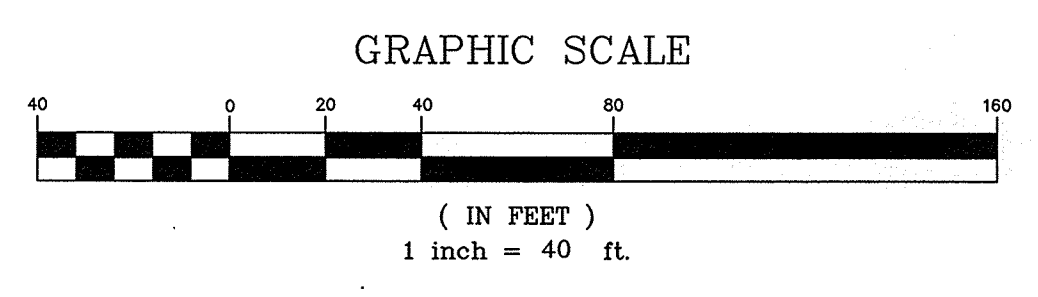
Designed and Produced in NH
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85 Portsmouth Ave.
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Stratham, NH 03885
603-772-4746
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Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-5.0
SHEET 46 OF 143
JBE PROJECT NO. 14110



- LIGHTING AND ELECTRICAL NOTES:**
1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
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Design: BWG Draft: BWG Date: 10/20/15
Checked: WGM Scale: AS SHOWN Project No.: 14110
Drawing Name: 14110-PLAN.dwg

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7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

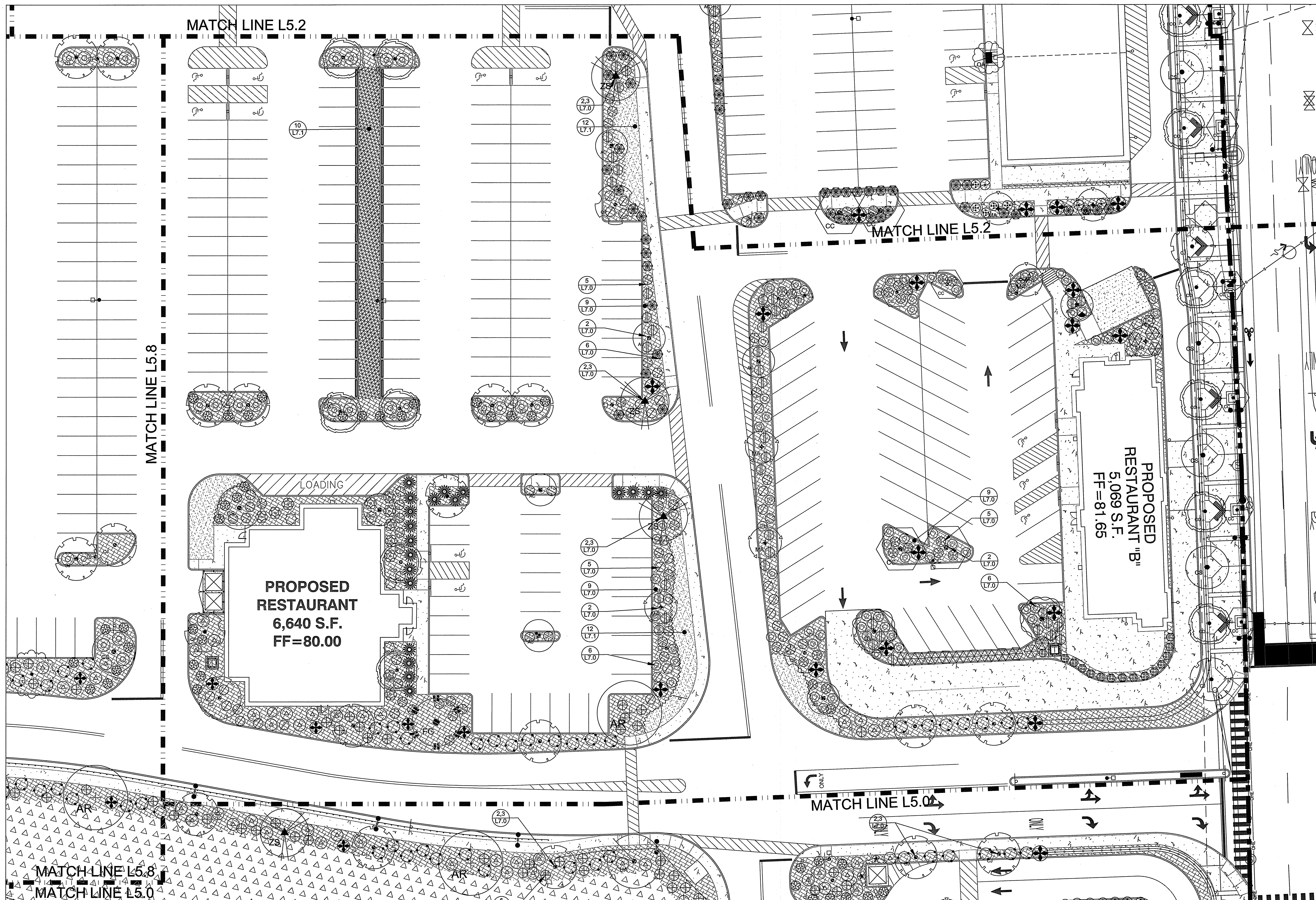
J/B
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

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603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

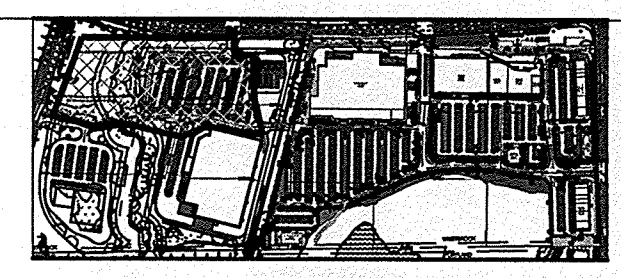
Plan Name:	LIGHTING PLAN - NORTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.
LP1-2

SHEET 62 OF 120
JBE PROJECT NO. 14110



PLANT LEGEND				
SHADE TREES		SIZE	NOTES	QTY
	Acer rubrum	2.0" - 2.5" Cal.	Zone 4	15
	Quercus macrocarpa	2.0" - 2.5" Cal.	Zone 4	4
	Cornus ovata	2.0" - 2.5" Cal.	Zone 3	4
	Ceanothus americanus	2.0" - 2.5" Cal.	Zone 4	25
	Lonicera xylosteum	2.0" - 2.5" Cal.	Zone 4	14
	Magnolia acuminata	2.0" - 2.5" Cal.	Zone 4	4
	Quercus prinus	2.0" - 2.5" Cal.	Zone 4	4
	Zelkova serrata	2.0" - 2.5" Cal.	Zone 4	15
	Thuja occidentalis	2.0" - 2.5" Cal.	Zone 4	15
CONIFER TREES		SIZE	NOTES	QTY
	Juniperus horizontalis	12" - 14"	Zone 2	12
	Pinus strobus	6" - 8"	Zone 5	10
	Pinus rigida	12" - 14"	Zone 4	9
MEDIUM TREES		SIZE	NOTES	QTY
	Cornus florida	1.5" - 2.0" Cal.	Zone 3	7
	Carya cordulata	1.5" - 2.0" Cal.	Zone 3	37
	Quercus bicolor	1.5" - 2.0" Cal.	Zone 4	34
	Quercus prinus	1.5" - 2.0" Cal.	Zone 4	25
	Quercus macrocarpa	1.5" - 2.0" Cal.	Zone 4	25
ORNAMENTAL TREES		SIZE	NOTES	QTY
	Acer rubrum	1.5" - 2.0" Cal.	Zone 5	12
	Prunella virginiana	1.5" - 2.0" Cal.	Zone 5	5
	Ceanothus americanus	1.5" - 2.0" Cal.	Zone 3	25
	Magnolia acuminata	1.5" - 2.0" Cal.	Zone 4	25
	Zelkova serrata	1.5" - 2.0" Cal.	Zone 3	11
	Thuja occidentalis	1.5" - 2.0" Cal.	Zone 5	8
DECIDUOUS SHRUBS		SIZE	NOTES	QTY
	Aralia nudicaulis	3 Gal.	Zone 4	128
	Ceanothus americanus	3 Gal.	Zone 4	60
	Cornus pennsylvanica	3 Gal.	Zone 3	75
	Cornus amomum	2 Gal.	Zone 5	18
	Fothergilla gardenii	3 Gal.	Zone 5	64
	Hypericum perforatum	3 Gal.	Zone 4	49
	Ilex verticillata	3 Gal.	Zone 3	104
	Lonicera xylosteum	3 Gal.	Zone 4	6
	Myrica pensylvanica	3 Gal.	Zone 5	167
	Physocarpus opulifolius	3 Gal.	Zone 3	174
	Rhamnus typhaloidea	3 Gal.	Zone 5	227
	Viburnum acerifolium	3 Gal.	Zone 4	2
	Viburnum acerifolium	3 Gal.	Zone 2	4
EVERGREEN SHRUBS		SIZE	NOTES	QTY
	Kalmia latifolia	5 Gal.	Zone 5	47
	Juniperus communis 'Depressa'	5 Gal.	Zone 3	54
	Rhododendron cataractae	5 Gal.	Zone 5	25
	Rhododendron cataractae	3 Gal.	Zone 2	55
GRASSES		SIZE	NOTES	QTY
	Elymus canadensis	2 Gal.	Zone 4	20
	Panicum virgatum	2 Gal.	Zone 3	240
	Solidago nemoralis	2 Gal.	Zone 4	240
GROUNDCOVERS		SIZE	NOTES	QTY
	Asarum canadense	2 Gal.	Zone 3	114
	Cornus canadensis	2 Gal.	Zone 3	74
	Diarrhea dioica	2 Gal.	Zone 4	320
	Proserpinaca angustifolia	1 Gal.	Zone 5	0
	Hesperis matronalis	3 Gal.	Zone 3	110
	Vinca minor	1 Gal.	Zone 3	0
	Vinca minor	1 Gal.	Zone 4	4
	Vinca minor	1 Gal.	Zone 5	4
TURF AND SEED MIX		SIZE	NOTES	QTY
	Turf and Seed Mix	Refer to Detail 10 for specification		10,000 S.F.
	Turf and Seed Mix	Refer to Detail 11 for specification		40,000 S.F.
	Turf and Seed Mix	Refer to Detail 12 for specification		20,000 S.F.
LANDSCAPE MATERIALS		SIZE	NOTES	QTY
	Landscape Material	12" depth		10,000 S.F.
	Landscape Material	12" depth		10,000 S.F.
	Landscape Material	12" depth		10,000 S.F.

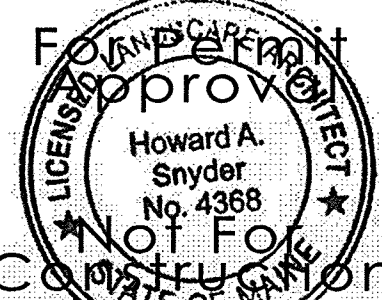


0' 10' 20' 40' NORTH

APPROVED - WESTBROOK, ME PLANNING BOARD

DATE:

Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' - 0" Project No.: 14110
ALD Project No.: 15,016
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



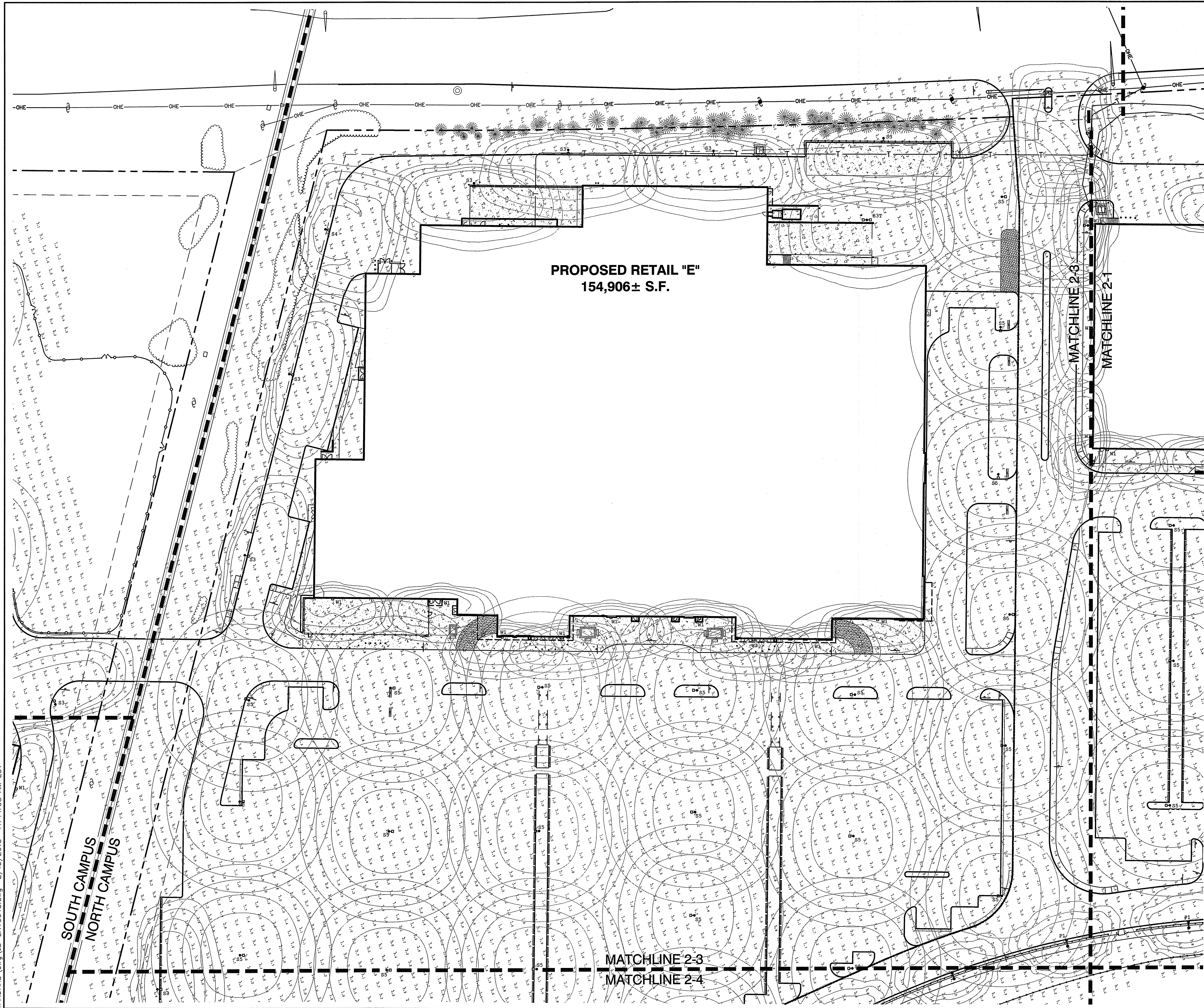
REV.	DATE	REVISION	BY
4	---	REVISED PER	---
3	---	REVISED PER	---
2	---	REVISED PER	---
1	---	REVISED PER	---
0	---	REVISED PER	---

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

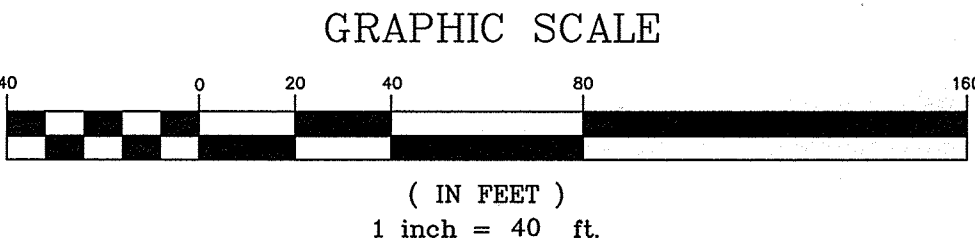
DRAWING No.
L-5.1
SHEET 47 OF 142
JBE PROJECT NO. 14110

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LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDELS.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
8. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25" ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
9. SEE SHEET LP1-7 FOR LIGHTING DETAILS.
10. CONTRACTOR SHALL COORDINATE WITH SIGN SUPPLIER TO INSTALL AND SUPPLY THE APPROPRIATE CONDUITS AND POWER TO PROPOSED SIGN LOCATION.
11. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03109, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.
12. LIGHTS ALONG THE MAIN ACCESS ROADS WITH ELECTRICAL CONNECTIONS BETWEEN THEM WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND WILL BE LIT FROM DUSK TO DAWN. LIGHTS WITHIN LEASED AREAS WILL BE THE RESPONSIBILITY OF THE LESSEE AND WILL REQUIRE CONDUIT TO CONNECT ALL LIGHTS WITHIN THE LEASED AREA TO AN INTERNAL SWITCH.
13. LIGHT FIXTURES SHALL BE INSTALLED AT HEIGHTS AS SHOWN IN LUMINAIRE SCHEDULE. "AFG" = ABOVE FINISH GRADE. CONTRACTOR SHALL SUPPLY CORRECT POLE HEIGHT TO PROVIDE FIXTURE AT HEIGHT AS SHOWN IN SCHEDULE.



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Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS SHOWN	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		

REV.	DATE	REVISION	BY
7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	9/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

**Jones & Beach Engineers, Inc.**

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85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

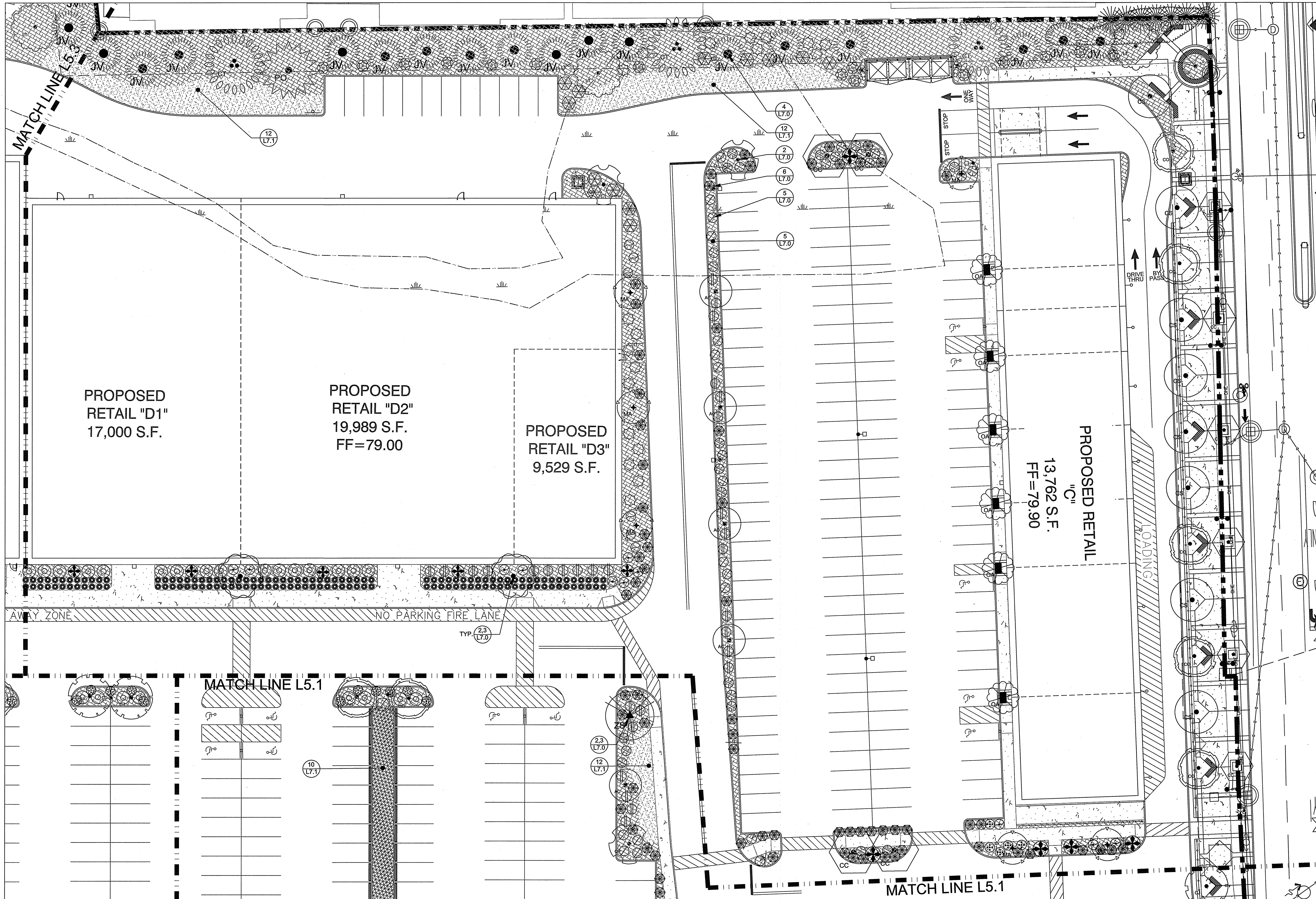
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	LIGHTING PLAN - NORTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

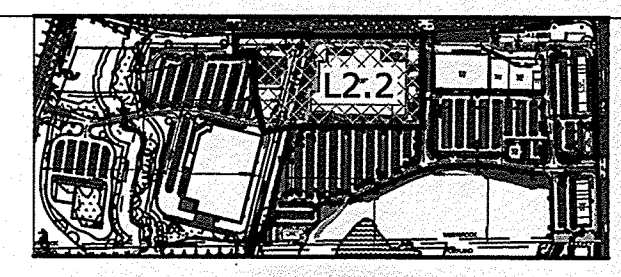
DRAWING No.

LP1-3

SHEET 63 OF 120
JBE PROJECT NO. 14110



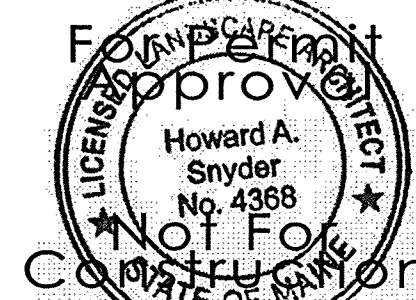
PLANT LEGEND				
SHADE TREES		SIZE	NOTES	QTY
	Acer rubrum	2.0' - 2.5' Cal.	Zone 4	18
	Thuja occidentalis	2.0' - 2.5' Cal.	Zone 4	18
	Quercus prinus	2.0' - 2.5' Cal.	Zone 3	4
	Quercus alba	2.0' - 2.5' Cal.	Zone 4	29
	Ulmus americana	2.0' - 2.5' Cal.	Zone 4	14
	Malus domestica	2.0' - 2.5' Cal.	Zone 4	4
	Quercus prinus	2.0' - 2.5' Cal.	Zone 4	6
	Quercus alba	2.0' - 2.5' Cal.	Zone 4	15
	Quercus prinus	2.0' - 2.5' Cal.	Zone 4	15
CONIFER TREES		SIZE	NOTES	QTY
	Thuja occidentalis	12' - 14'	Zone 2	62
	Thuja occidentalis	8' - 10'	Zone 3	10
	Thuja occidentalis	12' - 14'	Zone 4	9
MEDIUM TREES		SIZE	NOTES	QTY
	Quercus prinus	1.0' - 1.5' Cal.	Zone 3	7
	Quercus alba	1.0' - 1.5' Cal.	Zone 4	37
	Quercus prinus	1.0' - 1.5' Cal.	Zone 4	24
	Quercus alba	1.0' - 1.5' Cal.	Zone 4	25
ORNAMENTAL TREES		SIZE	NOTES	QTY
	Acer rubrum	1.0' - 1.5' Cal.	Zone 4	12
	Acer rubrum	1.0' - 1.5' Cal.	Zone 3	5
	Acer rubrum	1.0' - 1.5' Cal.	Zone 3	28
	Acer rubrum	1.0' - 1.5' Cal.	Zone 4	20
	Acer rubrum	1.0' - 1.5' Cal.	Zone 3	11
	Acer rubrum	1.0' - 1.5' Cal.	Zone 5	6
DECIDUOUS SHRUBS		SIZE	NOTES	QTY
	Quercus prinus	3 Gal.	Zone 4	138
	Quercus alba	3 Gal.	Zone 4	60
	Quercus prinus	3 Gal.	Zone 3	78
	Quercus alba	3 Gal.	Zone 5	18
	Quercus prinus	3 Gal.	Zone 5	64
	Quercus alba	3 Gal.	Zone 4	49
	Quercus prinus	3 Gal.	Zone 3	164
	Quercus alba	3 Gal.	Zone 4	6
	Quercus prinus	3 Gal.	Zone 4	74
	Quercus alba	3 Gal.	Zone 3	187
	Quercus prinus	3 Gal.	Zone 3	154
	Quercus alba	3 Gal.	Zone 3	237
	Quercus prinus	3 Gal.	Zone 3	2
	Quercus alba	3 Gal.	Zone 2	4
EVERGREEN SHRUBS		SIZE	NOTES	QTY
	Quercus prinus	5 Gal.	Zone 5	47
	Quercus alba	5 Gal.	Zone 3	24
	Quercus prinus	5 Gal.	Zone 5	5
	Quercus alba	5 Gal.	Zone 2	58
GRASSES		SIZE	NOTES	QTY
	Quercus prinus	2 Gal.	Zone 4	20
	Quercus alba	2 Gal.	Zone 3	248
	Quercus prinus	2 Gal.	Zone 4	0
GROUNDCOVERS		SIZE	NOTES	QTY
	Quercus prinus	2 Gal.	Zone 3	144
	Quercus alba	2 Gal.	Zone 2	74
	Quercus prinus	2 Gal.	Zone 4	328
	Quercus alba	2 Gal.	Zone 3	0
	Quercus prinus	2 Gal.	Zone 3	118
	Quercus alba	2 Gal.	Zone 3	0
VINES		SIZE	NOTES	QTY
	Quercus prinus	1 Gal.	Zone 4	4
	Quercus alba	1 Gal.	Zone 5	4
TURF AND SEED MIX		SIZE	NOTES	QTY
	Quercus prinus	10' x 10' x 1.5'	Zone 4	18,000 S.F.
	Quercus alba	10' x 10' x 1.5'	Zone 3	48,800 S.F.
	Quercus prinus	10' x 10' x 1.5'	Zone 4	28,000 S.F.
LANDSCAPE MATERIALS		SIZE	NOTES	QTY
	Quercus prinus	2' depth	Zone 4	18,000 S.F.
	Quercus alba	2' depth	Zone 3	48,800 S.F.
	Quercus prinus	2' depth	Zone 4	28,000 S.F.



APPROVED - WESTBROOK, ME
PLANNING BOARD

DATE:	
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Design: HAS Draft: PB Coord Set Date: 08/24/2016
Checked: HAS Scale: 1" = 20' - 0" Project No.: 14110
ALD Project No.: 15.016
AMORY LAND DESIGN, LLC
68 WARREN STREET
NEWBURYPORT, MA
01950 - 2233



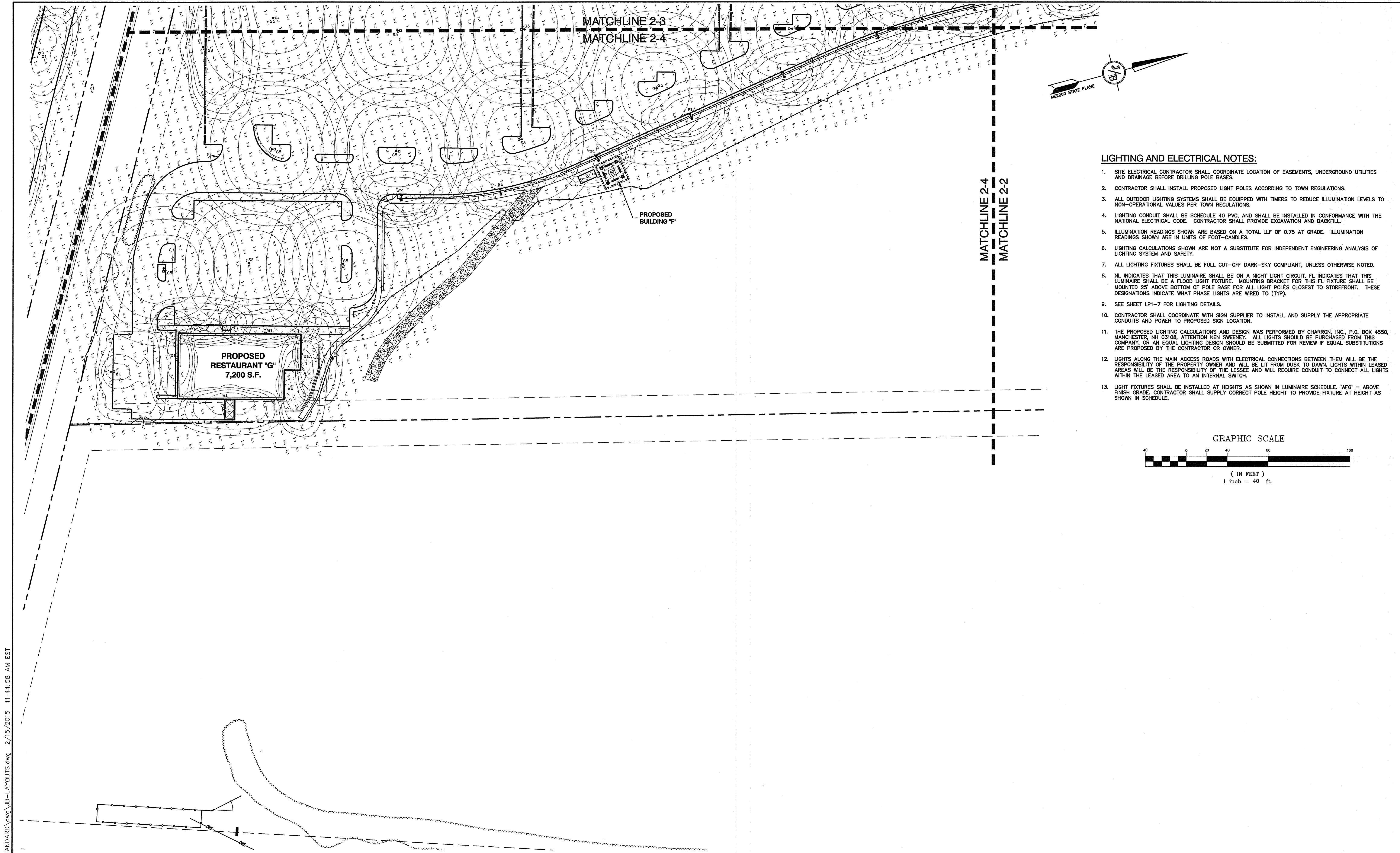
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4	---	REVISED PER	---
3	---	REVISED PER	---
2	---	REVISED PER	---
1	---	REVISED PER	---
0	---	REVISED PER	---

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **PLANTING PLAN - NORTH CAMPUS**
Project: **WESTBROOK PIKE
LARRABEE ROAD & MAIN STREET, WESTBROOK, ME**
Owner of Record: **J & J GOVE DEVELOPMENT, LLC
7 SWAIN DRIVE, HAMPTON FALLS, NH 03844**

DRAWING No.
L-5.2
SHEET 48 OF 443 (2)
JBE PROJECT NO. 14110

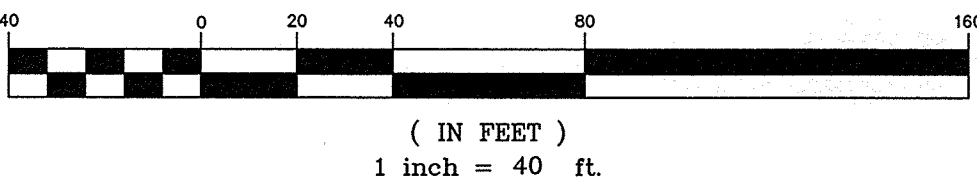
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LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
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9. SEE SHEET LP1-7 FOR LIGHTING DETAILS.
10. CONTRACTOR SHALL COORDINATE WITH SIGN SUPPLIER TO INSTALL AND SUPPLY THE APPROPRIATE CONDUITS AND POWER TO PROPOSED SIGN LOCATION.
11. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03106, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.
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GRAPHIC SCALE



Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS SHOWN	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

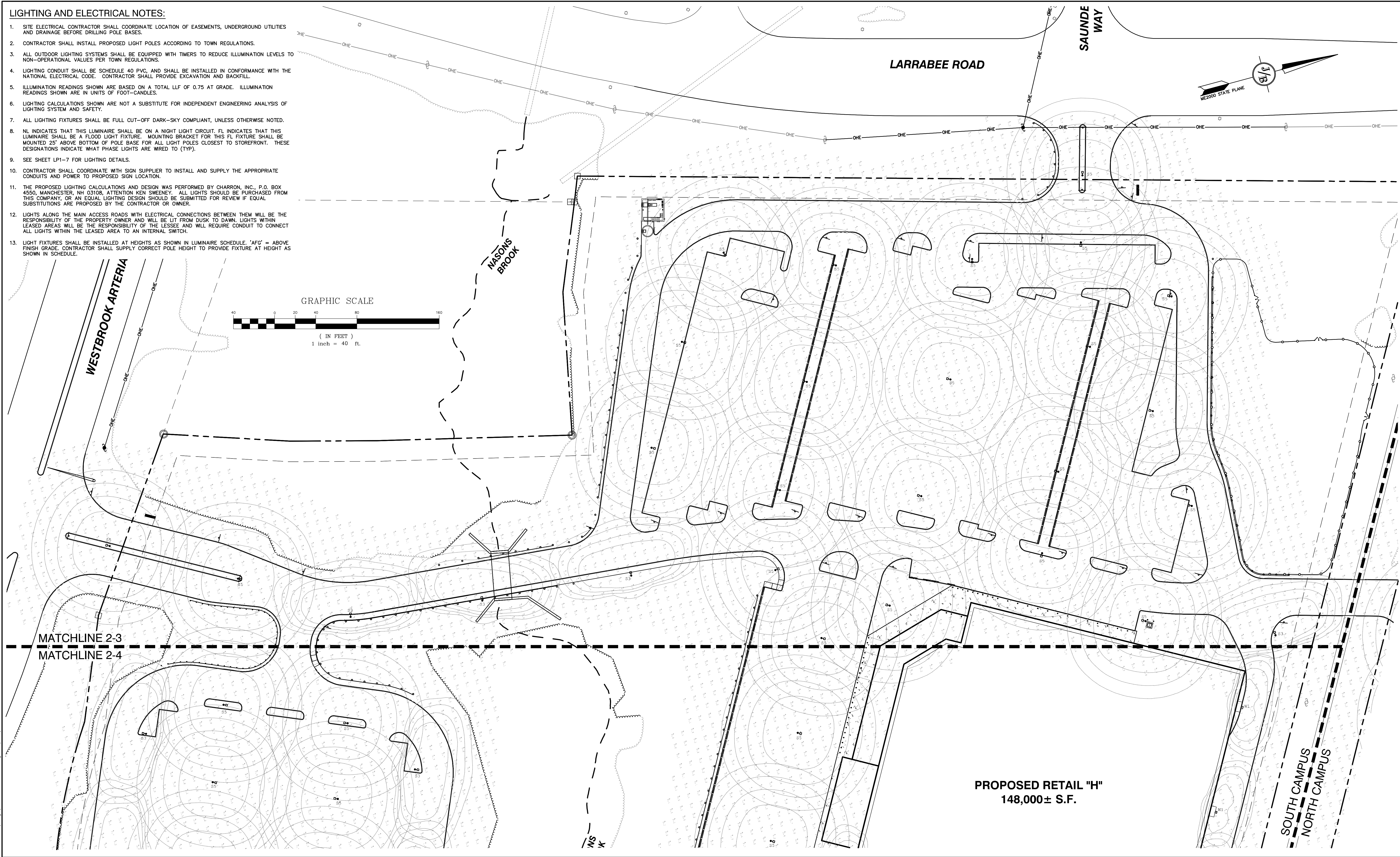
Designed and Produced in NH
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	LIGHTING PLAN - NORTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

LP1-4

SHEET 64 OF 120
JBE PROJECT NO. 14110



Design: BWG	Draft: BWG	Date: 10/20/15
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Drawing Name: 14110-PLAN.dwg		
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3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.

Designed and Produced in NH

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	LIGHTING PLAN - SOUTH CAMPUS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

LP1-5

SHEET 65 OF 120
JBE PROJECT NO. 14110

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DESCRIPTION

The Impact Elite family of wall luminaires is the ideal complement to site design. Incorporating modular LightBAR™ technology, the Impact Elite luminaire provides outstanding uniformity and energy-conscious illumination. Combined with a rugged construction, the Impact Elite luminaire is the ideal facade and security luminaire for zones surrounding schools, office complexes, apartments and recreational facilities. UL/cUL listed for wet locations.

Catalog #	Type
Project	
Comments	
Prepared by	

SPECIFICATION FEATURES

Construction
TOP: Cast aluminum top housing attaches to cast aluminum mounting arm hub with four stainless steel fasteners. One-piece silicone gasket between mounting hub and top casting seals out moisture and contaminants. (See the mounting accessories section for a full selection of mounting arms. Only these arms are compatible with the Epic luminaire. MIDSECTION: Continuous silicone gaskets seal lens to top casting and shade. The mid section features cast aluminum construction and stainless steel assembly. SHADES: Heavy gauge precision spun aluminum shades offer superior surface finish and consistency in form. DOORFRAME: Die-cast aluminum 1/8" thick door and doorframe seal to underside of shade with a thick wall continuous silicone gasket. Mounting hub ships attached to mounting arm.

Optics
Choice of twelve patented, high-efficiency AccuLED Optics™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the optics, maximizing efficiency and application spacing. AccuLED Optic technology, creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and nominal 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.5 power factor, less than 20% harmonic distortion, and are suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP68 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Emergency egress options and occupancy sensor available.

Finish
Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

Warranty
Five-year warranty.

ENERGY DATA
Electronics LED Driver
+0.5 Power Factor
+20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
+40°C Minimum Temperature
+40°C Ambient Temperature Rating
EPA Effective Projected Area: (Sq. Ft.) 0.84

SHIPPING DATA
Approximate Net Weight:
45 lbs. (20 kg.)

SHIP TO:
T2000008N
2015-11-02 15:38:12

FIXTURE LABEL: P1, P2, P2-E

valmont
STRUCTURES

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS201 _____ Quote: _____ Customer Approval: _____ Date: _____

SPECIFICATIONS

Pole - The pole shaft conforms to ASTM A595 Grade A with a constant linear taper of 0.14 in/ft.

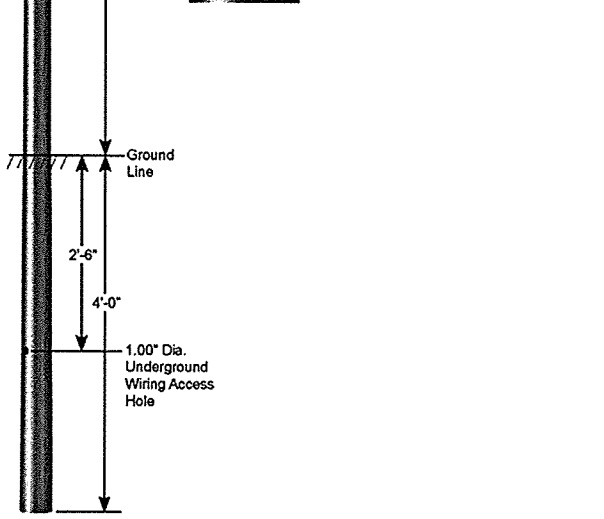
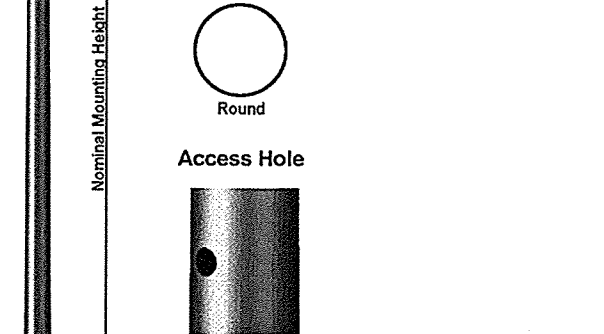
Pole Top - The pole top is held to a 3.00" OD (±0.15") for external top mount luminaire and/or bracket. For internal top mount luminaire please consult factory. A removable pole cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies.

Underground Wiring Access - A 1.00" diameter hole is provided at 2'-6" below the ground line.

Hardware - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

Finish - Standard finishes are galvanized, prime painted or any of Valmont's V-PRO™ Protection Systems. Additional finish options available upon request.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.



VALMONT INDUSTRIES, INC. 28800 IDA STREET, PO BOX 358 - VALLEY, NE 68064 USA 800.825.6668 VALMONTSTRUCTURES.COM

P2-E LIGHT POLE BASE

McGraw-Edison

DESCRIPTION

The Impact Elite family of wall luminaires is the ideal complement to site design. Incorporating modular LightBAR™ technology, the Impact Elite luminaire provides outstanding uniformity and energy-conscious illumination. Combined with a rugged construction, the Impact Elite luminaire is the ideal facade and security luminaire for zones surrounding schools, office complexes, apartments and recreational facilities. UL/cUL listed for wet locations.

Catalog #	Type
Project	
Comments	
Prepared by	

SPECIFICATION FEATURES

Construction
Heavy-wall, die-cast aluminum housing and removable housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.5 power factor, less than 20% harmonic distortion, and are suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP68 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Emergency egress options and occupancy sensor available.

Optics
Choice of six patented, high-efficiency AccuLED Optics™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optic technology creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.5 power factor, less than 20% harmonic distortion, and are suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP68 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Emergency egress options and occupancy sensor available.

Finish
Cast components finished in a five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

ENERGY DATA
Electronics LED Driver
+0.5 Power Factor
+20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
+40°C Minimum Temperature
+40°C Ambient Temperature Rating
EPA Effective Projected Area: (Sq. Ft.) 0.84

SHIPPING DATA
Approximate Net Weight:
15 lbs. (7 kg.)

SHIP TO:
T2010008N
2015-09-10 10:00:05

FIXTURE LABEL: W1, W2

McGraw-Edison

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS201 _____ Quote: _____ Customer Approval: _____ Date: _____

SPECIFICATIONS

Pole - The pole shaft conforms to ASTM A595 Grade A with a constant linear taper of 0.14 in/ft.

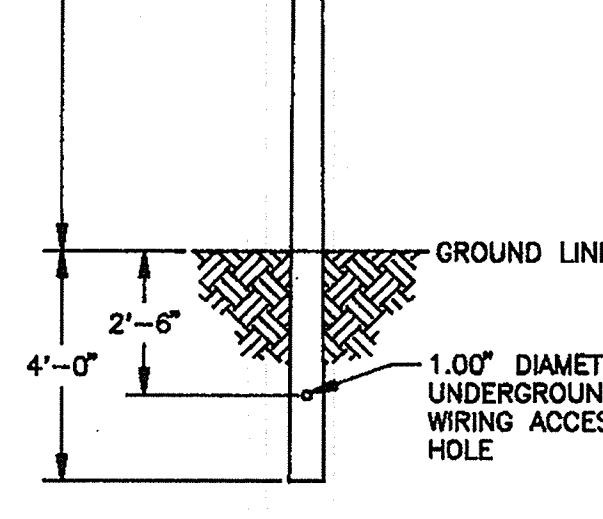
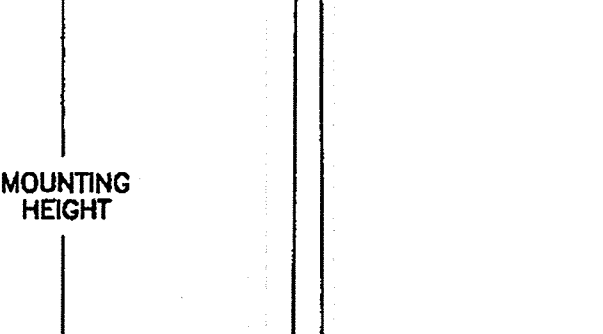
Pole Top - The pole top is held to a 3.00" OD (±0.15") for external top mount luminaire and/or bracket. For internal top mount luminaire please consult factory. A removable pole cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies.

Underground Wiring Access - A 1.00" diameter hole is provided at 2'-6" below the ground line.

Hardware - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

Finish - Standard finishes are galvanized, prime painted or any of Valmont's V-PRO™ Protection Systems. Additional finish options available upon request.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.



VALMONT INDUSTRIES, INC. 28800 IDA STREET, PO BOX 358 - VALLEY, NE 68064 USA 800.825.6668 VALMONTSTRUCTURES.COM

P2-E LIGHT POLE BASE

McGraw-Edison

DESCRIPTION

The Vetus™ LED area luminaire provides uncompromising optical performance and outstanding versatility for a wide variety of area and roadway applications. Patent pending modular LightBAR™ technology delivers uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and any security lighting application. UL/cUL Listed for wet locations.

Catalog #	Type
Project	
Comments	
Prepared by	

SPECIFICATION FEATURES

Construction
Die-cast aluminum frame secures thermally attaching extruded aluminum heat sink to independent electrical chamber. Heavy-wall, die-cast aluminum housing and door isolates driver components for cooler operation. The unique construction allows for passive cooling and natural cleaning of the extruded heat sink ensuring reliable operation at 40°C high ambient conditions. Stainless steel fasteners and hinging allow access to electrical components for installation and maintenance. Optional tool-less hardware available for ease of entry into electrical chamber.

Optics
Choice of twelve patented, high-efficiency AccuLED Optics™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optic technology creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.5 power factor, less than 20% harmonic distortion, and are suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP68 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Emergency egress options and occupancy sensor available.

Finish
Cast components and arm finished in super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

ENERGY DATA
Electronics LED Driver
+0.5 Power Factor
+20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
+40°C Minimum Temperature
+40°C Ambient Temperature Rating
EPA Effective Projected Area: (Sq. Ft.) 0.84

SHIPPING DATA
Approximate Net Weight:
15 lbs. (7 kg.)

SHIP TO:
T2010008N
2015-09-10 10:00:05

FIXTURE LABEL: S3, S4, S5, T4

McGraw-Edison

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS201 _____ Quote: _____ Customer Approval: _____ Date: _____

SPECIFICATIONS

Pole - The pole shaft conforms to ASTM A595 Grade A with a constant linear taper of 0.14 in/ft.

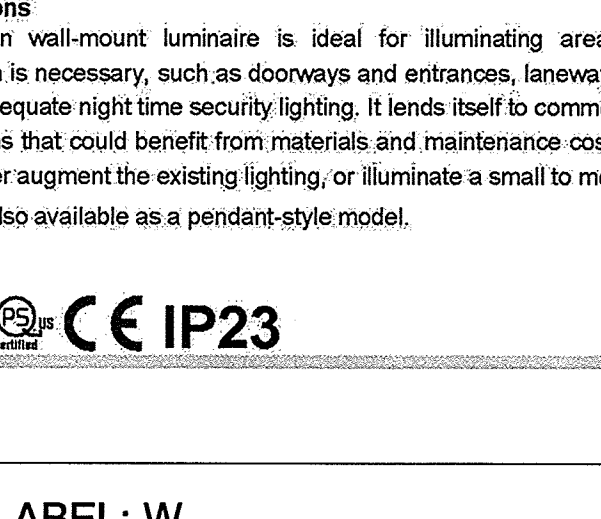
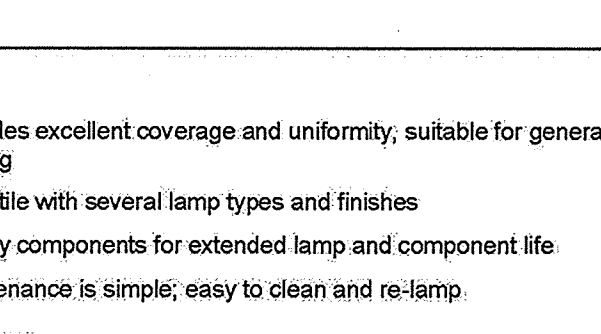
Pole Top - The pole top is held to a 3.00" OD (±0.15") for external top mount luminaire and/or bracket. For internal top mount luminaire please consult factory. A removable pole cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies.

Underground Wiring Access - A 1.00" diameter hole is provided at 2'-6" below the ground line.

Hardware - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

Finish - Standard finishes are galvanized, prime painted or any of Valmont's V-PRO™ Protection Systems. Additional finish options available upon request.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.



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P2-E LIGHT POLE BASE

McGraw-Edison

DESCRIPTION

The Vetus™ LED area luminaire provides uncompromising optical performance and outstanding versatility for a wide variety of area and roadway applications. Patent pending modular LightBAR™ technology delivers uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and any security lighting application. UL/cUL Listed for wet locations.

Catalog #	Type
Project	
Comments	
Prepared by	

SPECIFICATION FEATURES

Construction
Die-cast aluminum frame secures thermally attaching extruded aluminum heat sink to independent electrical chamber. Heavy-wall, die-cast aluminum housing and door isolates driver components for cooler operation. The unique construction allows for passive cooling and natural cleaning of the extruded heat sink ensuring reliable operation at 40°C high ambient conditions. Stainless steel fasteners and hinging allow access to electrical components for installation and maintenance. Optional tool-less hardware available for ease of entry into electrical chamber.

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Choice of twelve patented, high-efficiency AccuLED Optics™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optic technology creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.5 power factor, less than 20% harmonic distortion, and are suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP68 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Emergency egress options and occupancy sensor available.

Finish
Cast components and arm finished in super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

ENERGY DATA
Electronics LED Driver
+0.5 Power Factor
+20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
+40°C Minimum Temperature
+40°C Ambient Temperature Rating
EPA Effective Projected Area: (Sq. Ft.) 0.84

SHIPPING DATA
Approximate Net Weight:
15 lbs. (7 kg.)

SHIP TO:
T2010008N
2015-09-10 10:00:05

FIXTURE LABEL: S3, S4, S5, T4

McGraw-Edison

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS201 _____ Quote: _____ Customer Approval: _____ Date: _____

SPECIFICATIONS

Pole - The pole shaft conforms to ASTM A595 Grade A with a constant linear taper of 0.14 in/ft.

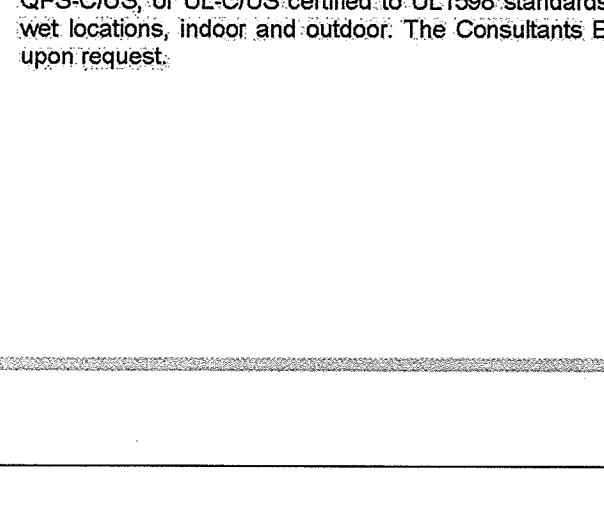
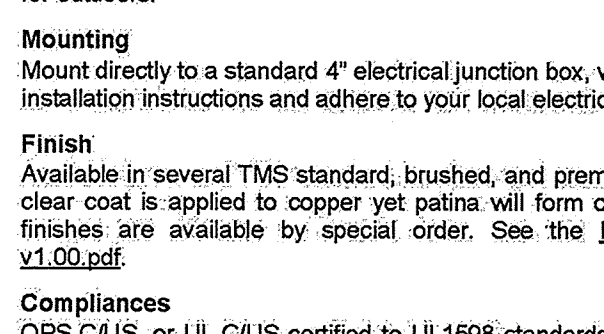
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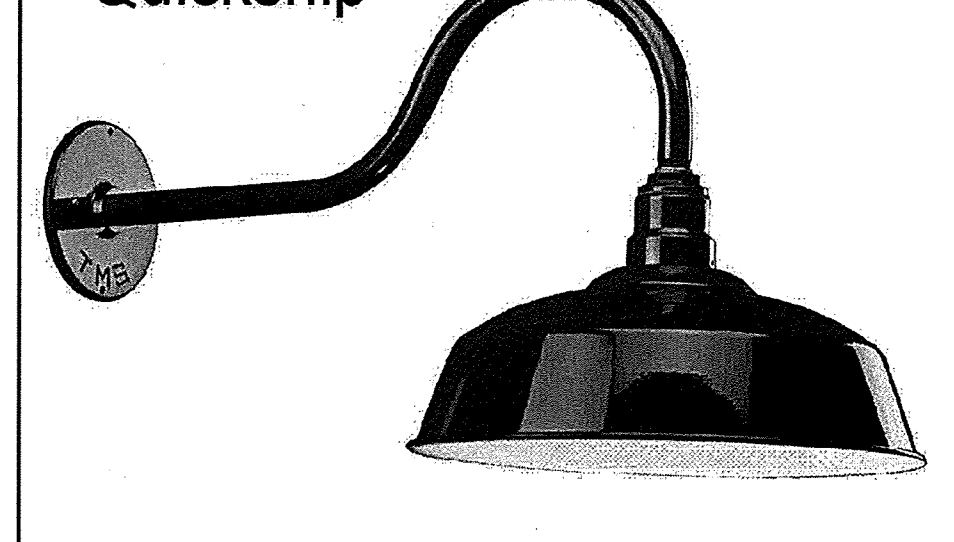


VALMONT INDUSTRIES, INC. 28800 IDA STREET, PO BOX 358 - VALLEY, NE 68064 USA 800.825.6668 VALMONTSTRUCTURES.COM

P2-E LIGHT POLE BASE

Calvin Wall

Quickship



- Features**
 - Provides excellent coverage and uniformity, suitable for general and localized lighting
 - Versatile with several lamp types and finishes
 - Quality components for extended lamp and component life
 - Maintenance is simple; easy to clean and re-lamp

Applications
The Calvin wall-mount luminaire is ideal for illuminating areas where localized distribution is necessary, such as doorways and entrances, laneways, patios and could provide adequate night time security lighting. It lends itself to commercial, and industrial applications that could benefit from materials and maintenance cost reductions. Calvin could either augment the existing lighting, or illuminate a small to medium-sized area. Calvin is also available as a pendant-style model.

Compliances
QPS-COUS, or UL-COUS certified to UL1598 standards. Rated IP23 for use in dry to wet locations, indoor and outdoor. The Consultants (CE) listing is available upon request.

Finish
Available in several TMS standard, brushed, and premium powder-coated finishes. A clear coat is applied to copper yet patina will form over a period. Custom or RAL finishes are available by special order. See the **Finishes-Diffusers Chart TMS v1.00.pdf**.

Options
Globe: Clear and prismatic, glass globes are available.
Wire Guard: A chrome-plated wire guard is available for indoors, a silver powder coat for outdoors.

Mounting
Mount directly to a standard 4" electrical junction box, with 3/5" holes c. c. Follow the installation instructions and adhere to your local electrical code.

Finish
Available in several TMS standard, brushed, and premium powder-coated finishes. A clear coat is applied to copper yet patina will form over a period. Custom or RAL finishes are available by special order. See the **Finishes-Diffusers Chart TMS v1.00.pdf**.

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Wire Guard: A chrome-plated wire guard is available for indoors, a silver powder coat for outdoors.

Mounting
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Finish
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NOT TO SCALE

NOT TO SCALE

NOT TO SCALE

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NOT TO SCALE

NOT TO SCALE

NOT TO SCALE

Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
REV.	DATE	REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. *Civil Engineering Services* 603-772-4746
 PO Box 219 FAX: 603-772-0227
 Stratham, NH 03885 E-Mail: JBE@JONESANDBEACH.COM

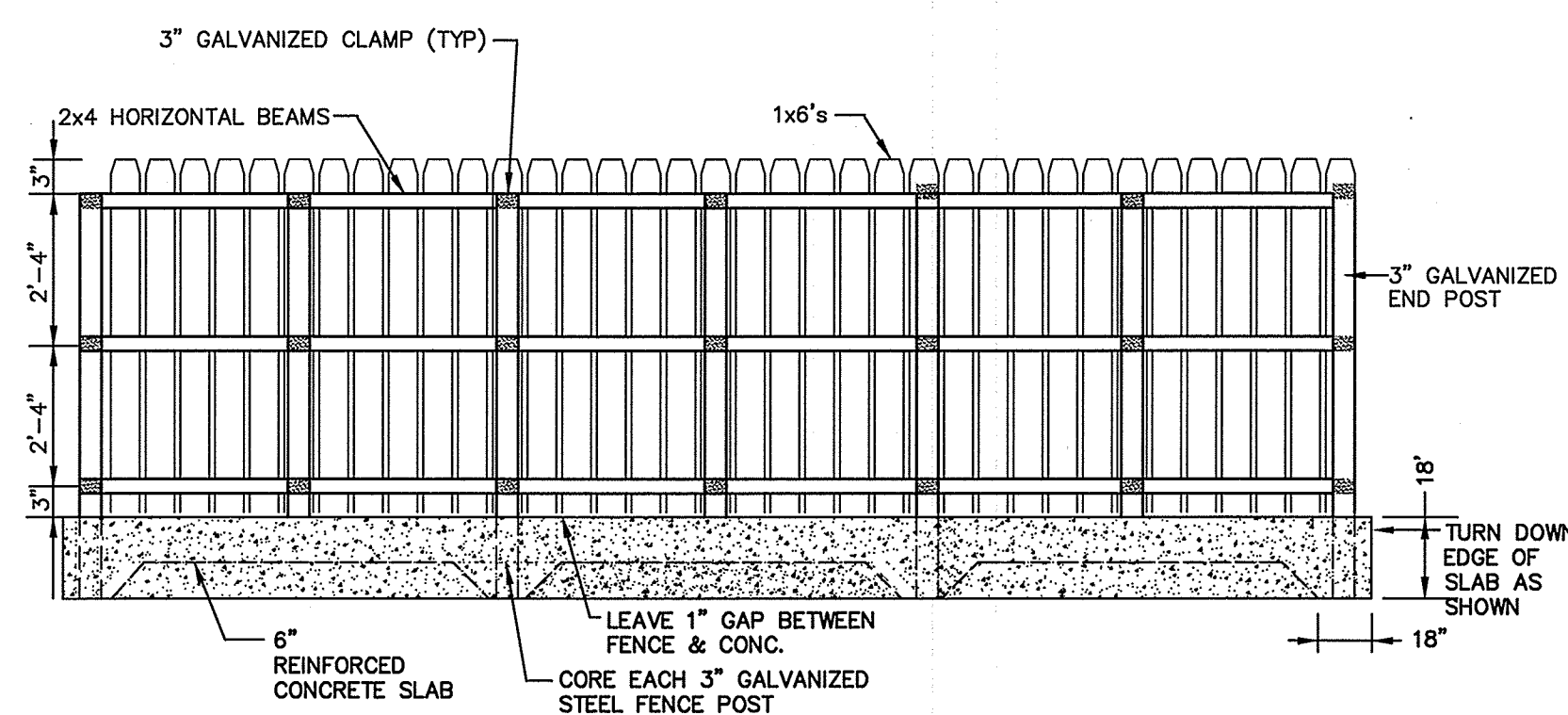
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Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 11 LATHROP LLC, 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

D2

SHEET 77 OF 120

JB PROJECT NO. 14110



FOR
EMERGENCY
USE
ONLY

12"x18" SIGN
(WHITE ON RED)
BOLTED TO POST

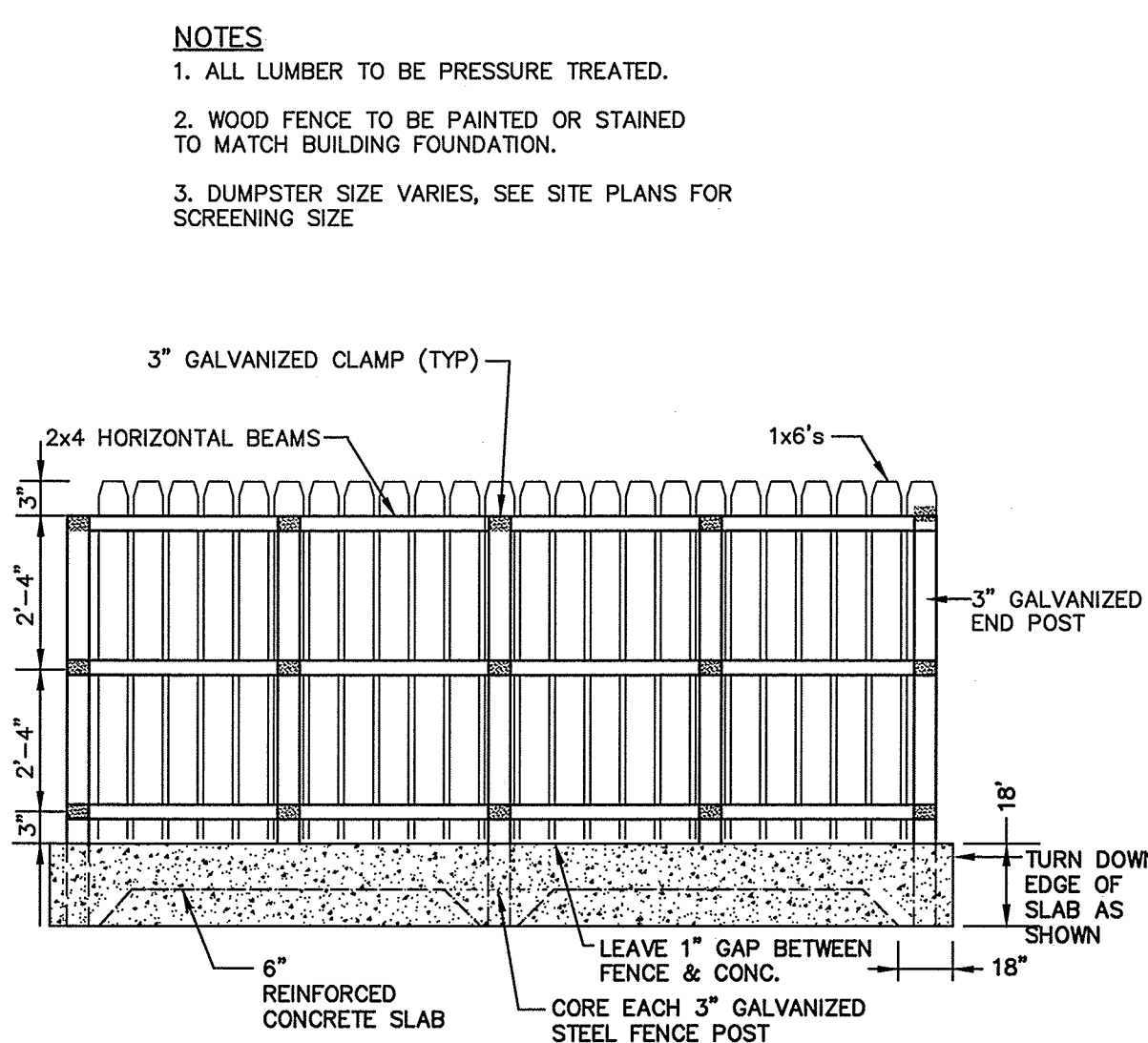
LIFE ROPE

EMERGENCY FLotation
-BUOY RING WITH LIFE ROPE
(TYP.)

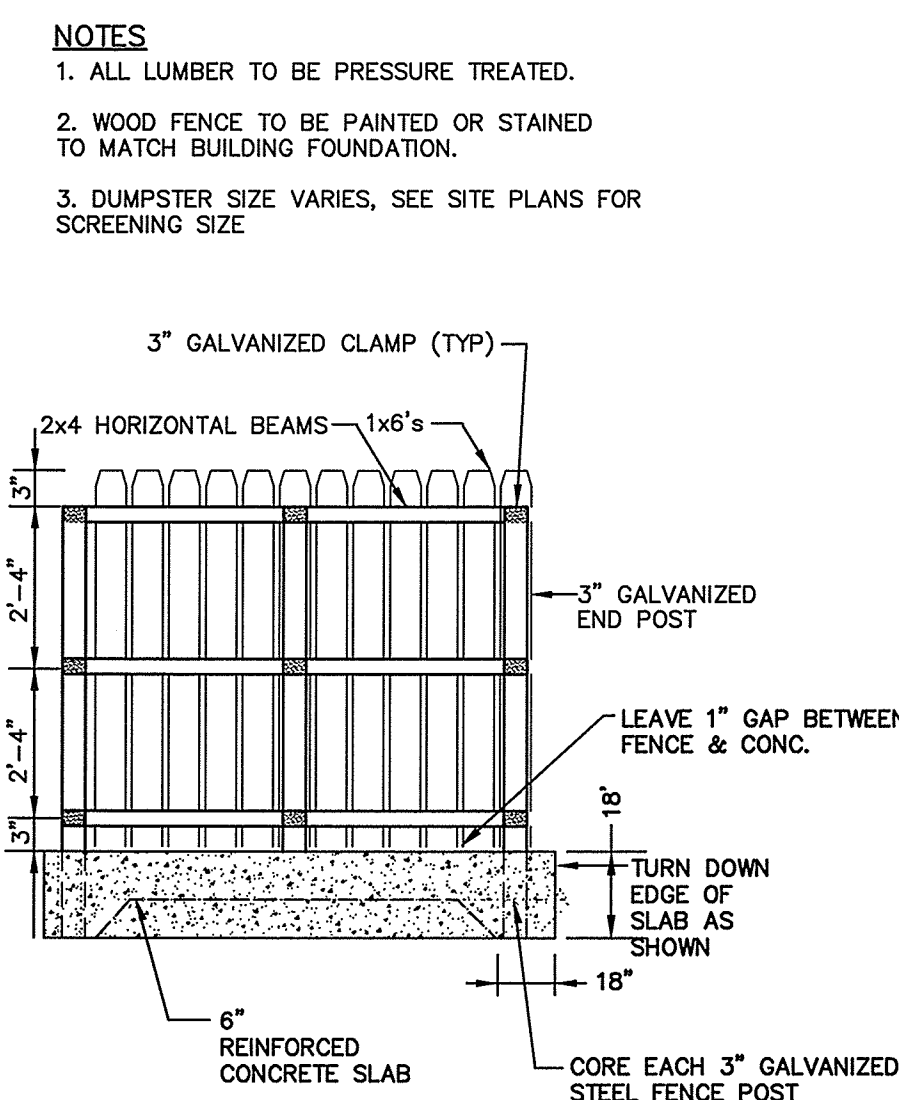
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NOT TO SCALE



NOT TO SCALE



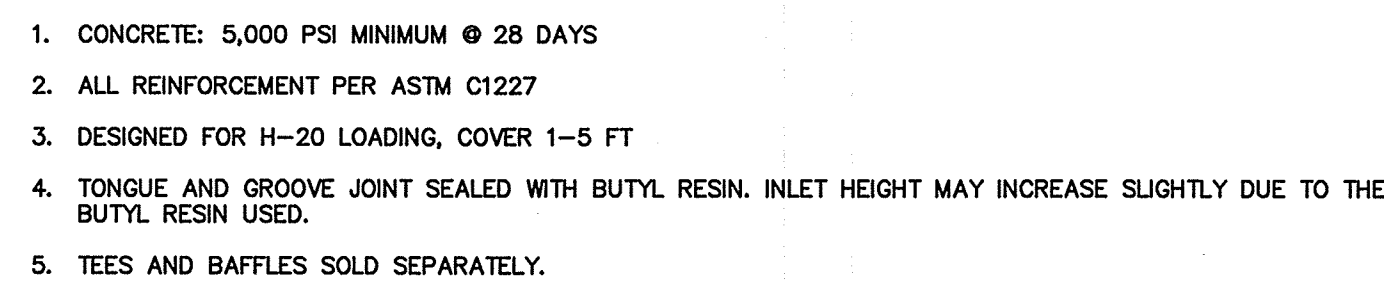
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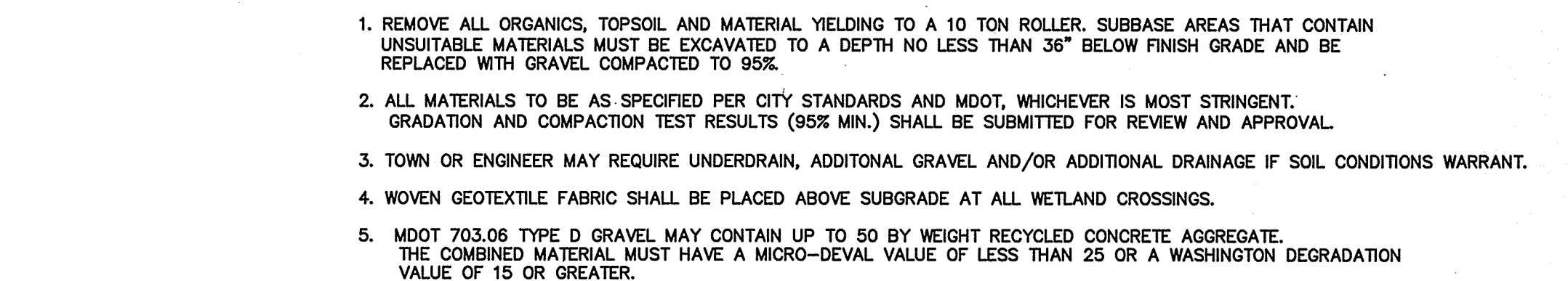
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D3

SHEET 78 OF 120
IBP PROJECT NO. 14110



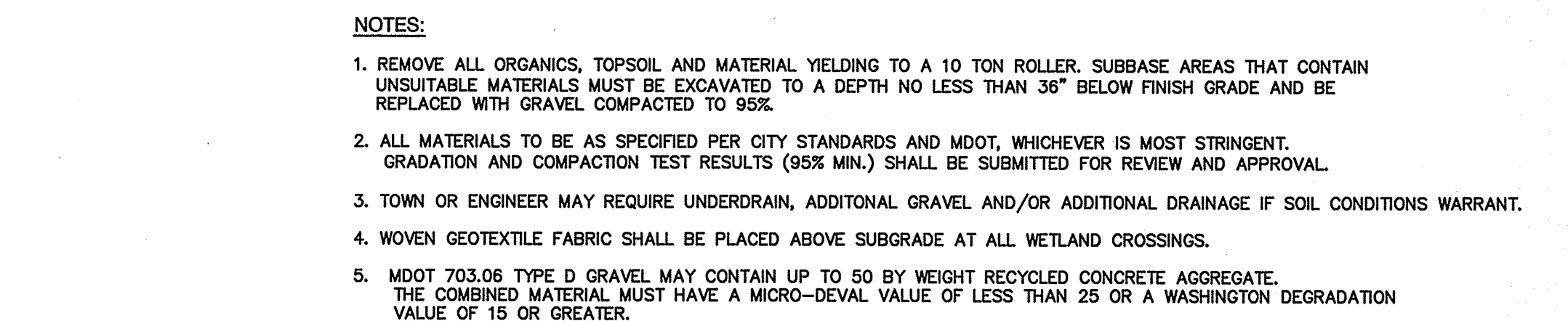
NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



FIRE DEPARTMENT ACCESS NOTE:

- ACCESS WAY OUT OF WATER TO BE COMPACTED GRAVEL CONSTRUCTION AS DETAILED BELOW.
- ACCESS WAY SECTIONS TO BE UNDER WATER SHOULD BE CONSTRUCTED USING GEOWEB (SEE DETAIL). GEOWEB TO BE FILLED WITH CRUSHED GRAVEL (MDOT 703.06 TYPE A) AND COMPACTED.



NOT TO SCALE

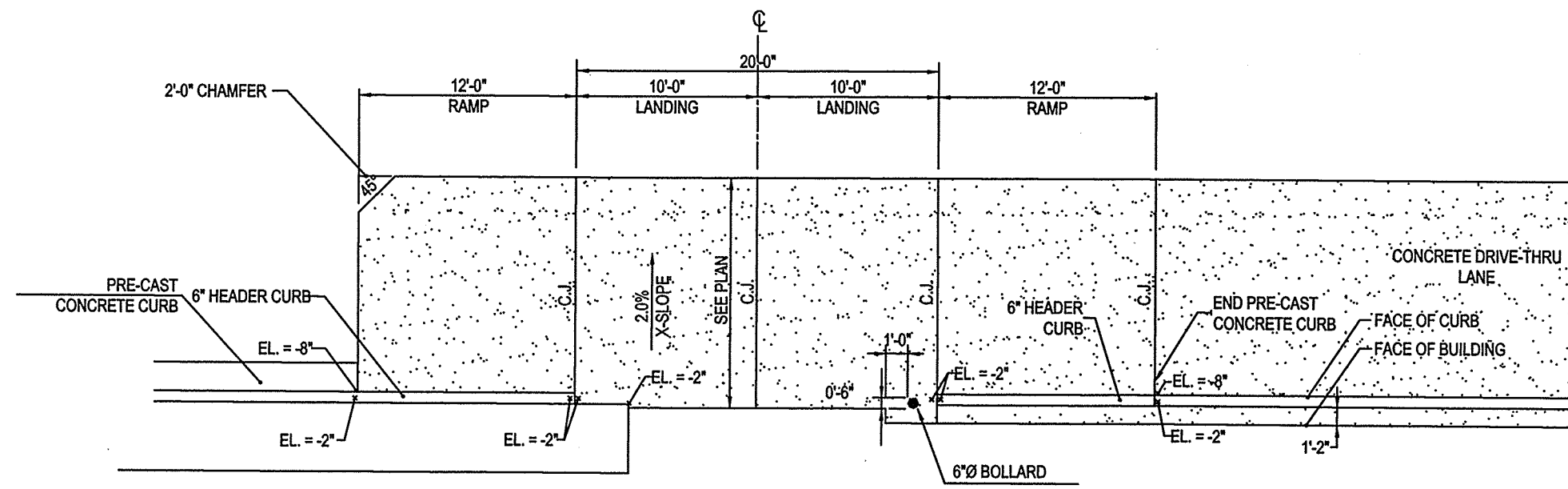

 Designed and Produced in NH
Jones & Beach Engineers, Inc.

 85 Portsmouth Ave.
 PO Box 219
 Stratham, NH 03885
Civil Engineering Services
 603-772-4746
 FAX: 603-772-0227
 E-Mail: JBE@JONESANDBEACH.COM

DRAWING No.

D4

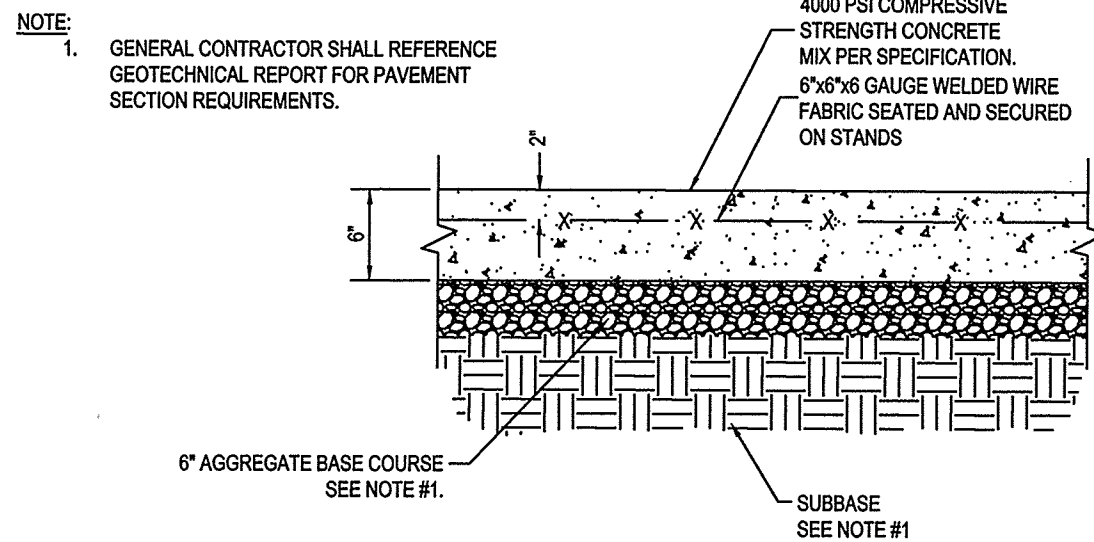
SHEET 79 OF 120
PROJECT NO. 14110



DRIVE-THRU PLAN - BUILDING "B"

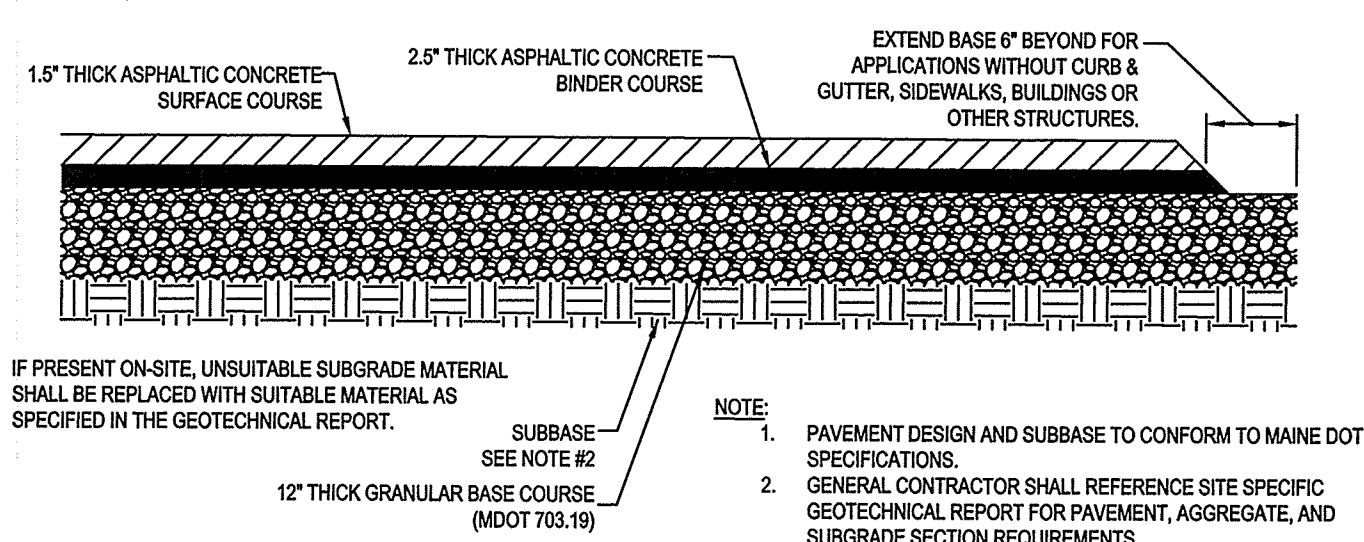
NOTE: ALL ELEVATIONS ON THIS DETAIL ARE RELATIVE TO FFE = 0'

NOT TO SCALE



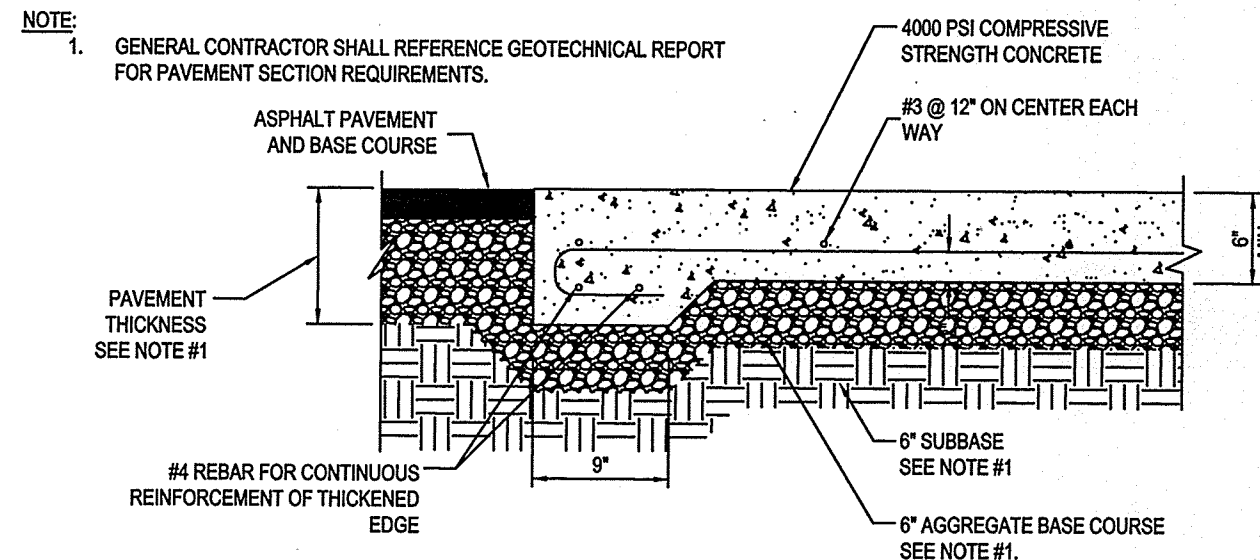
CONCRETE PAVING DRIVE-THRU LANE - BUILDING "B"

NOT TO SCALE



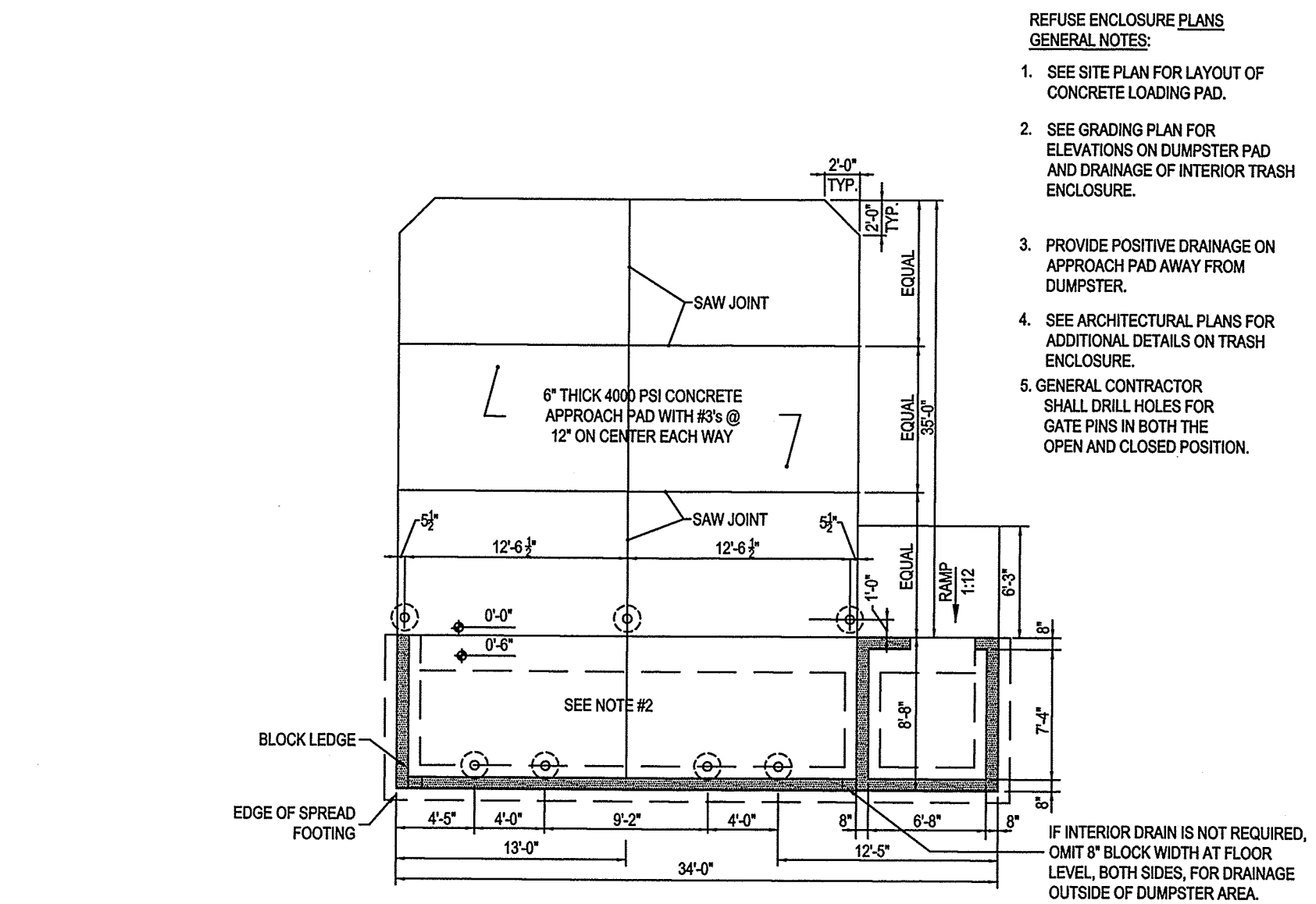
TYPICAL PAVEMENT SECTION - BUILDING "B"

NOT TO SCALE



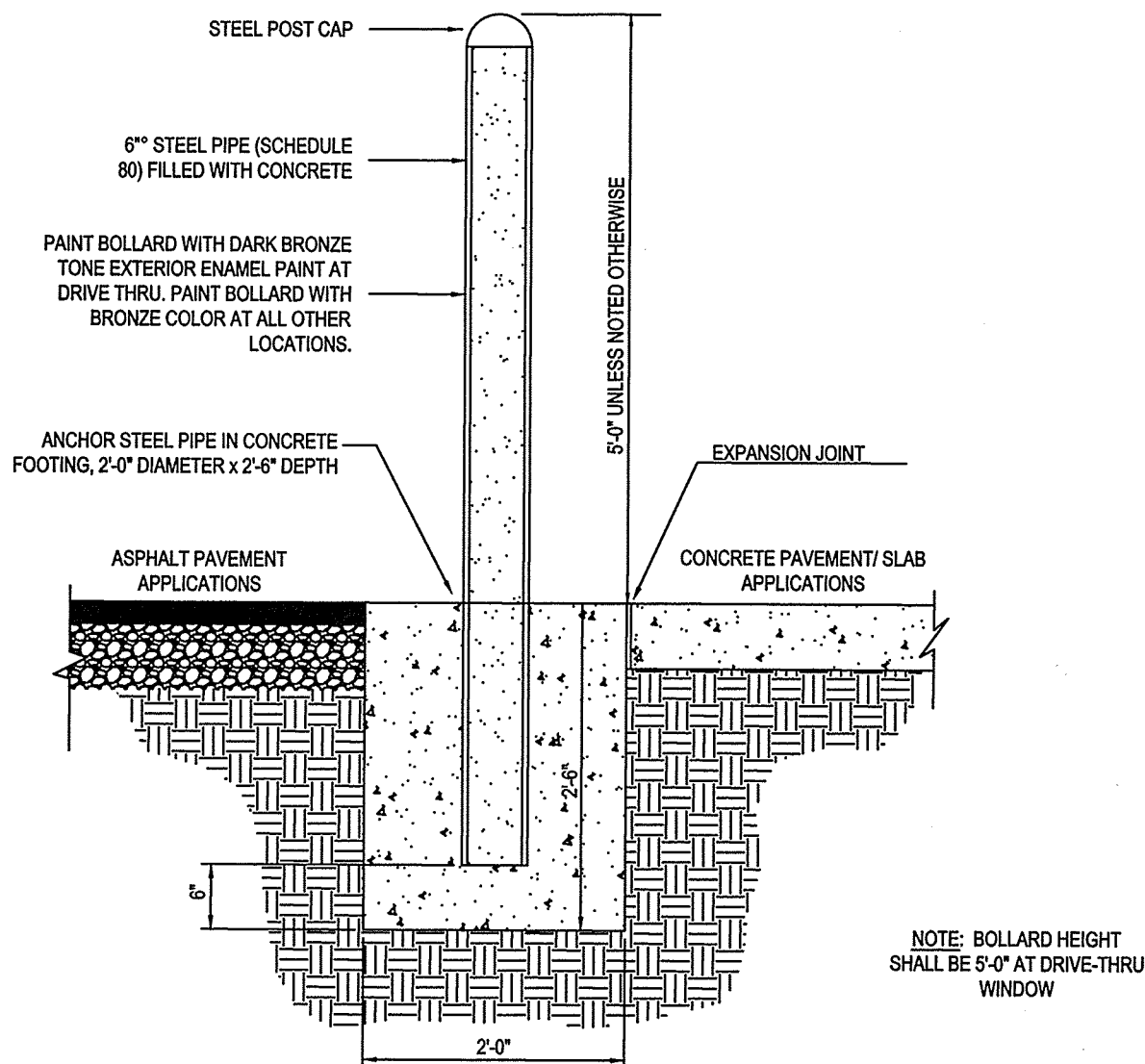
CONCRETE APRON @ TRASH ENCLOSURE- BUILDING "B"

NOT TO SCALE



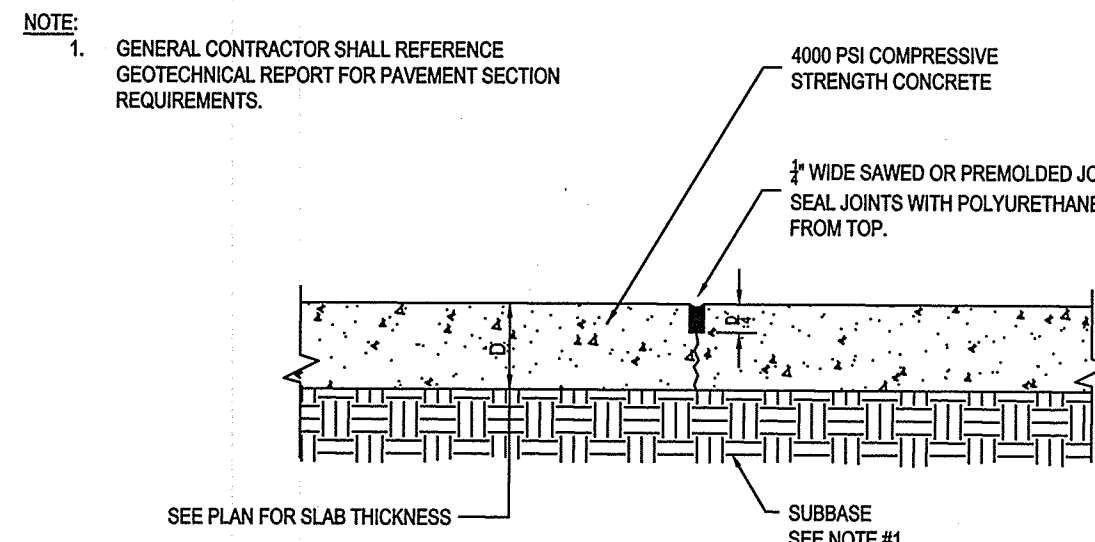
REFUSE ENCLOSURE FOUNDATION PLAN - BUILDING "B"

NOT TO SCALE



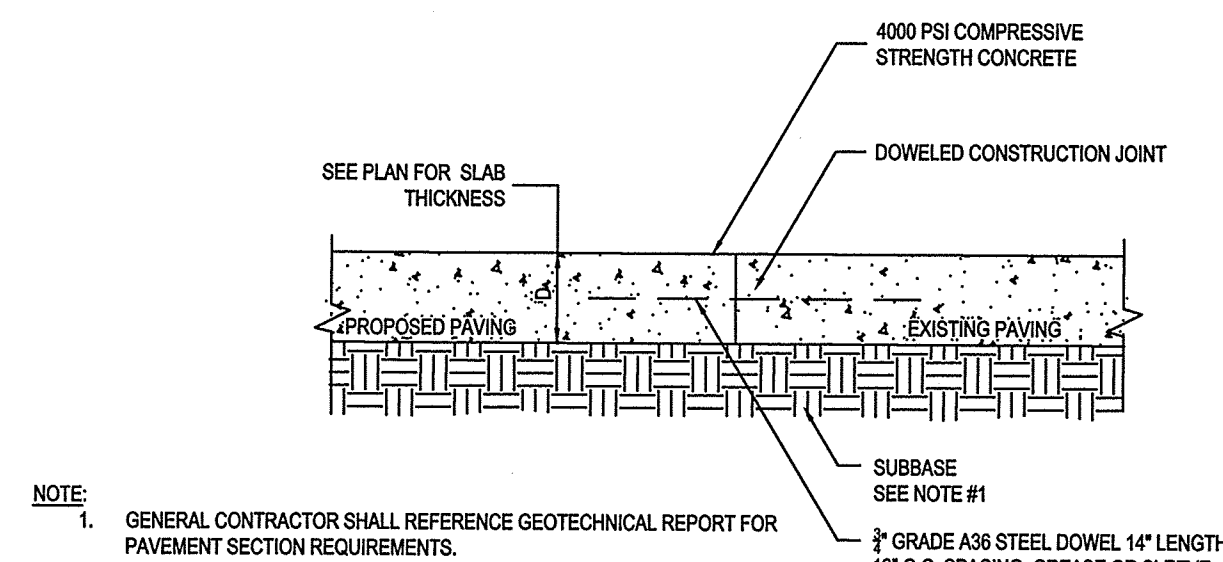
PICK UP WINDOW BOLLARD - BUILDING "B"

NOT TO SCALE



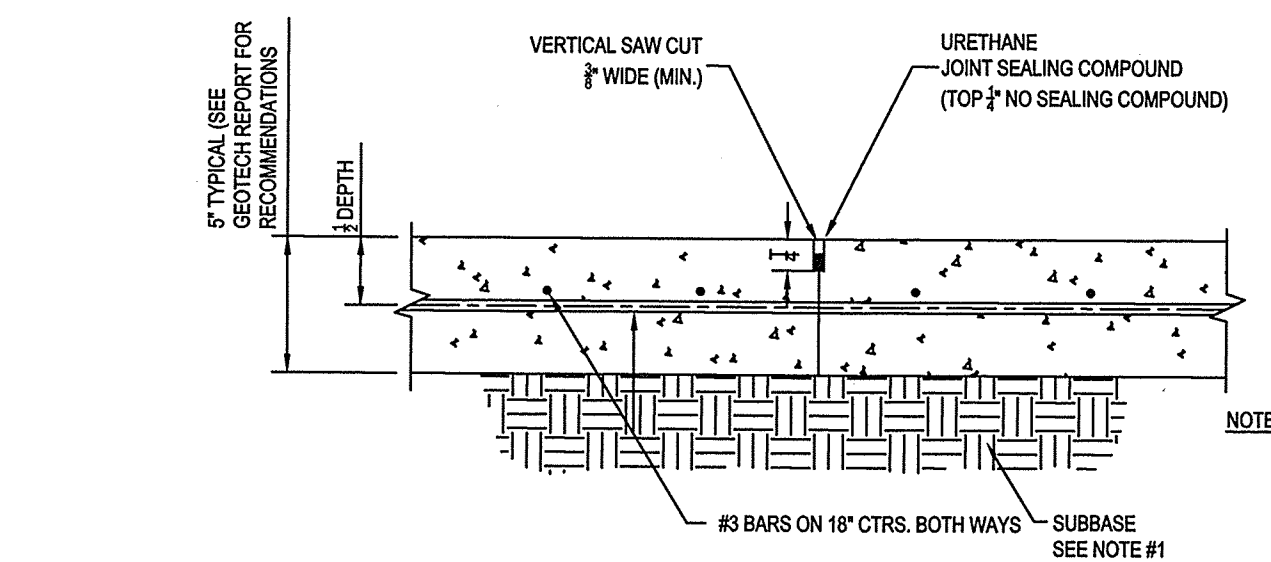
TRANSVERSE AND LONGITUDINAL CONTRACTION JOINT - BUILDING "B"

NOT TO SCALE



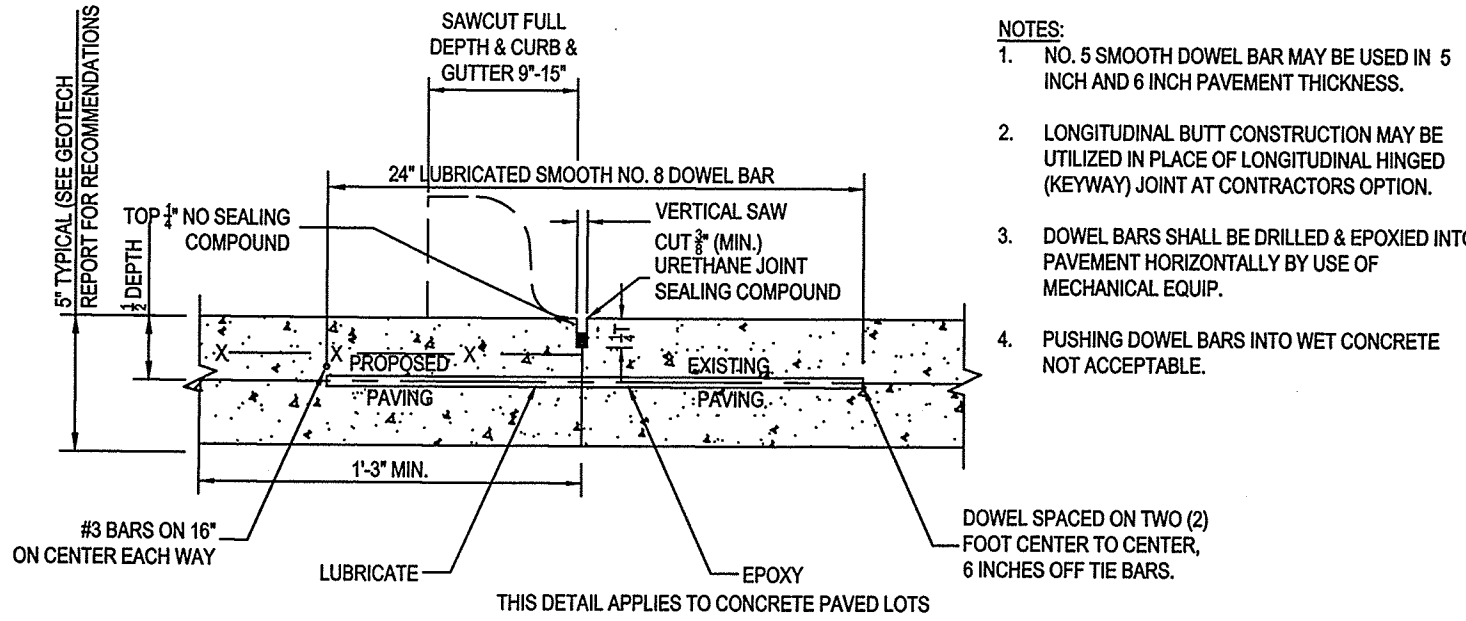
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NOT TO SCALE



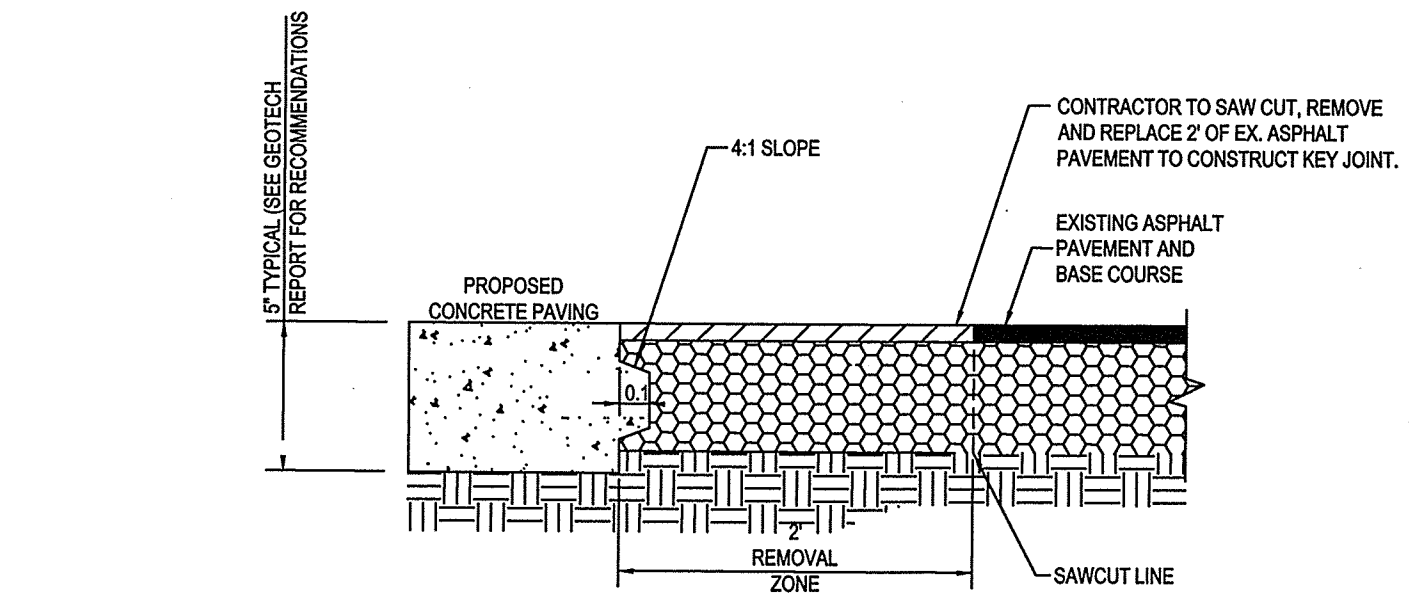
CONTRACTION JOINT - BUILDING "B"

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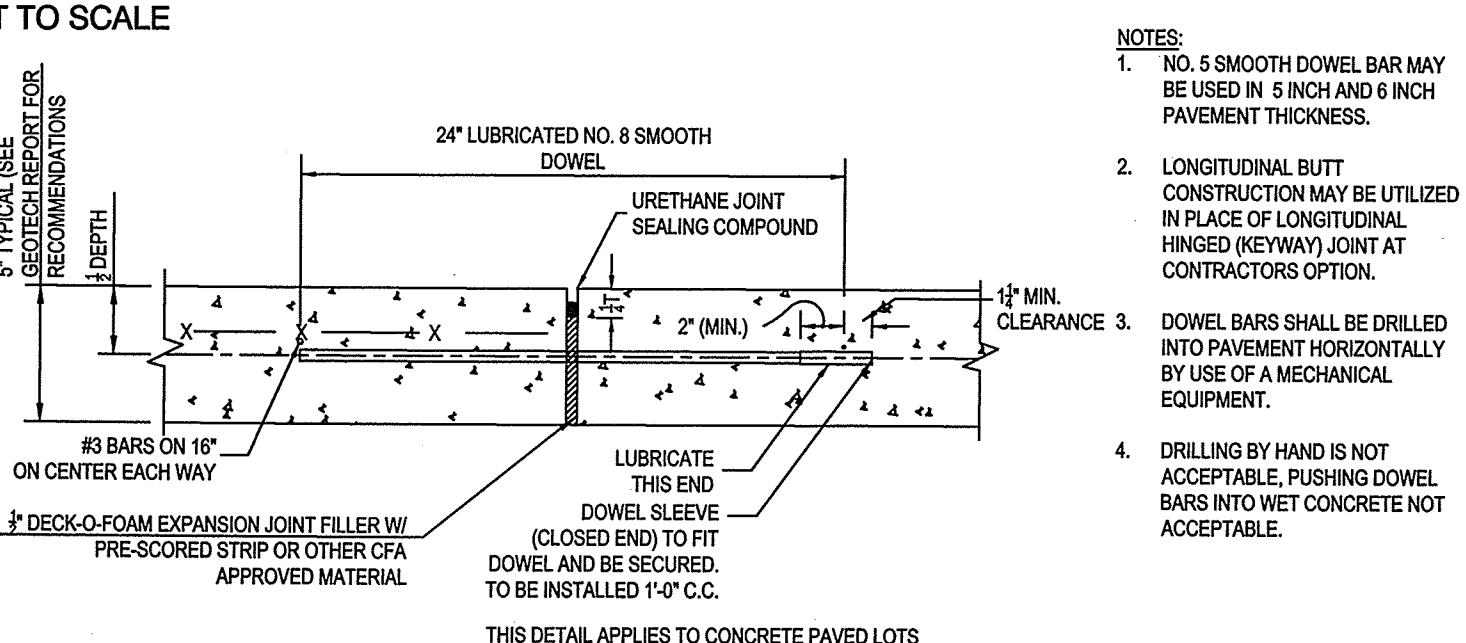
LONGITUDINAL BUTT JOINT- BUILDING "B"

NOT TO SCALE



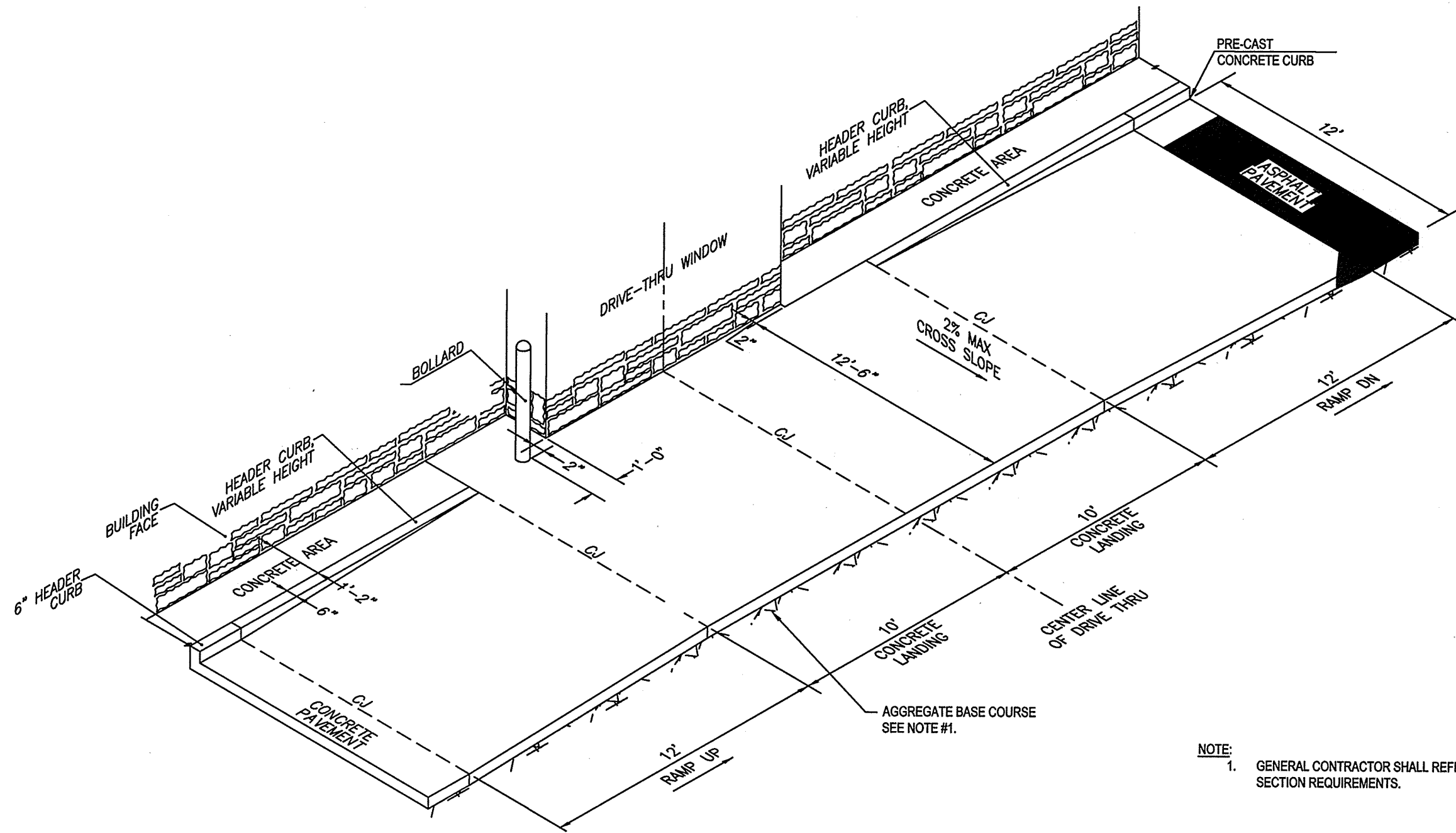
KEYED CONSTRUCTION JOINT- BUILDING "B"

NOT TO SCALE



EXPANSION JOINT- BUILDING "B"

NOT TO SCALE



DRIVE-THRU ISOMETRIC- BUILDING "B"

NOT TO SCALE

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Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
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4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

Designed and Produced in NH

J/B

Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

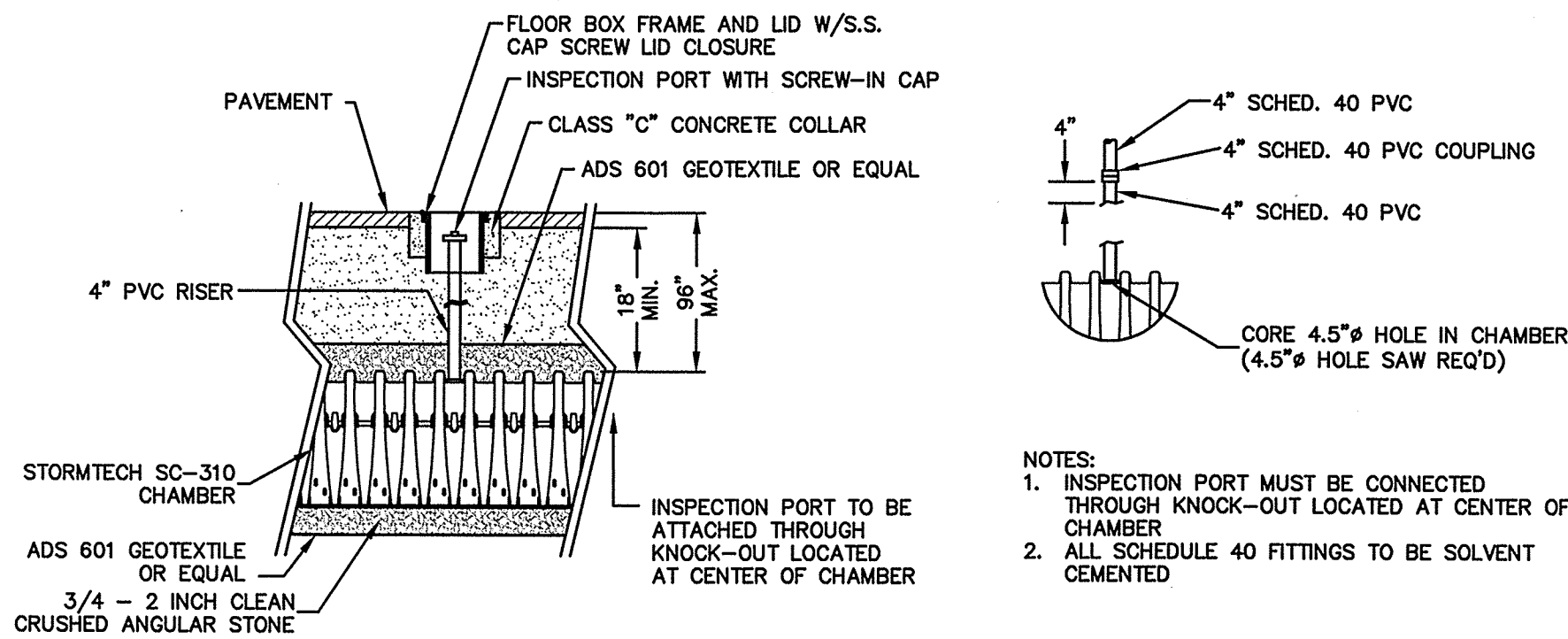
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	BUILDING "B" DETAIL SHEET
Project:	80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

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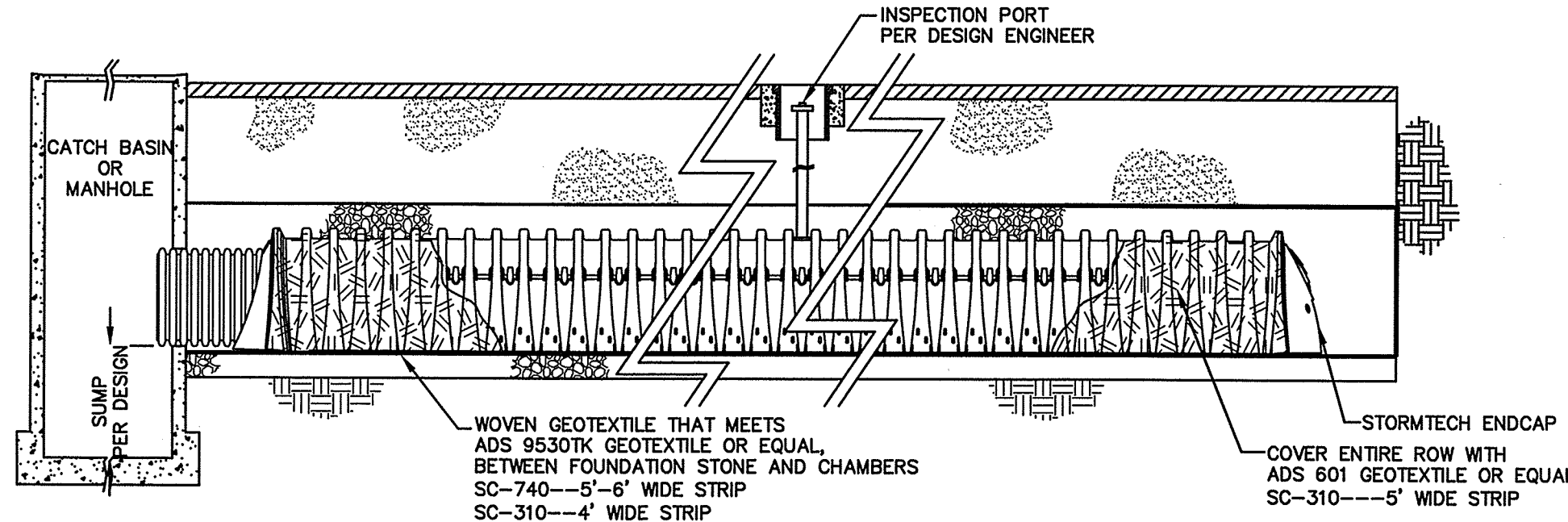
D6

SHEET 81 OF 120
JBE PROJECT NO. 14110



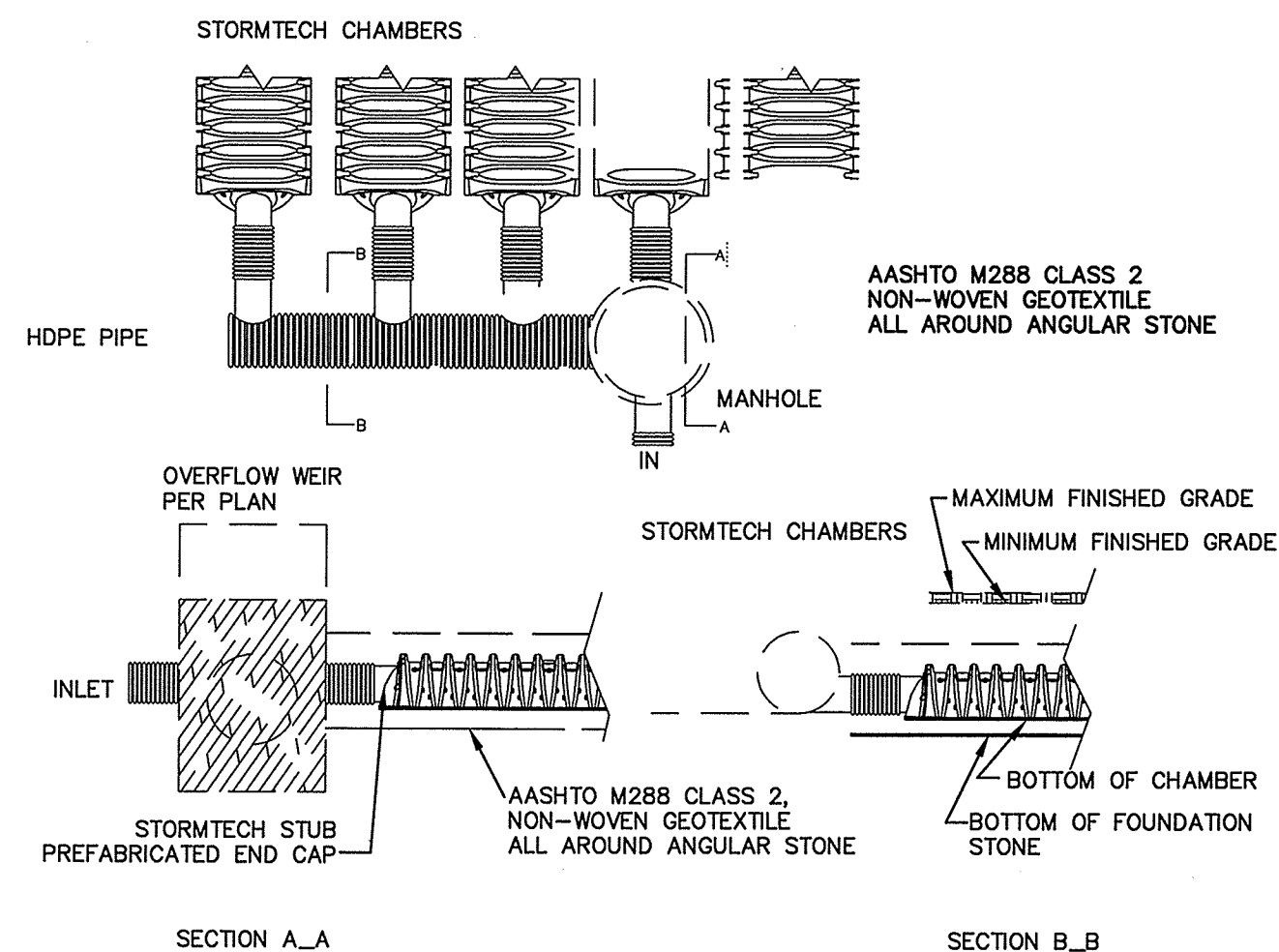
STORMTECH INSPECTION PORT TYPICAL DETAIL

NOT TO SCALE



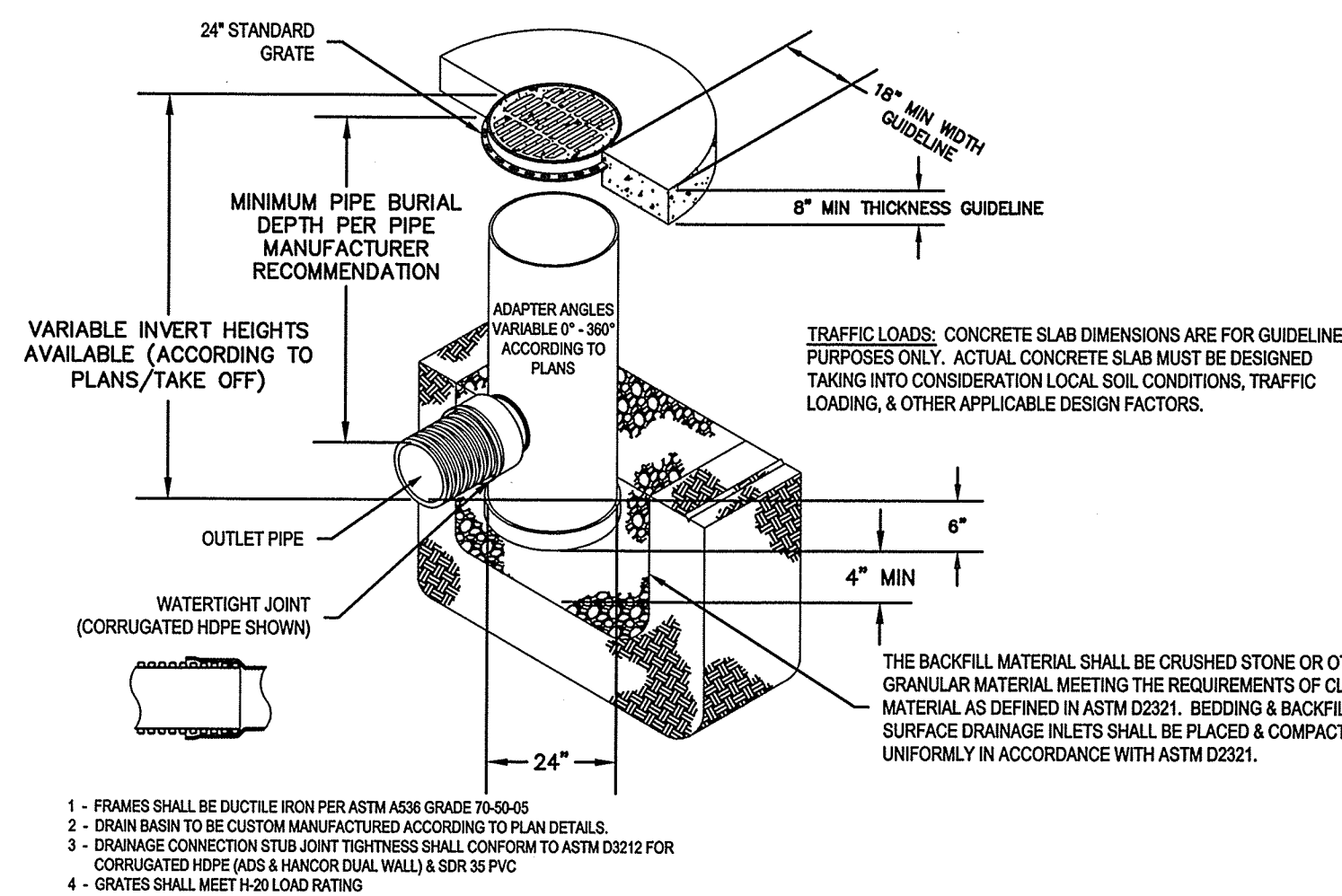
STORMTECH ISOLATOR ROW TYPICAL DETAIL

NOT TO SCALE



STORMTECH DETAIL FOR CHAMBERS

NOT TO SCALE



NYLOPLAST DRAIN BASIN

NOT TO SCALE

ACCEPTABLE FILL MATERIALS
STORMTECH SC-310 AND SC-740 CHAMBER SYSTEMS

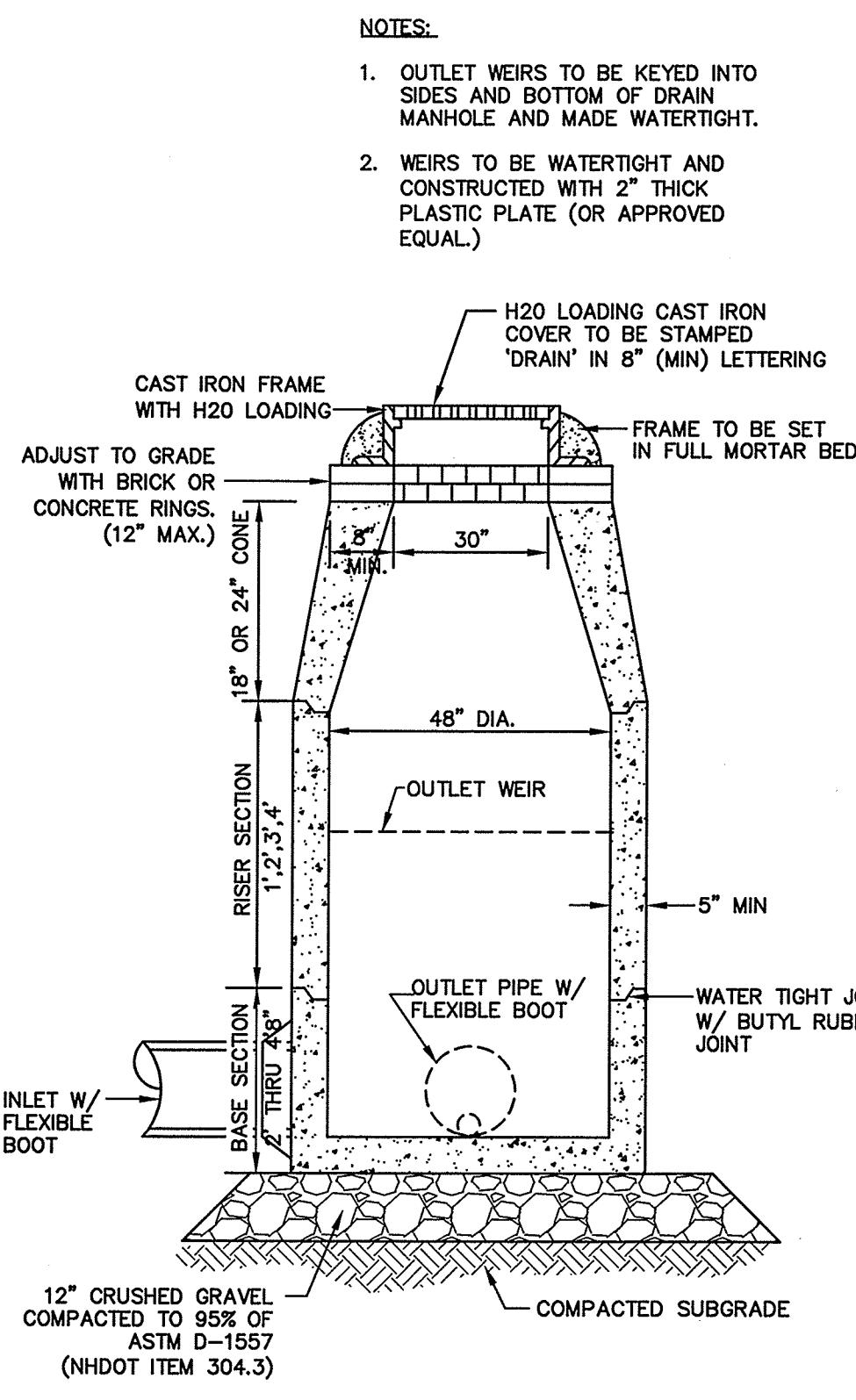
MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
(D) PAVEMENT SUBGRADE, DEPTH(S) PER SPECIFICATIONS	PAVEMENT SUBGRADE, MATERIALS PER SPECIFICATIONS	N/A	N/A	PREPARE PER SPECIFICATIONS AND PLANS. PAVED INSTALLATIONS HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
(C) FILL MATERIAL FROM 6" ABOVE CHAMBERS TO BOTTOM OF PAVEMENT SUBGRADE	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	A-1, A-2, A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
(B) EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 1/2 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
(A) 6" FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 1/2 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS WASHED, CRUSHED, ANGULAR NO. 4 STONE.

CHAMBER SYSTEM #1 ELEVATIONS (SC-740)	CHAMBER SYSTEM #2 ELEVATIONS (SC-740)	CHAMBER SYSTEM #3 ELEVATIONS (SC-310)	CHAMBER SYSTEM #4 ELEVATIONS (SC-310)	CHAMBER SYSTEM #5 ELEVATIONS (SC-310)	CHAMBER SYSTEM #6 ELEVATIONS (SC-740)	CHAMBER SYSTEM #7 ELEVATIONS (SC-740)	CHAMBER SYSTEM #8 ELEVATIONS (SC-310)	CHAMBER SYSTEM #9 ELEVATIONS (SC-310)	CHAMBER SYSTEM #10 ELEVATIONS (SC-310)
66.75	65.95	80.73	73.03	62.50	65.75	65.00	71.73	72.33	65.83
65.75	64.95	79.73	72.03	61.50	64.75	64.00	70.73	71.33	64.83
65.25	64.45	79.23	71.53	61.00	64.25	63.50	70.23	70.83	64.33
62.75	61.95	77.90	70.20	58.50	61.75	61.00	68.90	69.50	63.00
62.25	61.45	77.40	69.70	58.00	61.25	60.50	68.40	69.00	62.50

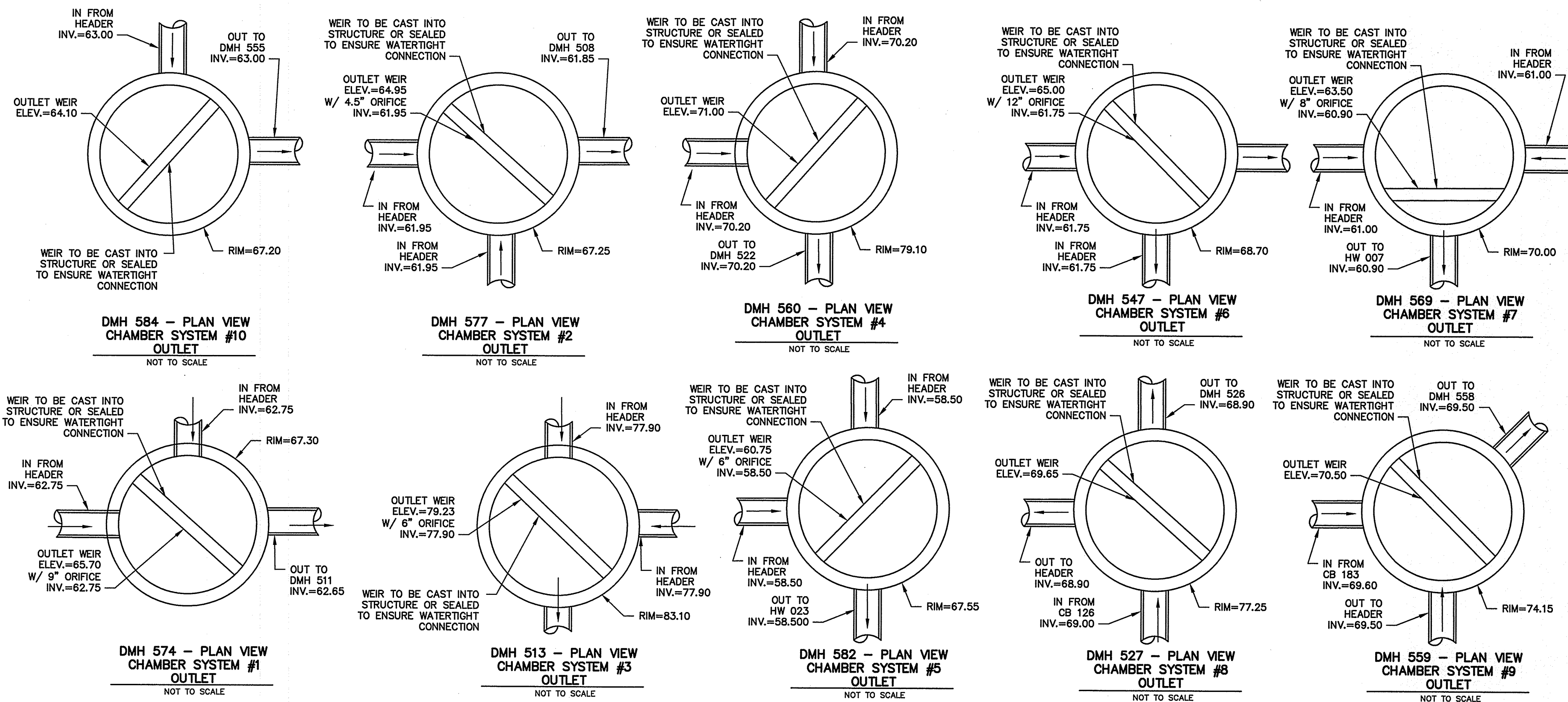
STORMTECH CHAMBER DETAIL

NOT TO SCALE



DRAIN MANHOLE WITH OUTLET WEIR

NOT TO SCALE



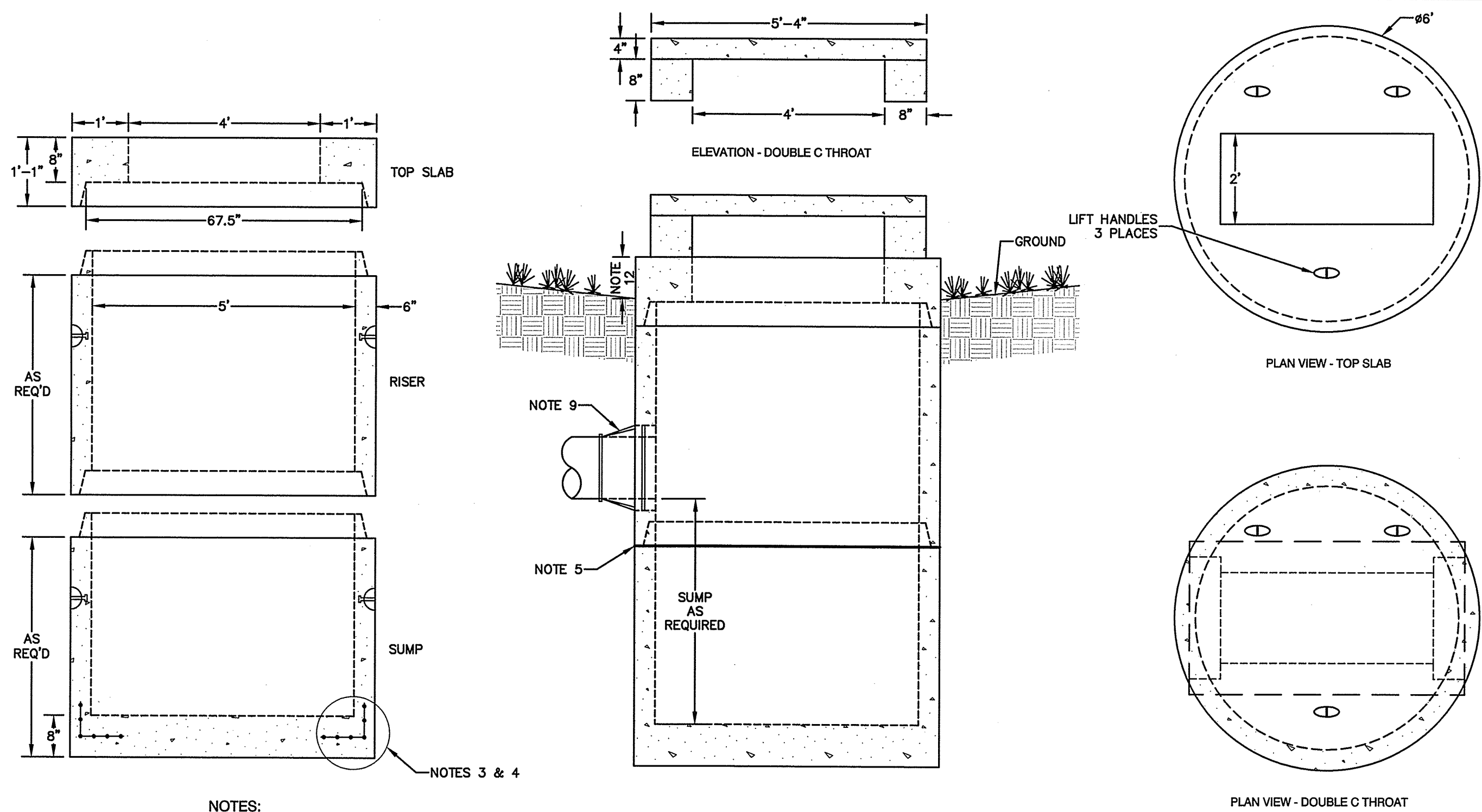
STORMTECH GENERAL NOTES

- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- STORMTECH OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICE DEPARTMENT OR LOCAL STORMTECH REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 800-529-8188 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
- STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 24 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 6.5 FEET INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 6.5 FEET.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE.
- THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
- THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
- STORMTECH PRODUCT WARRANTY IS LIMITED. CONTACT STORMTECH FOR WARRANTY INFORMATION.

DRAWING No.

D9

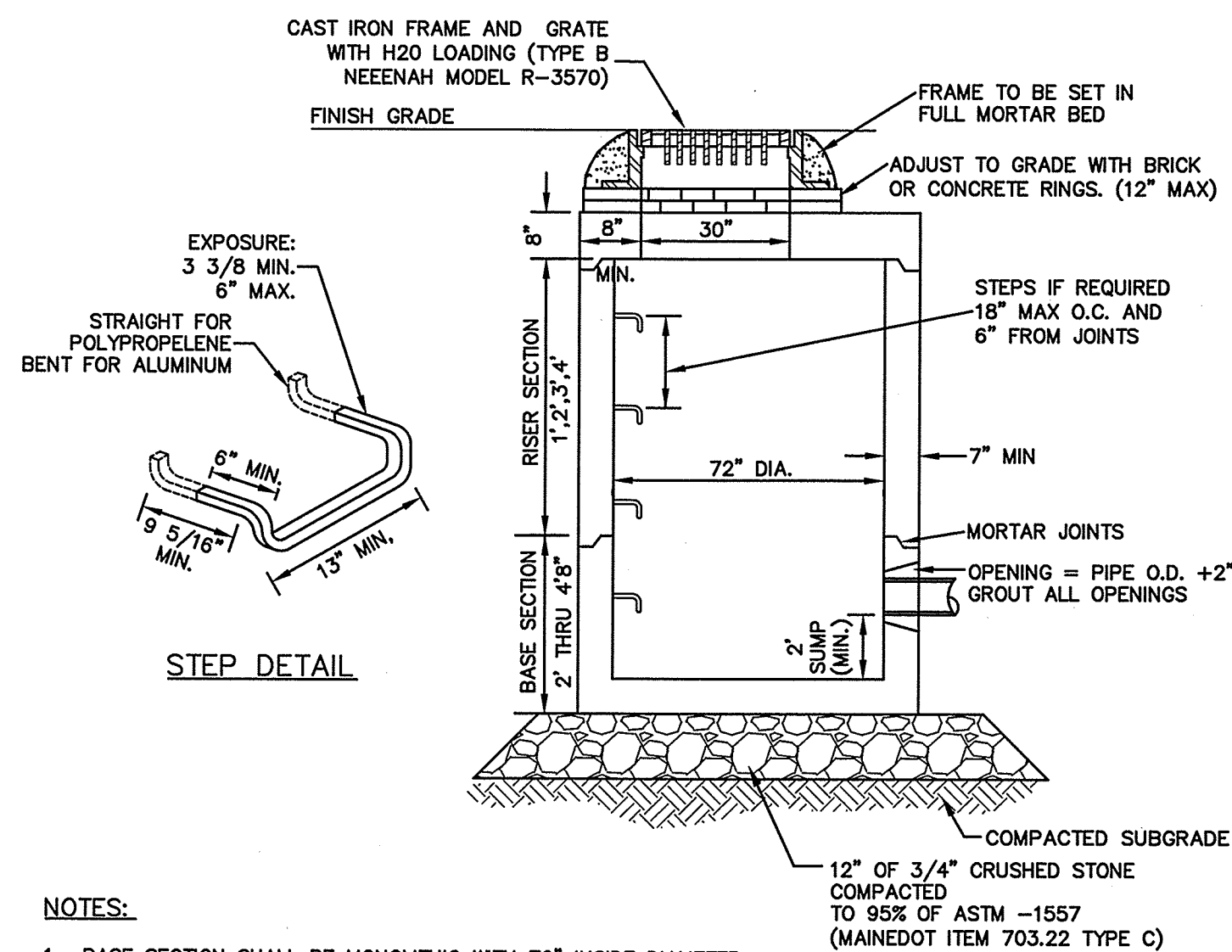
SHEET 84 OF 120
JBE PROJECT NO. 14110



- NOTES:**
1. CONCRETE: $f_c = 4,000$ PSI @ 28 DAYS MINIMUM, TYPE III CEMENT
 2. HS-20 DESIGN LOADING CONFORMS TO THE LATEST SPECIFICATIONS ASTM C478, AASHTO M199 PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
 3. ONE POUR MONOLITHIC BASE SECTION
 4. STEEL REINFORCEMENT CONFORMS TO LATEST ASTM SPECIFICATION: ASTM A-615, GRADE 60 BLACK DEFORMED BARS; ASTM A-185 WELDED WIRE FABRIC, 0.15 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM
 5. BUTYL RUBBER JOINT SEALANT PROVIDED CONFORMS TO ASTM C-990 AND FEDERAL SPEC SS-S-210A
 6. 147 GALLONS/VF
 7. HOLES & ELEVATION TBD
 8. SECTIONS AVAILABLE IN INCREMENTS OF 6"
 9. BOOTED PIPE CONNECTIONS (IF USED) CONFORM TO ASTM C-923. MAXIMUM BOOTED CONNECTION PIPE SIZE IS 30"
 10. MAXIMUM PIPE O.D. IS 44" (36" ROP)
 11. PLASTIC MANHOLE STEPS (IF REQUIRED) ARE STEEL REINFORCED CONFORMING TO ASTM C-478
 12. SEE TABLE FOR ELEVATION OF TOP SLAB IN RELATION TO FINISH GROUND

5' DIAMETER CATCH BASIN w/ DOUBLE C-THROAT

NOT TO SCALE

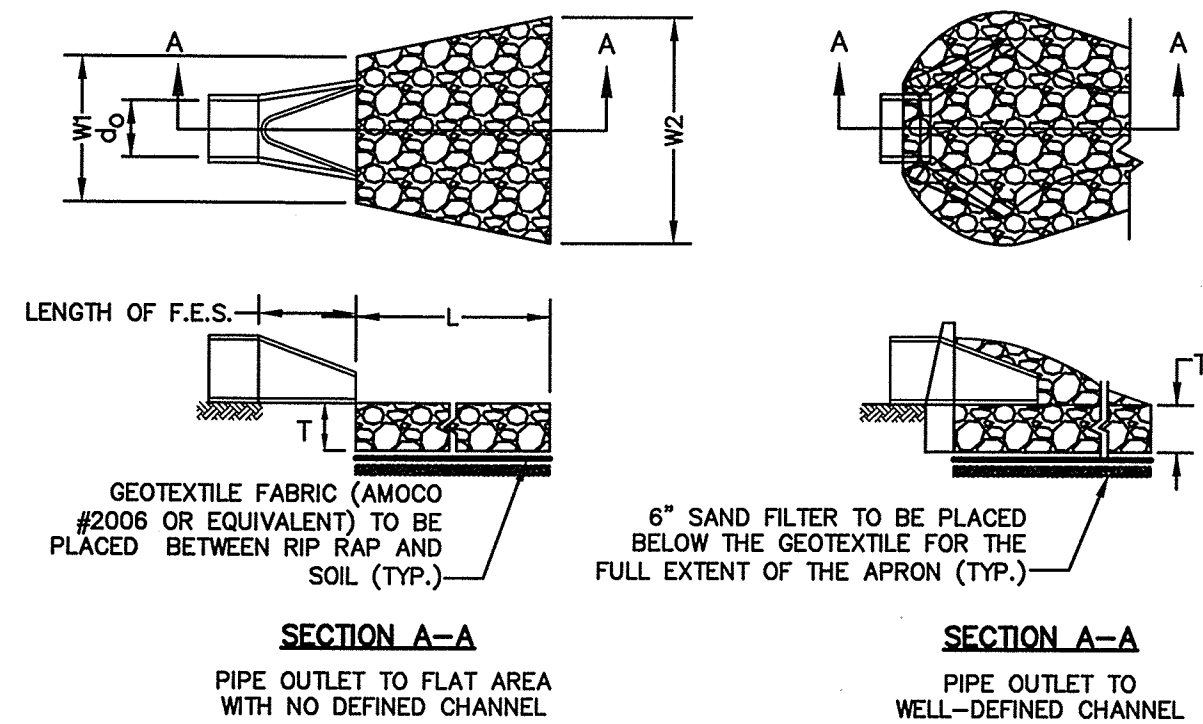


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 72" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H2O LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H2O LOADING
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.
9. CATCH BASINS IN EXCESS OF 8' IN DEPTH SHALL BE PROVIDED WITH STEPS SIMILAR TO THOSE DETAILED.

CATCH BASIN WITH GREASE HOOD (6' DIAM.)

NOT TO SCALE

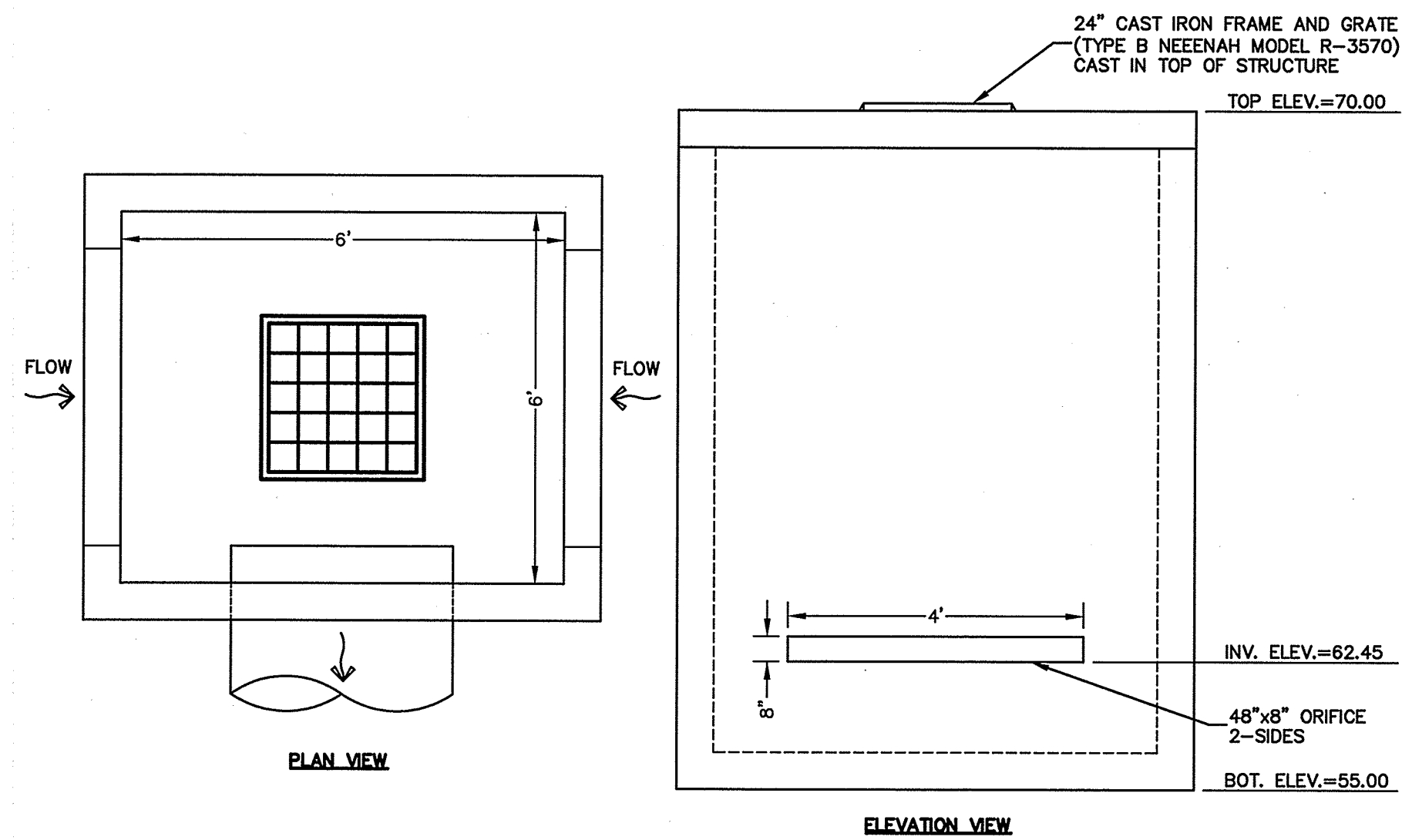


NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL. BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

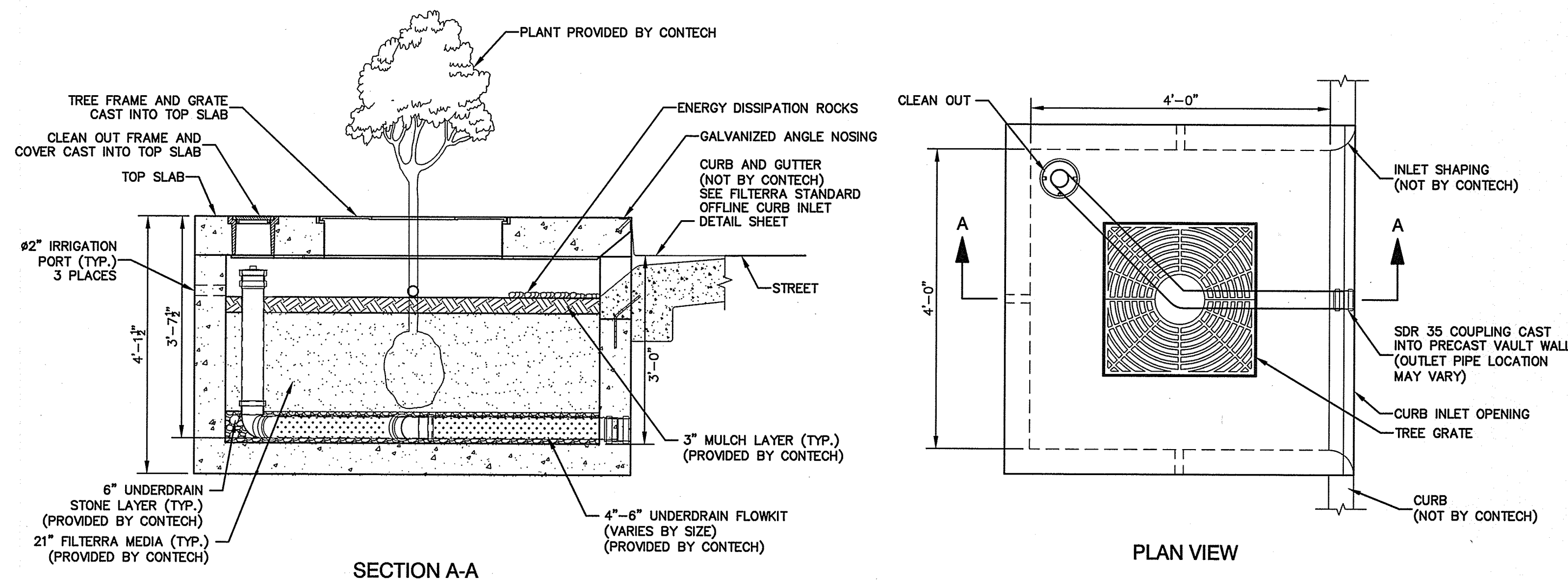
RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE



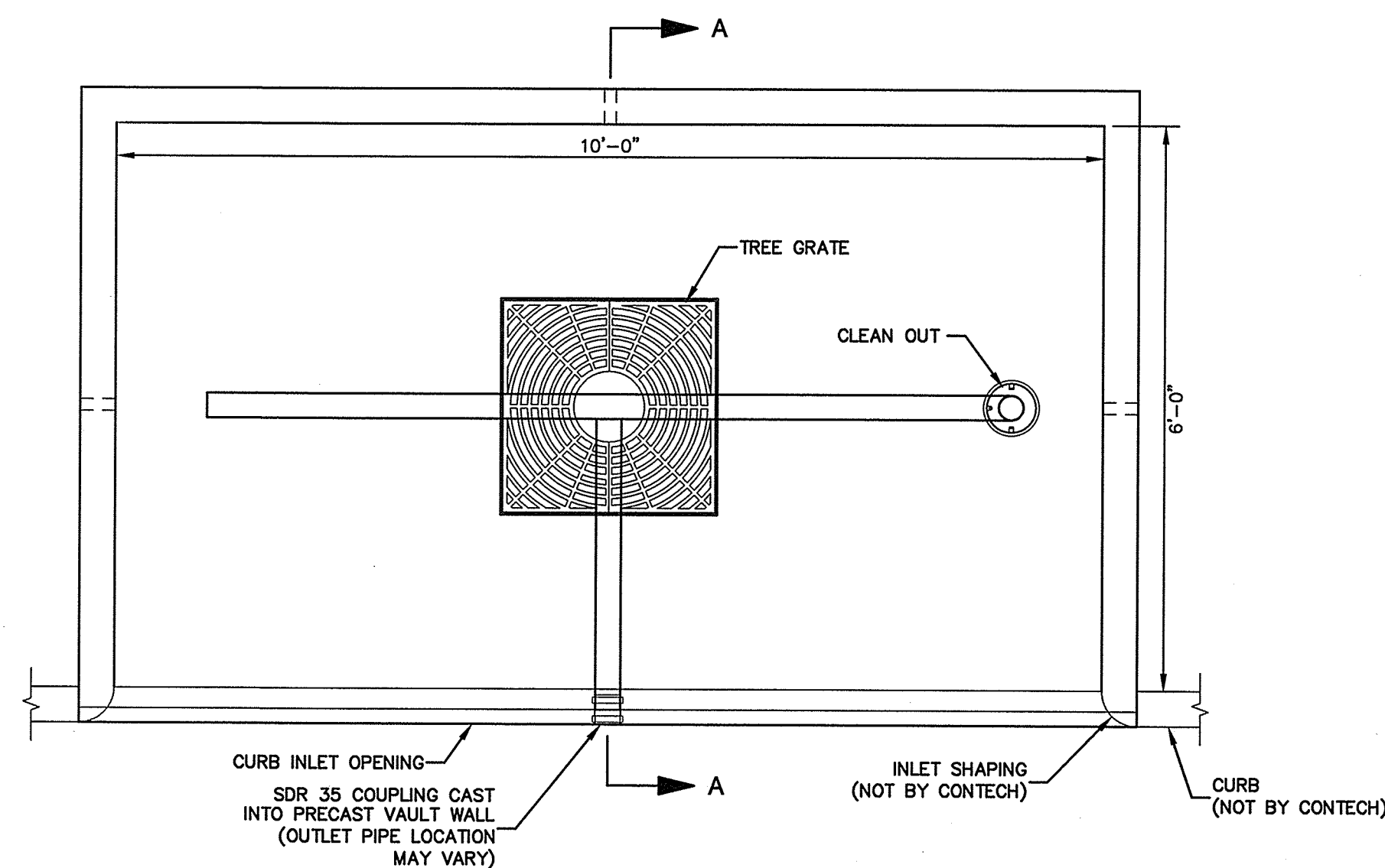
POND OUTLET STRUCTURE DETAIL (CB 250)

NOT TO SCALE



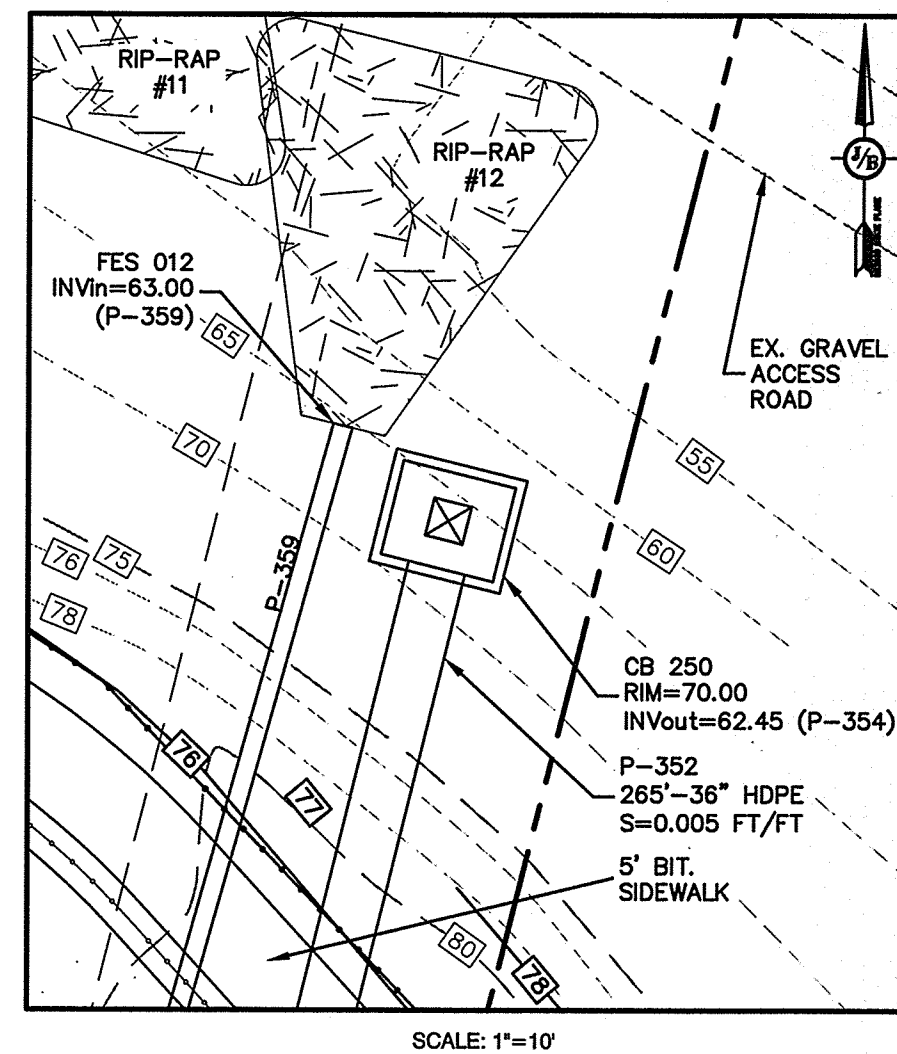
4' x 4' TREEWELL FILTER DETAIL (FILTERRA BIORETENTION SYSTEM)

NOT TO SCALE



10' x 6' TREEWELL FILTER DETAIL (FILTERRA BIORETENTION SYSTEM)

NOT TO SCALE



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Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

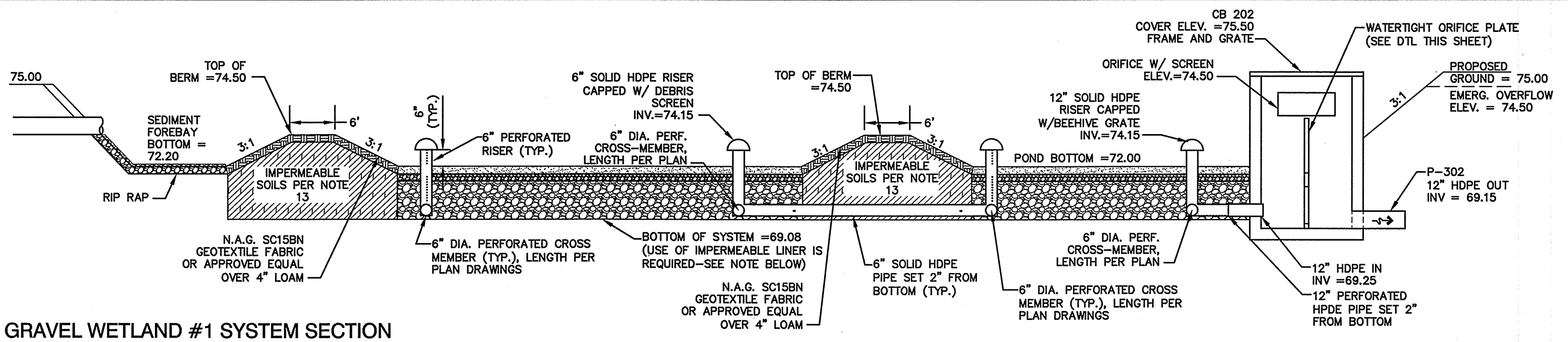
85 Portsmouth Ave.
P.O. Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

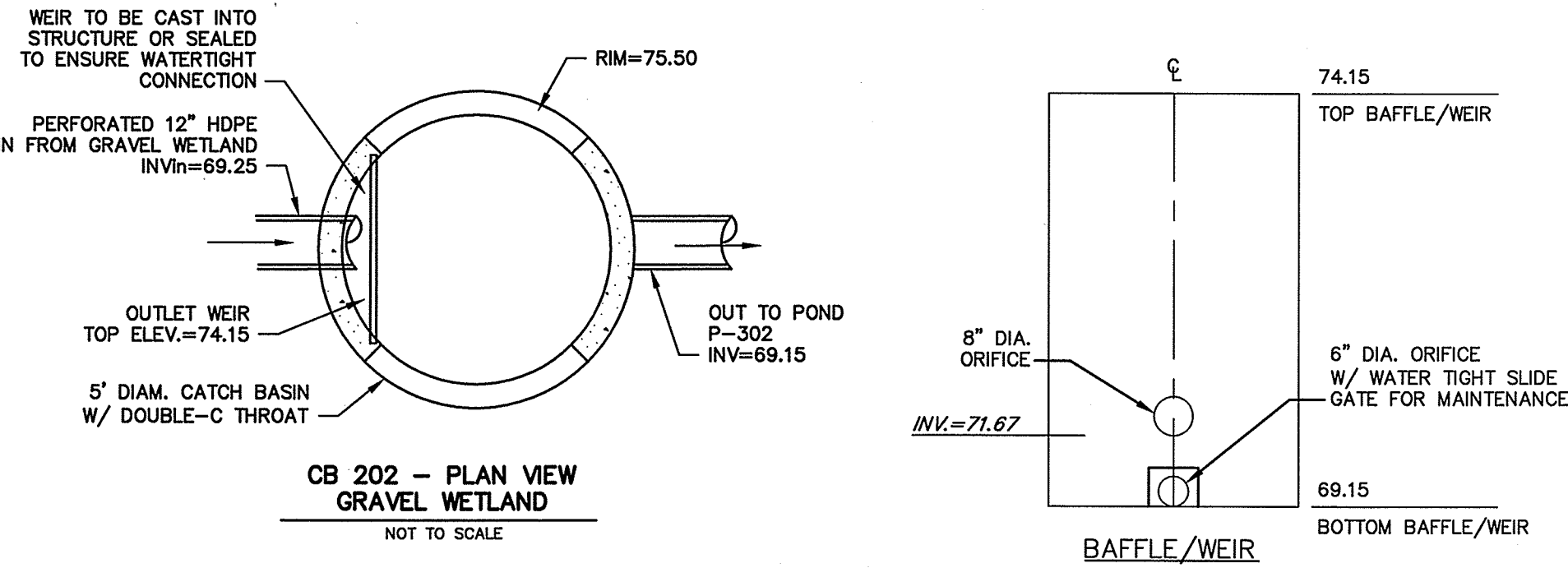
Plan Name:	DRAINAGE DETAIL SHEET
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.	D10
SHEET 85 OF 120	JBE PROJECT NO. 14110



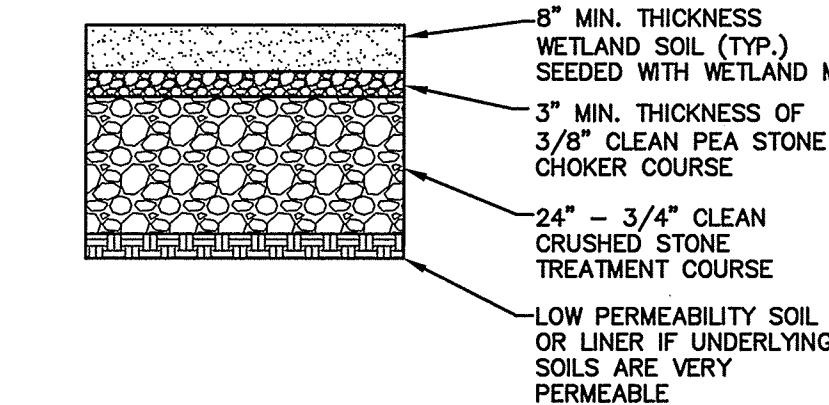
GRAVEL WETLAND #1 SYSTEM SECTION

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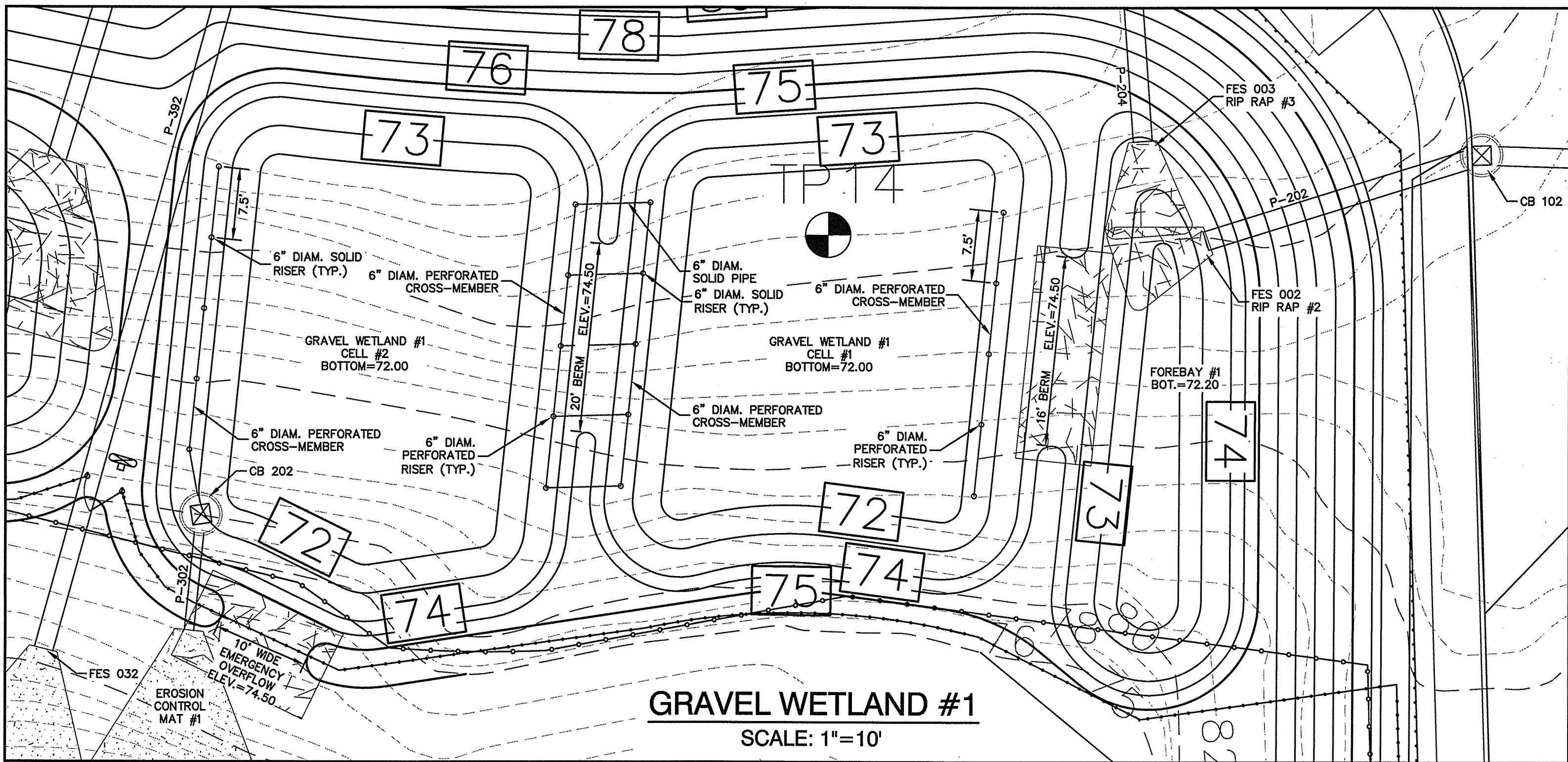
GRAVEL WETLAND SYSTEM #1 - INLET/OUTLET DETAILS

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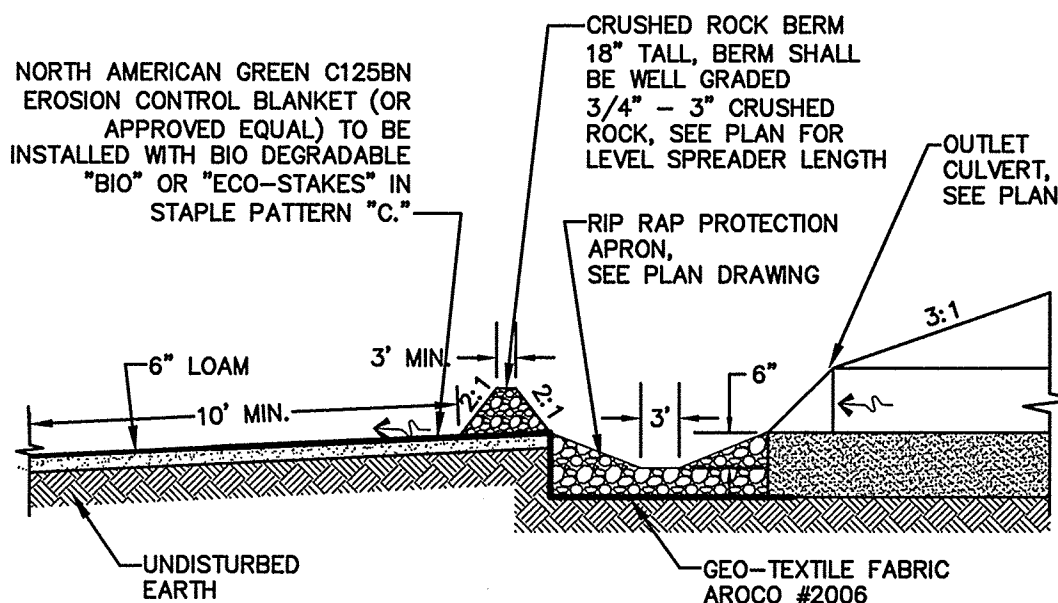
GRAVEL WETLAND POND
BOTTOM CROSS SECTION (FIG-2)

NOT TO SCALE



GRAVEL WETLAND #1

SCALE: 1"=10'



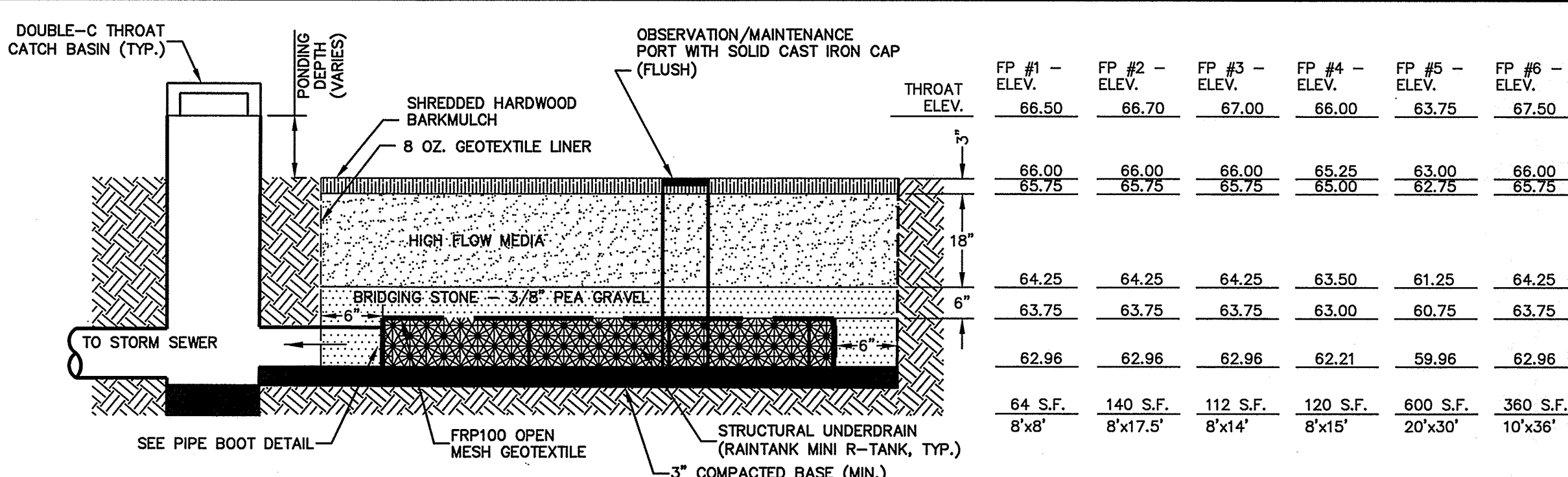
LEVEL SPREADER DETAIL

NOT TO SCALE

1. CONSTRUCT THE LEVEL SPREADER LIP ON A ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER LENGTH SHALL BE PER PLAN
3. THE RIP RAP APRON PRIOR TO THE LEVEL SPREADER SHALL NOT EXCEED A 0 PERCENT GRADE.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
6. MAINTENANCE: THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHOULD BE REMOVED. IF RILLING HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED AND REVEGETATED. THE VEGETATION SHOULD BE MOVED OCCASIONALLY TO CONTROL WEEDS AND THE ENCROACHMENT OF WOODY VEGETATION. CLIPPINGS SHOULD BE REMOVED AND DISPOSED OF OUTSIDE THE SPREADER AND AWAY FROM OUTLET AREA. FERTILIZATION SHOULD BE DONE AS NECESSARY TO KEEP THE VEGETATION HEALTHY AND DENSE.

INSPECTION AND MAINTENANCE (GRAVEL WETLAND)

1. THE CONTRACTOR WILL NOTIFY JONES AND BEACH ENGINEERS AFTER EACH OF THE GRAVEL WETLAND PONDS HAVE BEEN EXCAVATED TO THE BOTTOM OF THE SYSTEM FOR A MANDATORY INSPECTION PRIOR TO BUILDING BERMS, PLACING STONE OR INSTALLING PIPE SYSTEM.
2. 1ST YEAR POST-CONSTRUCTION: INSPECTION FREQUENCY SHOULD BE AFTER EVERY MAJOR STORM IN THE FIRST YEAR FOLLOWING CONSTRUCTION.
 - INSPECT TO BE CERTAIN SYSTEM DRAINS WITHIN 24-72 HRS (WITHIN THE DESIGN PERIOD, BUT ALSO NOT SO QUICKLY AS TO MINIMIZE STORMWATER TREATMENT).
 - WATERING PLANTS AS NECESSARY DURING THE FIRST GROWING SEASON
 - RE-VEGETATING POORLY ESTABLISHED AREAS AS NECESSARY
 - TREATING DISEASED VEGETATION AS NECESSARY
 - QUARTERLY INSPECTION OF SOIL AND REPAIRING ERODED AREAS, ESPECIALLY ON SLOPES
 - CHECKING INLETS, OUTLETS, AND OVERFLOW SPILLWAY FOR BLOCKAGE, STRUCTURAL INTEGRITY, AND EVIDENCE OF EROSION.
3. POST-CONSTRUCTION: INSPECTION FREQUENCY SHOULD BE AT LEAST EVERY 6 MONTHS THEREAFTER, AS PER USEPA GOOD HOUSE-KEEPING REQUIREMENTS. INSPECTION FREQUENCY CAN BE REDUCED TO ANNUAL FOLLOWING 2 YEARS OF MONITORING THAT INDICATES THE RATE OF SEDIMENT ACCUMULATION IS LESS THAN THE CLEANING CRITERIA LISTED BELOW. INSPECTIONS SHOULD FOCUS ON:
 - CHECKING THE FILTER SURFACE FOR DENSE, COMPLETE, ROOT MAT ESTABLISHMENT ACROSS THE WETLAND SURFACE. THOROUGH REVEGETATION WITH GRASSES, FORBS, AND SHRUBS IS NECESSARY. UNLIKE BIORETENTION, WHERE MULCH IS COMMONLY USED, COMPLETE SURFACE COVERAGE WITH VEGETATION IS NEEDED.
 - CHECKING THE GRAVEL WETLAND SURFACE FOR STANDING WATER OR OTHER EVIDENCE OF RISER CLOGGING, SUCH AS DISCOLORED OR ACCUMULATED SEDIMENTS.
 - CHECKING THE SEDIMENTATION CHAMBER OR FOREBAY FOR SEDIMENT ACCUMULATION, TRASH, AND DEBRIS.
 - INSPECT TO BE CERTAIN THE SEDIMENTATION FOREBAY DRAINS WITHIN 24 TO 72 HRS.
 - CHECKING INLETS, OUTLETS, AND OVERFLOW SPILLWAY FOR BLOCKAGE, STRUCTURAL INTEGRITY, AND EVIDENCE OF EROSION.
 - REMOVAL OF DECAYING VEGETATION, LITTER, AND DEBRIS.
 - MOW GRASS AREAS PERIODICALLY SO THAT GRASS DOES NOT EXCEED 4" IN HEIGHT.
4. CLEANING CRITERIA FOR ALL SEDIMENTATION FOREBAYS: SEDIMENT SHOULD BE REMOVED FROM THE SEDIMENTATION CHAMBER (FOREBAY) WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN 12 INCHES (30 CM) OR 10 PERCENT OF THE PRETREATMENT VOLUME. THE SEDIMENTATION FOREBAY SHOULD BE CLEANED OF VEGETATION IF PERSISTENT STANDING WATER AND WETLAND VEGETATION BECOMES DOMINANT. THE CLEANING INTERVAL IS ONCE EVERY YEAR. A DRY SEDIMENTATION FOREBAY IS THE OPTIMAL CONDITION WHILE IN PRACTICE THIS CONDITION IS RARELY ACHIEVED. THE SEDIMENTATION CHAMBER, FOREBAY, AND TREATMENT CELL OUTLET DEVICES SHOULD BE CLEANED WHEN DRAWDOWN TIMES EXCEED 60 TO 72 HOURS. MATERIALS CAN BE REMOVED WITH HEAVY CONSTRUCTION EQUIPMENT; HOWEVER THIS EQUIPMENT SHOULD NOT TRACK ON THE WETLAND SURFACE. REVEGETATION OF DISTURBED AREAS AS NECESSARY. REMOVED SEDIMENTS SHOULD BE DEWATERED (IF NECESSARY) AND DISPOSED OF IN AN ACCEPTABLE MANNER.
5. CLEANING CRITERIA FOR GRAVEL WETLAND TREATMENT CELLS: SEDIMENT SHOULD BE REMOVED FROM THE GRAVEL WETLAND SURFACE WHEN IT ACCUMULATES TO A DEPTH OF SEVERAL INCHES (10 CM) ACROSS THE WETLAND SURFACE. MATERIALS SHOULD BE REMOVED WITH RAKES RATHER THAN HEAVY CONSTRUCTION EQUIPMENT TO AVOID COMPACTION OF THE GRAVEL WETLAND SURFACE. HEAVY EQUIPMENT COULD BE USED IF THE SYSTEM IS DESIGNED WITH DIMENSIONS THAT ALLOW EQUIPMENT TO BE LOCATED OUTSIDE THE GRAVEL WETLAND, WHILE A BACKHOE SHOVEL REACHES INSIDE THE GRAVEL WETLAND TO REMOVE SEDIMENT. REMOVED SEDIMENTS SHOULD BE DEWATERED (IF NECESSARY) AND DISPOSED OF IN AN ACCEPTABLE MANNER.
6. DRAINING AND FLUSHING GRAVEL WETLAND TREATMENT CELLS: FOR MAINTENANCE IT MAY BE NECESSARY TO DRAIN OR FLUSH THE TREATMENT CELLS. THE OPTIONAL DRAINS WILL PERMIT SIMPLER MAINTENANCE OF THE SYSTEM IF NEEDED. THE DRAINS NEED TO BE CLOSED DURING STANDARD OPERATION. FLUSHING OF THE RISERS AND HORIZONTAL SUBDRAINS IS MOST EFFECTIVE WITH THE ENTIRE SYSTEM DRAINED. FLUSHED WATER AND SEDIMENT SHOULD BE COLLECTED AND PROPERLY DISPOSED.

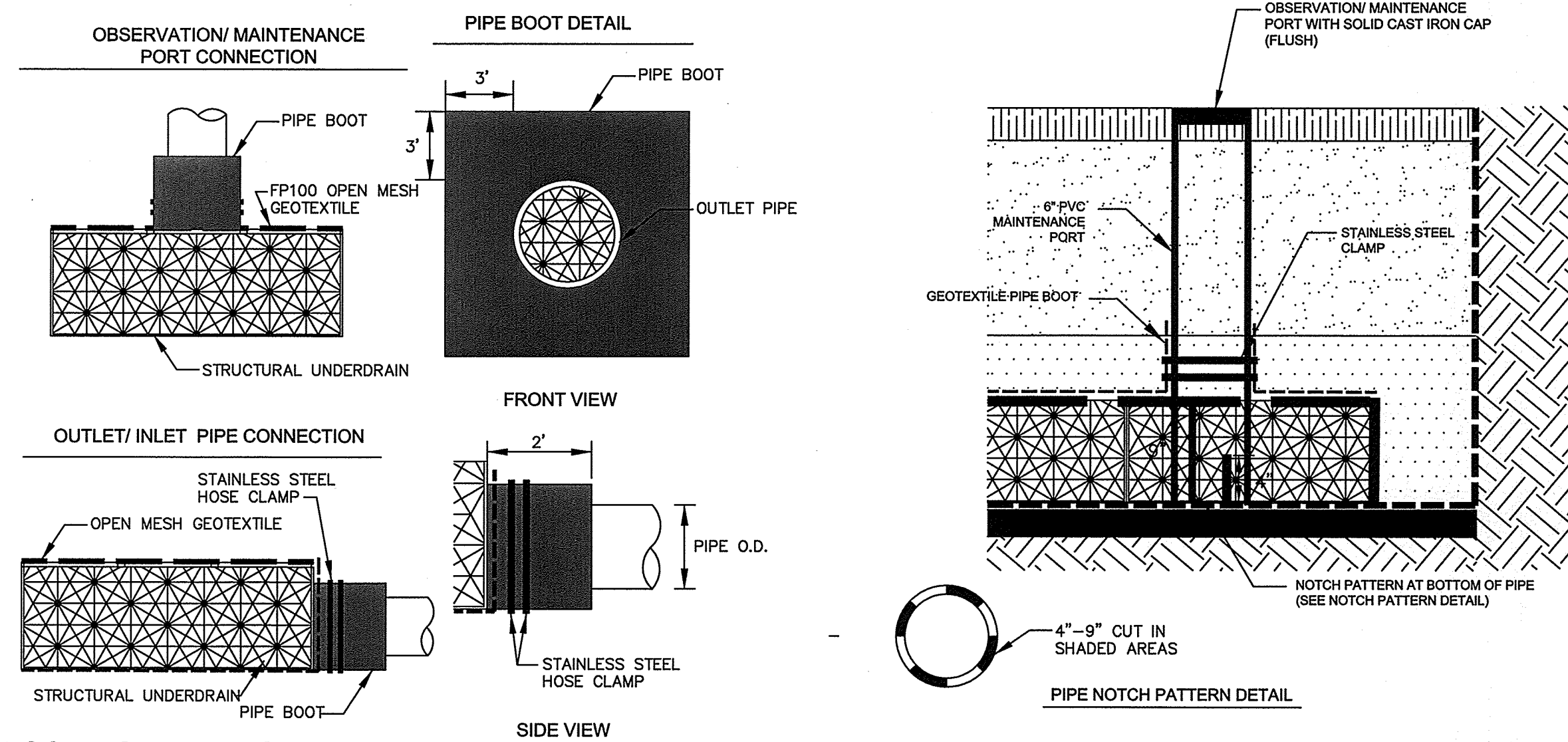


NOTES:

1. HIGH FLOW MEDIA SHALL BE FOCALPOINT HIGH FLOW MEDIA AS PRODUCED BY CONVERGENT WATER TECHNOLOGIES.
2. WITHIN 90 DAYS OF PROJECT COMPLETION, THE INFILTRATION RATE SHALL BE CONFIRMED AT THE MANUFACTURER'S OR INSTALLERS EXPENSE, BY A WETTED CONDITION HYDRAULIC CONDUCTIVITY TEST.
- 2.1. FAILURE TO PASS THIS TEST WILL RESULT IN REMOVAL AND REPLACEMENT OF ALL MEDIA IN THE SYSTEM AT NO COST TO THE PROJECT OWNER/OPERATOR.
- 2.2. TEST MUST UTILIZE THE EQUIPMENT AND FOLLOW THE STANDARD OPERATING PROCEDURES FOUND IN THE HARRIS COUNTY TEXAS MANUAL ENTITLED, LOW IMPACT DEVELOPMENT AND GREEN INFRASTRUCTURE DESIGN CRITERIA FOR STORMWATER MANAGEMENT (2011.)
- 2.3. REPLACEMENT MEDIA, IF REQUIRED, MUST BE TAKEN FROM A DIFFERENT BATCH THAN THE ORIGINAL.
3. FOCAL POINT BY ACF/PABCO INDUSTRIES, 207-631-2795

FOCALPOINT BIOFILTRATION SYSTEM HP SECTION X-X

NOT TO SCALE



FOCALPOINT PIPE CONNECTION

NOT TO SCALE

FOCALPOINT OBSERVATION/ MAINTENANCE PORT

NOT TO SCALE

GRAVEL WETLAND CONSTRUCTION NOTES

1. THE CONTRACTOR WILL NOTIFY JONES AND BEACH ENGINEERS AFTER EACH OF THE GRAVEL WETLAND PONDS HAVE BEEN EXCAVATED TO THE BOTTOM OF THE SYSTEM FOR A MANDATORY INSPECTION PRIOR TO BUILDING BERMS, PLACING STONE OR INSTALLING PIPE SYSTEM.
2. NO-GEOTEXTILE OR GEOFABRIC LAYERS ARE USED WITHIN THIS SYSTEM, BUT MAY BE USED TO LINE WALLS.
3. IF A NATIVE LOW HYDRAULIC CONDUCTIVITY SOIL IS NOT PRESENT BELOW THE DESIRED LOCATION OF THE SGW, A LOW PERMEABILITY LINER OR SOIL (HYDRAULIC CONDUCTIVITY LESS THAN 0.03 FT/DAY) BELOW THE GRAVEL LAYER SHOULD BE USED TO MINIMIZE INFILTRATION, PRESERVE HORIZONTAL FLOW IN THE GRAVEL, AND MAINTAIN THE WETLAND PLANTS (FIGURE 2).
4. 8 IN. MINIMUM THICKNESS OF A WETLAND SOIL AS THE TOP LAYER. (SEE DESCRIPTION IN SURFACE INFILTRATION RATES SECTION FOR DETAILS (FIGURE 2)). THIS LAYER IS LEVELLED (CONSTRUCTED WITH A SURFACE SLOPE OF ZERO)
5. 3 IN. MINIMUM THICKNESS OF AN INTERMEDIATE LAYER OF A GRADED AGGREGATE FILTER IS NEEDED TO PREVENT THE WETLAND SOIL FROM MOVING DOWN INTO THE GRAVEL SUB-LAYER. MATERIAL COMPATIBILITY BETWEEN LAYERS NEEDS TO BE EVALUATED.
6. 24 IN. (0.6 M) MINIMUM THICKNESS OF 3/4" CRUSHED-STONE SUB-LAYER. THIS IS THE ACTIVE ZONE WHERE TREATMENT OCCURS (FIGURE 2).
7. THE PRIMARY OUTLET INVERT SHALL BE LOCATED 4" BELOW THE ELEVATION OF THE WETLAND SOIL SURFACE TO CONTROL GROUNDWATER ELEVATION. CARE SHOULD BE TAKEN TO NOT DESIGN A SIPHON THAT WOULD DRAIN THE WETLAND; THE PRIMARY OUTLET LOCATION MUST BE OPEN OR VENTED. IN CONTRAST TO FIGURE 1, THE PRIMARY OUTLET CAN BE A SIMPLE PIPE.
8. AN OPTIONAL HIGH CAPACITY OUTLET AT EQUAL ELEVATION OR LOWER TO THE PRIMARY OUTLET MAY BE INSTALLED FOR MAINTENANCE. THIS OUTLET WOULD NEED TO BE PLUGGED DURING REGULAR OPERATION. THIS OPTIONAL OUTLET ALLOWS FOR FLUSHING OF THE TREATMENT CELLS AT HIGHER FLOW RATES. IF IT IS LOCATED LOWER, IT CAN BE USED TO DRAIN THE SYSTEM FOR MAINTENANCE OR REPAIRS.
9. THE PRIMARY OUTLET STRUCTURE AND ITS HYDRAULIC RATING CURVE ARE BASED ON A CALCULATED RELEASE RATE BY ORIFICE CONTROL TO DRAIN THE WQV IN 24-48 HRS.
10. THE MINIMUM SPACING BETWEEN THE SUBSURFACE PERFORATED DISTRIBUTION LINE AND THE SUBSURFACE PERFORATED COLLECTION DRAIN (SEE FIGURE 1) AT EITHER END OF THE GRAVEL IN EACH TREATMENT CELL IS 15 FT. THERE SHOULD BE A MINIMUM HORIZONTAL TRAVEL DISTANCE OF 15 FT WITHIN THE GRAVEL LAYER IN EACH CELL.
11. VERTICAL PERFORATED OR SLOTTED RISER PIPES DELIVER WATER FROM THE SURFACE DOWN TO THE SUBSURFACE, PERFORATED OR SLOTTED DISTRIBUTION LINES. THESE RISERS SHALL HAVE A MAXIMUM SPACING OF 15 FEET (FIGURE 1). OVERSIZING OF THE PERFORATED OR SLOTTED VERTICAL RISERS IS USEFUL TO ALLOW A MARGIN OF SAFETY AGAINST CLOGGING WITH A MINIMUM RECOMMENDED DIAMETER OF 12" FOR THE CENTRAL RISER AND 6" FOR END RISERS. THE VERTICAL RISERS SHALL NOT BE CAPPED, BUT RATHER COVERED WITH AN INLET GRATE TO ALLOW FOR AN OVERFLOW WHEN THE WATER LEVEL EXCEEDS THE WQV.
12. VERTICAL CLEANOUTS CONNECTED TO THE DISTRIBUTION AND COLLECTION SUBDRAINS, AT EACH END, SHALL BE PERFORATED OR SLOTTED ONLY WITHIN THE GRAVEL LAYER, AND SOLID WITHIN THE WETLAND SOIL AND STORAGE AREA ABOVE. THIS IS IMPORTANT TO PREVENT SHORT-CIRCUITING AND SOIL PIPING.
13. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVERS.
14. THE SYSTEM SHOULD BE PLANTED TO ACHIEVE A RICH ROOFTOP MAT WITH GRASSES, FORBS, AND SHRUBS WITH OBLIGATE AND FACULTATIVE WETLAND SPECIES. IN NORTHERN CLIMATES REFER TO THE NH STORMWATER MANUAL OR APPROVED EQUIVALENT LOCAL GUIDANCE FOR DETAILS ON LOCAL WETLAND PLANTINGS.
15. SIDE SLOPES, EROSION CONTROL, USE OF RIP RAP FOR STABILIZED REGIONS AT OUTLETS AND OTHER LOCATIONS OF CONCENTRATED FLOW, ETC.

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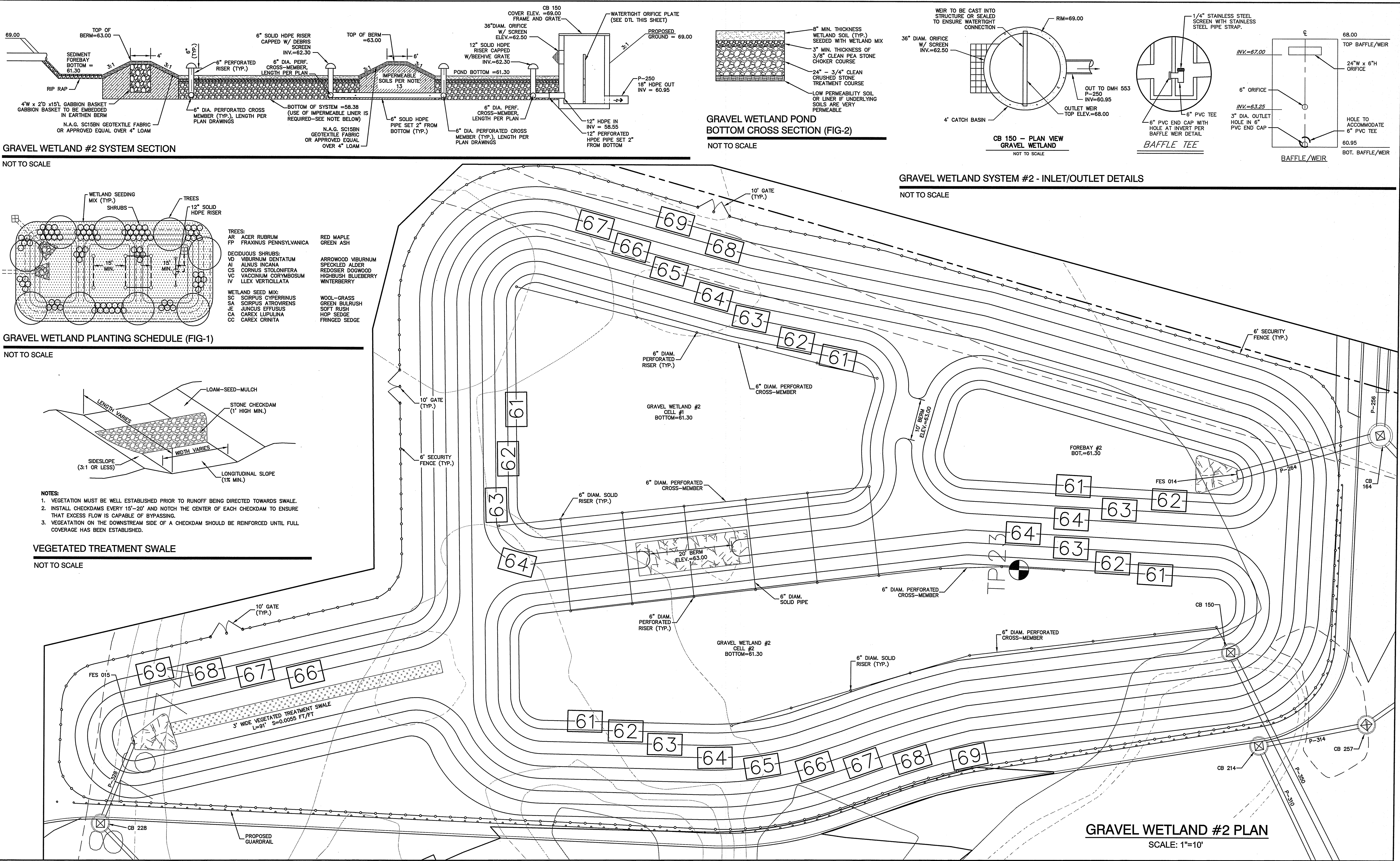
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E-Mail: JBE@JONESANDBEACH.COM

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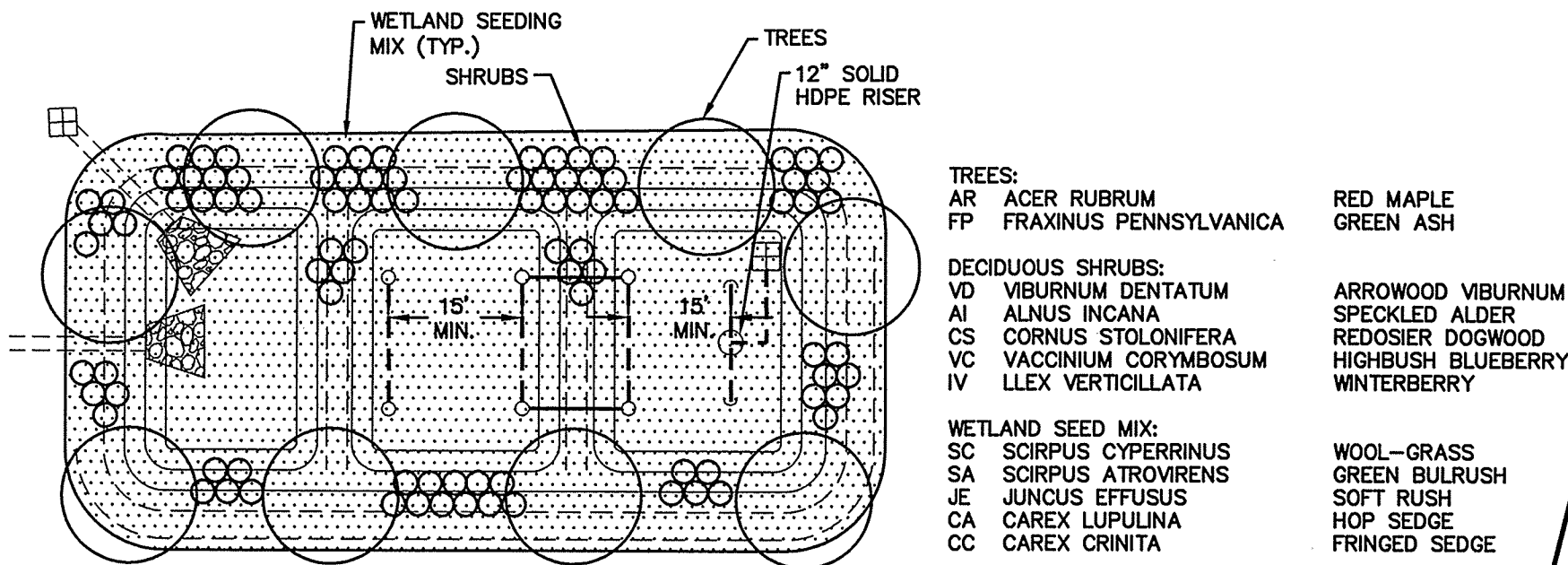
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SHEET 86 OF 120
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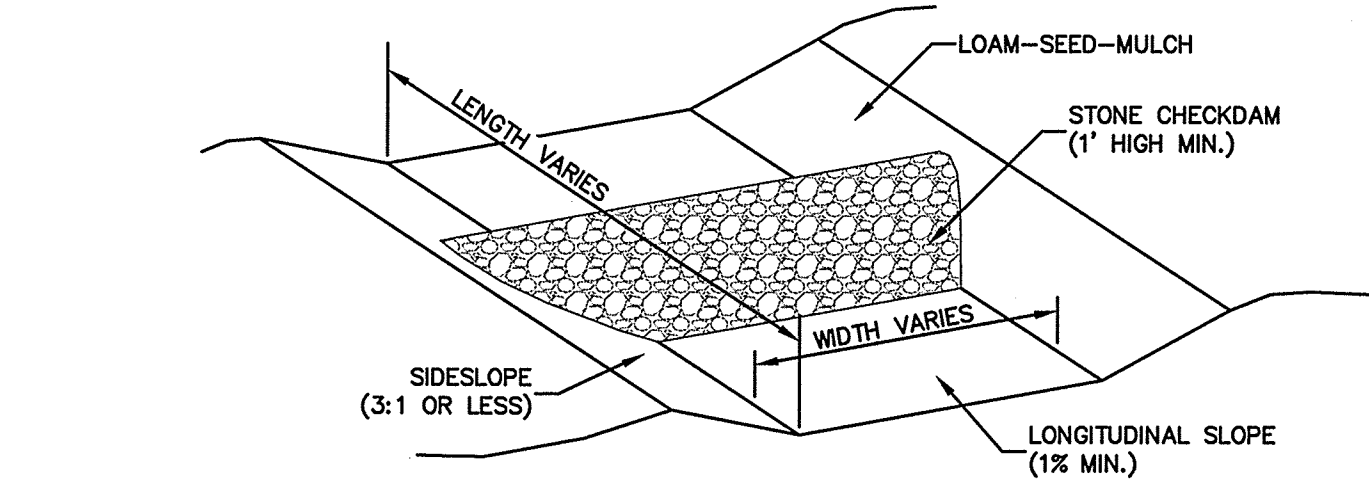
GRAVEL WETLAND #2 SYSTEM SECTION

NOT TO SCALE



GRAVEL WETLAND PLANTING SCHEDULE (FIG-1)

NOT TO SCALE



- NOTES:
1. VEGETATION MUST BE WELL ESTABLISHED PRIOR TO RUNOFF BEING DIRECTED TOWARDS SWALE.
 2. INSTALL CHECKDAMS EVERY 15'-20' AND NOTCH THE CENTER OF EACH CHECKDAM TO ENSURE THAT EXCESS FLOW IS CAPABLE OF BYPASSING.
 3. VEGETATION ON THE DOWNSTREAM SIDE OF A CHECKDAM SHOULD BE REINFORCED UNTIL FULL COVERAGE HAS BEEN ESTABLISHED.

VEGETATED TREATMENT SWALE

NOT TO SCALE

GRAVEL WETLAND SYSTEM #2 - INLET/OUTLET DETAILS

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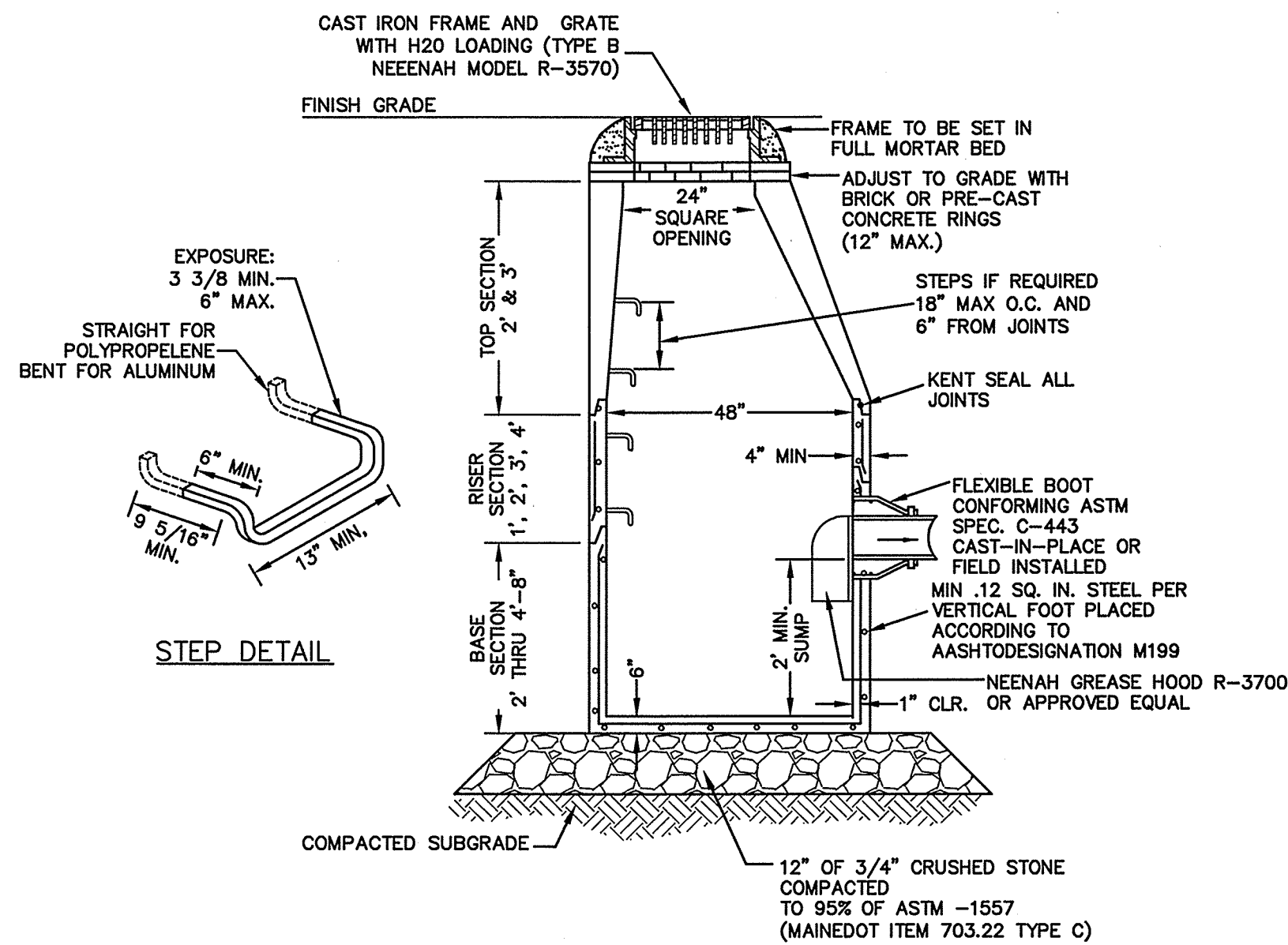
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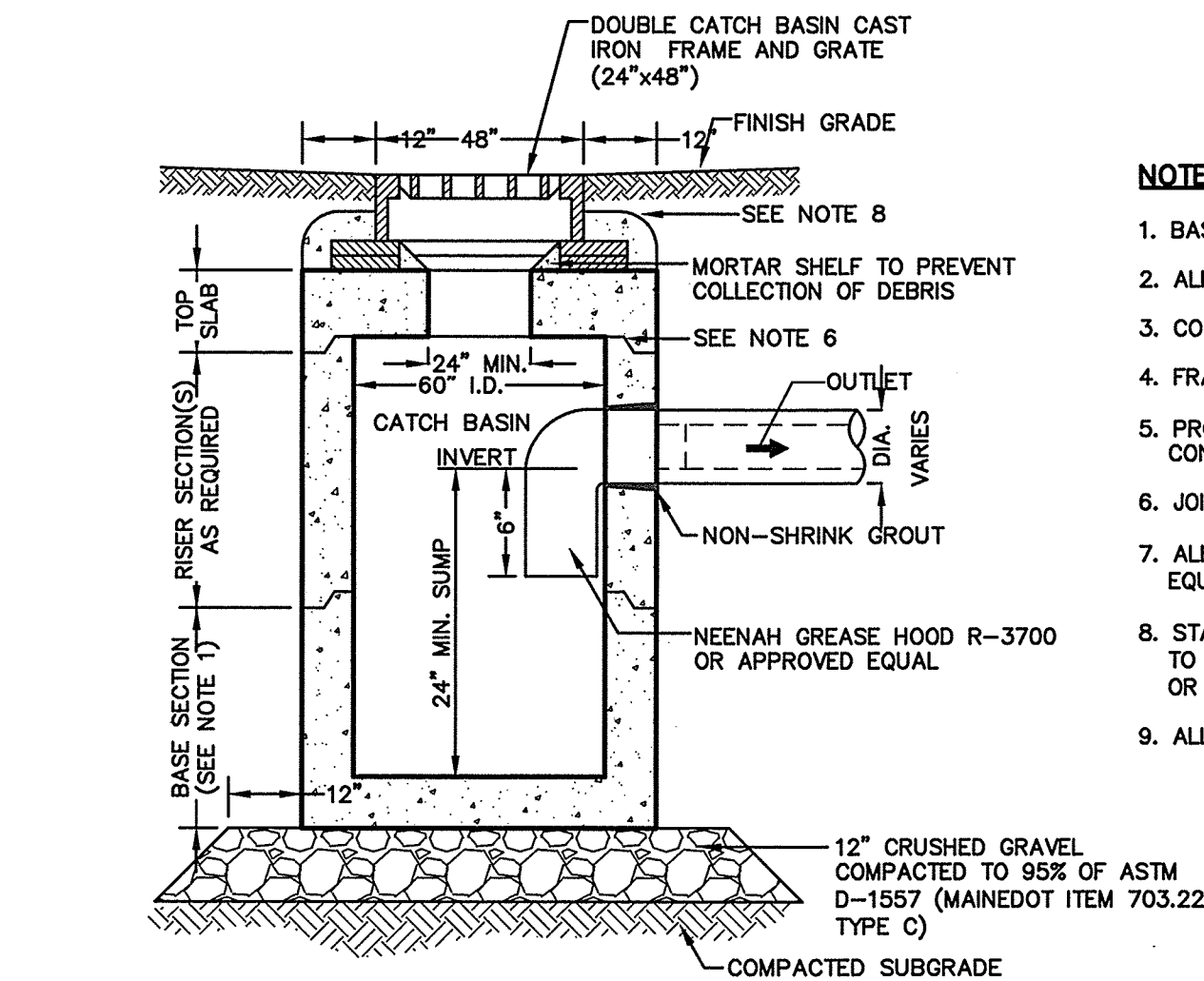
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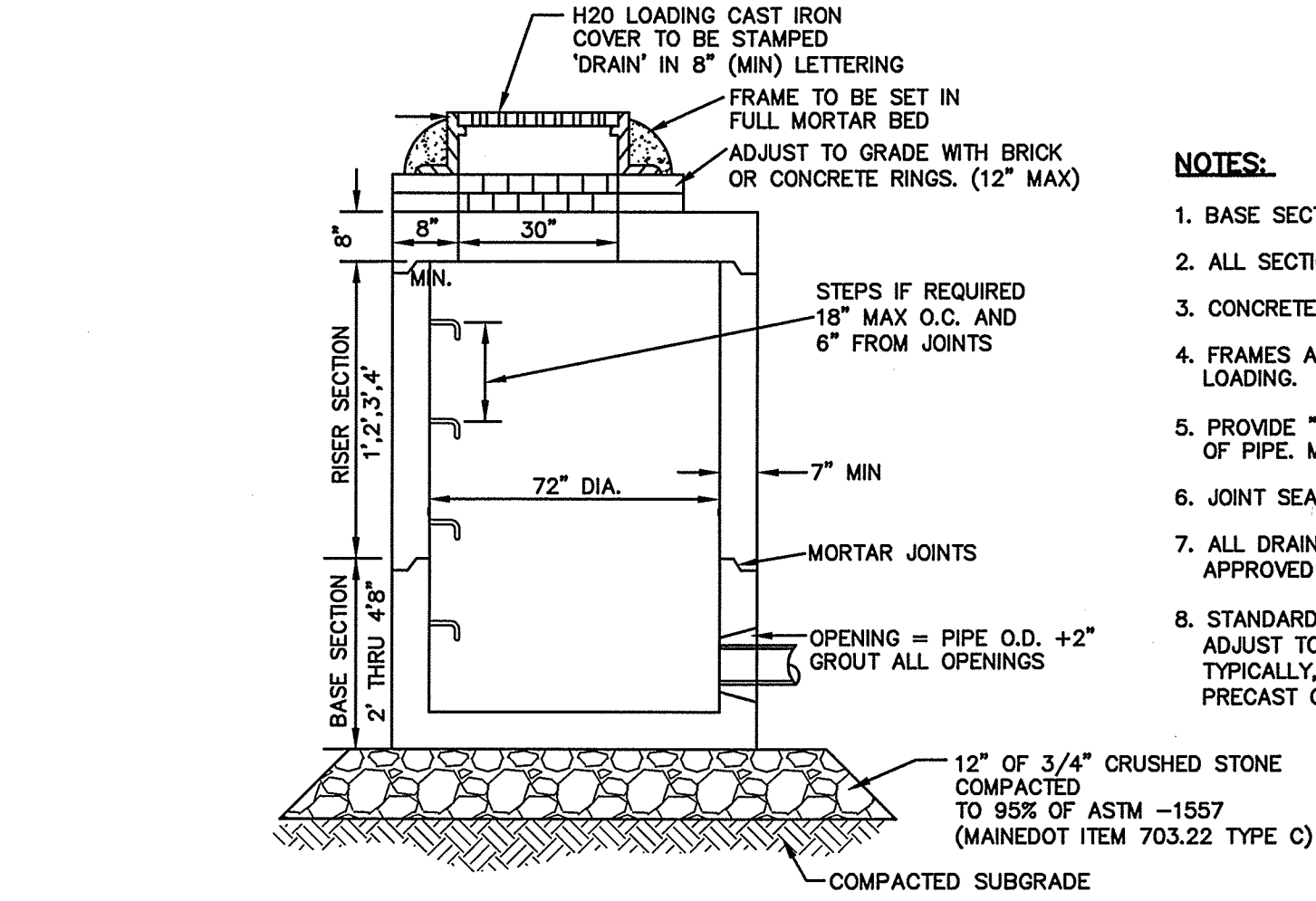
CATCH BASIN WITH GREASE HOOD

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DOUBLE GRATE CATCH BASIN

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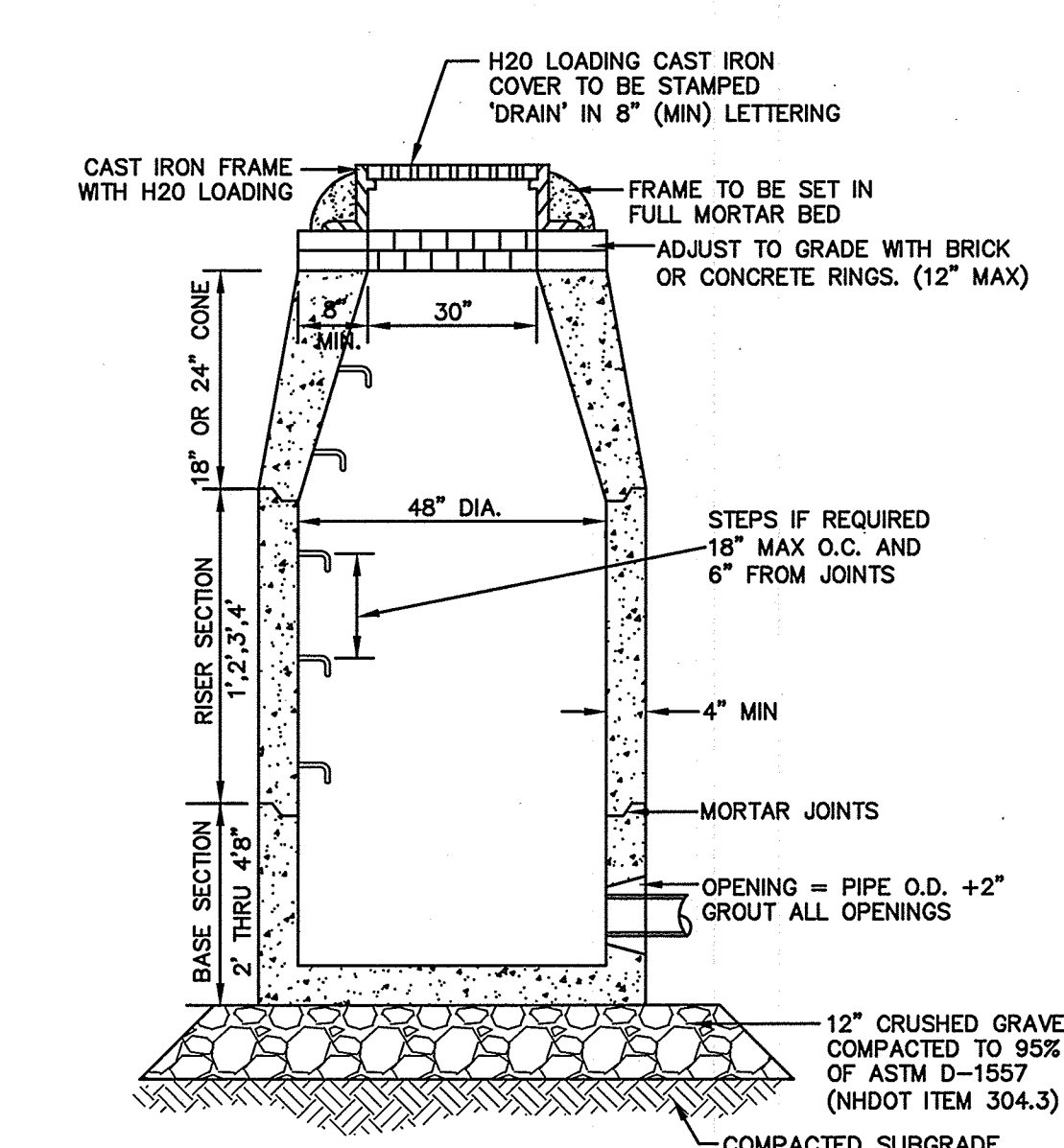


DRAIN MANHOLE

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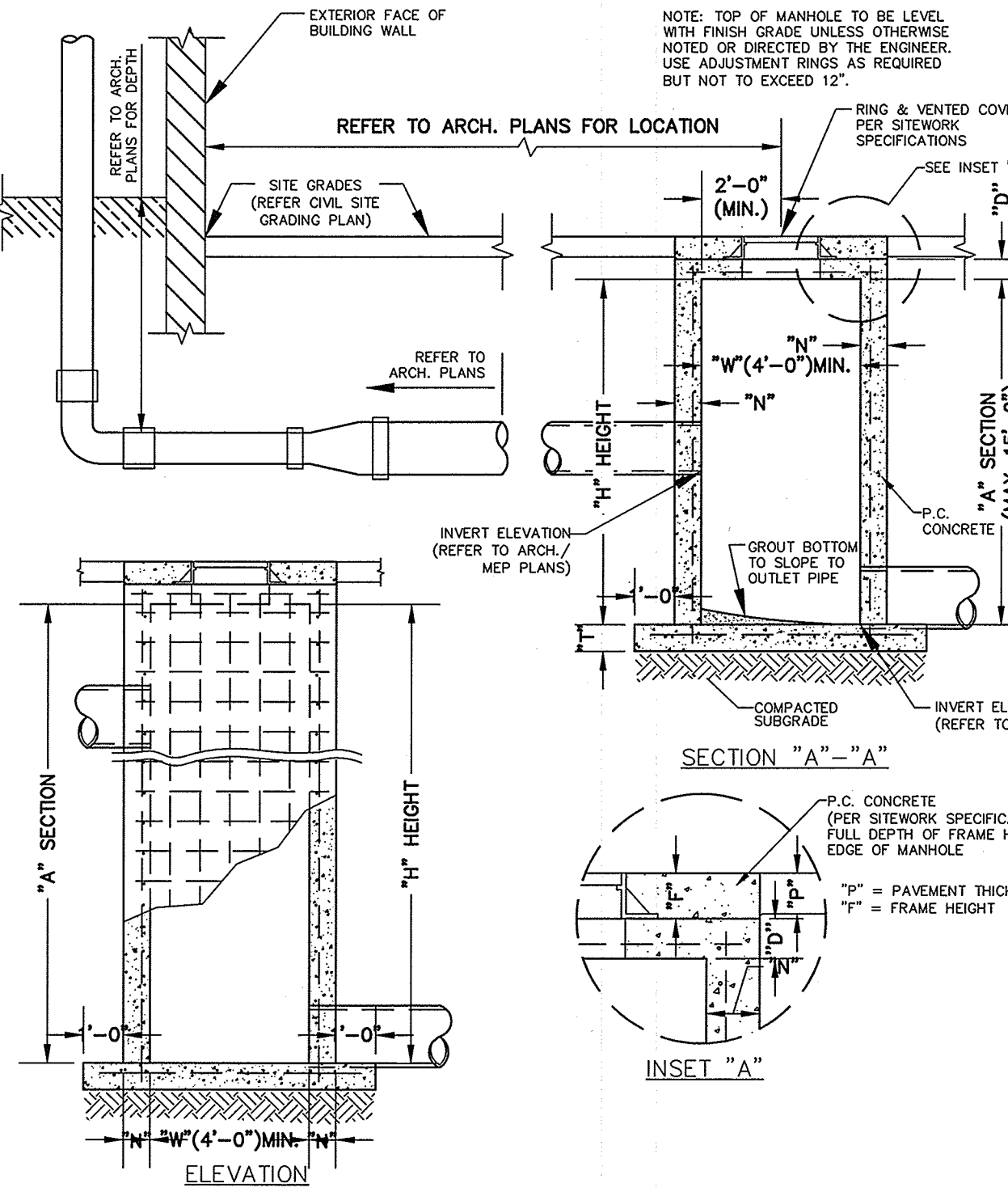
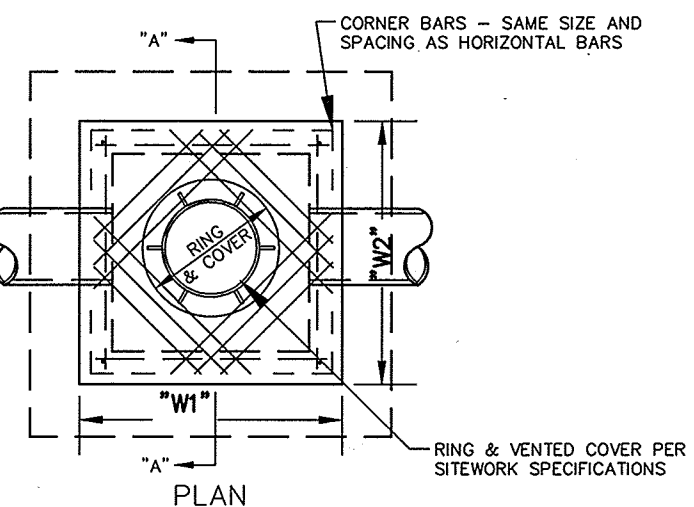
NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H2O LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H2O LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.
9. CATCH BASINS IN EXCESS OF 8' IN DEPTH SHALL BE PROVIDED WITH STEPS SIMILAR TO THOSE DETAILED.



DRAIN MANHOLE

NOT TO SCALE

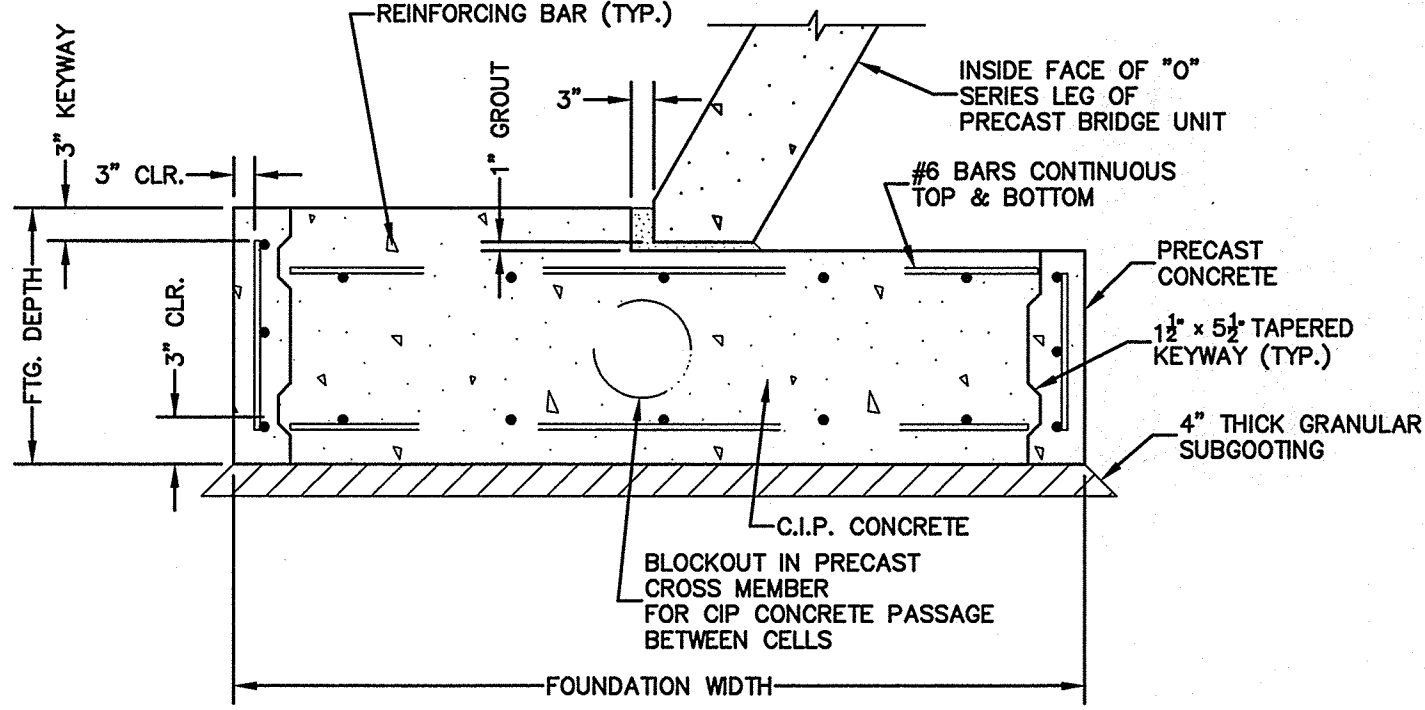


SIPHONIC BREAK CONCRETE STORM MANHOLE DETAIL

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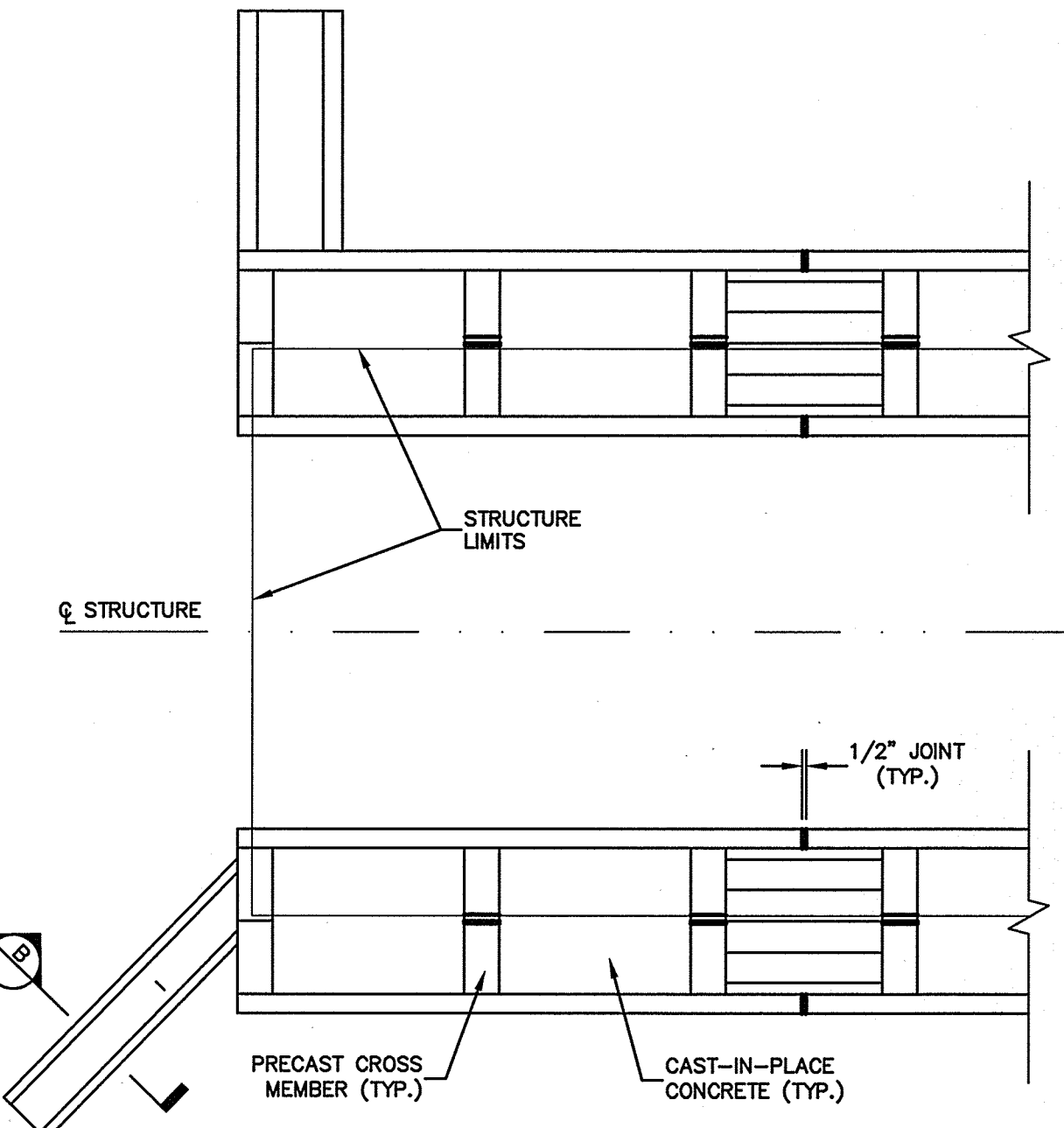
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6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.



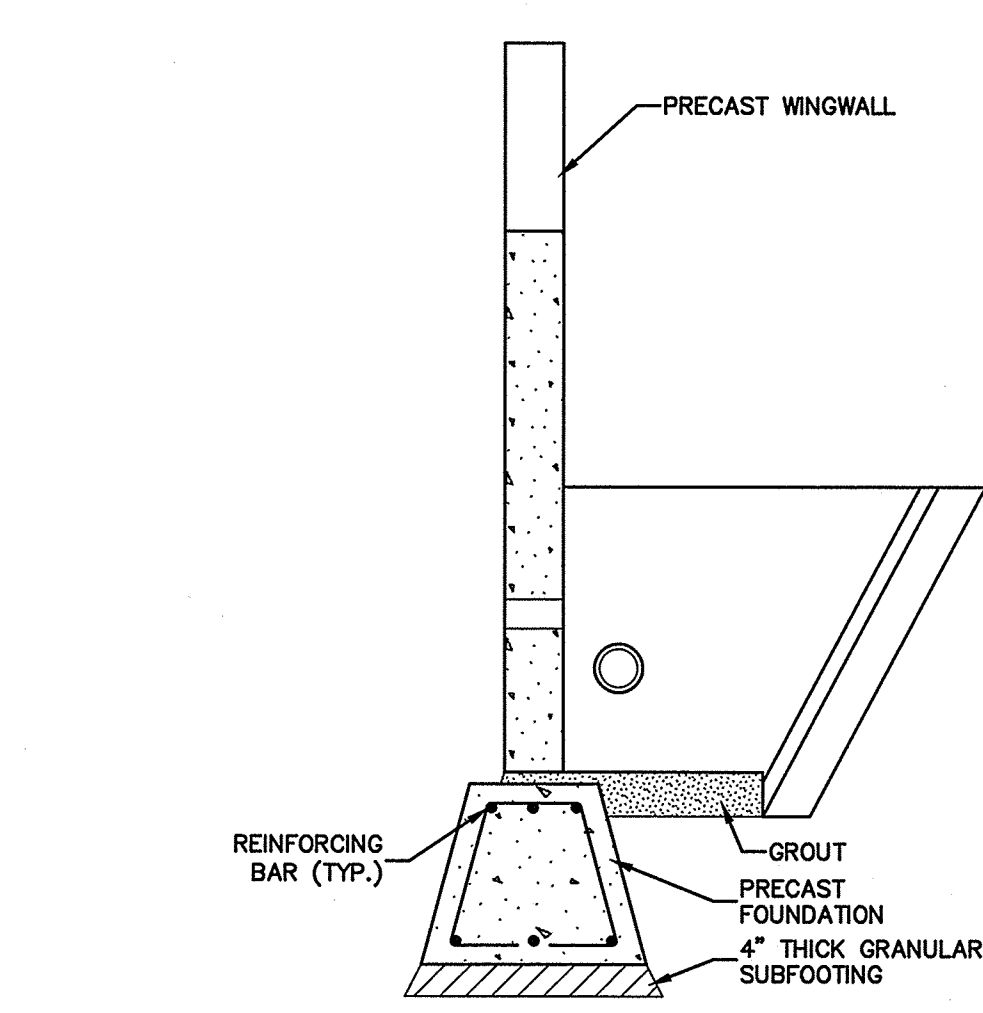
CONTECH BRIDGE SYSTEM - FOOTING DETAIL (SECT. A)

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CONTECH BRIDGE SYSTEM - PARTIAL FOUNDATION PLAN

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CONTECH BRIDGE SYSTEM WINGWALL DETAIL (SECT. B)

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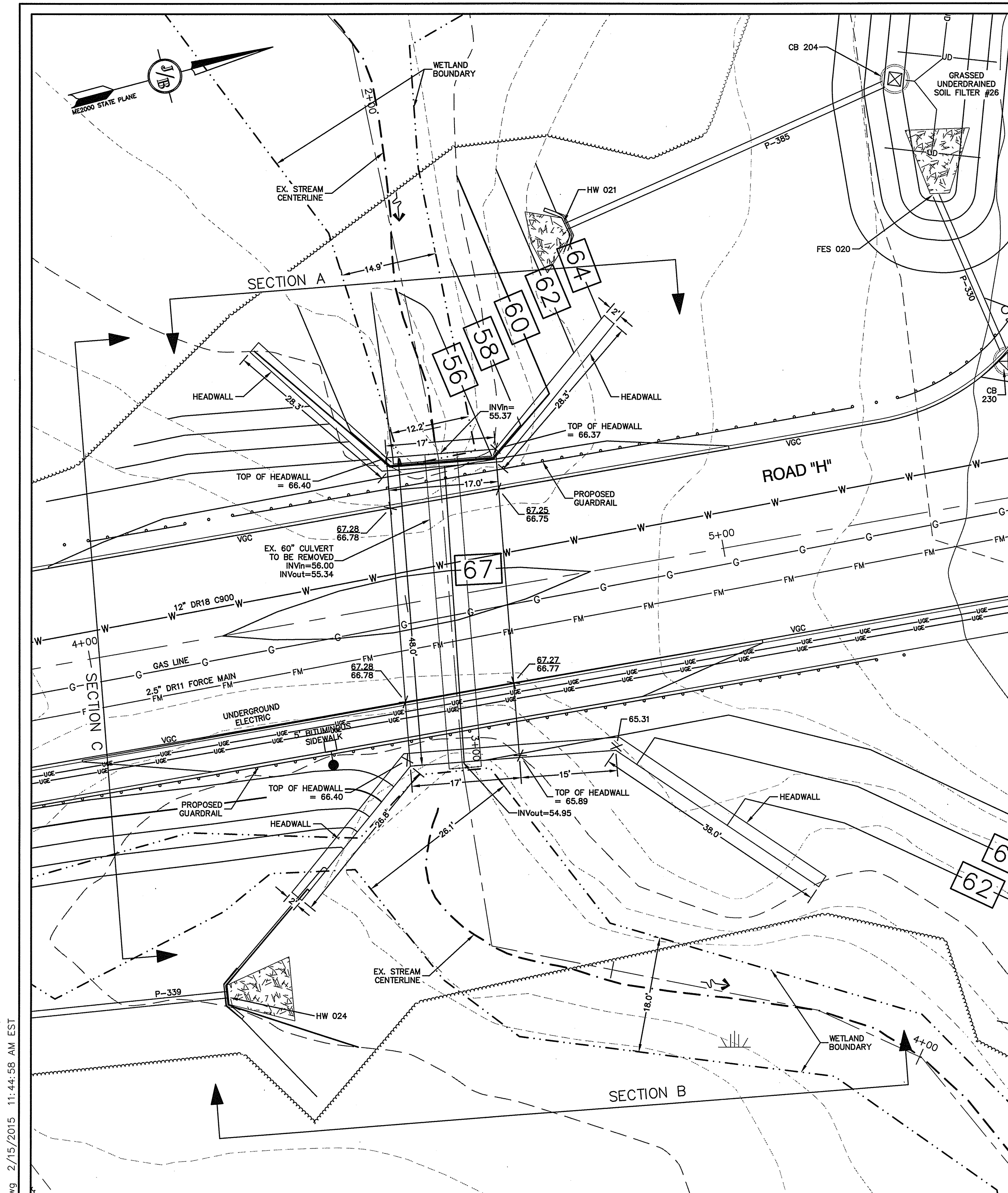
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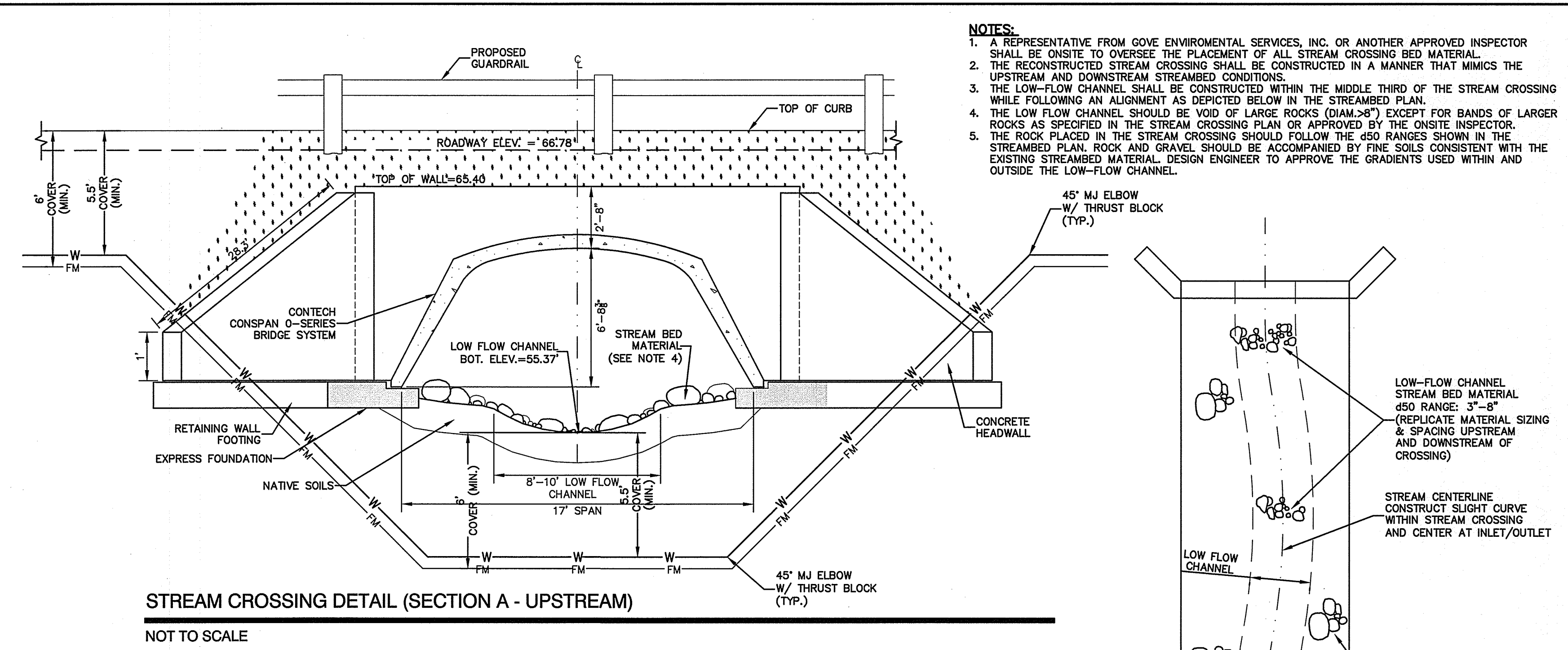
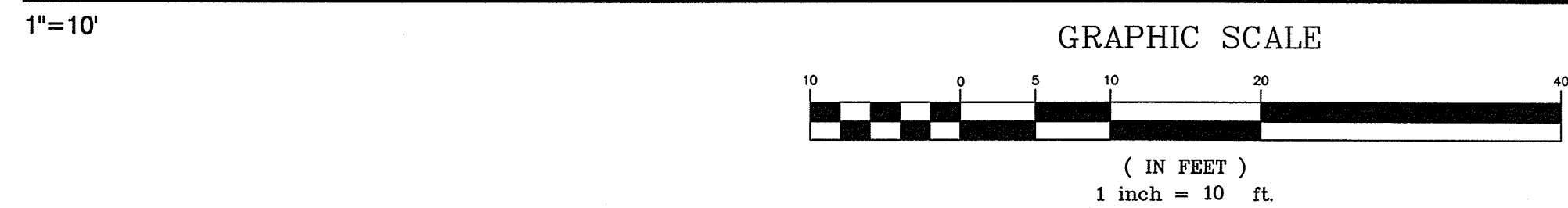
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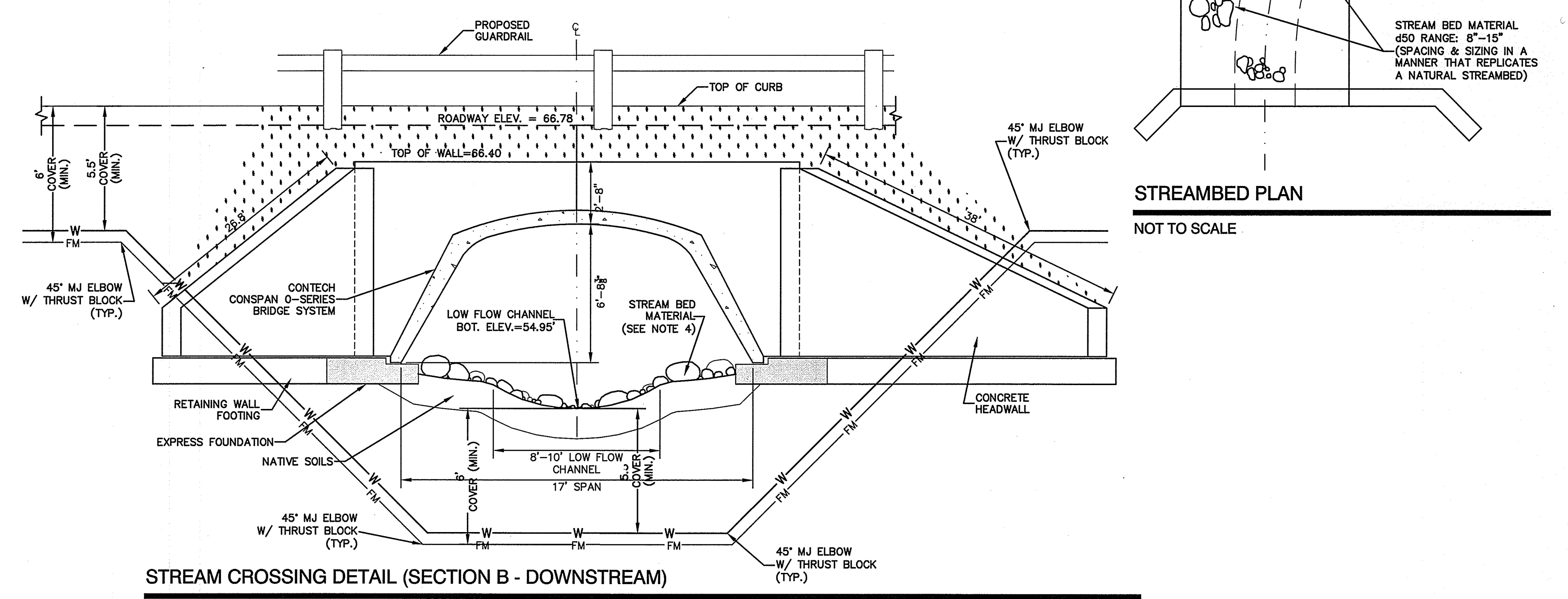


STREAM CROSSING ROAD DETAIL (PLAN VIEW)



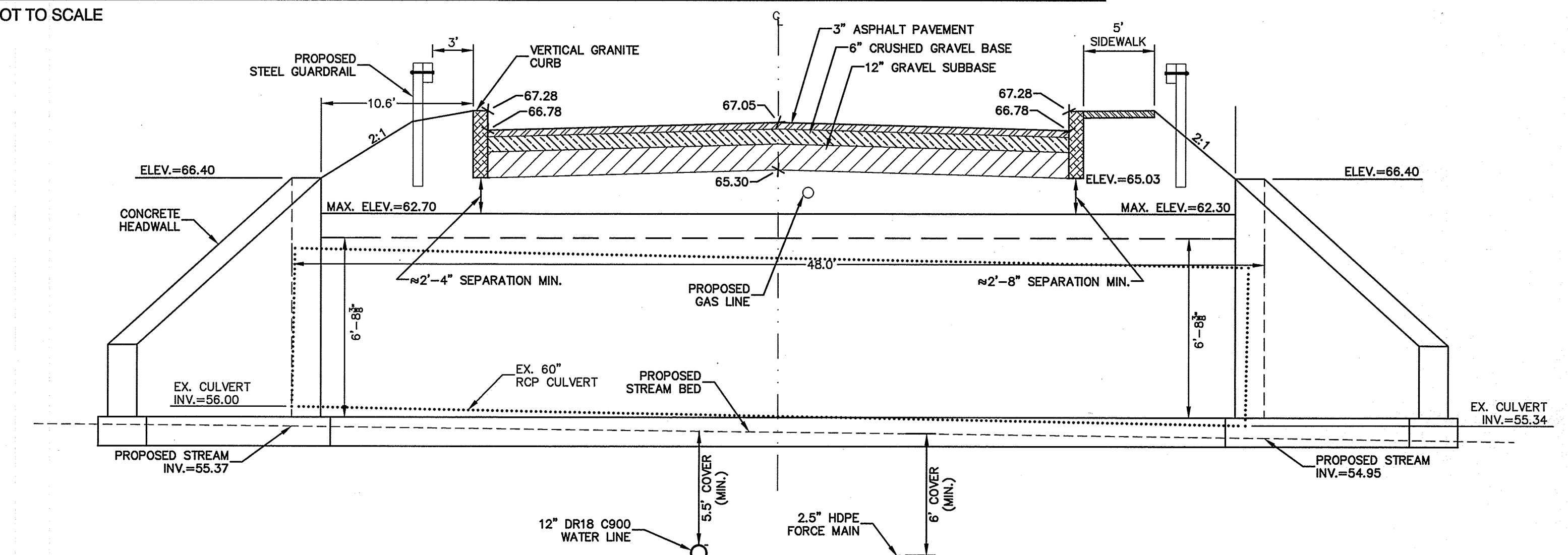
STREAM CROSSING DETAIL (SECTION A - UPSTREAM)

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STREAM CROSSING DETAIL (SECTION B - DOWNSTREAM)

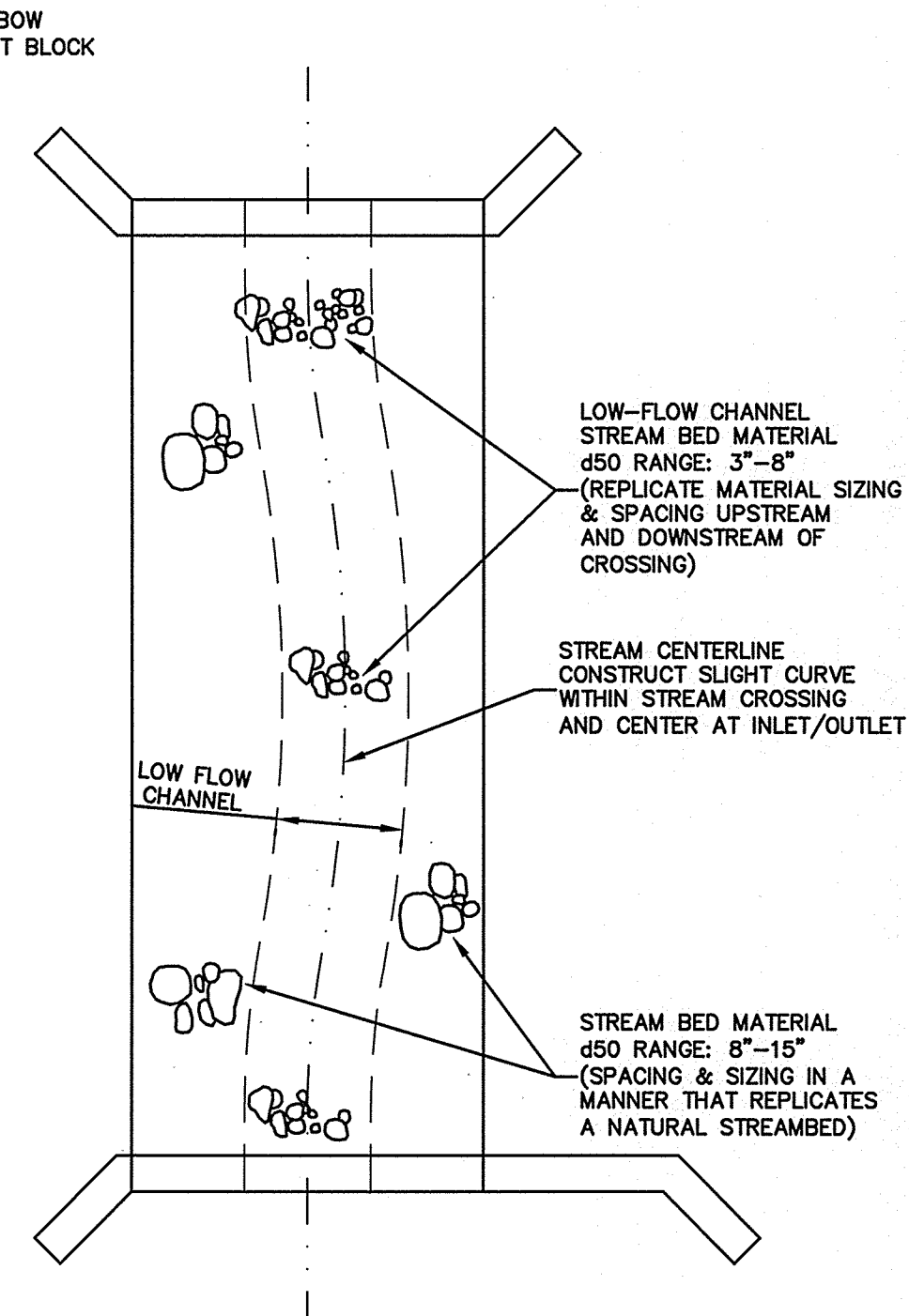
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STREAM CROSSING DETAIL (SECTION C)

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- NOTES:
1. A REPRESENTATIVE FROM GOVE ENVIRONMENTAL SERVICES, INC. OR ANOTHER APPROVED INSPECTOR SHALL BE ONSITE TO OVERSEE THE PLACEMENT OF ALL STREAM CROSSING BED MATERIAL.
 2. THE RECONSTRUCTED STREAM CROSSING SHALL BE CONSTRUCTED IN A MANNER THAT MIMICS THE UPSTREAM AND DOWNSTREAM STREAMBED CONDITIONS.
 3. THE LOW-FLOW CHANNEL SHALL BE CONSTRUCTED WITHIN THE MIDDLE THIRD OF THE STREAM CROSSING WHILE FOLLOWING AN ALIGNMENT AS DEPICTED BELOW IN THE STREAMBED PLAN.
 4. THE LOW FLOW CHANNEL SHOULD BE VOID OF LARGE ROCKS (DIAM. > 8") EXCEPT FOR BANDS OF LARGER ROCKS AS SPECIFIED IN THE STREAM CROSSING PLAN OR APPROVED BY THE ONSITE INSPECTOR.
 5. THE ROCK PLACED IN THE STREAM CROSSING SHOULD FOLLOW THE d50 RANGES SHOWN IN THE STREAMBED PLAN. ROCK AND GRAVEL SHOULD BE ACCOMPANIED BY FINE SOILS CONSISTENT WITH THE EXISTING STREAMBED MATERIAL. DESIGN ENGINEER TO APPROVE THE GRADIENTS USED WITHIN AND OUTSIDE THE LOW-FLOW CHANNEL.



STREAMBED PLAN

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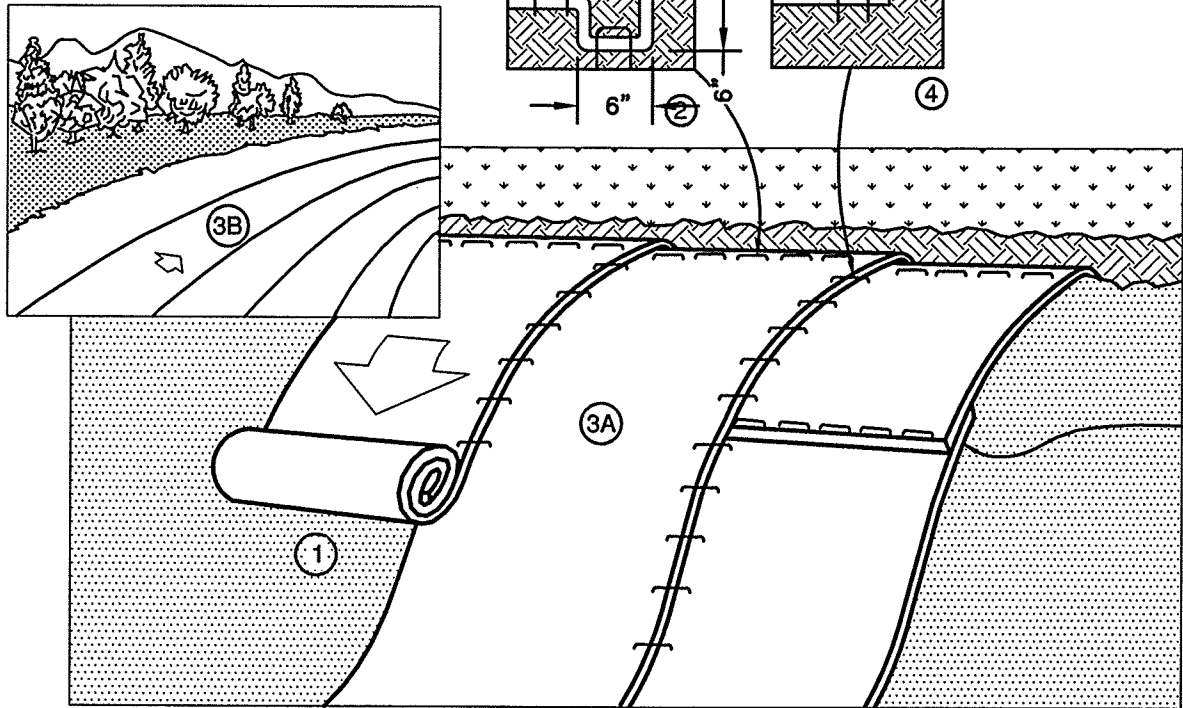
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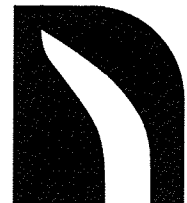
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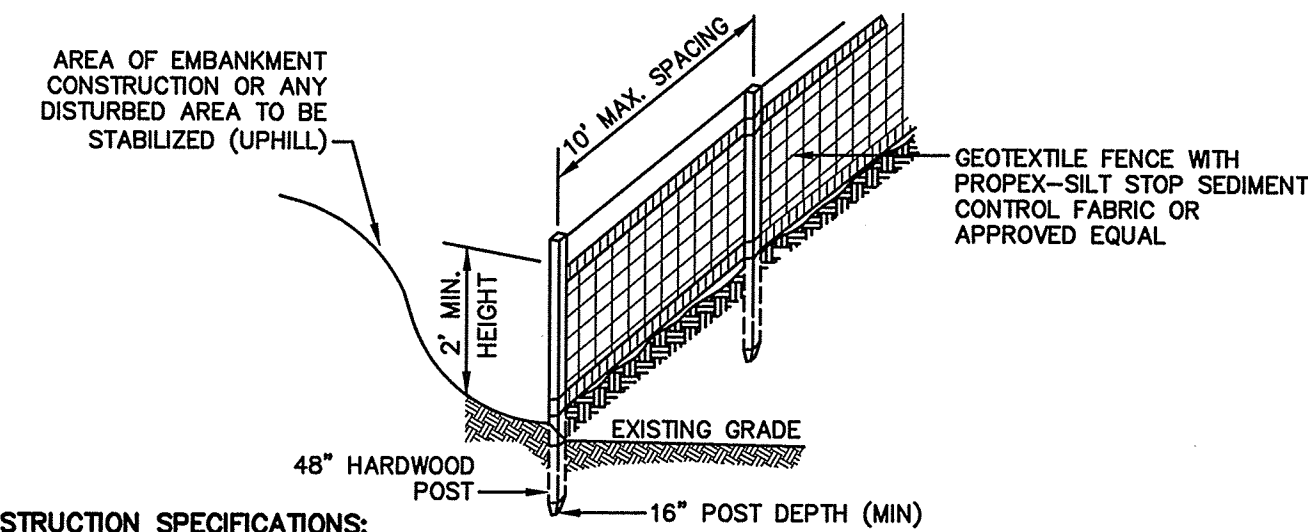
- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.



NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SLOPE INSTALLATION (North American Green)

NOT TO SCALE

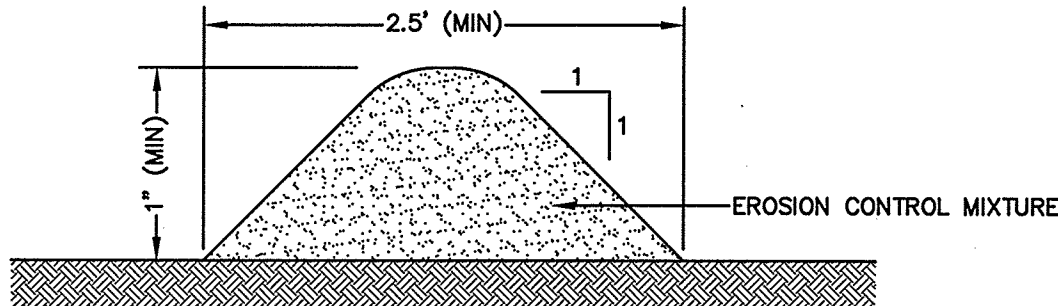


CONSTRUCTION SPECIFICATIONS:

- WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
- THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.

SILT FENCE

NOT TO SCALE

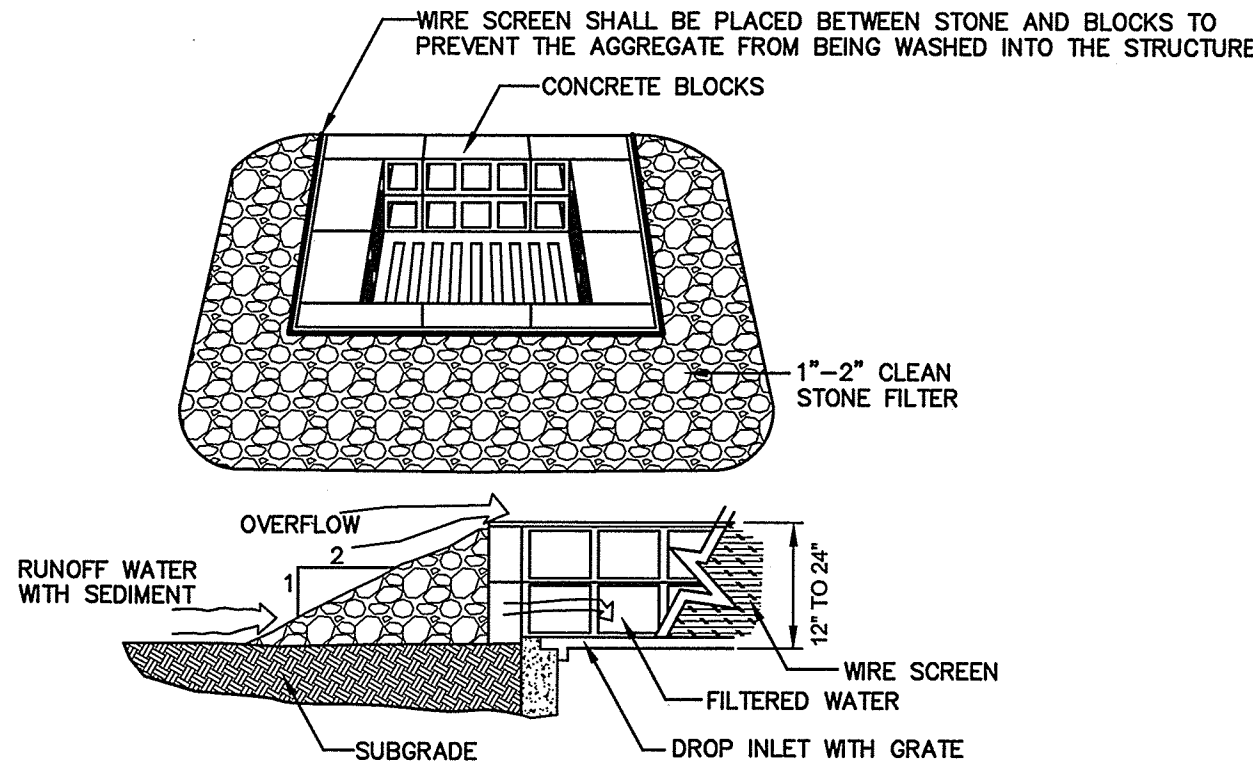


NOTES:

- ORGANIC FILTER BERMS MAY BE UTILIZED IN LIEU OF SILT FENCE, UNLESS OTHERWISE SPECIFIED.
- THE EROSION CONTROL MIX USED IN THE FILTER BERMS SHALL BE A WELL-GRADED MIXTURE OF PARTICLE SIZES, MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS, AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH, AND SHALL MEET THE FOLLOWING STANDARDS:
 - THE ORGANIC CONTENT SHALL BE 80-100% OF DRY WEIGHT.
 - PARTICLE SIZE: BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70-85% PASSING A 0.75" SIEVE.
 - THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
 - LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
 - SOLUBLE SALTS CONTENT SHALL BE >0.0mmhos/cm.
 - THE pH SHALL BE BETWEEN 5.0 AND 8.0.
- ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
- ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES STEEPER THAN 3:1, UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE), AND A MINIMUM OF 36" WIDE. ON LONGER OR STEEPER SLOPES, THE BERM SHALL BE WIDER TO ACCOMMODATE THE POTENTIAL ADDITIONAL RUNOFF.
- FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OF CONCENTRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
- STRUCTURES MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED.

ORGANIC FILTER BERM

NOT TO SCALE

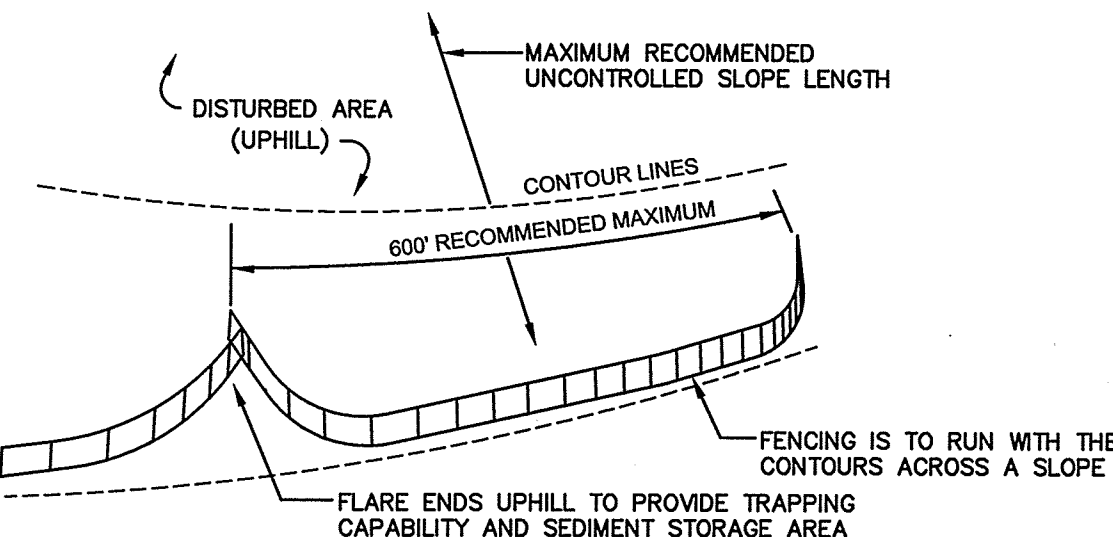


MAINTENANCE NOTE:

- ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION (Block and Gravel Drop Inlet Sediment Filter)

NOT TO SCALE



- SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
- IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
- SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING

- SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
- WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.

2. SEEDBED PREPARATION

- SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
- STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

3. ESTABLISHING A STAND

- LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
- SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
- REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNWETCH, BIRDSFOOT, TREFILO AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
- WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.

4. MULCH

- HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
- MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.

5. MAINTENANCE TO ESTABLISH A STAND

- PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
- FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
- CHANNALS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C	FAIR POOR POOR	GOOD GOOD GOOD	GOOD FAIR EXCELLENT	FAIR FAIR GOOD
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	D C	FAIR GOOD	EXCELLENT GOOD	EXCELLENT EXCELLENT	POOR FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A B C	GOOD GOOD GOOD	GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT	FAIR POOR FAIR
PLAY AREAS AND ATHLETIC FIELDS.	E F	FAIR FAIR	EXCELLENT EXCELLENT	EXCELLENT EXCELLENT	2/ 2/
GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.					
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.					
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.					

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFILO	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES

Design: BWG	Draft: BWG	Date: 10/20/15
Checked:WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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REV.	DATE	REVISION	BY
7	9/13/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM



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Civil Engineering Services

Designed and Produced in NH

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Plan Name: **EROSION AND SEDIMENT CONTROL DETAILS**

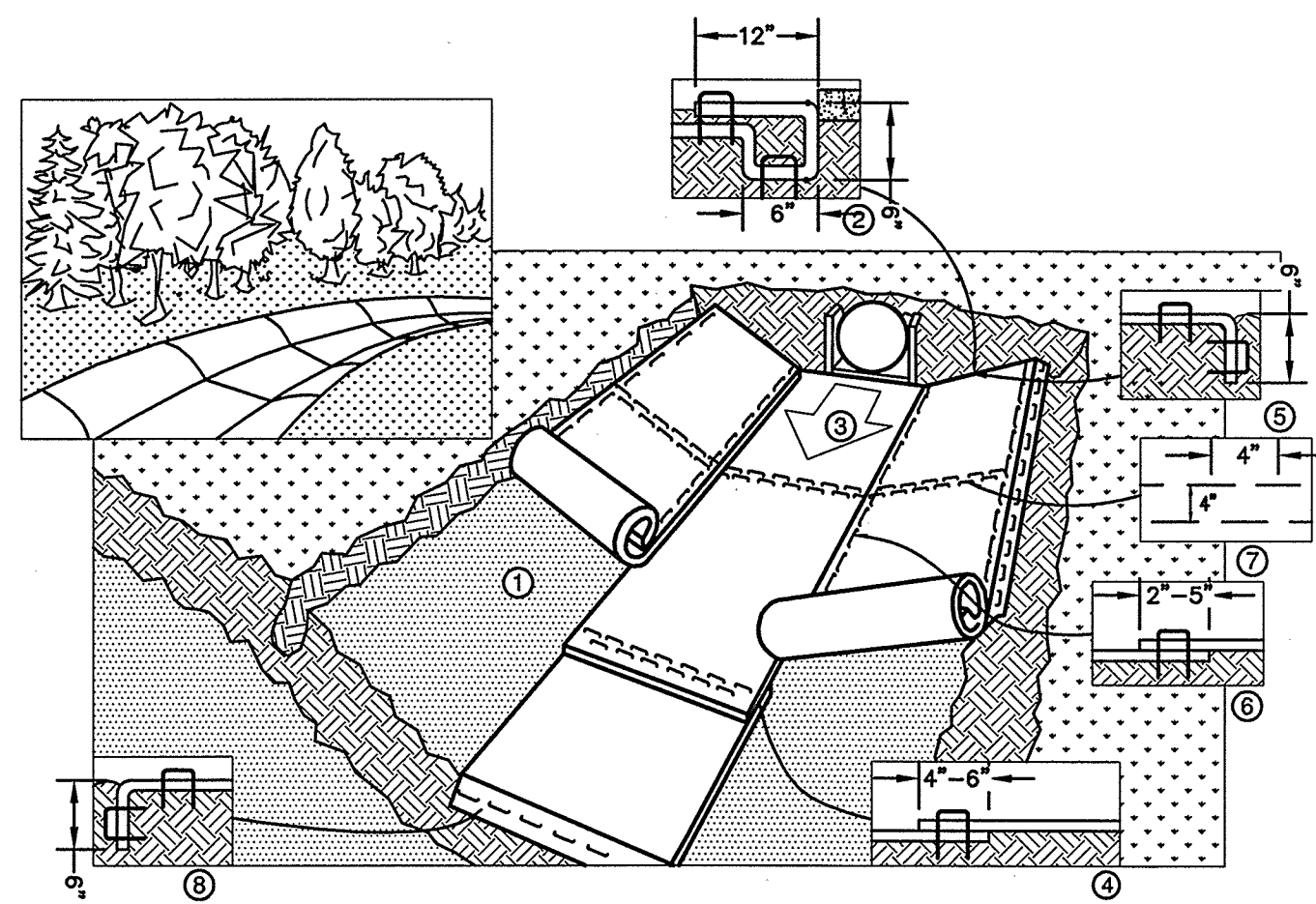
Project: **"DIRIGO PLAZA"
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092**

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101**

DRAWING No.

E1

SHEET 97 OF 120
JBE PROJECT NO. 14110



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE TIE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED. TO INSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

CRITICAL POINTS:

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTES:

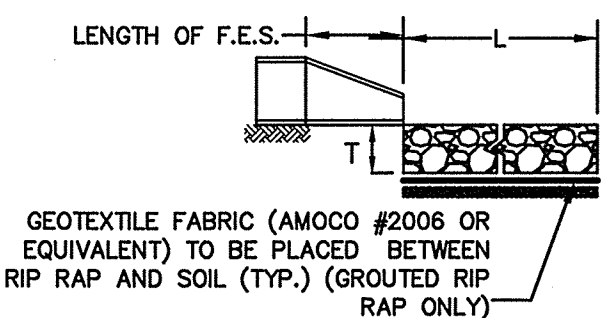
- * HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- ** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.



NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SWALE INSTALLATION
(North American Green)

NOT TO SCALE



SECTION A-A

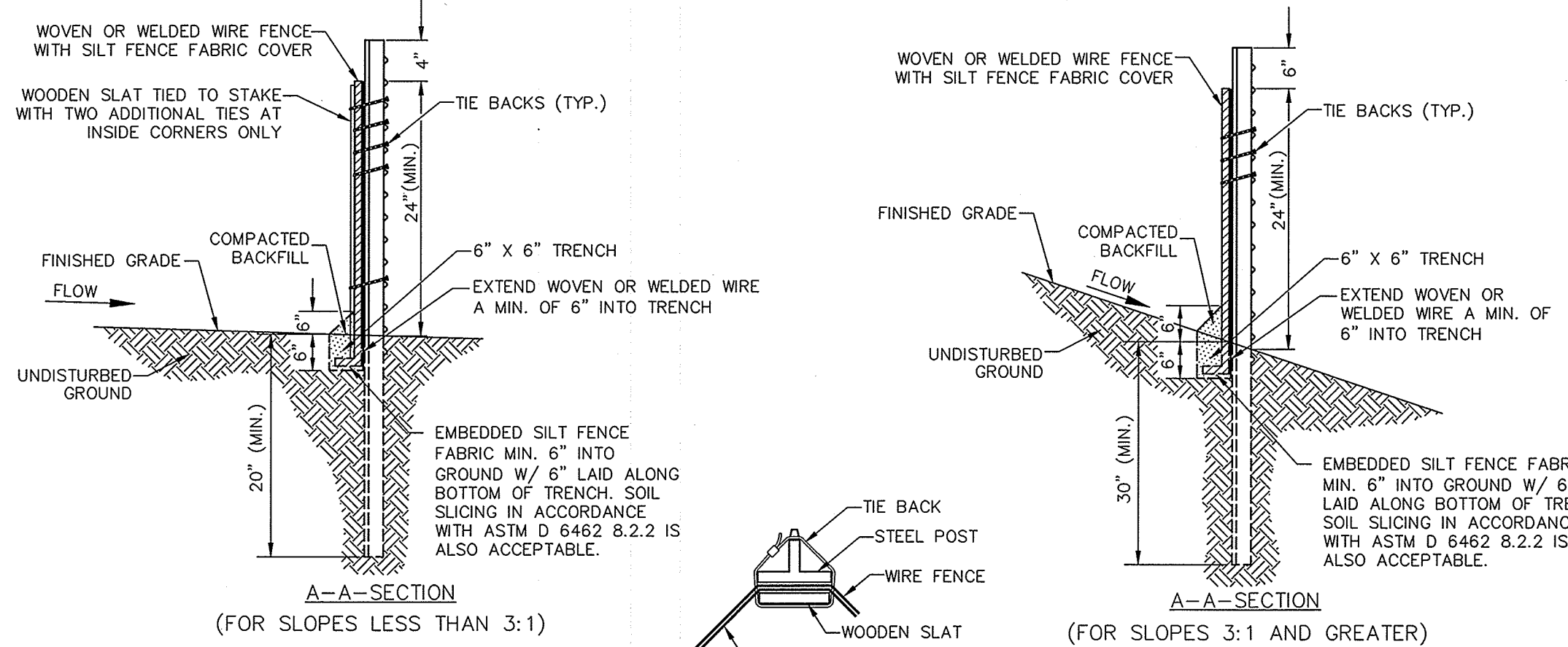
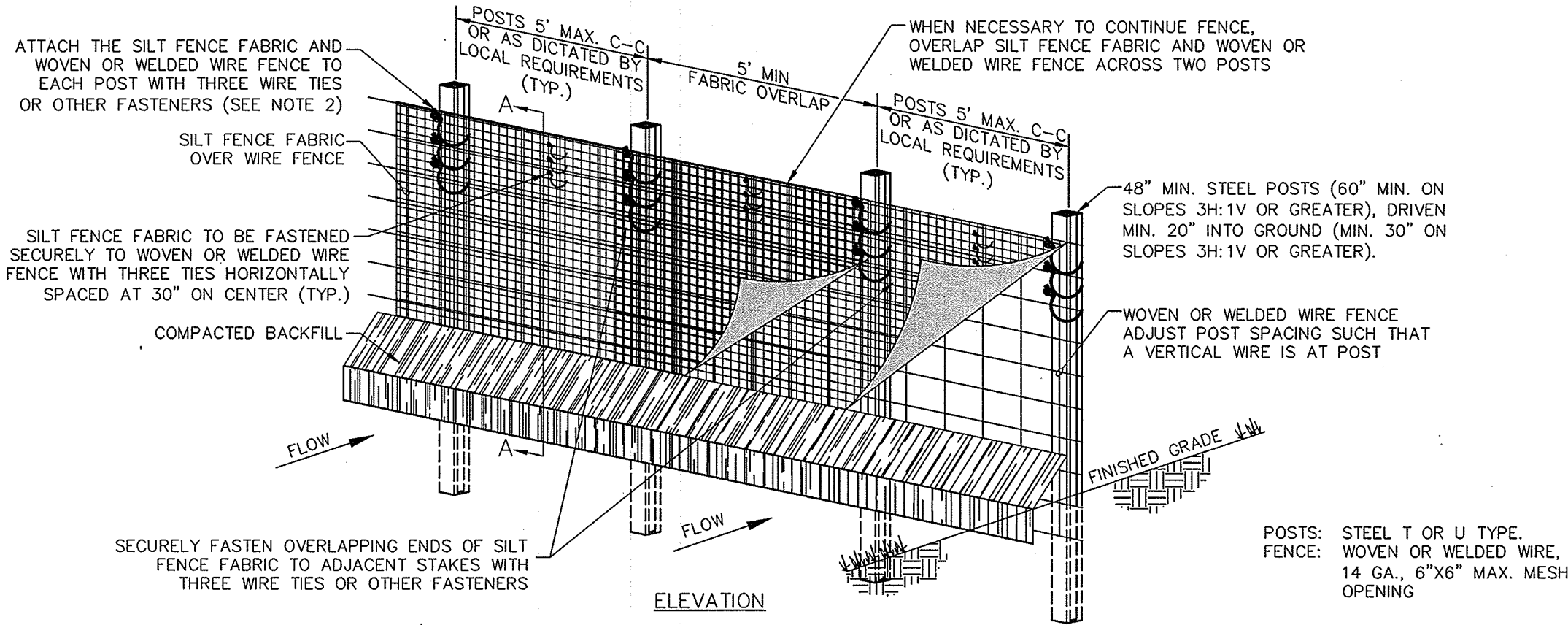
PIPE OUTLET TO FLAT AREA
WITH NO DEFINED CHANNEL

NOTES:

1. EROSION CONTROL MAT MAY BE EITHER GROUTED RIP-RAP OR LOW SLUMP CONCRETE.
2. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
3. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL. BOTTOM THROUGH THE LENGTH OF THE APRON.

EROSION CONTROL MAT

NOT TO SCALE



SPECIFICATIONS FOR SILT FENCE INSTALLATION

1. MATERIALS AND INSTALLATION SHALL COMPLY WITH ASTM D 6462 LATEST EDITION.
2. INSTALL SILT FENCE AT A FAIRLY LEVEL GRADE ALONG THE CONTOUR WITH THE ENDS CURVED UPHILL TO PROVIDE SUFFICIENT UPSTREAM STORAGE VOLUME FOR THE ANTICIPATED RUNOFF.
3. ATTACH THE GEOTEXTILE OR FABRIC TO THE WOVEN OR WELDED WIRE FENCE WITH THREE WIRE TIES OR OTHER FASTENERS (HORIZONTALLY SPACED EVERY 30"). ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART. AT EACH POST, ATTACH THE GEOTEXTILE OR FABRIC AND THE WOVEN OR WELDED WIRE FENCE TO THE POST AS PREVIOUSLY STATED. IN ADDITION, EACH TIE PLACED ON A POST SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
4. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED A MINIMUM OF 60" ACROSS TWO POSTS, AS SHOWN.
5. ALL SILT FENCE SHALL INCLUDE WIRE SUPPORT UNLESS THE STATIC SLICING EQUIPMENT IS UTILIZED TO INSTALL THE FENCE PER DETAIL, "SILT FENCE INSTALLATION (SLICING METHOD)".
6. WRAP APPROXIMATELY 6" OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
7. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQ. INCH. COMPACT THE UPSTREAM SIDE FIRST. COMPACT EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS.
8. ADD POST CAPS AS NEEDED BASED ON SITE CONDITIONS AND APPLICABLE AGENCY REQUIREMENTS.

MAINTENANCE NOTES

1. SILT FENCES SHALL BE INSPECTED ALONG ITS ENTIRETY AND MUST BE CLEANED WHEN SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE SILT FENCE. MAINTENANCE CLEANOUT MUST BE CONDUCTED REGULARLY TO PREVENT ACCUMULATED SEDIMENTS FROM REACHING ON-THIRD THE HEIGHT OF THE SILT FENCE.
2. ALL MATERIAL EXCAVATED FROM BEHIND SILT FENCE SHALL BE STOCKPILED ON AN UPLAND PORTION OF THE SITE IF SUITABLE FOR REUSE.
3. SPECIAL ATTENTION SHOULD BE PAID TO ENSURE THAT NO UNDERMINING OF SILT FENCE HAS OCCURRED AND THAT NO BYPASS IS OCCURRING AT JOINING SECTIONS.
4. IF EXCESS SEDIMENT IS ACCUMULATING IN ANY SECTION OF SILT FENCE, THE CONTRACTOR SHOULD IMPLEMENT ADDITIONAL UPSTREAM STABILIZATION MEASURES OR ADDITIONAL BMPs (PENDING CEC APPROVAL) TO PREVENT EXCESSIVE BUILDUP ON SILT FENCE.
5. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED.

TABLE 1 Temporary Silt Fence Material Property Requirements

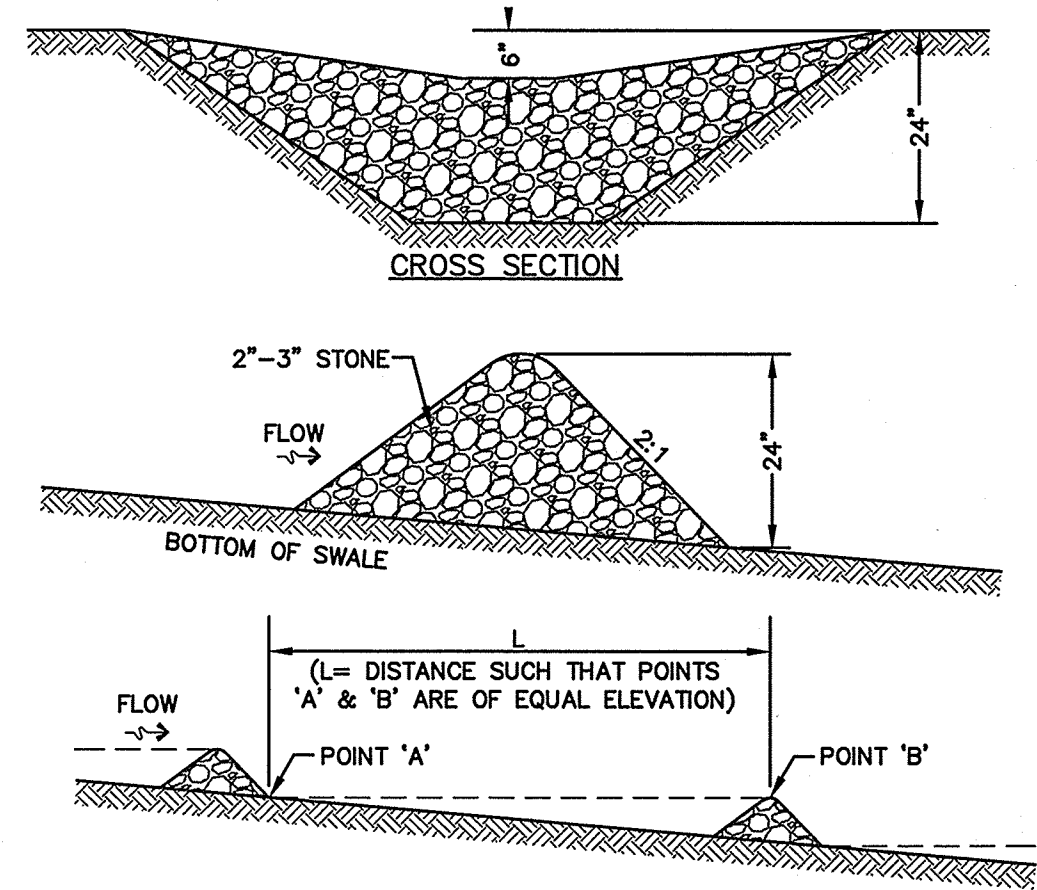
	Test Method	Units	Supported ^a Silt Fence	Unsupported ^a Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
	Machine Direction		400 (90)	550 (90)	MARV
	X-Machine Direction		400 (90)	450 (90)	MARV
Permittivity ^b	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size ^c	ASTM D 4751	mm (US Sieve #)	0.60 (30)	0.60 (30)	Max. ARV ^c
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500 h of exposure	70% after 500 h of exposure	Typical

^aSilt fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 in.) or prefabricated polymer mesh of equivalent strength.
^bThese default values are based on empirical evidence with a variety of sediments. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
^cAs measured in accordance with Test Method D 4632.

TABLE 1. TAKEN FROM ASTM D 6462-99 (2007)

SEDIMENTATION/SILT FENCE WITH WIRE BACKING (AROUND BUILDING "E" LOT)

NOT TO SCALE

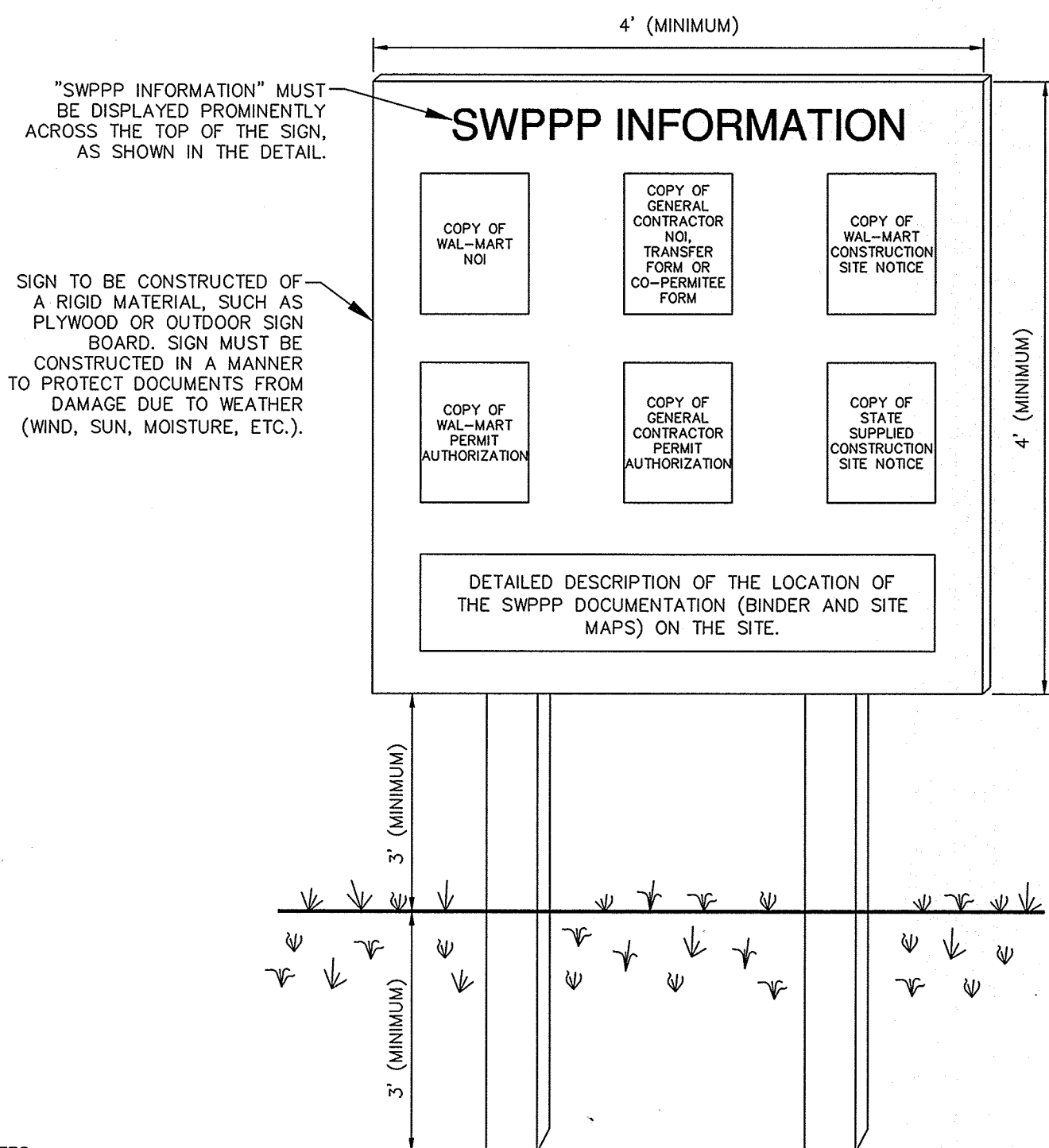


MAINTENANCE NOTE:

1. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDING AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM

NOT TO SCALE



NOTES:

1. THE SWPPP INFORMATION SIGN MUST BE LOCATED IN A PROMINENT, PUBLICLY ACCESSIBLE LOCATION NEAR THE MAIN ENTRANCE OF THE SITE, SUCH THAT THE DOCUMENTATION CAN BE READ WITHOUT ACCESSING THE JOBSITE, BUT NOT OBSTRUCTING VIEWS AS TO CAUSE A TRAFFIC SAFETY HAZARD.
2. ALL POSTED DOCUMENTS MUST BE MAINTAINED IN A CLEARLY READABLE CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION AND UNTIL THE NOTICE-OF-TERMINATION (NOT) IS FILED FOR THE PERMIT.
3. ALL PAGES OF NOTICES OF INTENT AND PERMIT AUTHORIZATIONS MUST BE POSTED. THE CONTRACTOR MAY UTILIZE ACCESSIBLE WATERPROOF FOLDERS TO STORE THESE DOCUMENTS IF IT WILL BE DIFFICULT TO POST ALL PAGES INDIVIDUALLY.
4. CONTRACTOR SHALL POST OTHER STORMWATER AND/OR EROSION AND SEDIMENT CONTROL RELATED PERMITS ON THE SIGN AS REQUIRED BY THE GOVERNING AGENCIES.
5. SUBSEQUENT PERMIT MODIFICATION REQUESTS OR RENEWAL APPLICATIONS AND THEIR ASSOCIATED AUTHORIZATIONS OR RESPONSES SHALL BE POSTED ON THE SWPPP SIGN.
6. SIGN SHALL BE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY AND EASEMENTS UNLESS APPROVED BY THE GOVERNING AGENCY.
7. CONTRACTOR IS RESPONSIBLE FOR ENSURING STABILITY OF THE SWPPP INFORMATION SIGN.

SWPPP INFORMATION SIGN

NOT TO SCALE

Design: BWG	Draft: BWG	Date: 10/20/15
Checked: WGM	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-PLAN.dwg		
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REV.	DATE	REVISION	BY
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3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

J/B
Jones & Beach Engineers, Inc.

Designed and Produced in NH

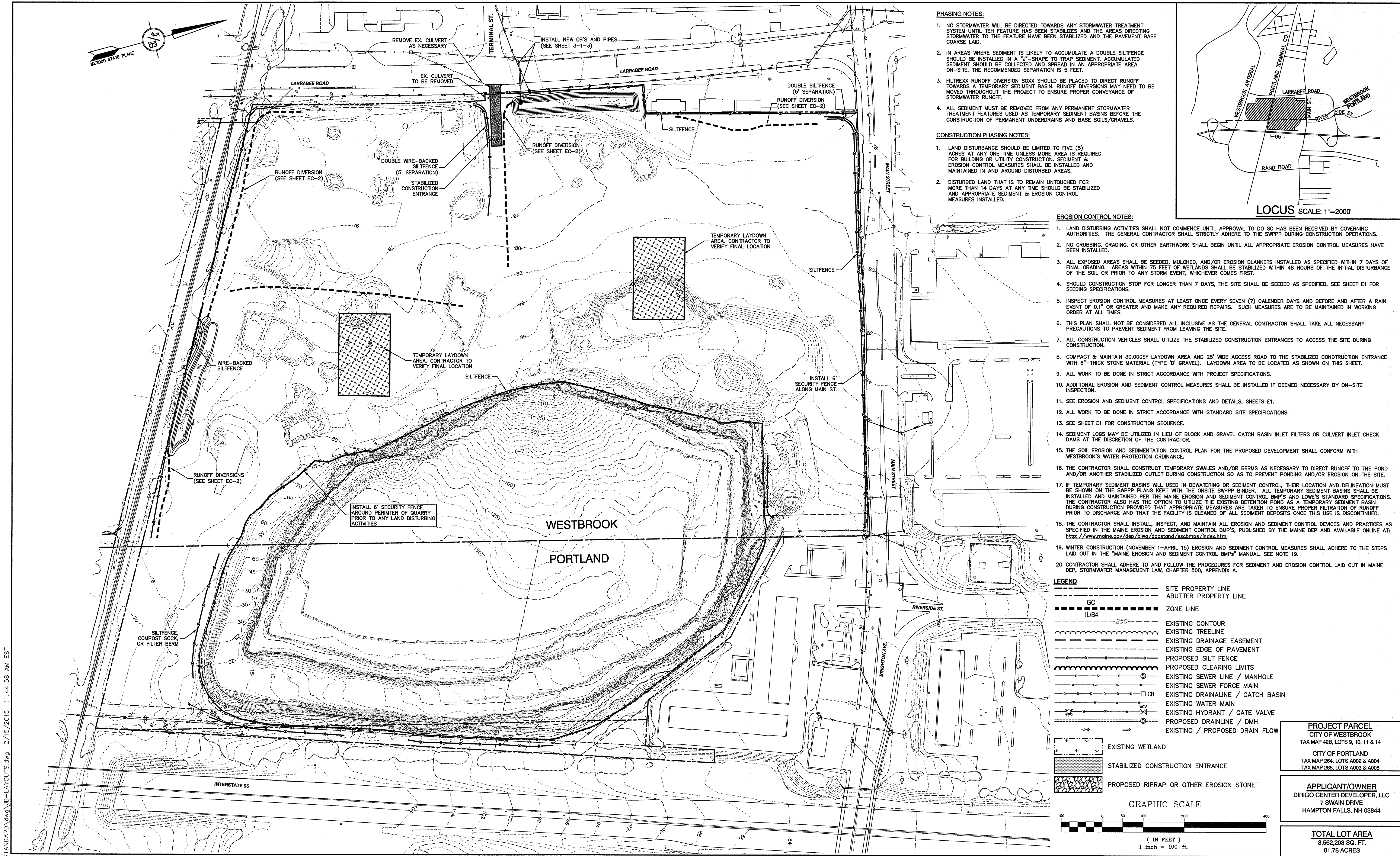
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.	E2
SHEET 98 OF 120 JBE PROJECT NO. 14110	



PHASING NOTES:

1. NO STORMWATER WILL BE DIRECTED TOWARDS ANY STORMWATER TREATMENT SYSTEM UNTIL THE FEATURE HAS BEEN STABILIZED AND THE AREAS DIRECTING STORMWATER TO THE FEATURE HAVE BEEN STABILIZED AND THE PAVEMENT BASE COARSE LAID.
2. IN AREAS WHERE SEDIMENT IS LIKELY TO ACCUMULATE A DOUBLE SILTFENCE SHOULD BE INSTALLED IN A "J"-SHAPE TO TRAP SEDIMENT. ACCUMULATED SEDIMENT SHOULD BE COLLECTED AND SPREAD IN AN APPROPRIATE AREA ON-SITE. THE RECOMMENDED SEPARATION IS 5 FEET.
3. FILTERXX RUNOFF DIVERSION SOXX SHOULD BE PLACED TO DIRECT RUNOFF TOWARDS A TEMPORARY SEDIMENT BASIN. RUNOFF DIVERSIONS MAY NEED TO BE MOVED THROUGHOUT THE PROJECT TO ENSURE PROPER CONVEYANCE OF STORMWATER RUNOFF.
4. ALL SEDIMENT MUST BE REMOVED FROM ANY PERMANENT STORMWATER TREATMENT FEATURES USED AS TEMPORARY SEDIMENT BASINS BEFORE THE CONSTRUCTION OF PERMANENT UNDERDRAINS AND BASE SOILS/GRAVELS.

CONSTRUCTION PHASING NOTES:

1. LAND DISTURBANCE SHOULD BE LIMITED TO FIVE (5) ACRES AT ANY ONE TIME UNLESS MORE AREA IS REQUIRED FOR BUILDING OR UTILITY CONSTRUCTION. SEDIMENT & EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN AND AROUND DISTURBED AREAS.
2. DISTURBED LAND THAT IS TO REMAIN UNTOUCHED FOR MORE THAN 14 DAYS AT ANY TIME SHOULD BE STABILIZED AND APPROPRIATE SEDIMENT & EROSION CONTROL MEASURES INSTALLED.

EROSION CONTROL NOTES:

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE SWPPP DURING CONSTRUCTION OPERATIONS.
2. NO GRUBBING, GRADING, OR OTHER EARTHWORK SHALL BEGIN UNTIL ALL APPROPRIATE EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
3. ALL EXPOSED AREAS SHALL BE SEEDED, MULCHED, AND/OR EROSION BLANKETS INSTALLED AS SPECIFIED WITHIN 7 DAYS OF FINAL GRADING. AREAS WITHIN 75 FEET OF WETLANDS SHALL BE STABILIZED WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
4. SHOULD CONSTRUCTION STOP FOR LONGER THAN 7 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED. SEE SHEET E1 FOR SEEDING SPECIFICATIONS.
5. INSPECT EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDER DAYS AND BEFORE AND AFTER A RAIN EVENT OF 0.1" OR GREATER AND MAKE ANY REQUIRED REPAIRS. SUCH MEASURES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES.
6. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
7. ALL CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCES TO ACCESS THE SITE DURING CONSTRUCTION.
8. COMPACT & MAINTAIN 30,000SF LAYDOWN AREA AND 25' WIDE ACCESS ROAD TO THE STABILIZED CONSTRUCTION ENTRANCE WITH 6"-THICK STONE MATERIAL (TYPE 'D' GRAVEL). LAYDOWN AREA TO BE LOCATED AS SHOWN ON THIS SHEET.
9. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.
11. SEE EROSION AND SEDIMENT CONTROL SPECIFICATIONS AND DETAILS, SHEETS E1.
12. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH STANDARD SITE SPECIFICATIONS.
13. SEE SHEET E1 FOR CONSTRUCTION SEQUENCE.
14. SEDIMENT LOGS MAY BE UTILIZED IN LIEU OF BLOCK AND GRAVEL CATCH BASIN INLET FILTERS OR CULVERT INLET CHECK DAMS AT THE DISCRETION OF THE CONTRACTOR.
15. THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN FOR THE PROPOSED DEVELOPMENT SHALL CONFORM WITH WESTBROOK'S WATER PROTECTION ORDINANCE.
16. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SWALES AND/OR BERMS AS NECESSARY TO DIRECT RUNOFF TO THE POND AND/OR ANOTHER STABILIZED OUTLET DURING CONSTRUCTION SO AS TO PREVENT PONDING AND/OR EROSION ON THE SITE.
17. IF TEMPORARY SEDIMENT BASINS WILL BE USED IN DEWATERING OR SEDIMENT CONTROL, THEIR LOCATION AND DELINEATION MUST BE SHOWN ON THE SWPPP PLANS KEPT WITH THE ON-SITE SWPPP BINDER. ALL TEMPORARY SEDIMENT BASINS SHALL BE INSTALLED AND MAINTAINED PER THE MAINE EROSION AND SEDIMENT CONTROL BMP'S AND LOWE'S STANDARD SPECIFICATIONS. THE CONTRACTOR ALSO HAS THE OPTION TO UTILIZE THE EXISTING DETENTION POND AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION PROVIDED THAT APPROPRIATE MEASURES ARE TAKEN TO ENSURE PROPER FILTRATION OF RUNOFF PRIOR TO DISCHARGE AND THAT THE FACILITY IS CLEANED OF ALL SEDIMENT DEPOSITS ONCE THIS USE IS DISCONTINUED.
18. THE CONTRACTOR SHALL INSTALL, INSPECT, AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND PRACTICES AS SPECIFIED IN THE MAINE EROSION AND SEDIMENT CONTROL BMP'S, PUBLISHED BY THE MAINE DEP AND AVAILABLE ONLINE AT: <http://www.maine.gov/dsp/blwa/docatand/essobmpa/index.htm>
19. WINTER CONSTRUCTION (NOVEMBER 1-APRIL 15) EROSION AND SEDIMENT CONTROL MEASURES SHALL ADHERE TO THE STEPS LAID OUT IN THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" MANUAL. SEE NOTE 19.
20. CONTRACTOR SHALL ADHERE TO AND FOLLOW THE PROCEDURES FOR SEDIMENT AND EROSION CONTROL LAID OUT IN MAINE DEP, STORMWATER MANAGEMENT LAW, CHAPTER 500, APPENDIX A.

LEGEND

---	SITE PROPERTY LINE
- - - -	ABUTTER PROPERTY LINE
---	ZONE LINE
GC	EXISTING CONTOUR
IL/B4	EXISTING TREELINE
---	EXISTING DRAINAGE EASEMENT
---	EXISTING EDGE OF PAVEMENT
---	PROPOSED SILT FENCE
---	PROPOSED CLEARING LIMITS
---	EXISTING SEWER LINE / MANHOLE
---	EXISTING SEWER FORCE MAIN
---	EXISTING DRAINLINE / CATCH BASIN
---	EXISTING WATER MAIN
---	EXISTING HYDRANT / GATE VALVE
---	PROPOSED DRAINLINE / DMH
---	EXISTING / PROPOSED DRAIN FLOW
---	EXISTING WETLAND
---	STABILIZED CONSTRUCTION ENTRANCE
---	PROPOSED RIPRAP OR OTHER EROSION STONE

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPER, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG	Draft: ISM	Date: 10/20/15
Checked: WGM	Scale: AS SHOWN	Project No.: 14110
Drawing Name: 14110-PLAN-EC-1.DWG		
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J/B Jones & Beach Engineers, Inc.

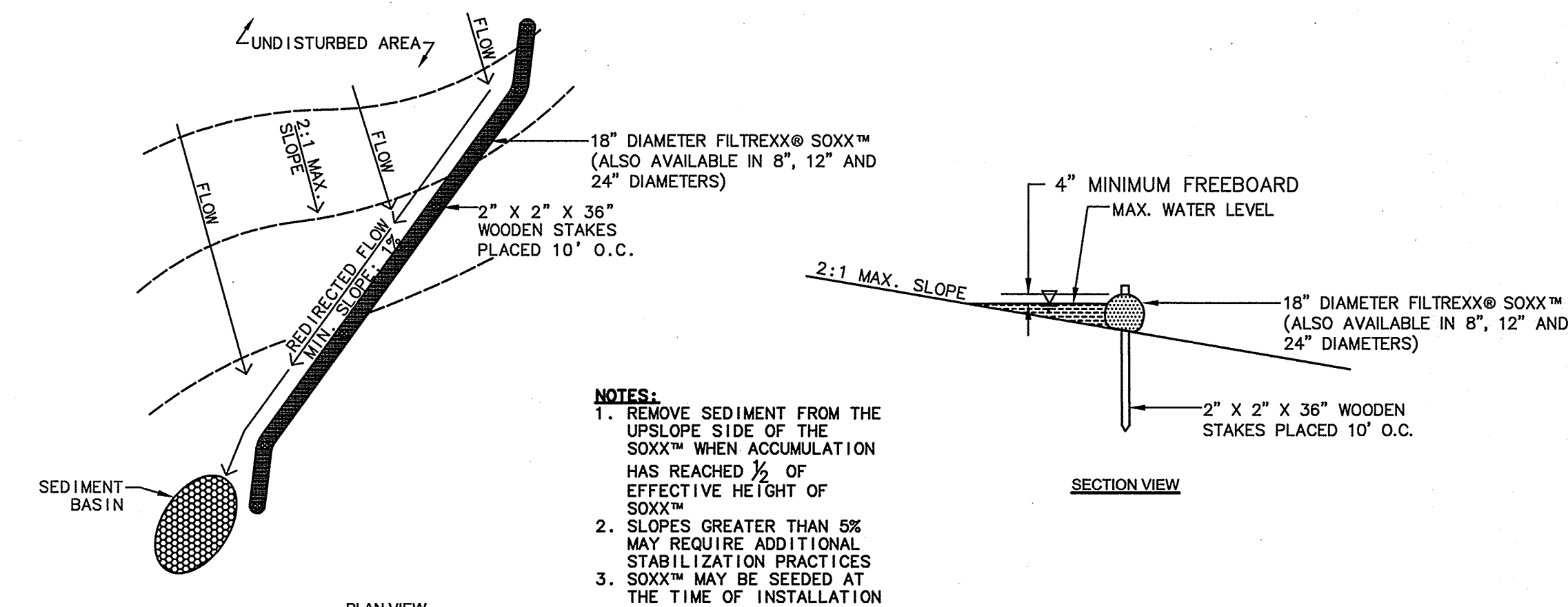
85 Portsmouth Ave.
PO Box 219
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Civil Engineering Services

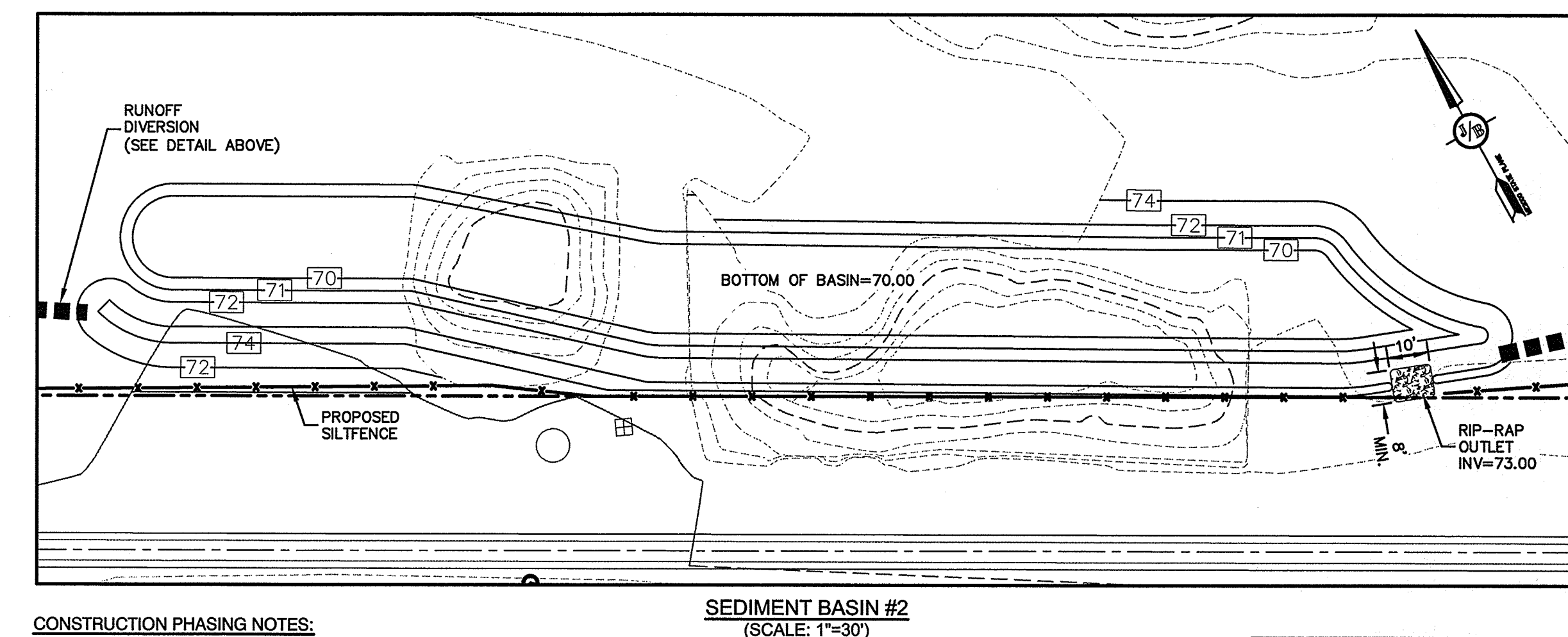
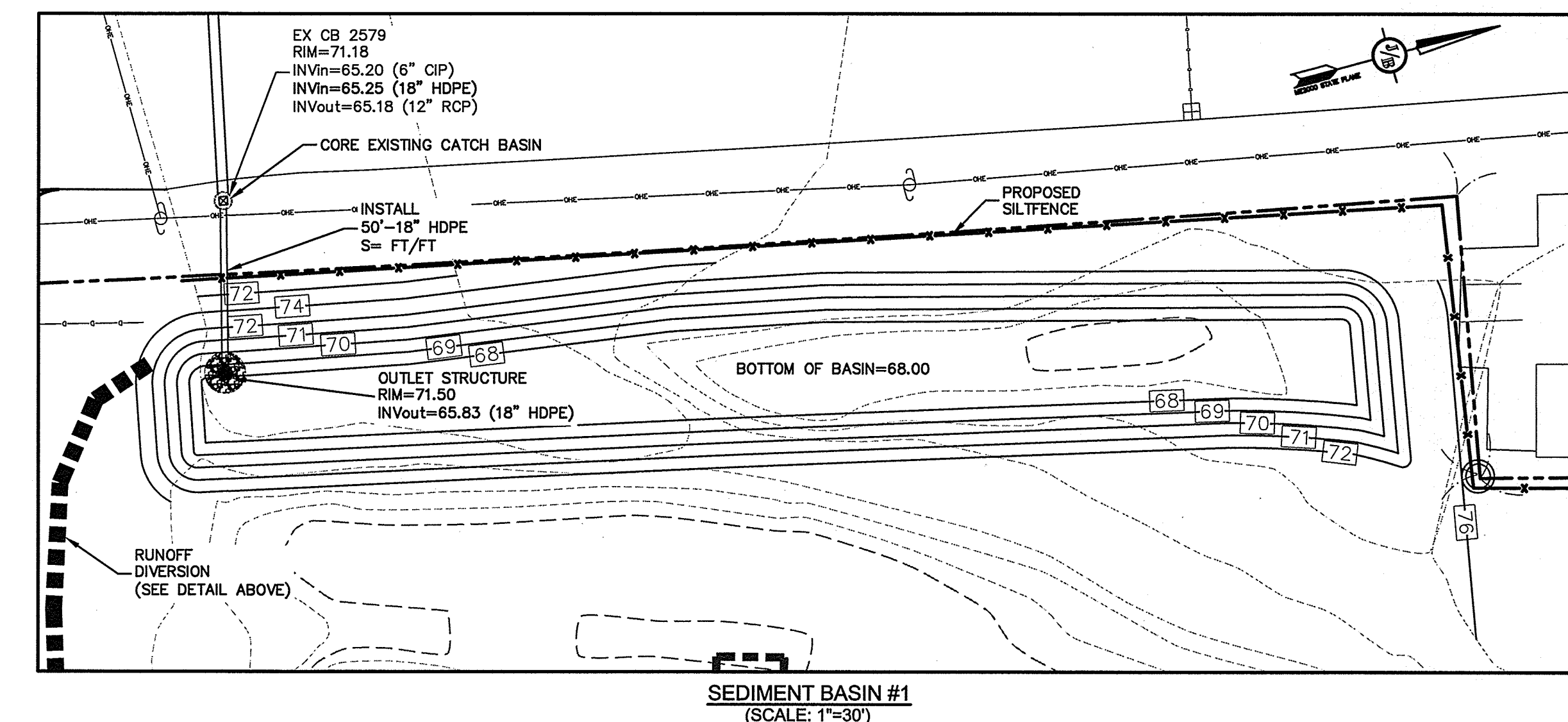
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	EROSION CONTROL - NORTH CAMPUS - PHASE 1
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.	EC-1
SHEET 99 OF 120 JBE PROJECT NO. 14110	

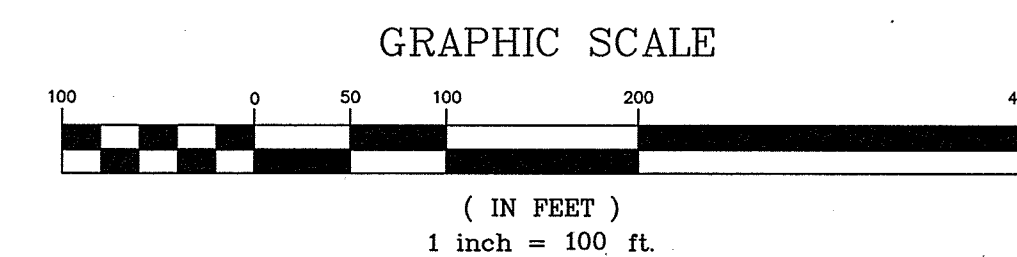


FILTREX SOXX RUNOFF DIVERSION DETAIL
NOT TO SCALE



CONSTRUCTION PHASING NOTES:

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2. DISTURBED LAND THAT IS TO REMAIN UNTOUCHED FOR MORE THAN 14 DAYS AT ANY TIME SHOULD BE STABILIZED AND APPROPRIATE SEDIMENT & EROSION CONTROL MEASURES INSTALLED.



PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPER, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG Draft: ISM Date: 10/20/15
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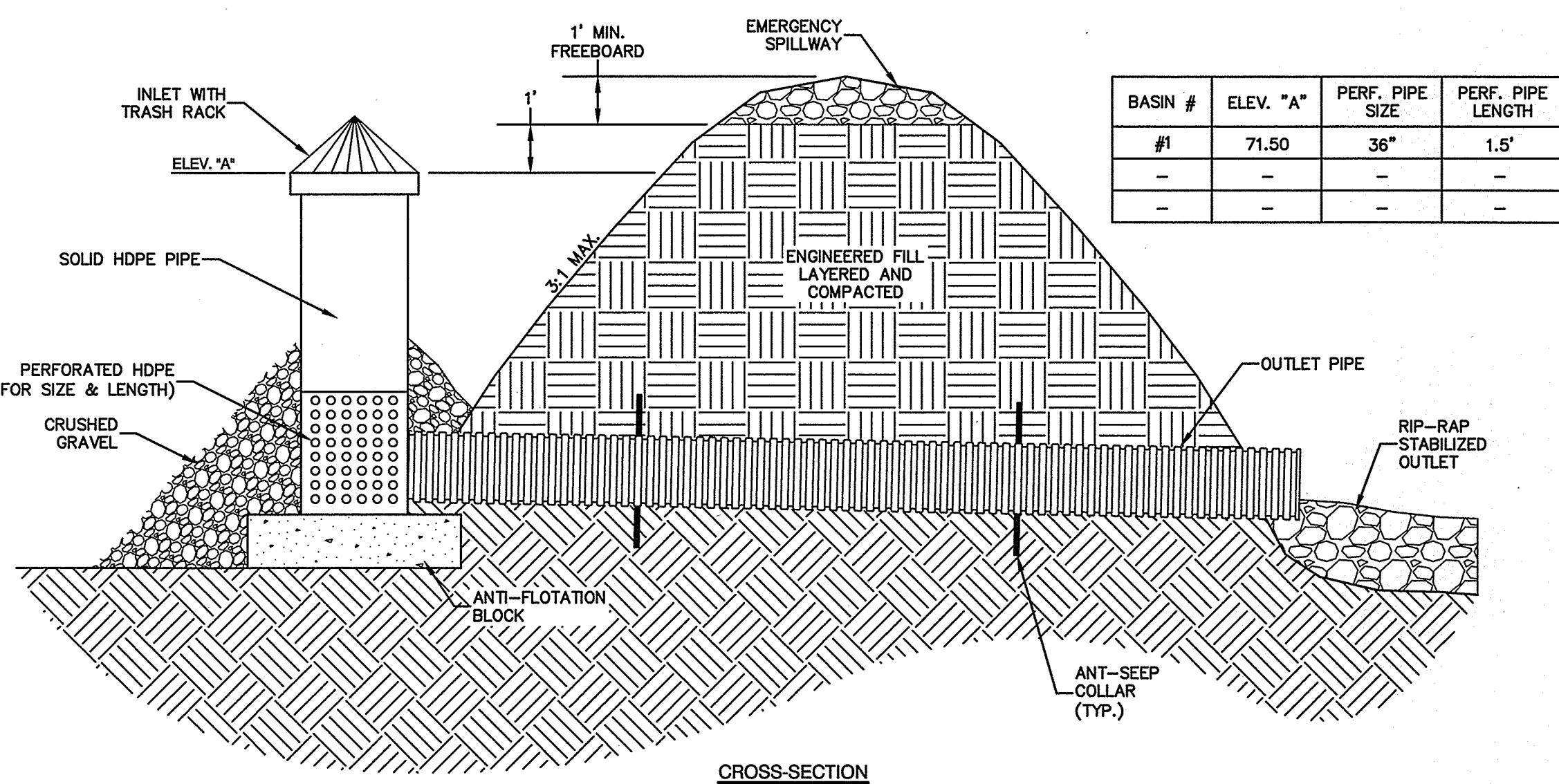
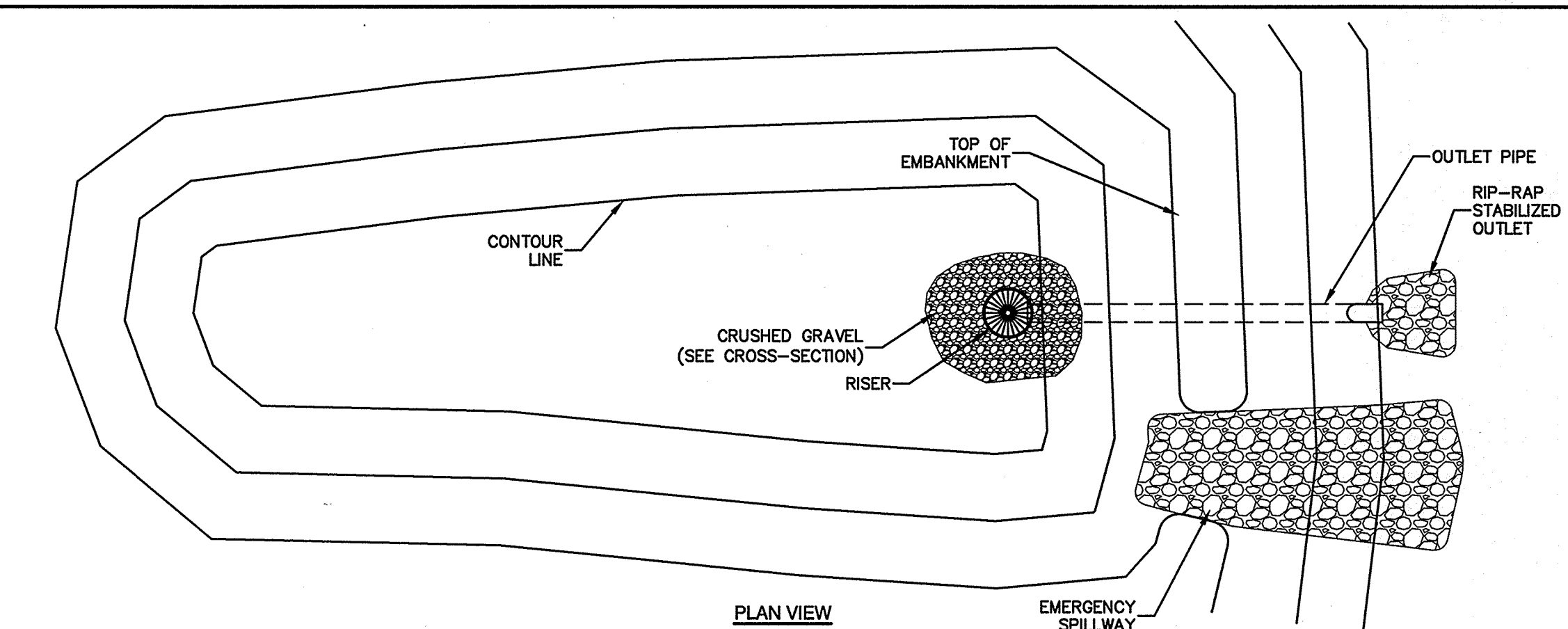
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J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EROSION CONTROL - NORTH CAMPUS - PHASE 1**
Project: **"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092**
Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

EC-2

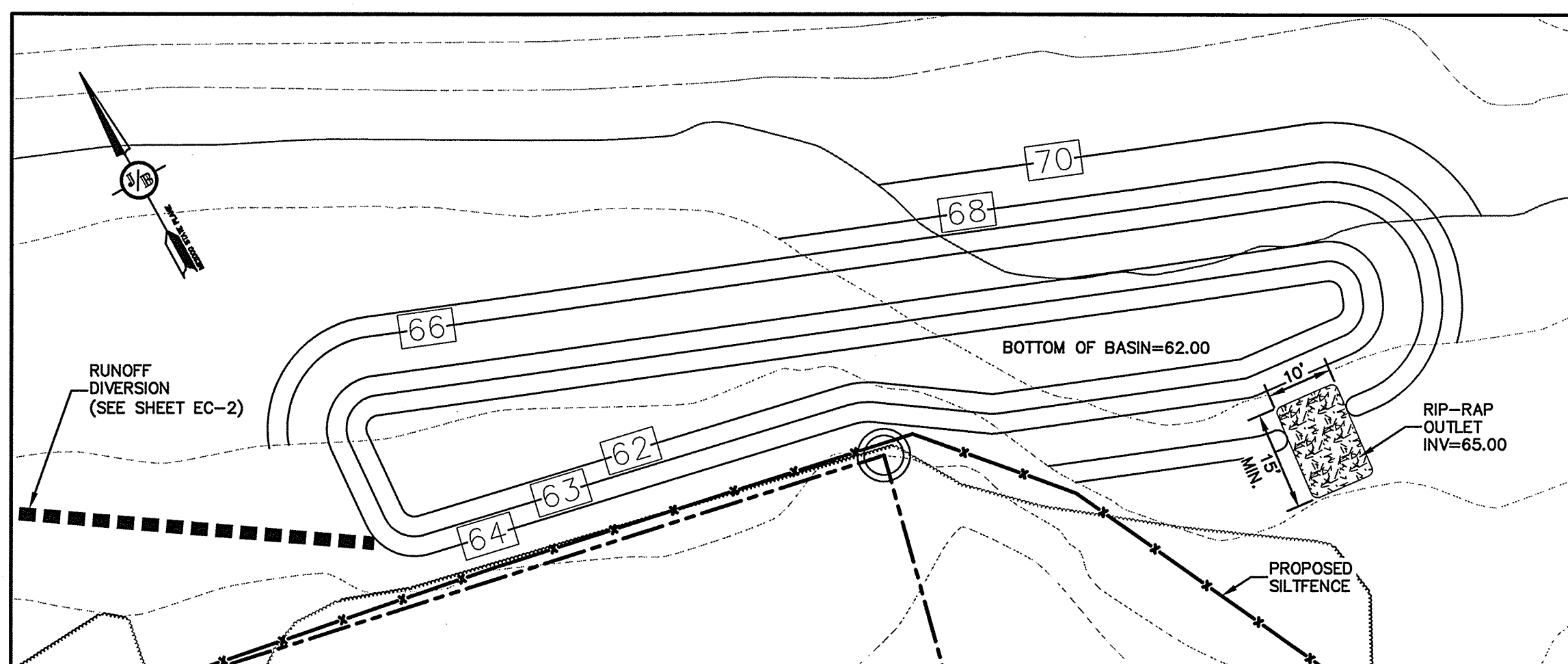
SHEET 100 OF 120
JBE PROJECT NO. 14110



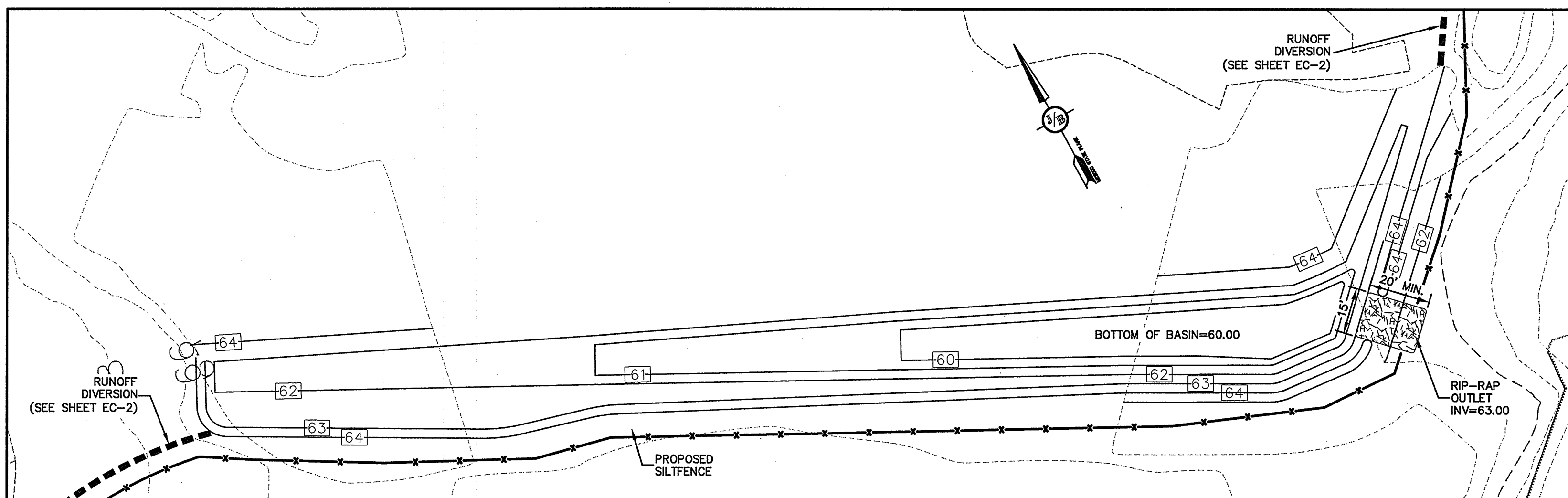
- NOTES:
1. THE EMBANKMENT FOUNDATION AREA SHOULD BE CLEARED OF STUMPS, ROOTS, BRUSH, BOULDERS, ETC. TO PROVIDE GOOD CONTACT.
 2. THE NATIVE SOIL SHOULD BE SCARIFIED AND HAVE SUFFICIENT MOISTURE FOR THE FIRST LAYER OF FILL.
 3. AN OVERFLOW OUTLET OR SPILLWAY SHOULD BE CONSTRUCTED WITHIN THE EMBANKMENT, AND BE PROTECTED WITH GEOTEXTILE FABRIC AND RIPRAP. THE CENTER OF THE SPILLWAY SHOULD BE AT LEAST 6 INCHES LOWER THAN ITS OUTER EDGES. A ROCK OUTLET MAY BE NECESSARY FOR COUNTRY DISSEMINATION.
 4. BASINS SHOULD HAVE A MINIMUM DEPTH OF 2 FEET, WITH EMBANKMENTS THAT ARE STABILIZED (EROSION CONTROL MIX, RIPRAP OR SAND BAGS).
 5. FILL MATERIAL SHOULD BE FREE OF ROOTS, FROZEN SOIL AND STONES. FILL SHOULD BE PLACED IN 6-INCH LIFTS BEFORE COMPACTION TO INSURE A GOOD BOND BETWEEN LAYERS.
 6. THE MOISTURE CONTENT OF THE FILL MATERIAL SHOULD BE ADEQUATE FOR COMPACTION.
 7. THE TOP OF THE EMBANKMENT SHOULD BE AT LEAST 18-INCHES ABOVE THE CREST OF THE RISER.
 8. FILL ADJACENT TO STRUCTURES, PIPE CONDUITS, AND ANTI-SEEP COLLARS SHOULD BE COMPACTION TO 95% STANDARD PROCTOR. FILL ADJACENT TO POURED IN-PLACE CONCRETE STRUCTURES SHOULD NOT BE COMPACTION UNTIL THE CONCRETE HAS GAINED THE STRENGTH TO SUPPORT THE LOAD.
 9. A PIPED OUTLET CAN BE FITTED TO A BASIN INSTEAD OF AN OVERFLOW SPILLWAY. THE CAPACITY OF THE OUTLET SHOULD BE ADEQUATE TO DISCHARGE ANTICIPATED FLOWS.
 10. THE PERFORATED RISER SHOULD HAVE ITS TOP 2/3RD PERFORATED OR SLOTTED TO THE TOP 6 INCHES OF THE BARREL. THE OUTLET SHOULD BE SURROUNDED WITH GEOTEXTILE AND A CONE OF GRAVEL TO FILTER THE FINE SEDIMENT PARTICLES.
 11. THE RISER SHOULD BE WEIGHTED BY A BASE AND GRAVEL TO PREVENT FLotation.
 12. ALL PIPE JOINTS SHOULD BE WATERTIGHT USING COUPLINGS, GASKETS, CAULKING, OR WELDING.

SEDIMENT BASIN DETAIL

NOT TO SCALE



SEDIMENT BASIN #3
(SCALE: 1"=20')



SEDIMENT BASIN #4
(SCALE: 1"=30')

CONSTRUCTION PHASING NOTES:

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PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 284, LOTS A002 & A004
TAX MAP 285, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPER, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG Draft: ISM Date: 10/20/15
Checked: WGM Scale: AS SHOWN Project No.: 14110
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Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EROSION CONTROL - SOUTH CAMPUS - PHASE 1**

Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092

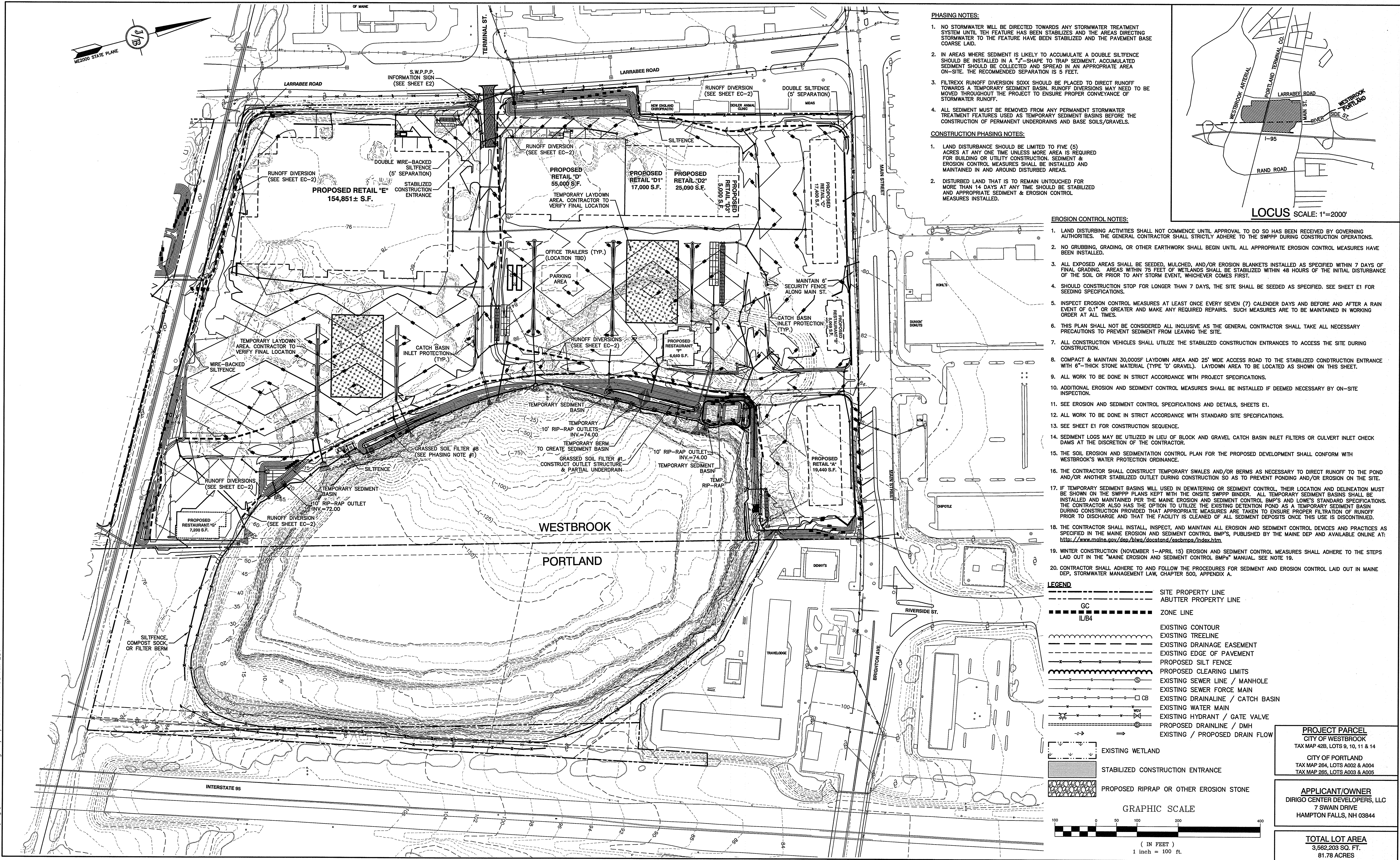
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LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

EC-3

SHEET 101 OF 120
JBE PROJECT NO. 14110

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PHASING NOTES:

1. NO STORMWATER WILL BE DIRECTED TOWARDS ANY STORMWATER TREATMENT SYSTEM UNTIL THE FEATURE HAS BEEN STABILIZED AND THE AREAS DIRECTING STORMWATER TO THE FEATURE HAVE BEEN STABILIZED AND THE PAVEMENT BASE COARSE LAID.
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2. NO GRUBBING, GRADING, OR OTHER EARTHWORK SHALL BEGIN UNTIL ALL APPROPRIATE EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
3. ALL EXPOSED AREAS SHALL BE SEEDED, MULCHED, AND/OR EROSION BLANKETS INSTALLED AS SPECIFIED WITHIN 7 DAYS OF FINAL GRADING. AREAS WITHIN 75 FEET OF WETLANDS SHALL BE STABILIZED WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
4. SHOULD CONSTRUCTION STOP FOR LONGER THAN 7 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED. SEE SHEET E1 FOR SEEDING SPECIFICATIONS.
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12. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH STANDARD SITE SPECIFICATIONS.
13. SEE SHEET E1 FOR CONSTRUCTION SEQUENCE.
14. SEDIMENT LOGS MAY BE UTILIZED IN LIEU OF BLOCK AND GRAVEL CATCH BASIN INLET FILTERS OR CULVERT INLET CHECK DAMS AT THE DISCRETION OF THE CONTRACTOR.
15. THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN FOR THE PROPOSED DEVELOPMENT SHALL CONFORM WITH WESTBROOK'S WATER PROTECTION ORDINANCE.
16. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SWALES AND/OR BERMS AS NECESSARY TO DIRECT RUNOFF TO THE POND AND/OR ANOTHER STABILIZED OUTLET DURING CONSTRUCTION SO AS TO PREVENT PONDING AND/OR EROSION ON THE SITE.
17. IF TEMPORARY SEDIMENT BASINS WILL BE USED IN DEWATERING OR SEDIMENT CONTROL, THEIR LOCATION AND DELINEATION MUST BE SHOWN ON THE SWPPP PLANS KEPT WITH THE ON-SITE SWPPP BINDER. ALL TEMPORARY SEDIMENT BASINS SHALL BE INSTALLED AND MAINTAINED PER THE MAINE EROSION AND SEDIMENT CONTROL BMP'S AND LOWE'S STANDARD SPECIFICATIONS. THE CONTRACTOR ALSO HAS THE OPTION TO UTILIZE THE EXISTING DETENTION POND AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION PROVIDED THAT APPROPRIATE MEASURES ARE TAKEN TO ENSURE PROPER FILTRATION OF RUNOFF PRIOR TO DISCHARGE AND THAT THE FACILITY IS CLEANED OF ALL SEDIMENT DEPOSITS ONCE THIS USE IS DISCONTINUED.
18. THE CONTRACTOR SHALL INSTALL, INSPECT, AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND PRACTICES AS SPECIFIED IN THE MAINE EROSION AND SEDIMENT CONTROL BMP'S, PUBLISHED BY THE MAINE DEP AND AVAILABLE ONLINE AT: <http://www.maine.gov/dep/blwq/docstand/escbmps/index.htm>
19. WINTER CONSTRUCTION (NOVEMBER 1-APRIL 15) EROSION AND SEDIMENT CONTROL MEASURES SHALL ADHERE TO THE STEPS LAID OUT IN THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" MANUAL. SEE NOTE 19.
20. CONTRACTOR SHALL ADHERE TO AND FOLLOW THE PROCEDURES FOR SEDIMENT AND EROSION CONTROL LAID OUT IN MAINE DEP, STORMWATER MANAGEMENT LAW, CHAPTER 500, APPENDIX A.

LEGEND

---	SITE PROPERTY LINE
---	ABUTTER PROPERTY LINE
---	ZONE LINE
---	EXISTING CONTOUR
---	EXISTING TREELINE
---	EXISTING DRAINAGE EASEMENT
---	EXISTING EDGE OF PAVEMENT
---	PROPOSED SILT FENCE
---	PROPOSED CLEARING LIMITS
---	EXISTING SEWER LINE / MANHOLE
---	EXISTING SEWER FORCE MAIN
---	EXISTING DRAINLINE / CATCH BASIN
---	EXISTING WATER MAIN
---	EXISTING HYDRANT / GATE VALVE
---	PROPOSED DRAINLINE / DMH
---	EXISTING / PROPOSED DRAIN FLOW
---	EXISTING WETLAND
---	STABILIZED CONSTRUCTION ENTRANCE
---	PROPOSED RIPRAP OR OTHER EROSION STONE

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14

CITY OF PORTLAND
TAX MAP 284, LOTS A002 & A004
TAX MAP 285, LOTS A003 & A005

APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

Design: BWG Draft: ISM Date: 10/20/15
Checked: WGM Scale: AS SHOWN Project No.: 14110
Drawing Name: 14110-PLAN-EC-2.DWG

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7	9/12/16	REVISED PER REVIEW COMMENTS	ISM
6	8/23/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
5	6/27/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
4	6/16/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EROSION CONTROL - NORTH CAMPUS - PHASE 1**

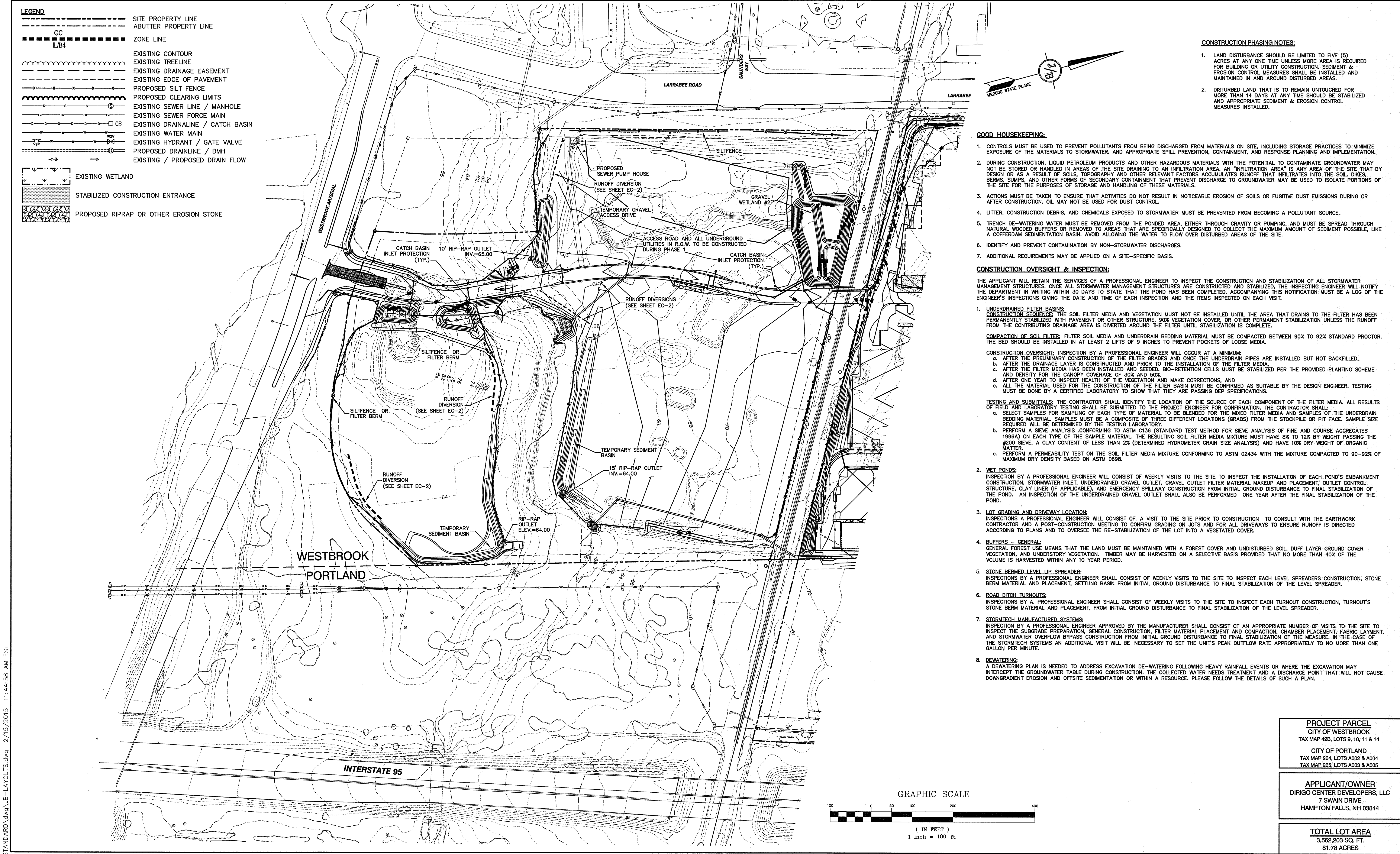
Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

DRAWING No.

EC-4

SHEET 102 OF 120
JBE PROJECT NO. 14110



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Design: BWG	Draft: ISM	Date: 10/20/15
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REV.	DATE	REVISION	BY
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3	6/10/16	REVISED PER PLANNING BOARD & MEDEP COMMENTS	ISM
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Plan Name:	EROSION CONTROL - SOUTH CAMPUS - PHASE 1
Project:	"DIRIGO PLAZA" 80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092
Owner of Record:	PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220 LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14

CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

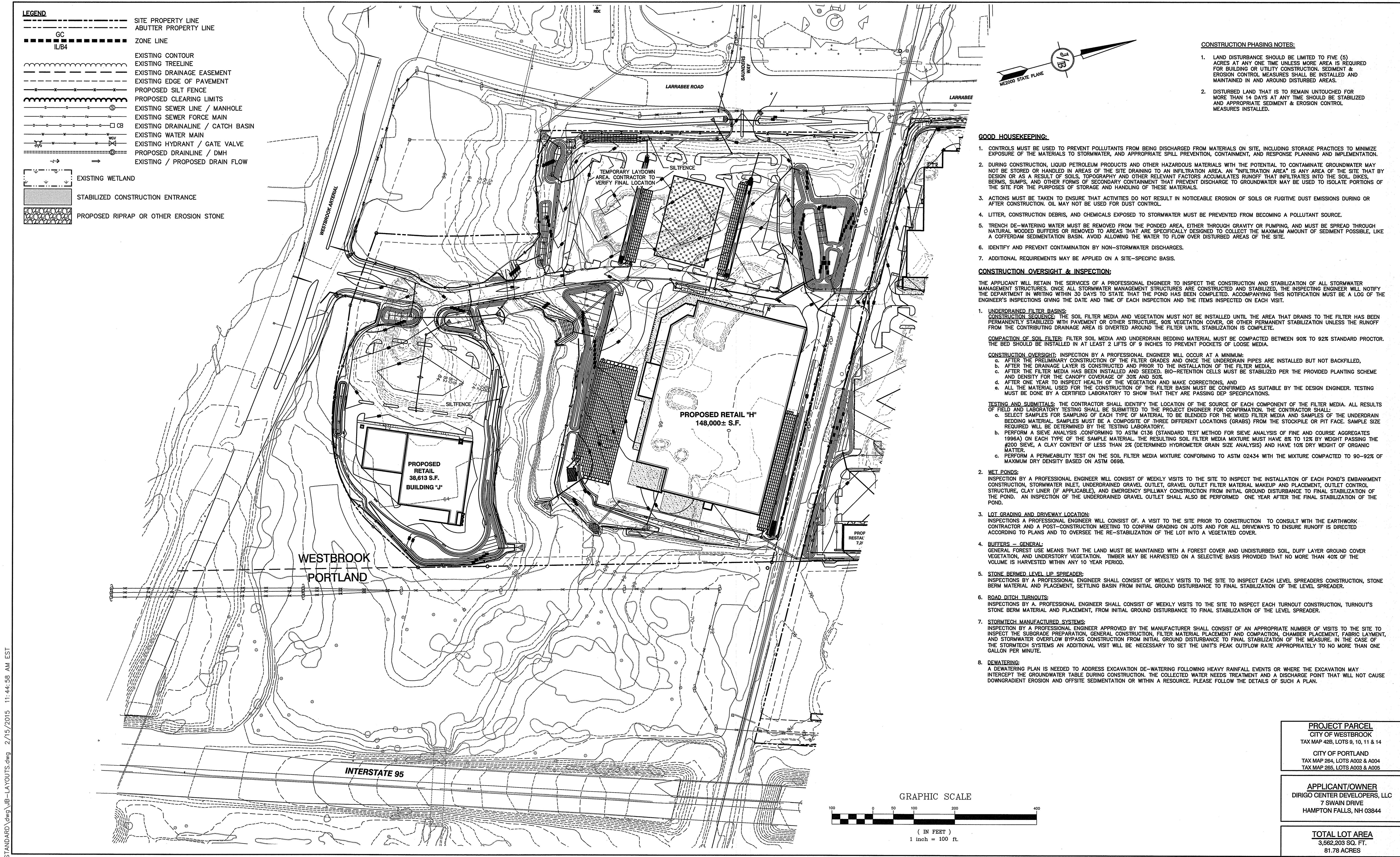
APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

DRAWING No.

EC-5

SHEET 103 OF 120
JBE PROJECT NO. 14110



- LEGEND**
- SITE PROPERTY LINE
 - ABUTTER PROPERTY LINE
 - GC --- ZONE LINE
 - IL/B4 ---
 - EXISTING CONTOUR
 - EXISTING TREELINE
 - EXISTING DRAINAGE EASEMENT
 - EXISTING EDGE OF PAVEMENT
 - PROPOSED SILT FENCE
 - PROPOSED CLEARING LIMITS
 - EXISTING SEWER LINE / MANHOLE
 - EXISTING SEWER FORCE MAIN
 - EXISTING DRAINLINE / CATCH BASIN
 - EXISTING WATER MAIN
 - EXISTING HYDRANT / GATE VALVE
 - PROPOSED DRAINLINE / DMH
 - EXISTING / PROPOSED DRAIN FLOW
 - EXISTING WETLAND
 - STABILIZED CONSTRUCTION ENTRANCE
 - PROPOSED RIPRAP OR OTHER EROSION STONE

- CONSTRUCTION PHASING NOTES:**
1. LAND DISTURBANCE SHOULD BE LIMITED TO FIVE (5) ACRES AT ANY ONE TIME UNLESS MORE AREA IS REQUIRED FOR BUILDING OR UTILITY CONSTRUCTION. SEDIMENT & EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN AND AROUND DISTURBED AREAS.
 2. DISTURBED LAND THAT IS TO REMAIN UNTOUCHED FOR MORE THAN 14 DAYS AT ANY TIME SHOULD BE STABILIZED AND APPROPRIATE SEDIMENT & EROSION CONTROL MEASURES INSTALLED.

- GOOD HOUSEKEEPING:**
1. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
 2. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
 3. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.
 4. LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
 5. TRENCH DE-WATERING WATER MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE.
 6. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES.
 7. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

- CONSTRUCTION OVERSIGHT & INSPECTION:**
- THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE POND HAS BEEN COMPLETED. ACCOMPANYING THIS 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.
1. **UNDERDRAINED FILTER BASINS:**
CONSTRUCTION SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER 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 FILTER UNTIL STABILIZATION IS COMPLETE.
COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED BETWEEN 90% TO 92% STANDARD PROCTOR. THE BED SHOULD BE INSTALLED IN AT LEAST 2 LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.
CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:
 - a. AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED,
 - b. AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA,
 - c. AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDING, BIO-RETENTION CELLS MUST BE STABILIZED PER THE PROVIDED PLANTING SCHEME AND DENSITY FOR THE CANOPY COVERAGE OF 30% AND 50%.
 - d. AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS, AND
 - e. ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.**TESTING AND SUBMITTALS:** THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:
 - a. SELECT SAMPLES FOR SAMPLING OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
 - b. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL. THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
 - c. PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90-92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.
 2. **WET PONDS:**
INSPECTION BY A PROFESSIONAL ENGINEER WILL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE INSTALLATION OF EACH POND'S EMBANKMENT CONSTRUCTION, STORMWATER INLET, UNDERDRAINED GRAVEL OUTLET, GRAVEL OUTLET FILTER MATERIAL MAKEUP AND PLACEMENT, OUTLET CONTROL STRUCTURE, CLAY LINER (IF APPLICABLE), AND EMERGENCY SPILLWAY CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND. AN INSPECTION OF THE UNDERDRAINED GRAVEL OUTLET SHALL ALSO BE PERFORMED ONE YEAR AFTER THE FINAL STABILIZATION OF THE POND.
 3. **LOT GRADING AND DRIVEWAY LOCATION:**
INSPECTIONS A PROFESSIONAL ENGINEER WILL CONSIST OF: A VISIT TO THE SITE PRIOR TO CONSTRUCTION TO CONSULT WITH THE EARTHWORK CONTRACTOR AND A POST-CONSTRUCTION MEETING TO CONFIRM GRADING ON JOBS AND FOR ALL DRIVEWAYS TO ENSURE RUNOFF IS DIRECTED ACCORDING TO PLANS AND TO OVERSEE THE RE-STABILIZATION OF THE LOT INTO A VEGETATED COVER.
 4. **BUFFERS - GENERAL:**
GENERAL FOREST USE MEANS THAT THE LAND MUST BE MAINTAINED WITH A FOREST COVER AND UNDISTURBED SOIL, DUFF LAYER GROUND COVER VEGETATION, AND UNDERSTORY VEGETATION. TIMBER MAY BE HARVESTED ON A SELECTIVE BASIS PROVIDED THAT NO MORE THAN 40% OF THE VOLUME IS HARVESTED WITHIN ANY 10 YEAR PERIOD.
 5. **STONE BERMED LEVEL LIP SPREADER:**
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH LEVEL SPREADERS CONSTRUCTION, STONE BERM MATERIAL AND PLACEMENT, SETTLING BASIN FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE LEVEL SPREADER.
 6. **ROAD DITCH TURNOUTS:**
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH TURNOUT CONSTRUCTION, TURNOUT'S STONE BERM MATERIAL AND PLACEMENT, FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE LEVEL SPREADER.
 7. **STORMTECH MANUFACTURED SYSTEMS:**
INSPECTION BY A PROFESSIONAL ENGINEER APPROVED BY THE MANUFACTURER SHALL CONSIST OF AN APPROPRIATE NUMBER OF VISITS TO THE SITE TO INSPECT THE SUBGRADE PREPARATION, GENERAL CONSTRUCTION, FILTER MATERIAL PLACEMENT AND COMPACTION, CHAMBER PLACEMENT, FABRIC LAYMENT, AND STORMWATER OVERFLOW BYPASS CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE MEASURE. IN THE CASE OF THE STORMTECH SYSTEMS AN ADDITIONAL VISIT WILL BE NECESSARY TO SET THE UNIT'S PEAK OUTFLOW RATE APPROPRIATELY TO NO MORE THAN ONE GALLON PER MINUTE.
 8. **DEWATERING:**
A DEWATERING PLAN IS NEEDED TO ADDRESS EXCAVATION DE-WATERING FOLLOWING HEAVY RAINFALL EVENTS OR WHERE THE EXCAVATION MAY INTERCEPT THE GROUNDWATER TABLE DURING CONSTRUCTION. THE COLLECTED WATER NEEDS TREATMENT AND A DISCHARGE POINT THAT WILL NOT CAUSE DOWNGRADE EROSION AND OFFSITE SEDIMENTATION OR WITHIN A RESOURCE. PLEASE FOLLOW THE DETAILS OF SUCH A PLAN.

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E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EROSION CONTROL - SOUTH CAMPUS - PHASE 2**

Project: **"DIRIGO PLAZA"**
80 MAIN ST. & 11 LARRABEE RD., WESTBROOK, ME 04092

Owner of Record: **PIKE INDUSTRIES, INC. - 3 EASTGATE PARK ROAD, BELMONT, NH 03220**
LL LATHROP LLC - 10 MOULTON STREET SUITE 4, PORTLAND, ME 04101

PROJECT PARCEL
CITY OF WESTBROOK
TAX MAP 42B, LOTS 9, 10, 11 & 14
CITY OF PORTLAND
TAX MAP 264, LOTS A002 & A004
TAX MAP 265, LOTS A003 & A005

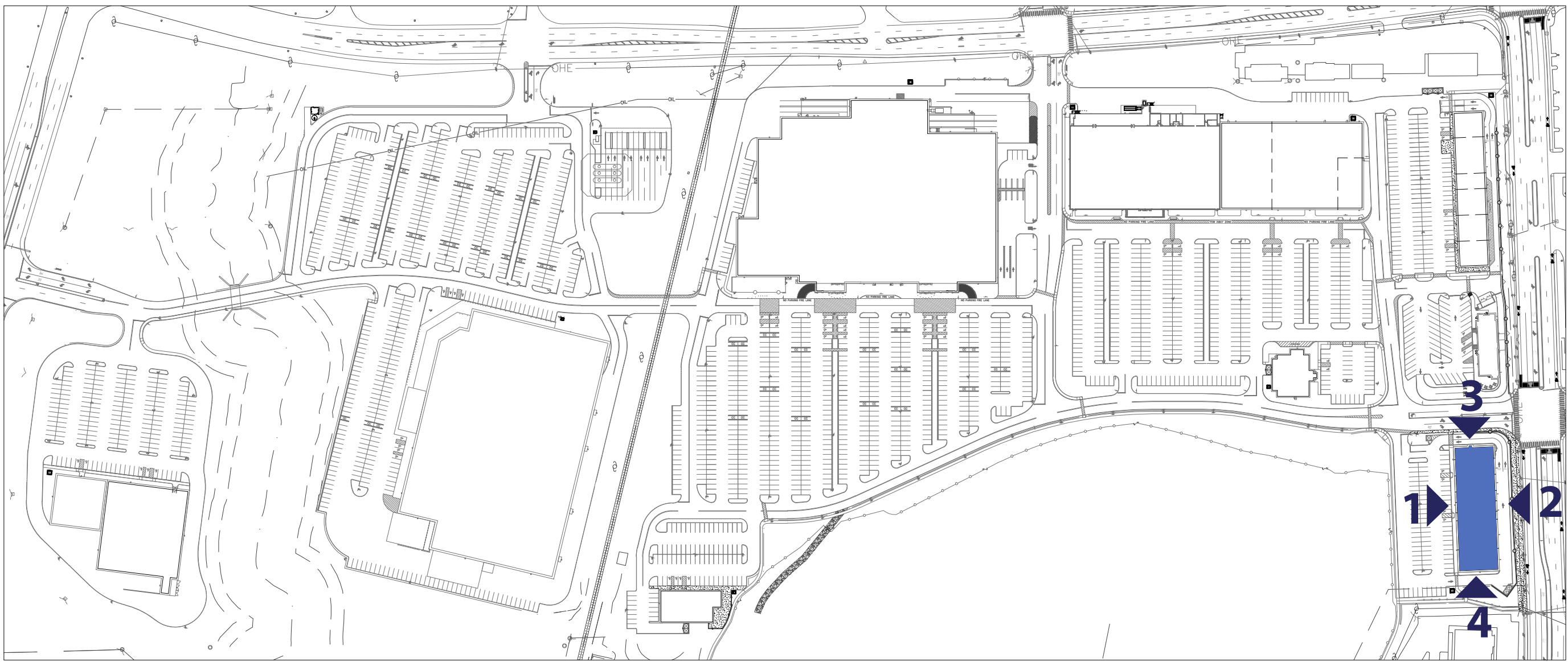
APPLICANT/OWNER
DIRIGO CENTER DEVELOPERS, LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
3,562,203 SQ. FT.
81.78 ACRES

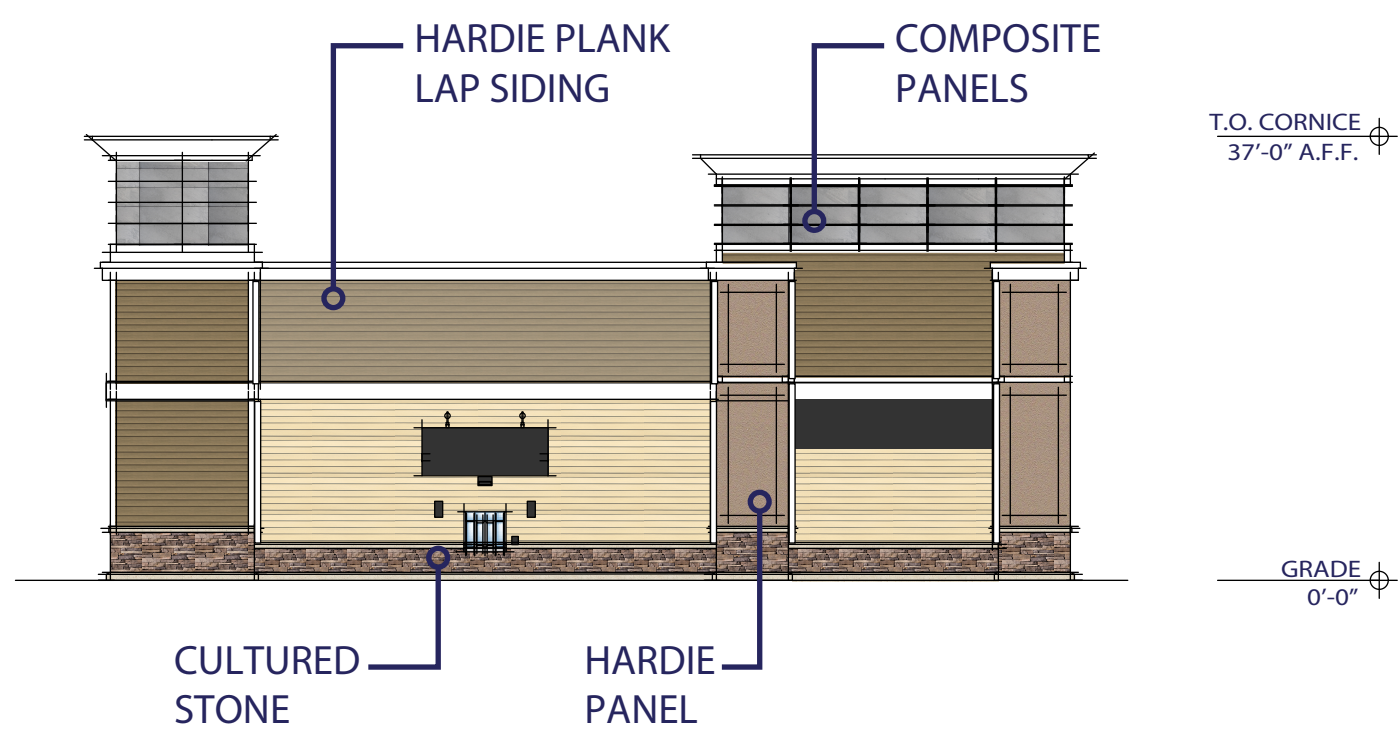
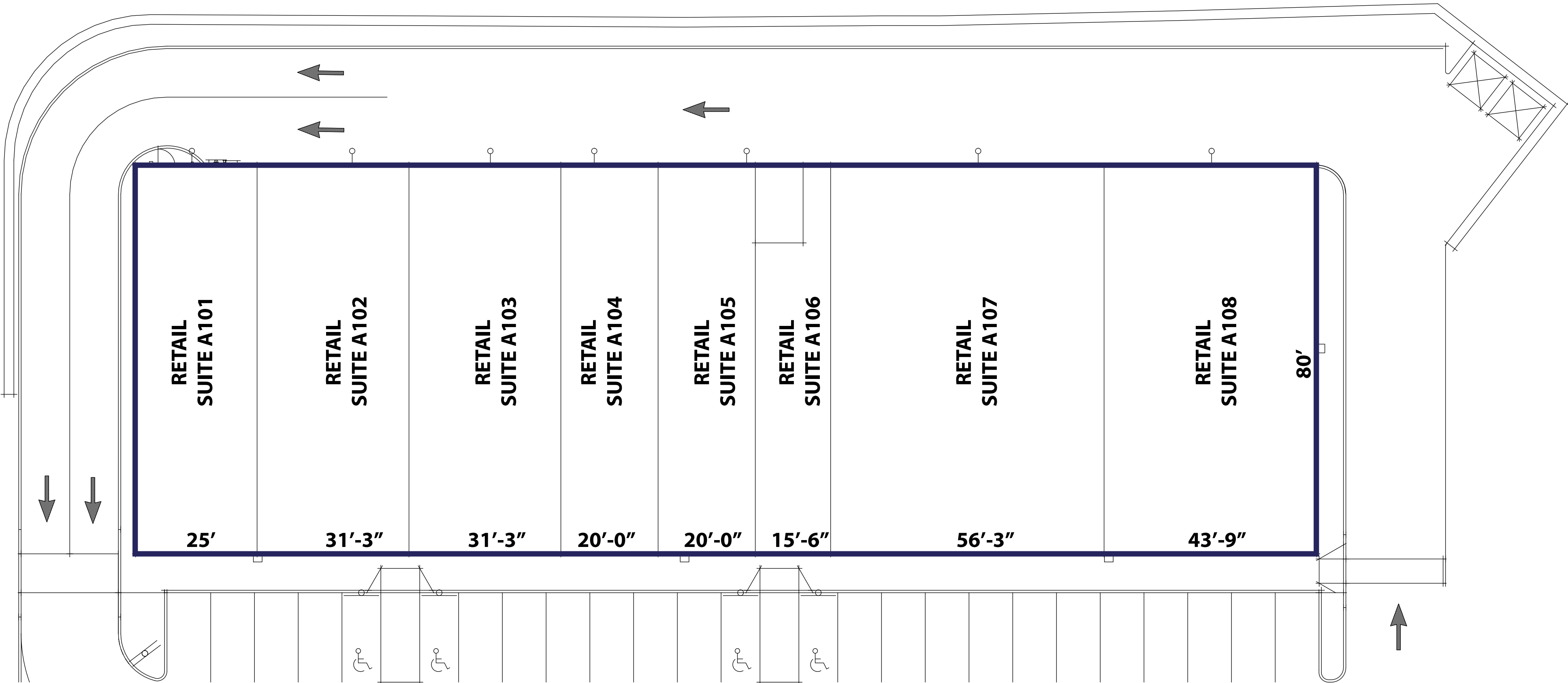
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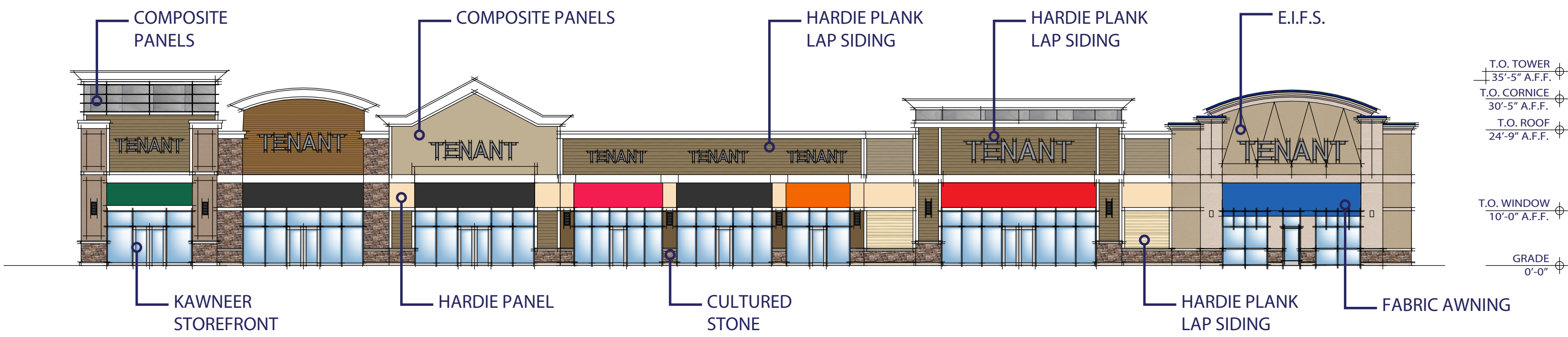
SHEET 104 OF 120
JBE PROJECT NO. 14110



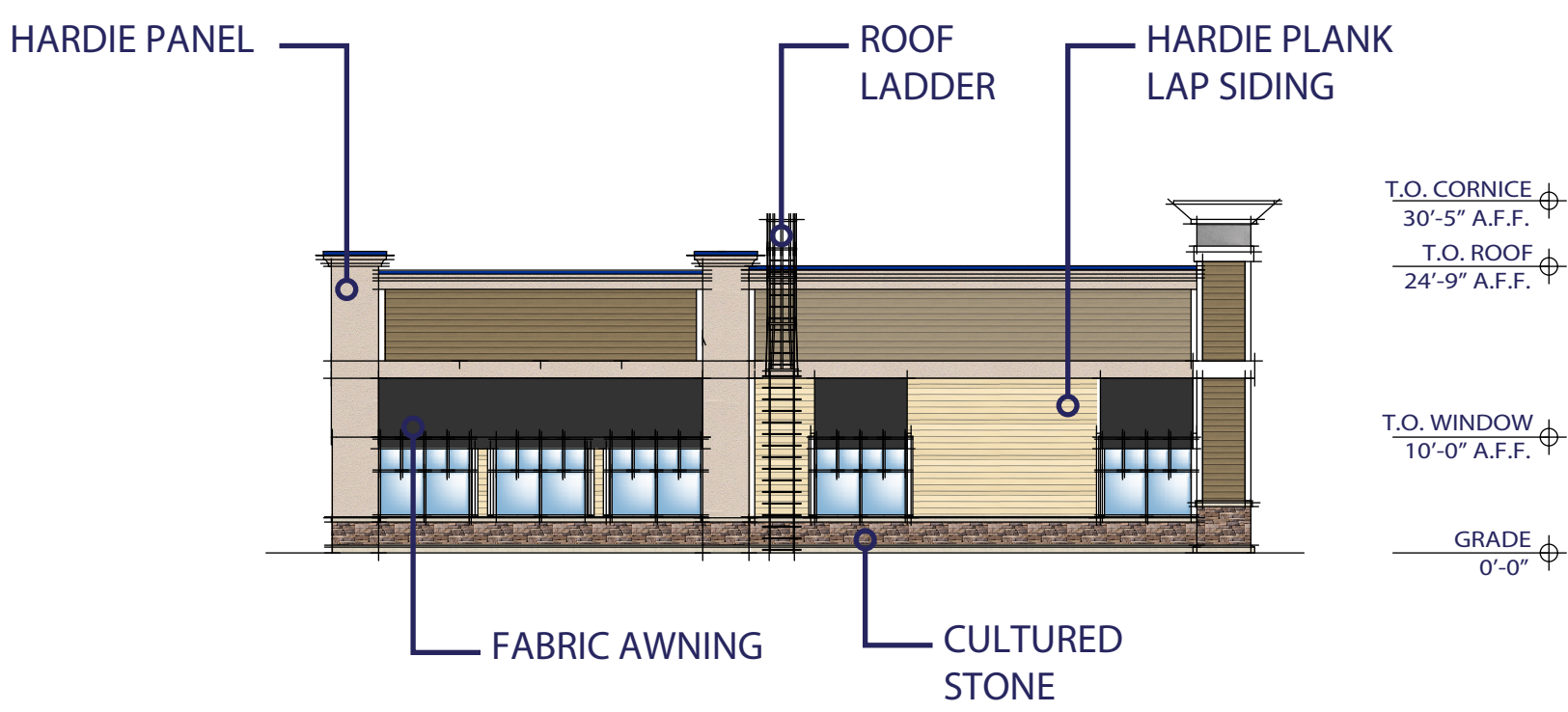
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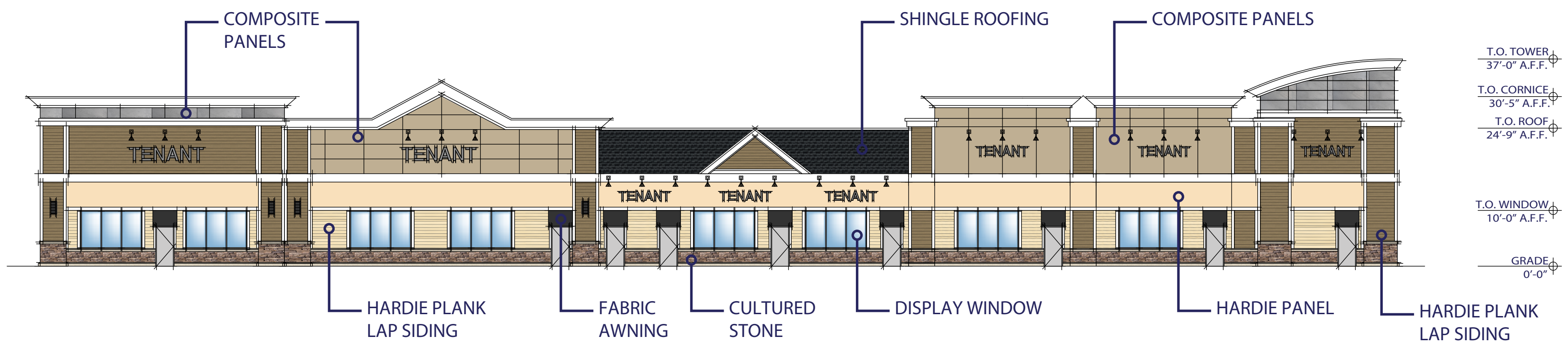
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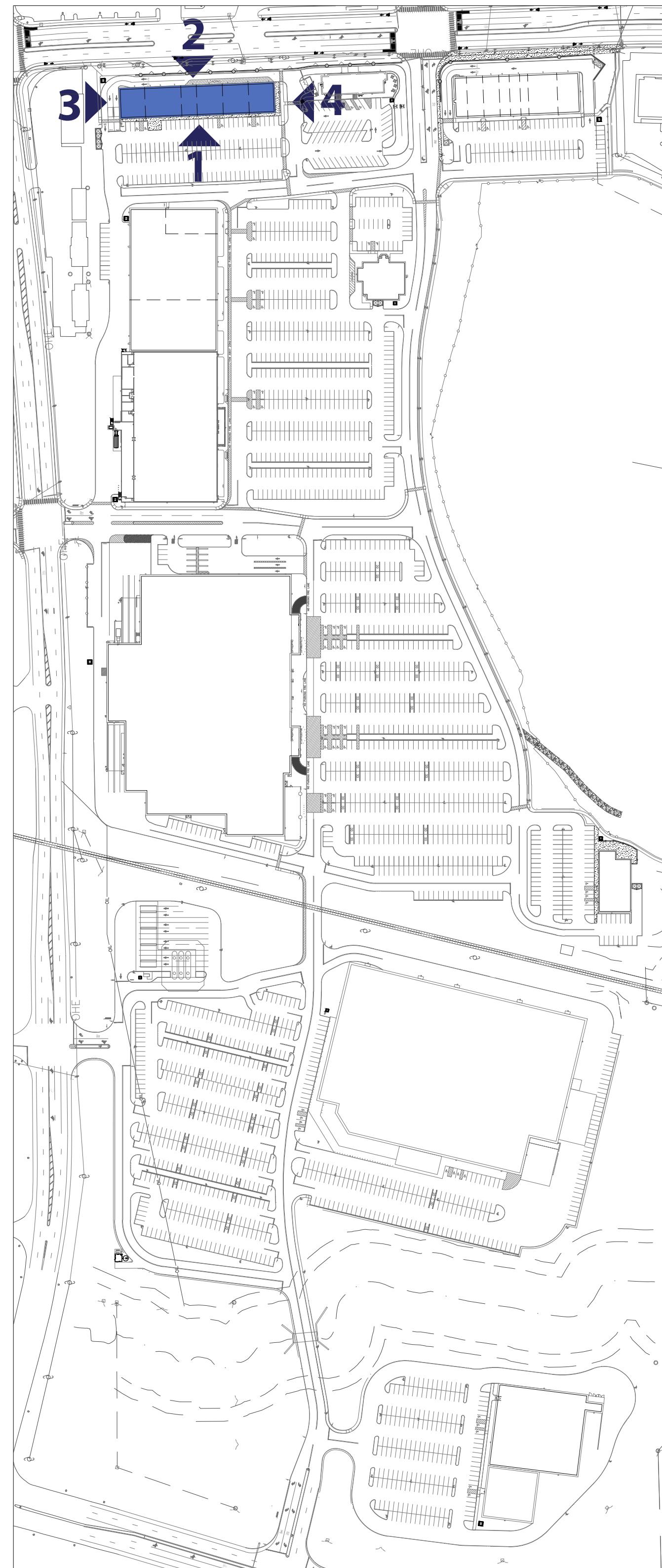
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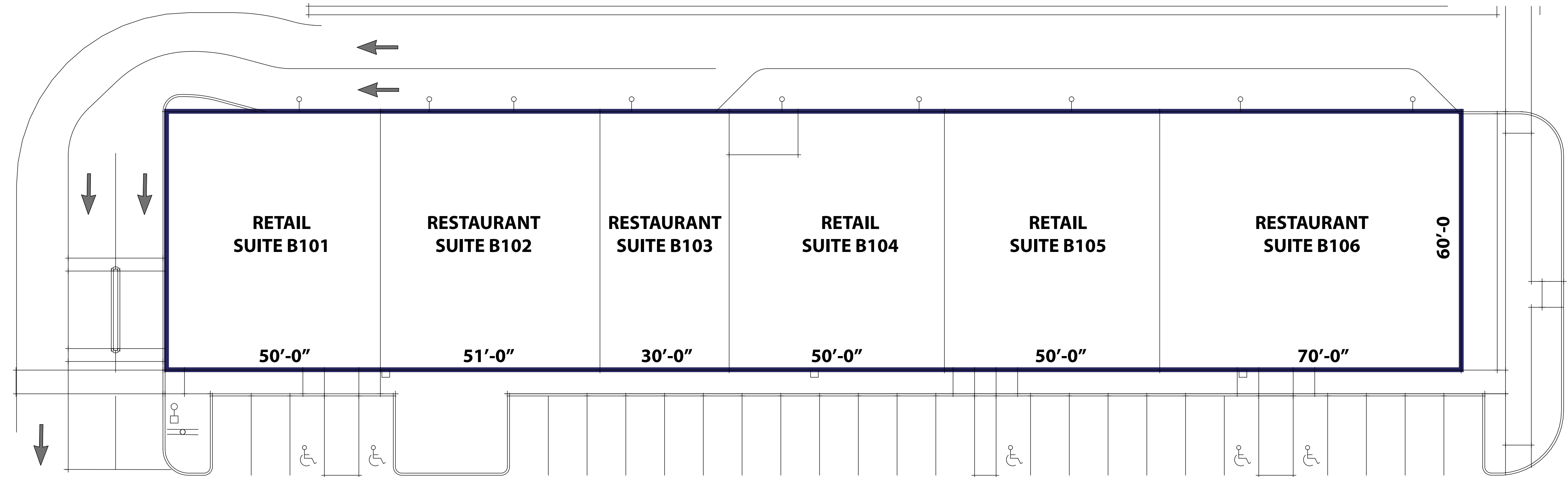
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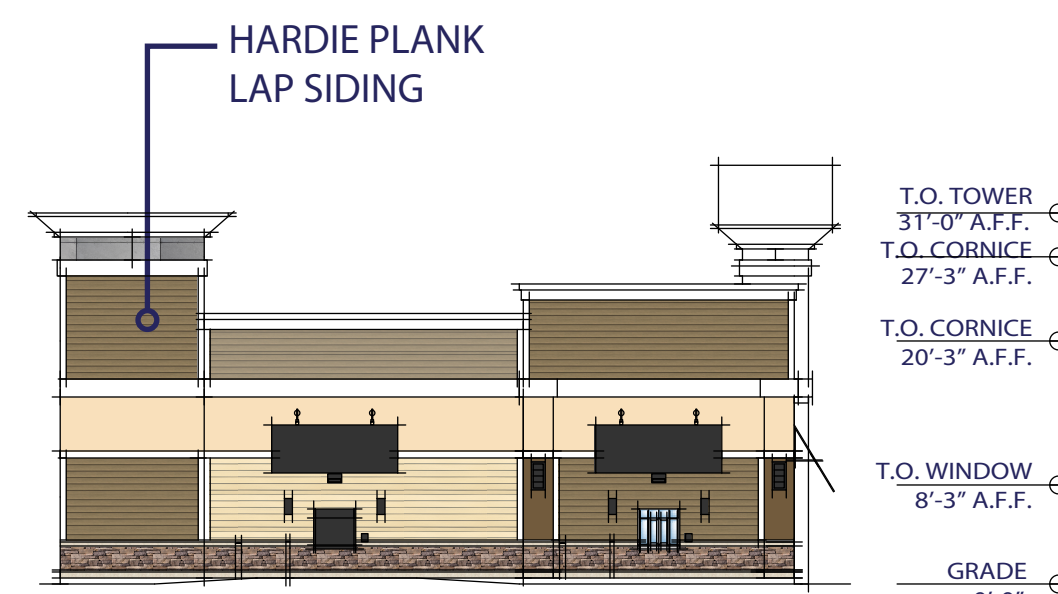
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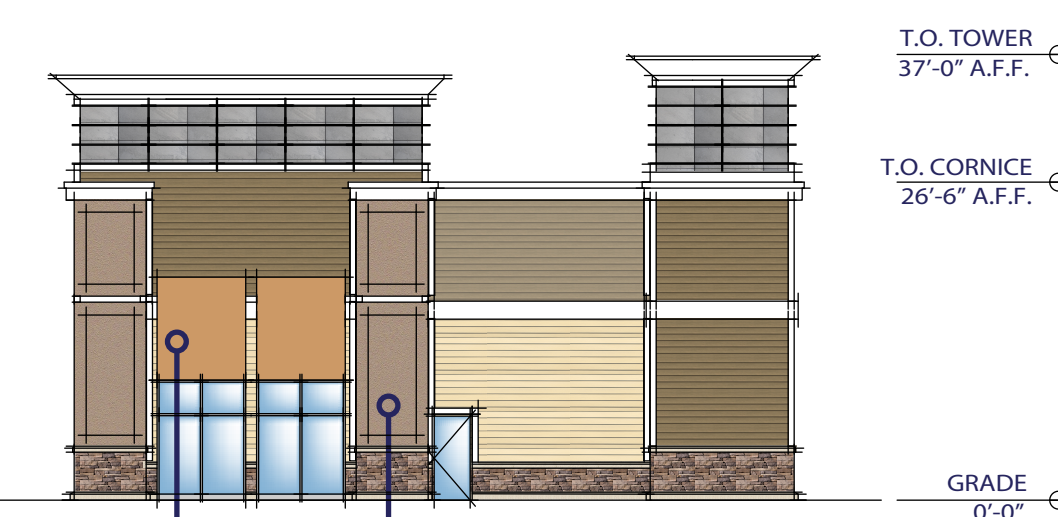
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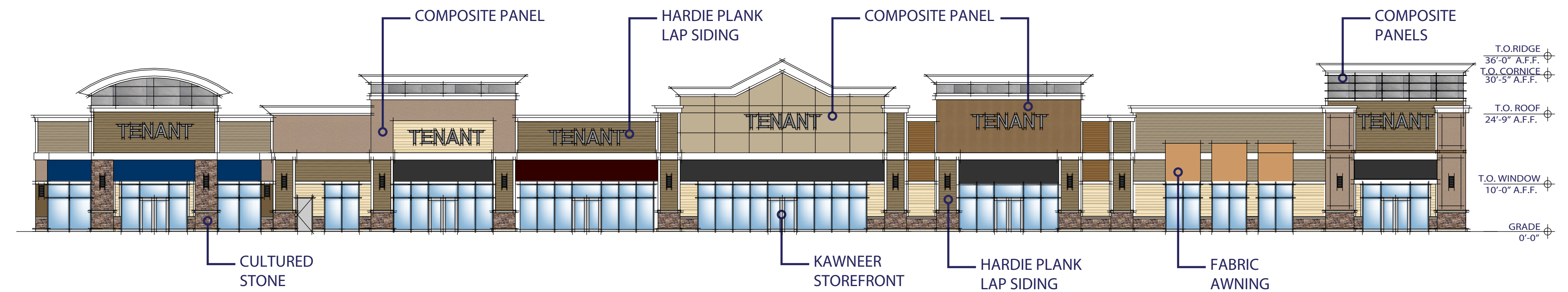
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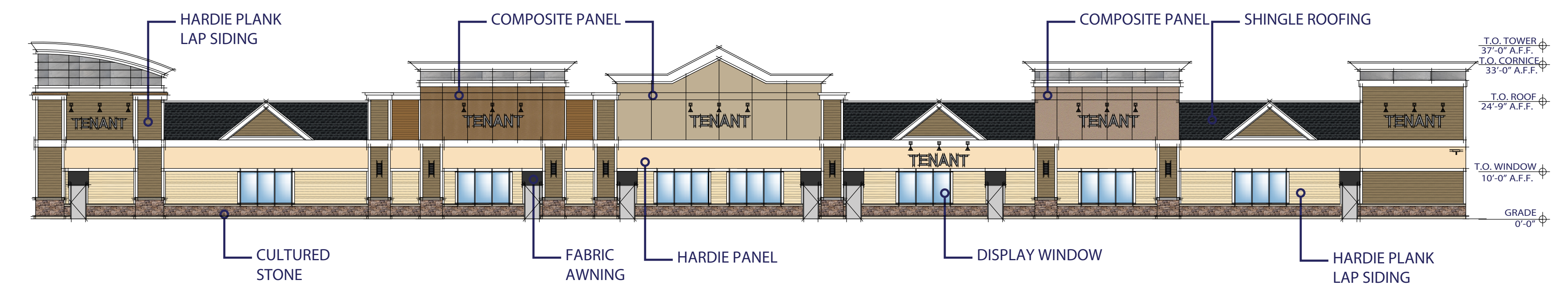
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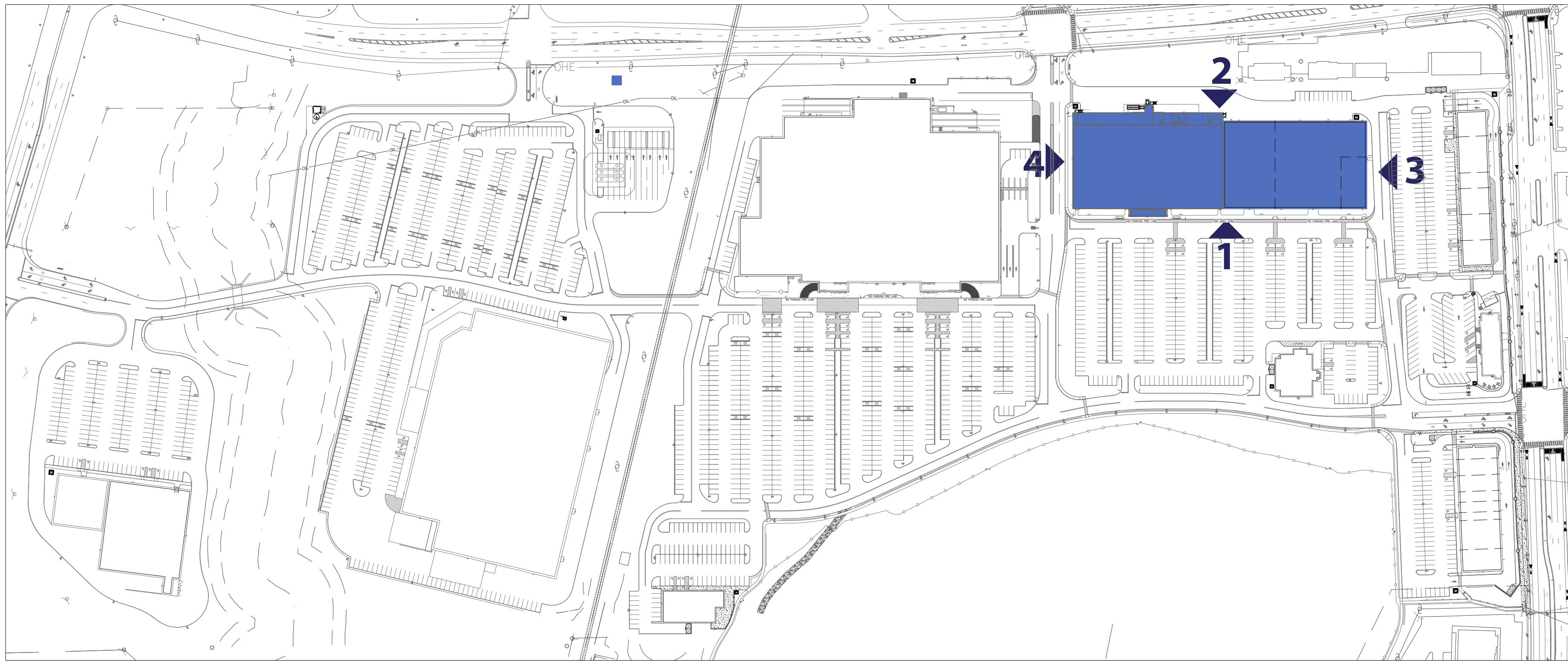
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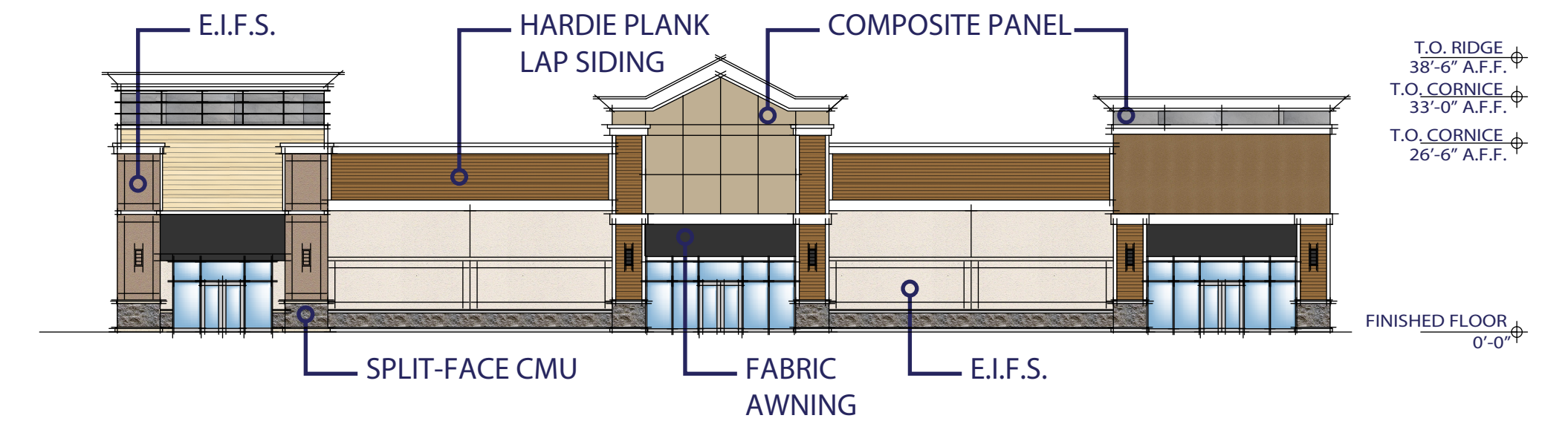
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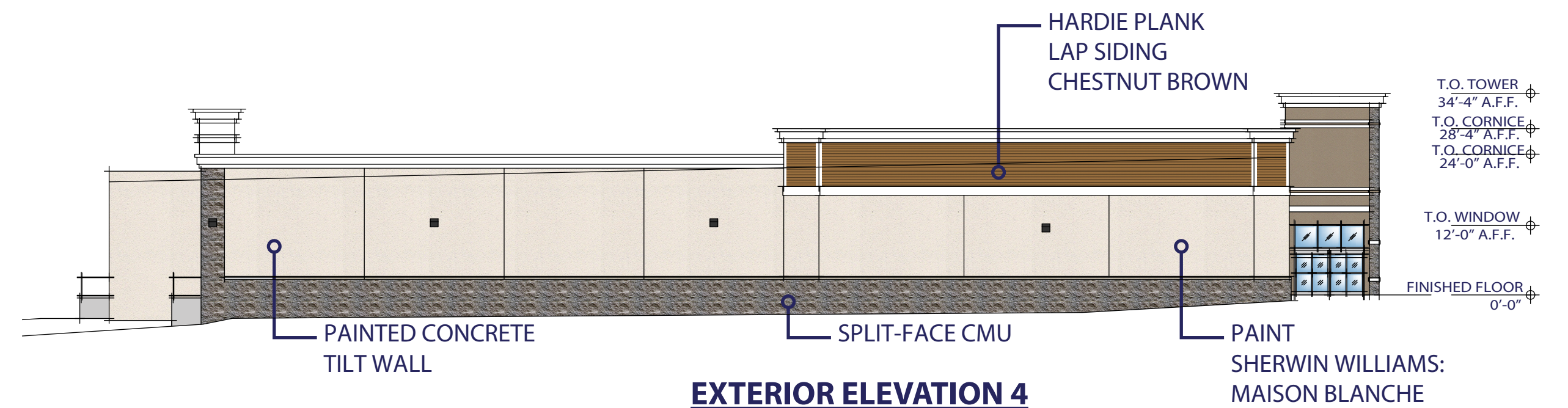
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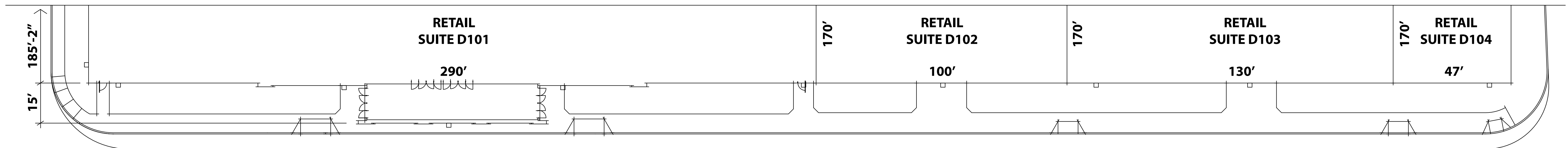
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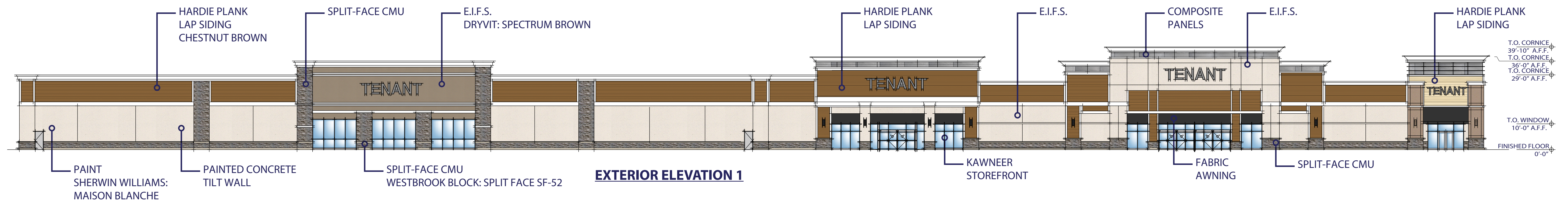
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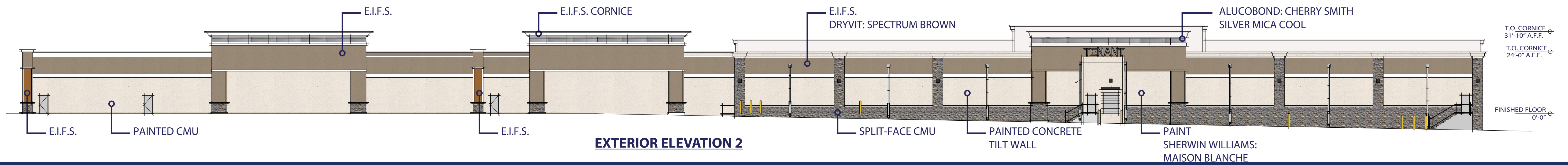
EXTERIOR ELEVATION 4



EXTERIOR WALL AT FRONT



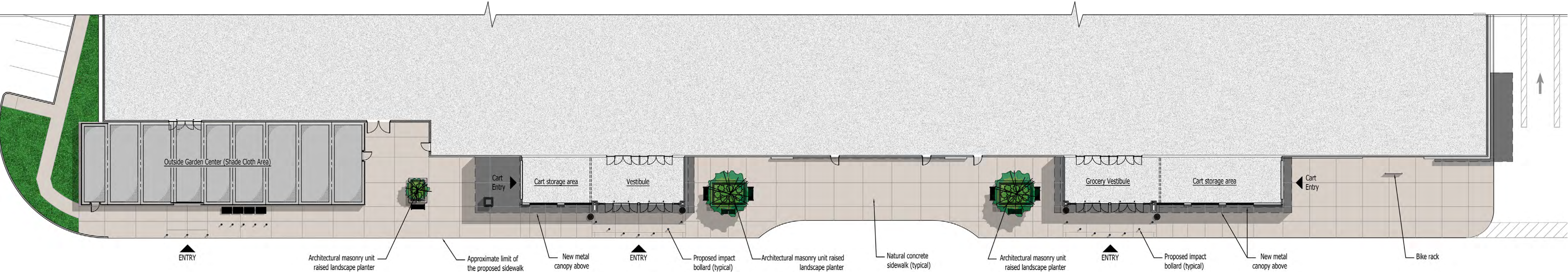
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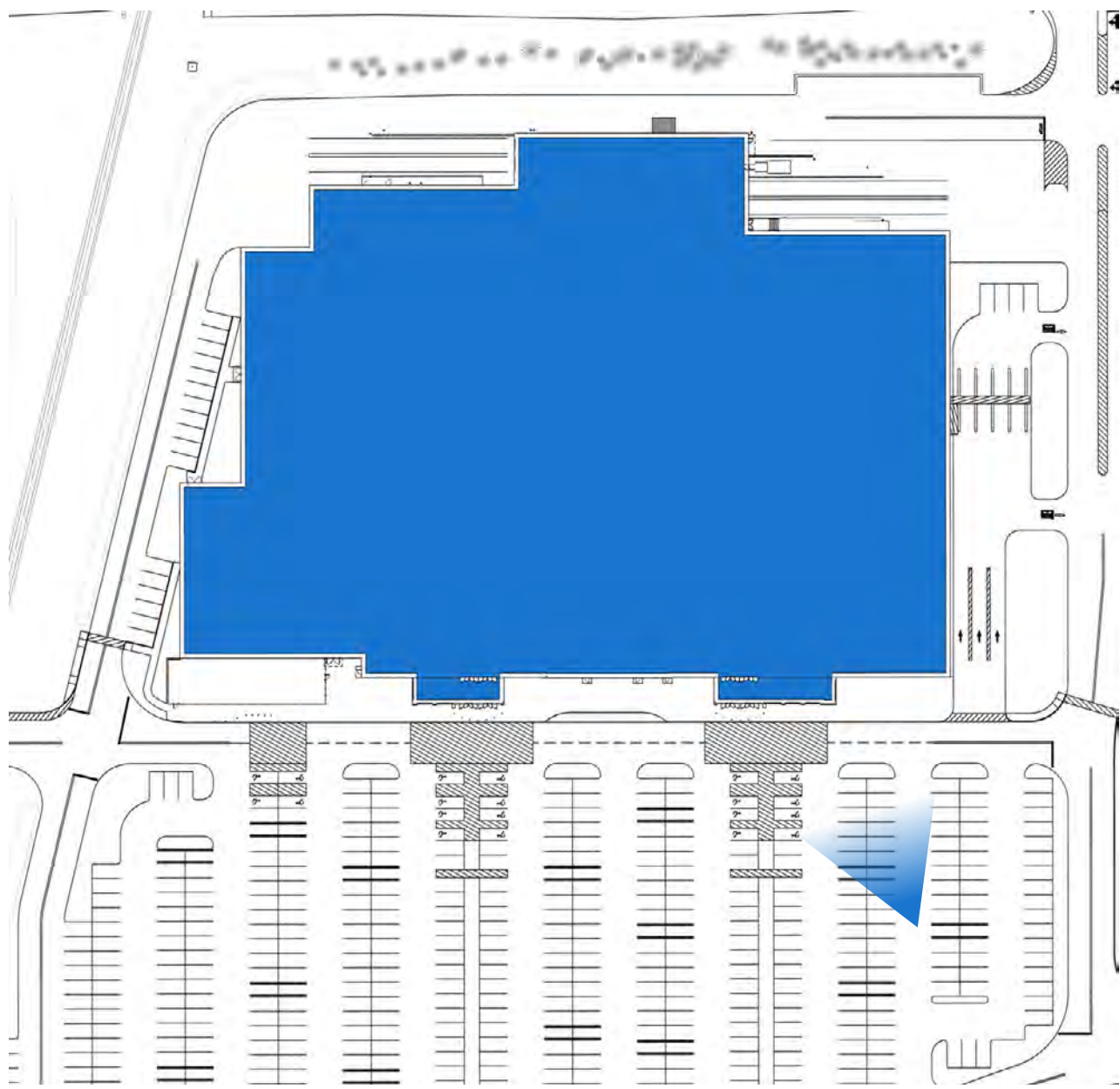
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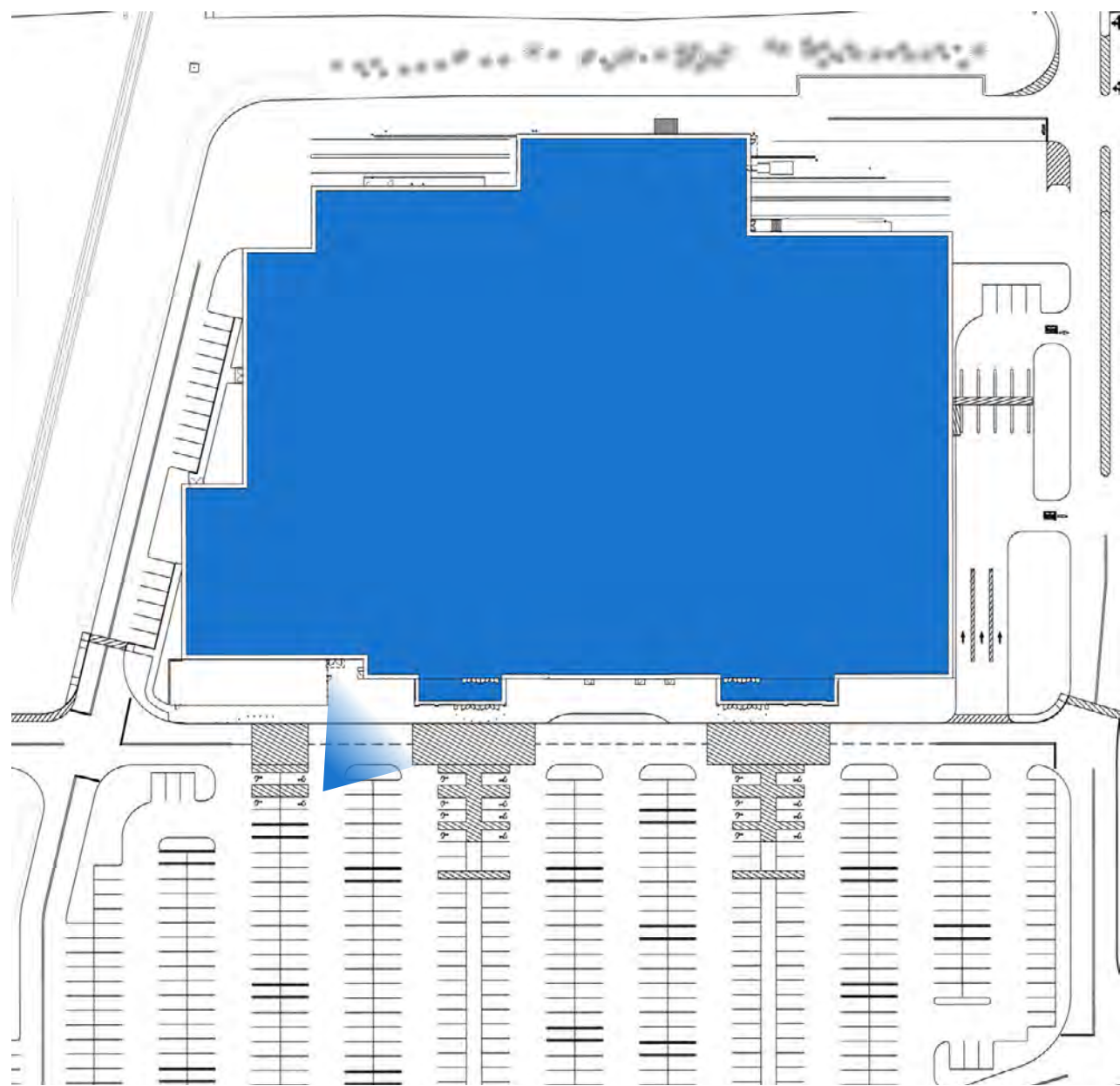


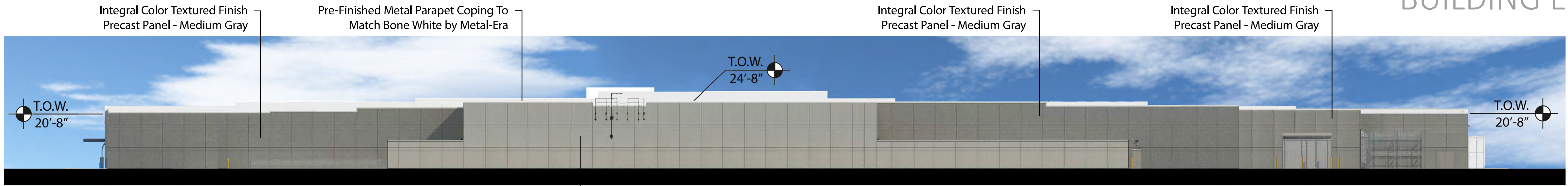
Front / East Elevation



Hardscape Plan



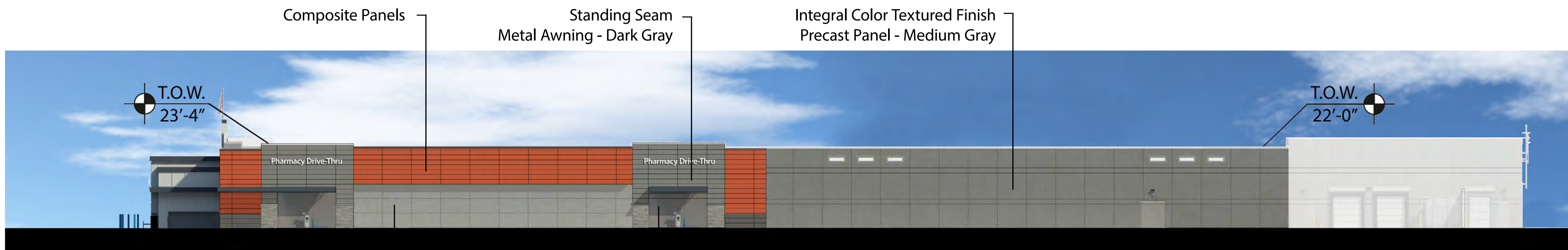




Rear / West Elevation



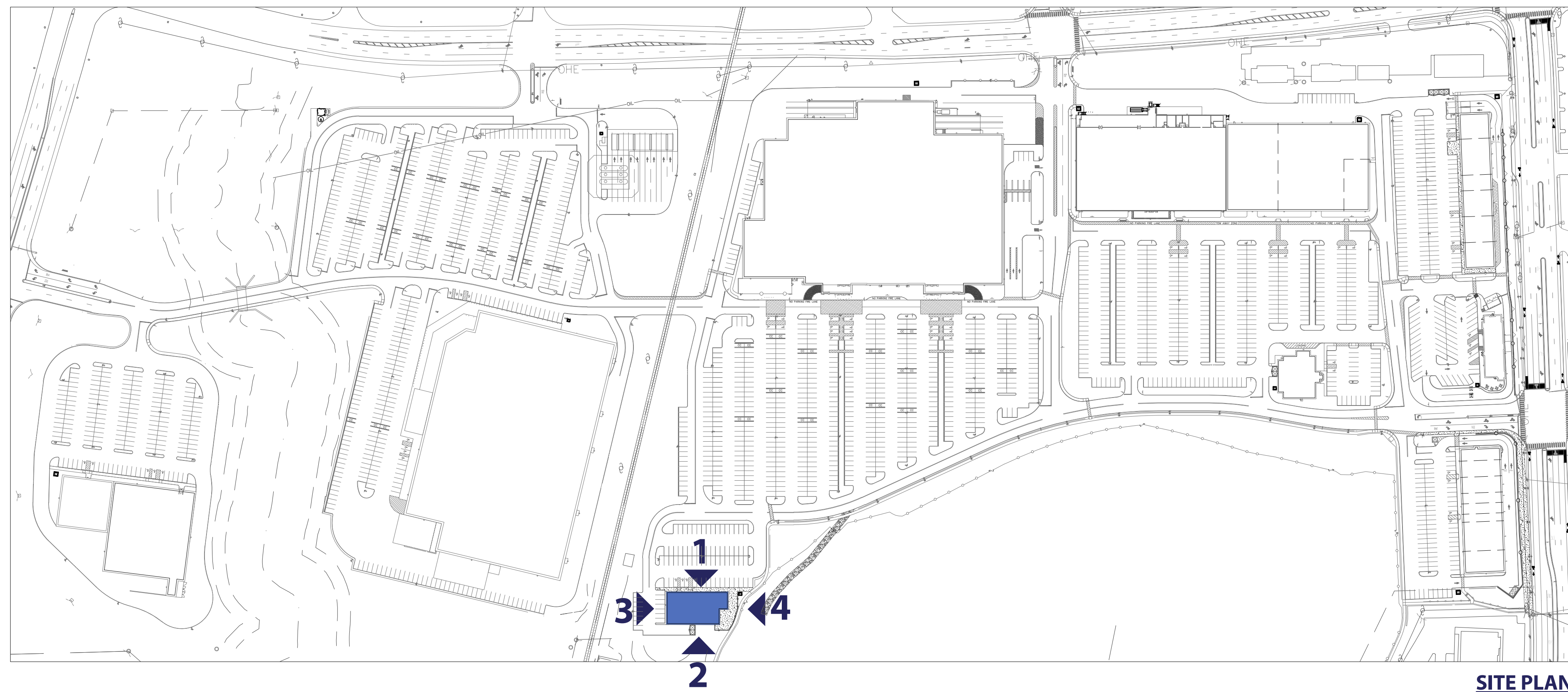
Left / South Elevation



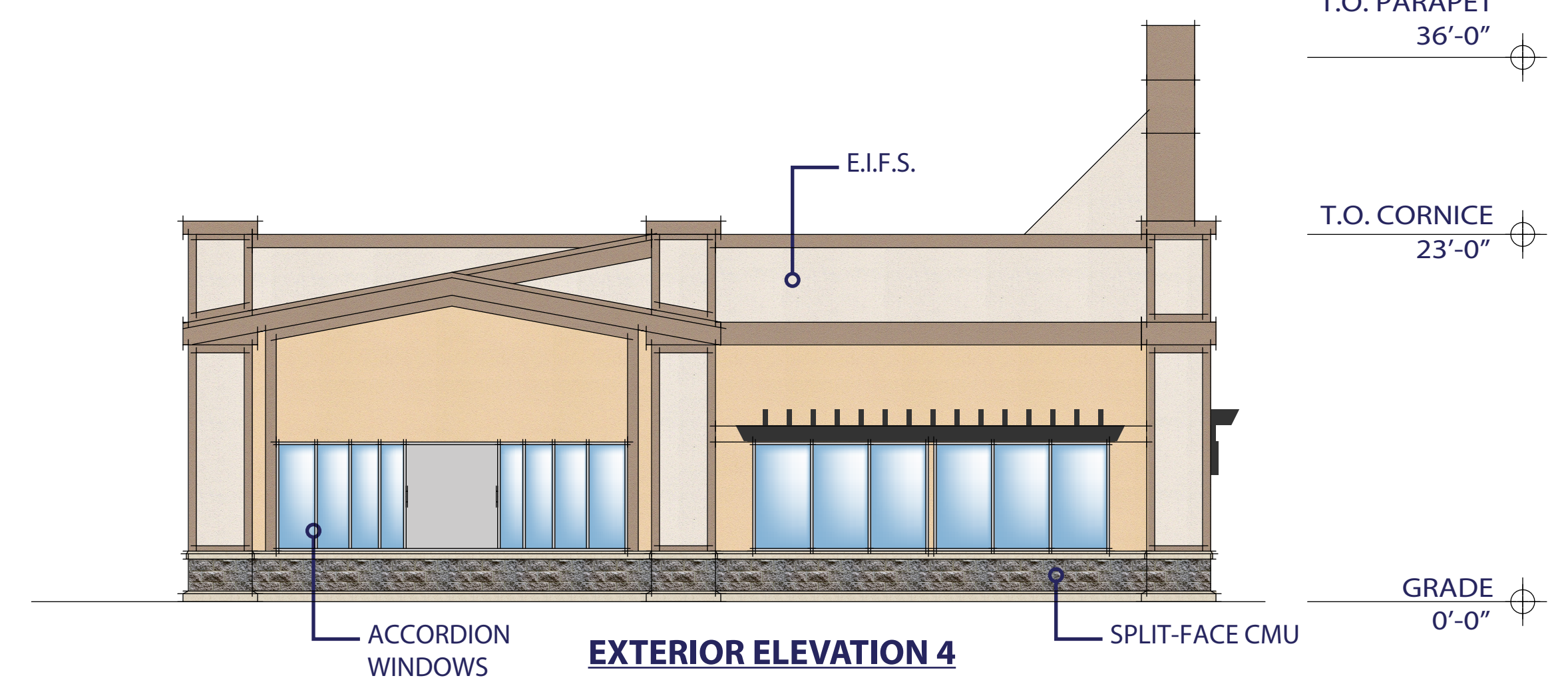
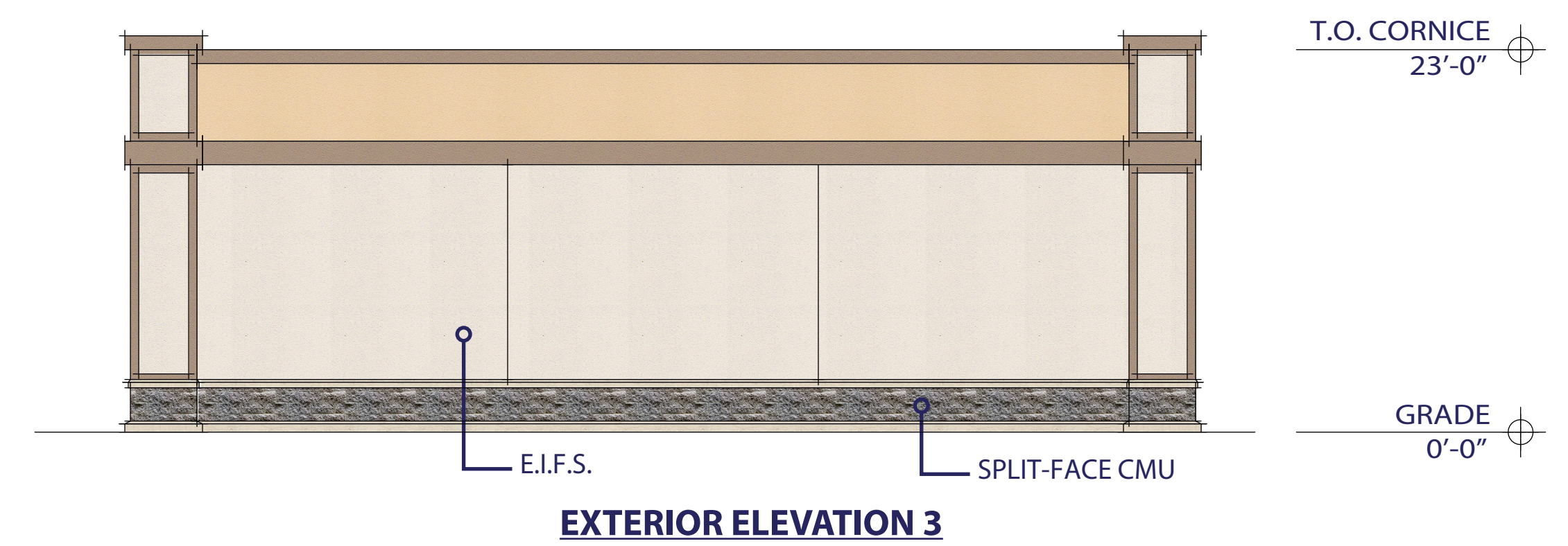
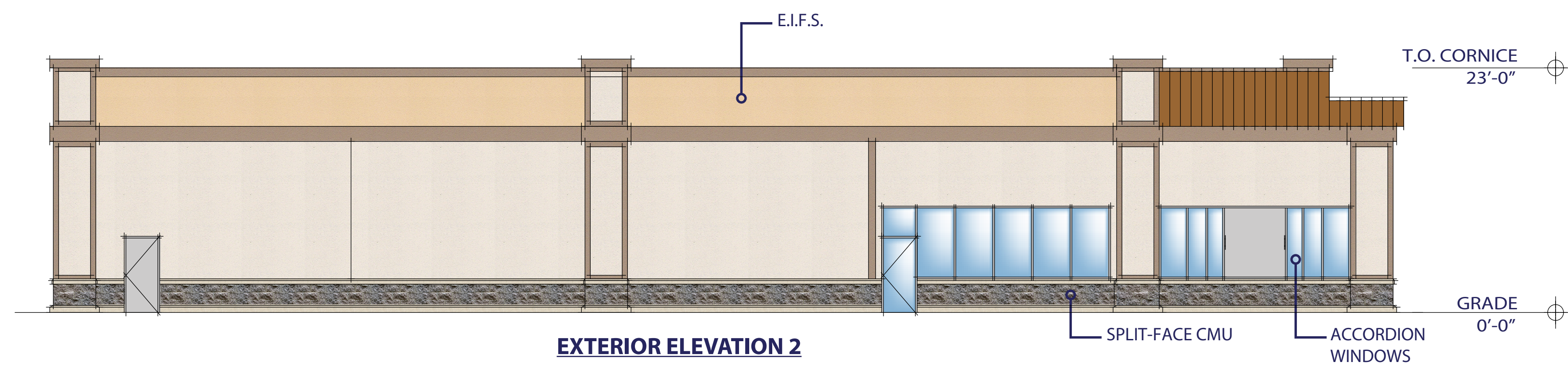
Right / North Elevation

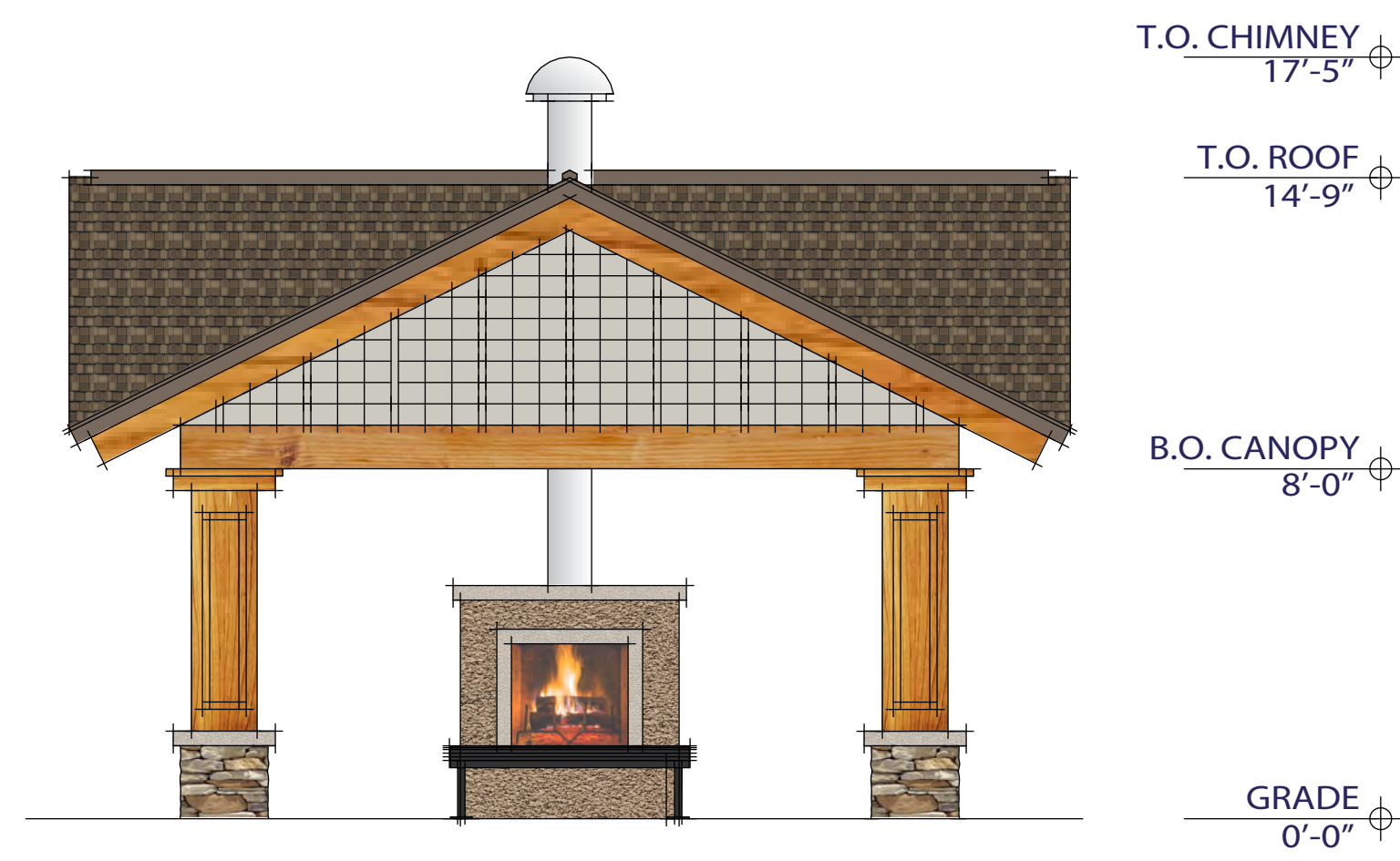
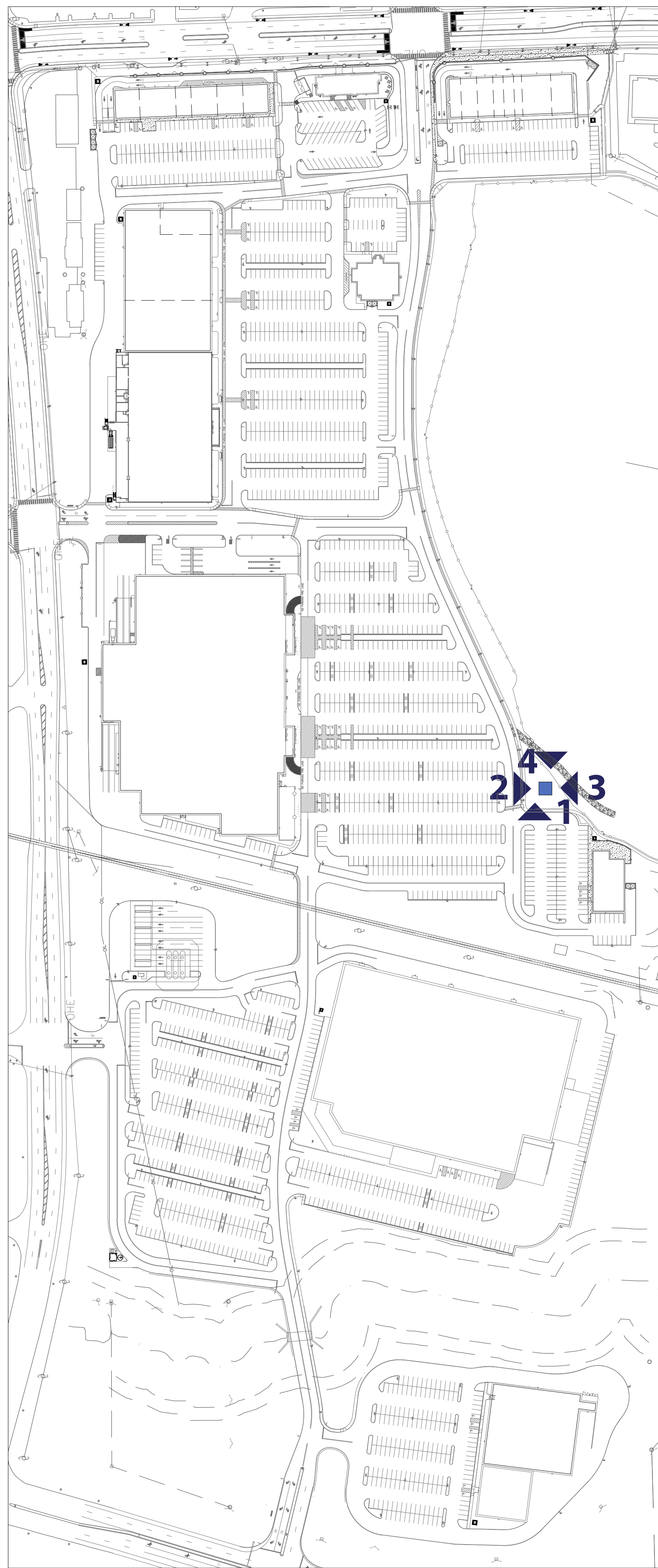
Wall Sign	Qty.	Facade Location	Type	Color	Height	Width	Illumination	Area (S.F.)	Total S.F.
Walmart	1	Front / East	Business	White	6'-6"	44'-1 7/8"	Channel Lit	419.13	419.13
Spark		Front / East	Business	Yellow	9'-5 7/8"		Channel Lit		
Home & Pharmacy	1	Front / East	Directional	White	3'-5 1/2"	28'-2 7/8"	N/A	97.66	97.66
Grocery	1	Front / East	Directional	White	3'-4"	12'-7 3/8"	N/A	42.05	42.05
Outdoor Living	1	Front / East	Directional	White	3'-4 7/8"	22'-7 7/8"	N/A	77.17	77.17
Pharmacy Drive-Thru	1	Front / East	Directional	White	4'-7 3/8"	13'-7"	N/A	62.68	62.68
Pharmacy Drive-Thru	2	Right / North	Directional	White	2'-0 7/8"	19'-3"	N/A	39.90	79.80
Walmart	1	Left / South	Business	White	5'-6"	37'-3 3/4"	Channel Lit	300.00	300.00
Spark		Left / South	Business	Yellow	8'-0 1/8"		Channel Lit		

Total Proposed Building Signage 1,078.49

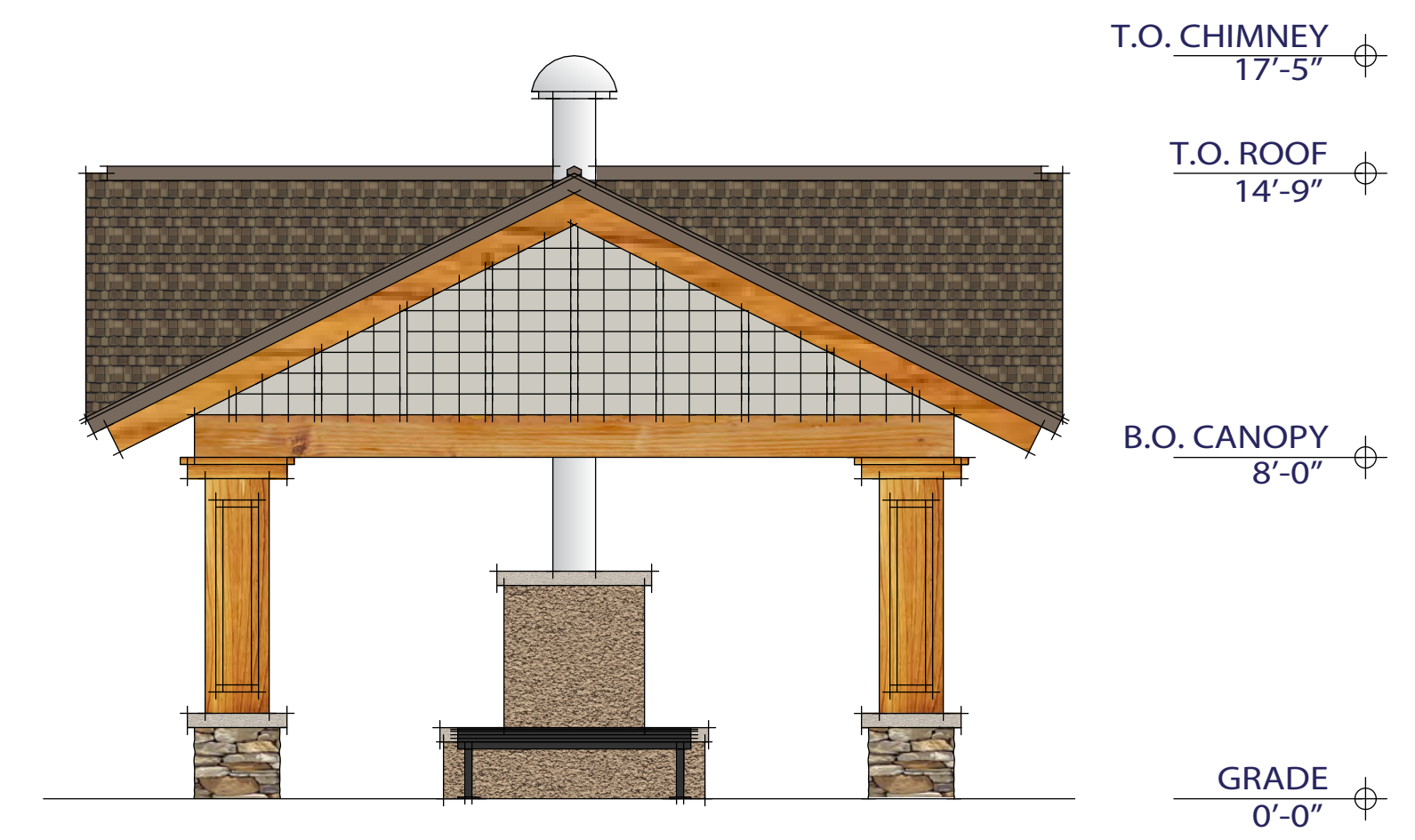


SITE PLAN

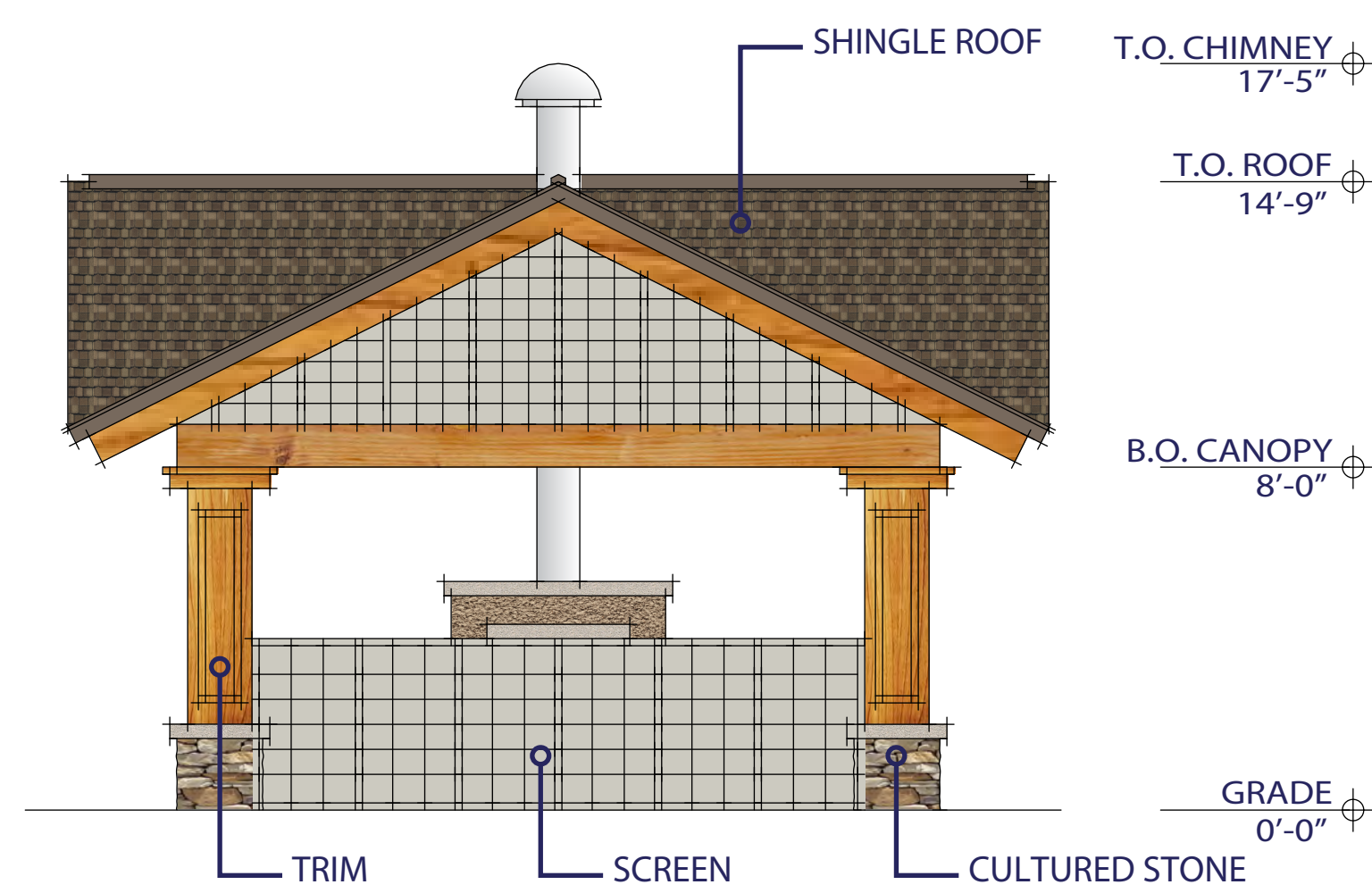




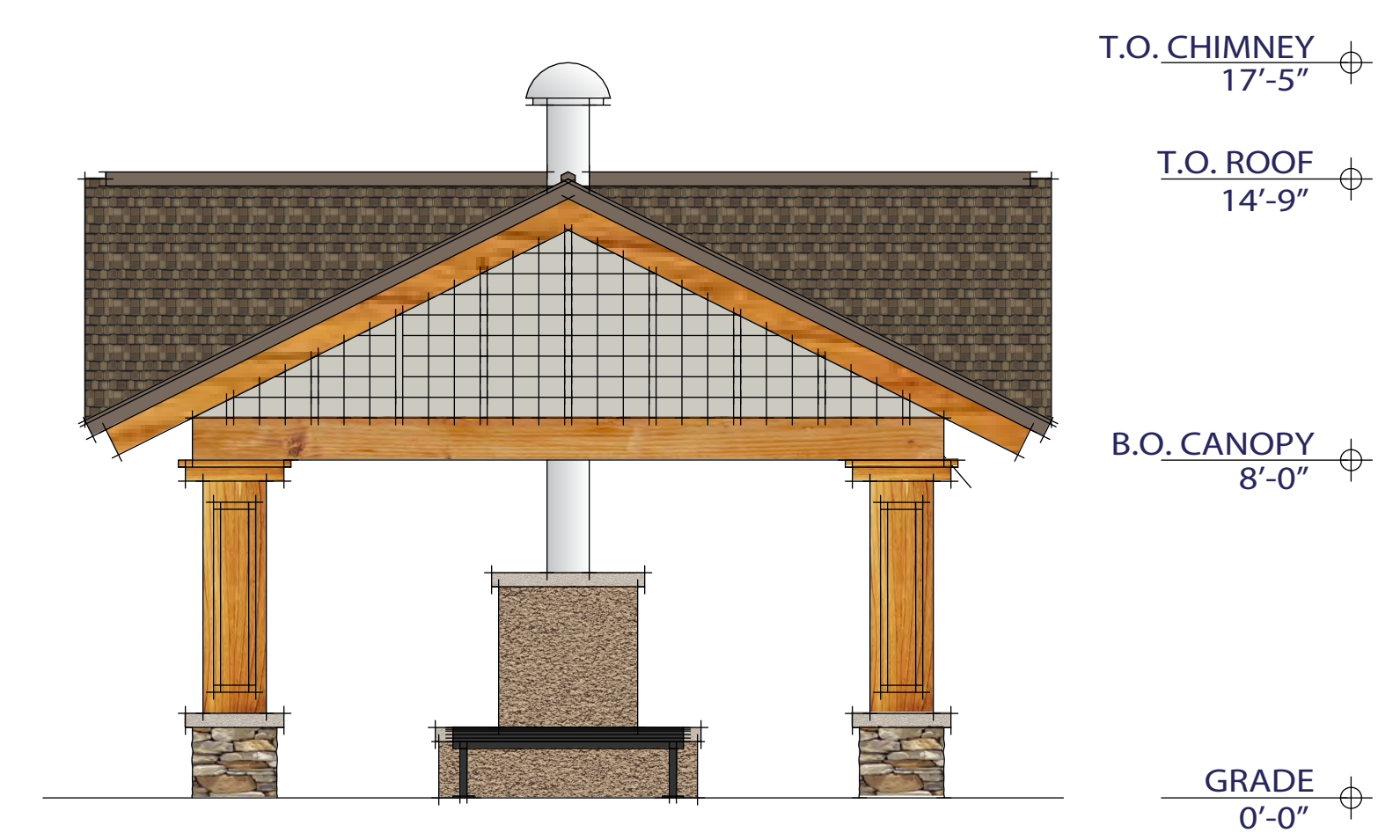
EXTERIOR ELEVATION 1



EXTERIOR ELEVATION 2



EXTERIOR ELEVATION 4



EXTERIOR ELEVATION 3



PROPOSED SOUTH ELEVATION

SCALE: 3/16"=1'-0"



PROPOSED EAST ELEVATION

SCALE: 3/16"=1'-0"

PROPOSED WEST ELEVATION

SCALE: 3/16"=1'-0"



PROPOSED NORTH ELEVATION

SCALE: 3/16"=1'-0"



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SEPTEMBER 2, 2016



PLANNING BOARD REPORT PORTLAND, MAINE

Ten Unit Townhouses
70 Anderson Street
Level III Subdivision and Site Plan Review
2016-099
Redfern Properties, LLC, Applicant

Submitted to: Portland Planning Board:
Public Hearing Date: September 27, 2016

Prepared by: Shukria Wiar
Date: September 23, 2016

I. INTRODUCTION

Redfern Properties, LLC has requested a preliminary Level III site plan and subdivision review of a ten-unit townhouse urban infill development at the corner of East Lancaster and Anderson Streets in East Bayside. The proposed 12,312 SF development includes two buildings containing the ten (10) townhouses. The proposal also includes seven surface parking spaces, and sidewalk and landscaping improvements. The site is currently occupied by a residential single-family house, garage and shed.

The Planning Board held a workshop on this project on July 27, 2016. Overall the Board supported the project. The Board has concern with the massing and color scheme of the building. The Board also encouraged the applicant to work with neighbors on addressing concerns. The Planning Board will review the application for compliance with the site plan and subdivision standards. A total of one hundred and thirty-eight (138) notices were sent to property owners within 500 feet of the site and a legal ad ran on September 19th and 20th, 2016.

Applicant: Jonathan Culley, Redfern Properties

Consultants: Will Savage, Acorn Engineering; Ryan Senatore, Ryan Senatore Architecture; Nick Elliston, Titcom Associates

II. REQUIRED REVIEWS

<i>Waiver Requests</i>	<i>Applicable Standards</i>
Aisle width – To allow a 20 foot aisle in the parking area <i>Supported by consulting traffic engineer</i>	Technical Manual, <i>Section 1.14</i> , requiring that aisle width for right-angle parking be 24 feet per Figure I-27
Compact parking spaces and parking dimensions – To allow six compact spaces at 8.5 X 18' to be acceptable alternatives to the standard 9' X 18' space; the one remaining parking space will be a standard size, therefore it is 85% is compact spaces. <i>Supported by consulting traffic engineer</i>	Technical Manual, <i>Section 1.14 and Figures I-27 to I-29</i> . Parking lots with greater than 10 spaces may be comprised of up to 20% compact spaces. <i>7 proposed = 1 compact permitted by right</i>
Parking lot landscaping – <i>Applicant to provide additional detail in final submittal</i>	Site Plan Standard, <i>Section 14-526(b)2.b(ii)</i> . Developments with 5+ parking spaces shall include at least 2 trees (or 1 tree and 3 shrubs) per 5 parking spaces planted in landscaped islands. Waiver permitted where site constraints prevent it. <i>7 parking spaces proposed = 2 trees or 1 trees & 3 shrubs required</i>
Street trees – Applicant is proposing to plant 6 street trees on-site and the remaining 4 trees will be planted on the abutting Portland Housing Authority properties subject to a formal agreement.	Site Plan Standard, <i>Section 14-526(b)2.b(iii)</i> and Technical Manual, <i>Section 4.6.1</i> . All multi-family development shall provide one street tree per unit. Waiver permitted where site constraints prevent it. <i>10 units = 10 street trees required</i>

Review	Applicable Standards
Site Plan	Section 14-526
Subdivision	Section 14-497
Workforce Housing Inclusionary Zoning	14-484 (Applicant is required to have one unit, which is being proposed)

III. PROJECT DATA

Existing Zoning	Residential R-6
Existing Use	Residential
Proposed Use	Residential
Proposed Development Program	10 residential units in two building: 6 unit and 4 units
Parcel Size	9,064 SF

	<i>Existing</i>	<i>Proposed</i>	<i>Net Change</i>
Building Footprint	1,054 SF	4,104 SF	3,050 SF
Building Floor Area	1,054 SF	12,312 SF	11,258 SF
Impervious Surface Area	4,376 SF	7,370 SF	-2,994 SF
Parking Spaces (on site)	Two	Seven (zoning req. 7)	Five
Bicycle Parking Spaces	0	4 internal and 2 in ROW (meets standard)	6
Estimated Cost of Project	\$1,800,000		

IV. BACKGROUND & EXISTING CONDITIONS

The site of the proposed project lies at the southeast corner of E. Lancaster and Anderson Streets in East Bayside. The site is currently occupied by a single-family house with a detached garage and shed. About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Streets.

The uses surrounding the site are mostly residential uses, including some large three-story multi-family housing. Most of the adjacent housing is of a smaller scale, with a mix of single and two-family buildings characteristic of the city's East End. The Portland Housing Authority multifamily housing directly abuts the property on the west side and also is adjacent of site. The Kennedy Park basketball courts and the Fox Street recreational field, sites a couple of parcel to the northwest at the corner of Anderson and Fox Streets.

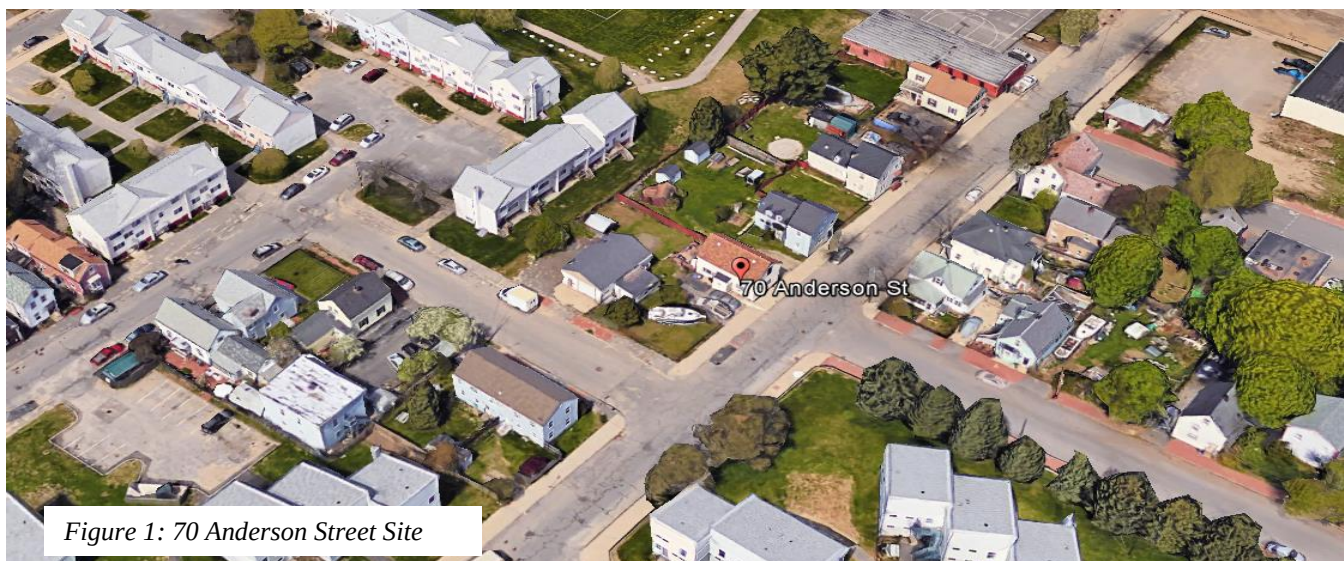


Figure 1: 70 Anderson Street Site

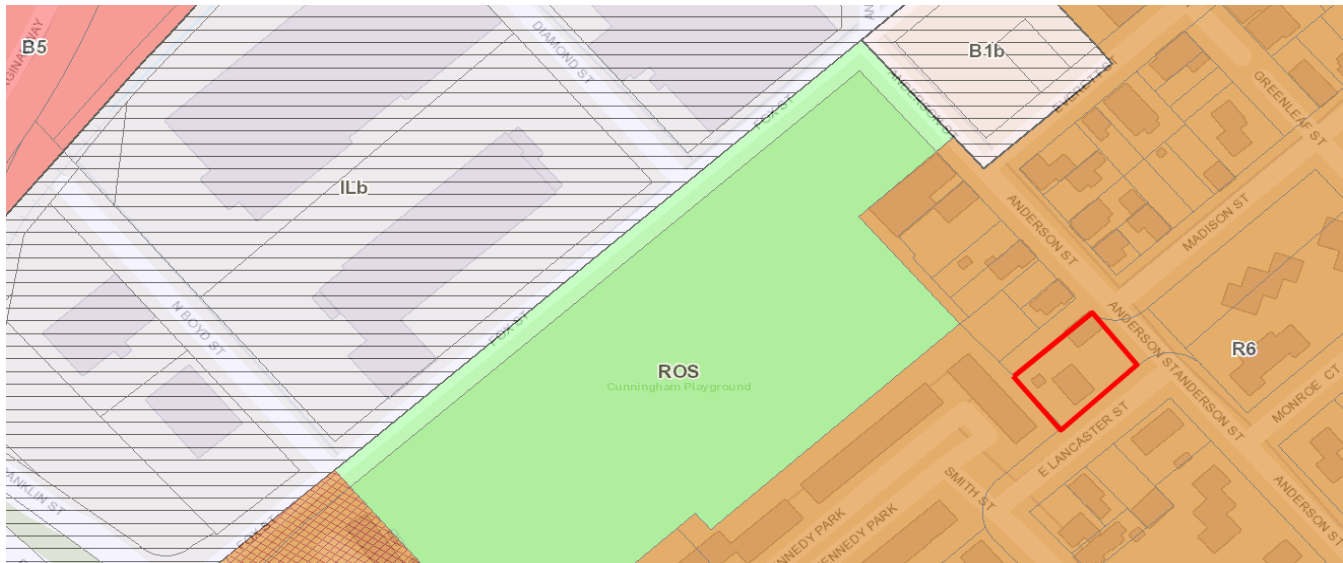


Figure 2: 70 Anderson Street; zoning context

V. PROPOSED DEVELOPMENT

The development is proposed as a residential project with frontages on Anderson and E. Lancaster Streets. The project will consist of two townhouse buildings, one with six units and the other with four units. The new ten units will be orientated as such to create a courtyard and central walking space through the property. Within the courtyard, a rain garden is proposed as a central focus on stormwater mitigation on site and will be landscaped with perennials and other plantings. The courtyard will be visible from Anderson Street. All ten townhouses are three-bedroom, 1,254 square foot units. The interior fit out for each unit is identical; the proposed workforce unit does not differ in size or standard from the market-rate units. The market strategy for the workforce unit will also mimic the strategy of the market-rate units and is proposed to be approached in the same fashion.

Tenant parking is to be provided on-site with a driveway access from East Lancaster Street. There will be seven surface parking spaces as part of the project. New brick sidewalks and street trees are proposed on Anderson and E. Lancaster Streets. The development is also proposed with landscaping between the building and proposing a green wall on both frontages.

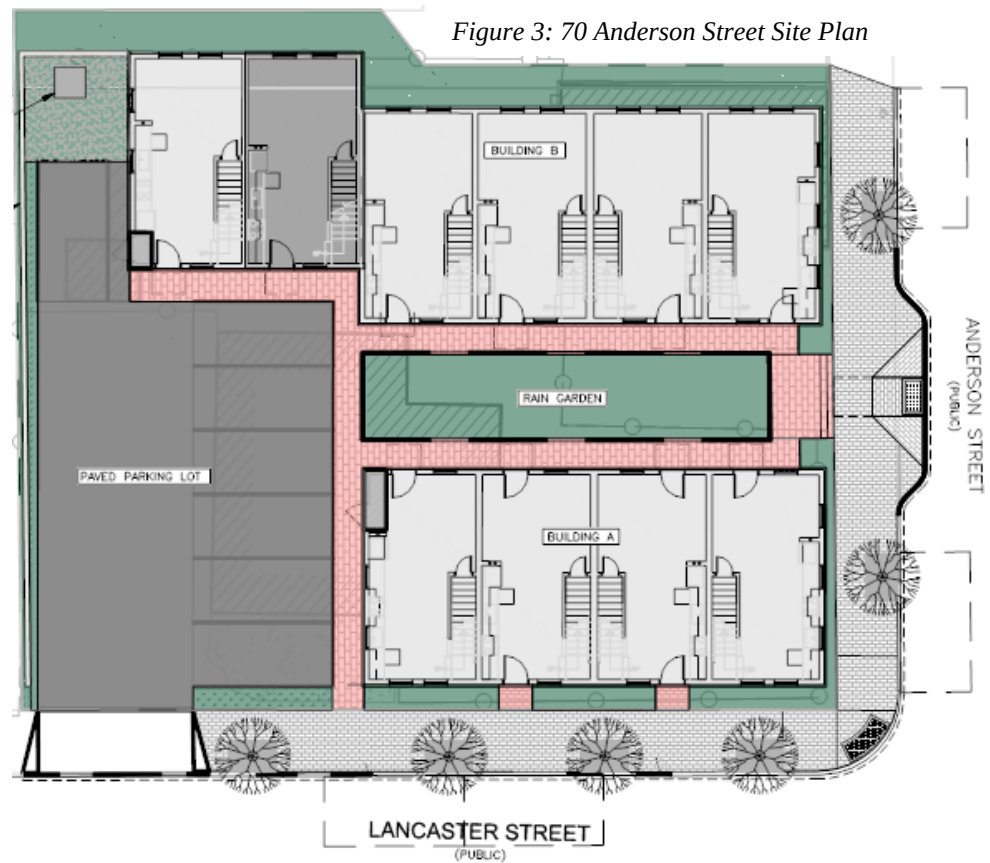


Figure 3: 70 Anderson Street Site Plan



Figure 4: 70 Anderson Street Rendering Looking East on Anderson Street



Figure 5: 70 Anderson Street Rendering Looking West on Anderson Street

VI. PUBLIC COMMENT

The applicant hosted a neighborhood meeting on August 3, 2016. Eleven attendees signed in at the meeting. Questions generally focused on the design of the building and vehicular parking, pedestrian safety at surrounding intersections, as well as landscaping, see [Attachment Y](#) for the Neighborhood Meeting minutes. In addition, staff received correspondence from four neighbors via email ([Attachments 8a-d](#)). This neighbors reiterated concerns about the building design, the number of proposed parking, and the parking circulation. As of the writing of this report, public comments have been received by the Planning Authority and are included as [Attachment Y](#).

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

a. The owner of the property is Redfern Properties LLC. The applicant has provided a copy of a warranty deed, recorded at the Cumberland County Registry of Deeds (Book 32559 Page 282), which demonstrates their right, title and interest in the property.

Bill Clark, City Surveyor, conducted a review of the plat and had concerns about a note on the proposed plat. He states that “the Survey Note #5 states that Fee Interest in Anderson Lane apparently lies with the heirs of Moses Gould as described in a deed recorded in Book 290, Page 310. The unrecorded release deed from Portland Housing Authority to Redfern Properties does not state that the Portland Housing Authority acquired title from the

heirs of Moses Gould". The applicant has submitted an unrecorded release deed from Portland Housing Authority (PHA); staff has requested the applicant to provide PHA source of title for Anderson Lane. Staff will work with the applicant to provide the appropriate documentation prior to the signing of the plat. Accordingly, review and approval of the final plat has been included as a condition of approval.

b. The estimated cost of the development is \$1.8 Million. The applicant has submitted a letter from NBT Bank, dated April 21, 2016, as demonstration of their financial and technical capacity to complete the proposed development.

VIII. ZONING ANALYSIS

The proposed residential ten unit townhouses are a permitted use in the Residential R-6 which allows multi-family dwellings. Under the R-6 zone all of the dimensional requirements are being met, except for maximum lot coverage. The applicant will need to show documentation that they meet this standard. For off street parking, Division 20 requires one parking space per unit for residential uses on the peninsula, except in the R-6 zone, the first three spaces are exempt. A total of seven parking spaces are shown which meets the zoning requirement. Under external effects, section 14-167(b), the maximum noise requirement of 55 decibels at lot boundaries shall be maintained.

IX. ENSURE WORKFORCE HOUSING CONDITIONAL USE- Tyler Norod, Housing Planner

Conditional Use is authorized by Division 30, Section 14-487, Ensuring Workforce Housing, to secure the creation of Workforce Housing Units as part of new residential projects that propose 10 or more units. The ordinance requires a minimum of 10% of the project to be restricted for Workforce Households and that the number of bedrooms required under Section 14-487(e)3 be at least 10% of the total number of bedrooms made available as part of the project. The project located at 70 Anderson Street proposes the creation of 10 three-bedroom townhouse units. Based on the total number of units the project will be required to provide at least one (1) workforce unit with a minimum of three bedrooms affordable to households earning up to 100% of area median income (AMI). By providing one (1) three-bedroom unit on-site, the project has met the minimum requirements set forth in Section 14-487.

Staff recommends the Board Approve this Conditional Use provided the Applicant and the City enter into an Affordable Housing Agreement (AHA) before a Building Permit may be issued. The Affordable Housing Agreement will outline the details of the affordability restrictions placed on the workforce units based on the City's Inclusionary Zoning Implementation Regulations and will be filed as covenant to the property's deed with the Cumberland County Registry of Deeds before a Certificate of Occupancy may be issued.

X. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527) and SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS (Section 14-496)

In accordance with the city's land use ordinance, the applicant provided a draft plat in the final plan submittal. Due to the timing of the revised submittal, Corporation Counsel and DPS have not had the full opportunity to review the revisions. The review and approval of the final plat has been included as a condition of approval. The final plat shall be revised to reflect any waivers and conditions of approval that relate to the subdivision plan. Any waivers granted must be recorded at the Registry of Deeds within 90 days of a Planning Board decision.

B. SUBDIVISION (Section 14-497)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) 1), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)

Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the erosion and sediment control plan and states the applicant has provided plans, notes, and details have been that erosion and sediment control requirements and inspection and maintenance requirements, in accordance with the Basic Standard.

2. Sufficient Water Available (Section 14-497 (a) 2 and 3)

The project will be served by new water service located in E. Lancaster Street. The Applicant will have to contact the City Department of Public Services requesting ability to serve water and sewer demand. Confirmation of ability to serve sewer from DPS should be forwarded to the Planning Authority upon receipt. The applicant is proposing a central rain garden and a roof dripline drain system for stormwater management.

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)

The site will be accessed by an existing curb cut on E. Lancaster Street. The circulation for the site will consist of vehicles pulling in and backing out onto E. Lancaster Street. After reviewing the site plan, there may be opportunity for the first three parking spaces along the street, to maneuver so they can pull out of the parking lot instead of backing out. Tom Errico, P.E. Ty Lin reviewed this detail and also reviewed the proposal's details including the access, parking, and vehicle circulation (Attachment 1). The proposed project is not anticipated to cause unreasonable traffic congestion. Mr. Errico finds the project to be acceptable and states:

- *Given low trip generation estimates for the project, a traffic impact study is not required. The project would not be expected to have a significant impact on traffic mobility and safety.*
- *The parking layout will likely require vehicles to back out into East Lancaster Street. Given low traffic volumes on East Lancaster Street and low trip generation from the site, I find this condition to be acceptable.*

4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)

There is an existing sewer lateral that will be abandoned in Anderson Street. The project will be served by new sewer line located in E. Lancaster Street. Ms. Swett has reviewed the plans and finds the plans acceptable.

5. Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)

The proposal site is not within an historic district. It is in an urban neighborhood surrounded by a variety of residential building types. The proposed building does not impact the natural beauty of the area or adversely affect any significant wildlife habitat, rare or irreplaceable natural areas, or any public access to the shoreline. The staff finds the proposal in conformance with this standard.

6. Comprehensive Plan (Section 14-497 (a) 9)

The staff has identified the following goals and policies which are relevant to the proposed housing development and finds the proposal in conformance with the Comprehensive Plan:

Portland Housing Goal: Ensure that an adequate supply of housing is available to meet the needs, preferences, and financial capabilities of all Portland households, now and in the future.

Policies

- Ensure the construction of a diverse mix of housing types that offers a continuum of options across all income levels, which are both renter and owner-occupied, including but not limited to the following:
 - ii. Housing units for decreasing household size, such as young professionals, empty nesters, single-parent households, and senior citizens.
- Encourage higher density housing for both rental and home ownership opportunities, particularly located near services, such as schools, businesses, institutions, employers, and public transportation.

- Increase Portland's rental housing stock to maintain a reasonable balance between supply and demand yielding consumer choice, affordable rents, and reasonable return to landlords.
- Identify vacant land and redevelopment opportunities throughout the City to facilitate the construction of new housing.

7. Financial Capability (Section 14-497 (a) 10)

The estimated cost of the development is \$1.8 Million. The applicant has submitted a letter from NBT Bank, dated April 21, 2016, as demonstration of their financial and technical capacity to complete the proposed development.

C. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

- a. Impact on Surrounding Street Systems and Access and Circulation- see Subdivision, Paragraph VIII (B) (3), above.

b. Construction Management Plan

A construction management plan has been submitted by the applicant for review. All the construction is proposed within the limits of the property lines. Tom Errico has reviewed the plan and notes that the applicant *"The applicant has provided a plan that notes full closure of the existing sidewalk along the property frontage, with sidewalk detours and temporary crosswalks. I generally find the plan to be acceptable, although final details will need to be provided for review and approval. I would note that I would prefer a barrier protected temporary sidewalk on Anderson Street, if space permits. In my professional opinion most pedestrians will not follow the detour routing"*.

This has been included as a condition of approval.

c. Sidewalks

The applicant is proposing to install new brick sidewalk along their frontage on both streets, as well as internal brick walkways. Pedestrian access to the site will be provided off of Anderson Street into the central courtyard and via East Lancaster Street along the parking area.

As part of the infrastructure improvements, Mr. Errico has reviewed the plans and recommends the following:

- *A crosswalk on Anderson Street (to Madison Street) may be a requirement for this project. I am coordinating this item with other City staff and will provide feedback in the future.*
- *I continue to review and coordinate the design of the proposed sidewalk ramp on the project corner. I am coordinating with other City staff on the ramp design. Additionally, the crosswalk on East Lancaster Street shall include a fully compliant ramp on the south corner of the intersection.*

The applicant's plans also include the addition of a curb extension and a crosswalk at the intersection of Anderson Street and Madison Street. The City staff has reviewed the proposed plans and would recommend that the proposed crosswalk be perpendicular with ADA complaint curb ramps. In doing this, the pedestrian crossing may or may not consist of curb extensions on one or both sides of Anderson Street. City staff will work with the Applicant to get a final design for this area and have these changes be formalized on the plans. Mr. Errico states:

The details of the subject crosswalk needs further design development given site conditions on both the property frontage and on the corner of Madison Street. Bruce Hyman will be providing some general design criteria for the crosswalk. In general it is seeking a fully ADA compliant crossing that has a perpendicular alignment. The applicant shall be responsible for developing concept designs for the crosswalk inclusive of ramp configurations on both sides of the street. Upon receipt of the concept plans, City staff (Planning/DPW/Fire) will review and provide comments on a preferred design. The applicant will be responsible for construction of the ultimate design along their property frontage only.

The applicant is also proposing a sidewalk ramp at E. Lancaster and Anderson Street intersection. This ramp will have to be a fully ADA complaint. In regard to this ramp, Mr. Errico has stated *“Adjustment to the ramp design is suggested given that a crossing of Anderson Street is not formalized. The applicant shall provide a revised layout for review and approval. The applicant is only responsible for improvements on their corner of the intersection”*.

Accordingly, review and approval of the final design has been included as a condition of approval.

d. Public Transit Access

The proposed development is not located along a public transit route. As such, no provisions for transit access are required.

e. Parking

Division 20 of the land use ordinance requires one parking space/unit for residential development located on the peninsula (*Section 14-332(a)3*) and Section 14-332.1 (k) states “for residential development on the peninsula and in the R-6 and R-6A Zones, including new construction, the parking requirement is one space per dwelling unit, the first three units are exempt from providing parking”. Therefore applicant is proposing seven surface parking spaces to meet zoning requirements and these spaces are located on the rear of the property. Six of the seven parking spaces do not meet technical standards for dimensions. The dimension of a standard parking space is 9’x18’, the standard for compact space is 8’x15’, and the applicant is proposed 8.5’x 18’. The technical manual goes on to state “Any parking lot with 10 or fewer spaces shall contain standard sized parking spaces. Parking lots with greater than 10 spaces may be comprised of up to 20% compact parking spaces”; according to the applicant’s submittal, 85%, or 6, of the proposed on-site parking spaces are designed as compact spaces. Mr. Errico addresses this in his memo, Attachment 1:

The surface parking lot will have a twenty foot (20’) parking aisle width that does not meet standard of twenty-four feet (24’); therefore the applicant has requested a waiver of this standard. An auto-turn analysis has been provided documenting adequate vehicle circulation and the information has been reviewed by the City’s traffic engineer, who states that *“the applicant has provided an Auto-turn analysis and I support a waiver from City standards given site characteristics”*.

f. Bicycle Parking

The applicant’s proposal includes bicycle parking spaces at the northwest corner of the site. The ordinance standard is two bicycle spaces per five vehicle spaces. The proposed area is not located near the entrances to the townhouses.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

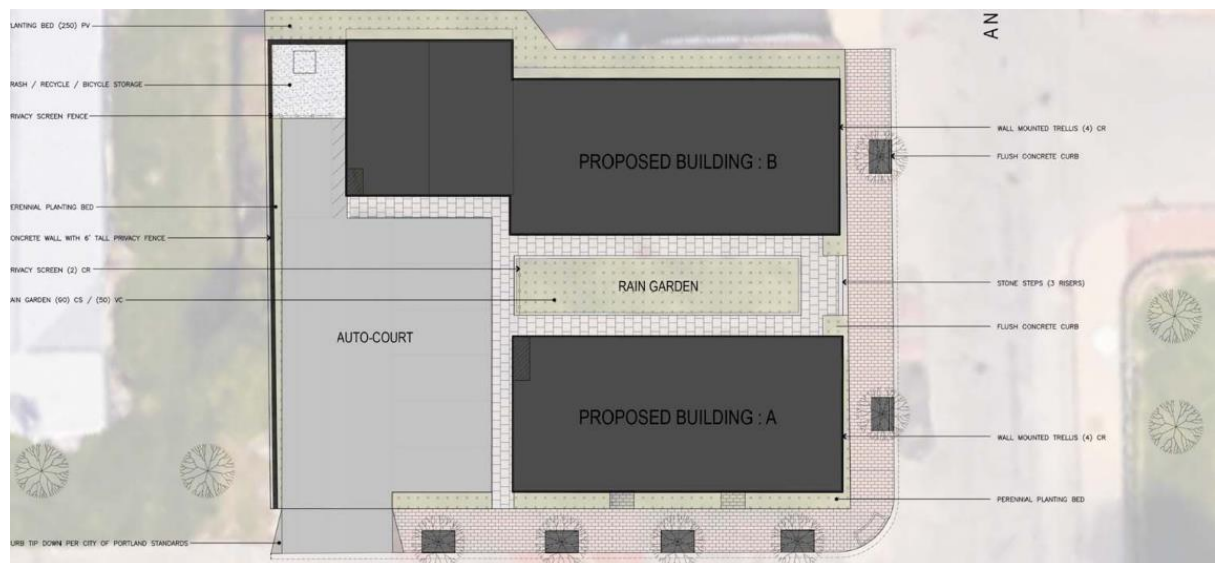
There are no known significant natural features on the site.

b. Landscaping and Landscape Preservation

The site will have a green wall along the front of the buildings as well as a rain garden in the middle of two building, visible along Anderson Street. There is a fence at the westerly side of the property; staff had recommended a screening at the northerly side as well but the applicant has stated that the neighbor does not want a fence at this location. The street tree requirement would be one tree per unit, or ten street trees, in or near the ROW. Applicant is proposing to plant six street trees, Armstrong Maples, on-site: two on Anderson Street and four on E. Lancaster Street. The remaining four trees will be planted on the abutting Portland Housing Authority properties subject to a formal agreement with the Authority. According to the applicant, if no such agreement is reached, then a contribution to the Portland Tree Fund will be made per City requirement.

Trellises and screens are proposed at the courtyard and along the Anderson Street to enhance visual interest. The central courtyard area is composed of a densely planted rain garden, where stormwater is managed, as a focal design piece.

The applicant is proposing a transformer and a solid waste storage at the rear of the property: according to the site plan, both the solid waste and transformer will be screened by a four foot fence.



Jeff Tarling, City Arborist, previous recommendations were addressed on the revised plans.

c. Water Quality, Storm Water Management and Erosion Control

Currently the stormwater runoff is directed to the westernmost corner of the site and eventually enters the Fox Street municipal stormwater system. The site as a whole is relatively flat with an average grade of approximately 3% sloping to the rear of the property. The project will result in a net increase of impervious area above 1,000 sf, as such, is required to include stormwater management features for stormwater quality & quantity control.

The applicant will provide water quality treatment to the stormwater through filtration by utilizing a rain garden and roof dripline filtration. These treatments will provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area. The remainder of the stormwater will be transported to the municipal stormwater system within Anderson Street via a perforated distribution pipe.

Under Section 5 of the City of Portland Technical Manual, a Level III development project is

required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the drainage plan and stormwater report, and states that the revised plans meet the standards of the General and Flooding Standards.

3. *Public Infrastructure and Community Safety Standards*

a. Consistency with Master Plans

See Subdivision, Paragraph VIII (B)6 above.

b. Public Safety and Fire Prevention

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime.

The applicant has provided a catalogue cuts indicating one type of full cutoff fixture in accordance with the city's Technical Manual. The applicant has not submitted an accompanying photometric plan, but the proposed lighting fixtures are proposed internally to the project and along E. Lancaster Street. As such there will not be spillage onto neighboring properties, which conforms to the Technical Manual standards. In the revised submittal, the applicant has also depicted two Bayside Medium LED street light fixtures on each of the frontages as requested by staff.

c. Availability and Adequate Capacity of Public Utilities

The project will be served by the Portland Water District, City Department of Public Works, and underground\ power /cable/communications. The Applicant has submitted a capacity letter from Portland Water District. The applicant shall submit ability to serve letter from the Department of Public Services requesting sewer demand and be forwarded to the Planning Authority upon receipt.

4. *Site Design Standards*

a. Snow and Ice Loading

Snow storage plans have been provided Attachment Plan 4. In their revised submittal, he applicant has indicated that, in heavy storm events, snow will be removed from the site.

b. View Corridors

This site is not within a Protected View Corridor as per the "View Corridor Protection Plan" approved by the Portland City Council in 2001.

c. Historic Resources

The site is not in any historic district; therefore the project does not have to be reviewed by Historic Preservation.

d. Exterior Lighting

The applicant has provided a catalogue cuts indicating one type of full cutoff fixture in accordance with the city's Technical Manual. The applicant has not submitted an accompanying photometric plan, but the proposed lighting fixtures are proposed internally to the project and along E. Lancaster Street. As such there will not be spillage onto neighboring properties, which conforms to the Technical Manual standards. In the revised submittal, the applicant has also depicted two Bayside Medium LED street light fixtures on each of the frontages as requested by staff.

e. Noise and Vibration

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

f. Signage and Wayfinding

No signage or wayfinding is proposed at this time.

g. Zoning Related Design Standards

A design review according to the *City of Portland Design Manual* Standards was performed for the proposed new construction of a multi-family dwelling at 70 Anderson Street. The review was performed by Caitlin Cameron, Urban Designer, Nell Donaldson, Planner, and Shukria Wiar, Planner. The project was reviewed against the *R-6 Small Infill Development Design Principles & Standards*. The original design did not pass all of the criteria; some of the outstanding comments from original review include lack of relationship to the street, the roof pitch and height of the gable roofs do not reflect and reinforce the traditional building character of the neighborhood, and lack of façade articulation (no bays, gables/dormers, recessed entry, balconies are proposed). The applicant had met with staff and has submitted revised plans based on staff recommendation. The new concept now meets the design guidelines of the R-6 zone. Ms. Cameron comments are included at Attachment 5.

XI. PROPOSED MOTIONS

A. CONDITIONAL USE

On the basis of the application, plans, reports and other information submitted by the applicant, findings to the Ensure Workforce Housing and recommendations contained in the Planning Board Report, relevant to Portland's Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing:

The Planning Board finds the proposed conditional use for workforce housing [does or does not] meet the standards of Section 14-484 with the following conditions:

1. That the Applicant and the City shall enter into an agreed upon Affordable Housing Agreement (AHA) prior to the issuance of a building permit. The Affordable Housing Agreement shall outline the details of the affordability restrictions placed on the Workforce Units; and
2. That the Affordable Housing Agreement shall be filed as covenant to the property's deed with the Cumberland County Registry of Deeds prior to the issuance of a Certificate of Occupancy.

B. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on September 27, 2016 for application 2016-099 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing:

1. The Planning Board [finds/does not find], based upon the consulting transportation engineer's review (Attachment 1), that extraordinary conditions exist or undue hardship may result from strict compliance with the *Technical Manual* standard (*Section 1.14*) which requires that aisle width for right-angle parking be 24 feet per *Figure I-27*. The Planning Board [waives/does not waive] the *Technical Manual* standard (*Section 1.14*) to allow a 20 foot wide aisle in the parking area at the interior of the site;

2. The Planning Board **[finds/does not find]**, based upon the consulting transportation engineer's review (*Attachment 1*), that extraordinary conditions exist or undue hardship may result from strict compliance with the *Technical Manual* standard (*Section 1.14 and Figures I-27 to I-29*) limiting compact spaces to 20% of total parking supply. The Planning Board **[waives/does not waive]** the *Technical Manual* standard (*Section 1.14 and Figures I-27 to I-29*) to allow 85% compact spaces;
3. The Planning Board **[finds/does not find]** that the applicant has demonstrated that site constraints prevent the planting of all required trees in the parking area due to the area's size and configuration. The Planning Board **[waives/does not waive]** the site plan standard (*Section 14-526(b)2.b(ii)*); and
4. The Planning Board **[finds/does not find]** that the applicant has demonstrated that site constraints prevent the planting of all required street trees in the right-of-way. The Planning Board **[waives/does not waive]** the site plan standard (*Section 14-526 (b) (iii)*) requiring one street tree per unit for multi-family development and concludes that the applicant shall either plant the four trees on the Portland Housing Authority properties, subject to an agreement, or contribute \$800 for four street trees to Portland's tree fund.

B. SUBDIVISION

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the planning board report for the public hearing on September 27, 2016 for application 2016-099 relevant to the subdivision regulations; and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the subdivision standards of the land use code, subject to the following conditions of approval, which must be met prior to the signing of the plat:

1. The applicant shall finalize the subdivision plat and confirm right, title, and interest in Anderson Lane, for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority; and
2. The final plat shall include setting the property corners and proposed granite monument, and a stamp of the Professional Land Surveyor.

C. DEVELOPMENT REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on September 27, 2016 for application 2016-099 relevant to the site plan regulations; and the testimony presented at the planning board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the site plan standards of the land use code, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. The applicant shall provide a revised construction management plan, including the details regarding pedestrian detours, ADA compliance, and contractor parking as requested by the city's consulting traffic engineer;
2. The applicant shall submit a revised plan set, including modifications to ramps, sidewalks extensions, and documentation of ADA accessibility, as requested by the city's consulting traffic engineer (*Attachment 1*) for review and approval by the Planning Authority and Department of Public Services; and

3. That the applicant shall provide a maintenance agreement for the stormwater drainage system, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Services.

XII. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Traffic Engineer review (memo from Thomas Errico, 9.22.2016)
2. Civil Engineer and Department of Public Services review (memo from Lauren Swett, 9.22.2016)
3. City Arborist review (memo from Jeff Tarling, 7.21.2016)
4. Fire Prevention Department review (memo from Keith Gautreau, 9.19.2016)
5. Design review (memo from Caitlin Cameron, 9.16.2016)
6. Housing Planner (memo from Tyler Norod, 9.19.2016)
7. City Surveyor, (memo from William Clark, 9.23.2016)
8. Public Comments
 - a. Public Comment- Christian MilNeil
 - b. Public Comment- Karen Snyder 1
 - c. Public Comment- Karen Snyder 2
 - d. Public Comment- Peter Monro
 - e. Public Comment- Steve Davis

APPLICANT'S SUBMITTALS

- A. Cover Letter (from Will Savage of Acorn Engineering , Inc., 8.23.16)
- B. Level III Site Plan application
- C. Evidence of Right, Title, and Interest
- D. Zoning Analysis
- E. Summary of Easements
- F. Written Request for Waivers
- G. Evidence of Financial Capacity
- H. Stormwater Report
- I. Erosion and Sedimentation Control Report
- J. Fire Department Letter
- K. Solid Waste
- L. Utility Cover
- M. Construction Management Plan
- N. Architectural Design Narrative
- O. Cover Letter (from Will Savage of Acorn Engineering , Inc., 6.28.16- IZ)
- P. Conditional Use IZ Application
- Q. Conformity with Conditional Use Standards
- R. Comment Response Letter
- S. Architectural Narrative
- T. Landscaping Narrative
- U. Stormwater Drainage System Maintenance Agreement
- V. Photometric Specifications Sheet
- W. Impervious Surface Exhibit
- X. Autoturn Analysis
- Y. Aug 3 neighborhood meeting package

PLANS

- Plan 1. Cover Sheet & Legend
- Plan 2. General Notes
- Plan 3. Existing Conditions Plan
- Plan 4. Site Plan
- Plan 5. Utility Plan

- Plan 6. Grading, Drainage, & Erosion Control Plan
- Plan 7. Site Details - 1
- Plan 8. Site Details - 2
- Plan 9. Utility Details
- Plan 10. Drainage Details
- Plan 11. Erosion Control Details & Notes
- Plan 12. Demolition and Construction Management Plan
- Plan 13. Landscape Schematic Design
- Plan 14. First Floor Plan
- Plan 15. Second Floor Plan
- Plan 16. Third Floor Plan
- Plan 17. Roof Plan
- Plan 18. First Floor Plan
- Plan 19. Second Floor Plan
- Plan 20. NE and SE Elevation- Building A
- Plan 21. Plan 21 NW and SE Elevation- Building
- Plan 22. SE and NE Elevation- Building B
- Plan 23. SW and NW Elevations
- Plan 24. Looking East from Anderson
- Plan 25. Looking West from Anderson
- Plan 26. Looking South on Madison
- Plan 27. Looking North on E. Lancaster
- Plan 28. Landscaping NE View from E Lancaster
- Plan 29. Landscaping NW View
- Plan 30. Landscaping_SE View
- Plan 31. Landscaping_SW View from Madison
- Plan 32. Landscaping_SW View
- Plan 33. Subdivision Plat

70 Anderson Street - Final Traffic Comments

Tom Errico <thomas.errico@tylin.com>

Thu, Sep 22, 2016 at 12:03 PM

To: Shukria Wiar <shukriaw@portlandmaine.gov>

Hi Shukria – I have reviewed the revised/supplemental application materials and offer the following final traffic comments, as an update to my final comments.

- Given low trip generation estimates for the project, a traffic impact study is not required. The project would not be expected to have a significant impact on traffic mobility and safety.

Status: I have no further comment.

- The applicant is proposing parking spaces (one space meets City standards) that are slightly narrower than City standards (8.25 feet vs. 9 feet). An Auto-turn analysis should be provided documenting adequate vehicle circulation.

Status: The applicant has provided an Auto-turn analysis and I support a waiver from City standards given site characteristics.

- The parking layout will likely require vehicles to back out into East Lancaster Street. Given low traffic volumes on East Lancaster Street and low trip generation from the site, I find this condition to be acceptable.

Status: I have no further comment.

- The applicant is proposing a parking aisle width of 20 feet and this does not meet the City standards. An Auto-turn analysis should be provided documenting adequate vehicle circulation.

Status: The applicant has provided an Auto-turn analysis and I support a waiver from City standards given site characteristics.

- The driveway apron along the sidewalk shall have a maximum cross slope of 2%. The plans shall include details specifying this requirement.

Status: The plans have been revised to note this requirement and I have no further comment.

- A crosswalk on Anderson Street (to Madison Street) may be a requirement for this project. I am coordinating this item with other City staff and will provide feedback in the future.

Status: The details of the subject crosswalk needs further design development given site conditions on both the property frontage and on the corner of Madison Street. Bruce Hyman will be providing some general design criteria for the crosswalk. In general it is seeking a fully ADA compliant crossing that has a perpendicular alignment. The applicant shall be responsible for developing concept designs for the crosswalk inclusive of ramp configurations on both sides of the street. Upon receipt of the concept plans, City staff (Planning/DPW/Fire) will review and provide comments on a preferred design. The applicant will be responsible for construction of the ultimate design along their property frontage only.

· I continue to review and coordinate the design of the proposed sidewalk ramp on the project corner. I am coordinating with other City staff on the ramp design. Additionally, the crosswalk on East Lancaster Street shall include a fully compliant ramp on the south corner of the intersection.

Status: Adjustment to the ramp design is suggested given that a crossing of Anderson Street is not formalized. The applicant shall provide a revised layout for review and approval. The applicant is only responsible for improvements on their corner of the intersection.

· The construction management plan should provide details on how the sidewalks along the property will be managed during construction.

Status: The applicant has provided a plan that notes full closure of the existing sidewalk along the property frontage, with sidewalk detours and temporary crosswalks. I generally find the plan to be acceptable, although final details will need to be provided for review and approval. I would note that I would prefer a barrier protected temporary sidewalk on Anderson Street, if space permits. In my professional opinion most pedestrians will not follow the detour routing.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TYLIN INTERNATIONAL

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

thomas.errico@tylin.com

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MEMORANDUM



TO: Shukria Wiar, Planner
FROM: Lauren Swett, PE
DATE: September 22, 2016
RE: 70 Anderson Street, Level III Site Plan Application

Woodard & Curran has reviewed the Response to Comments Level III Site Plan Application for the proposed redevelopment located at 70 Anderson Street. The project includes the construction of a 10-unit townhouse urban infill redevelopment on the parcel which currently contains a single story home and garage.

Documents Reviewed by Woodard & Curran

- Level III Site Plan application and attachments, dated August 22, 2016, prepared by Acorn Engineering, Inc., on behalf of Redfern Properties, LLC.
- Project plans, REV dated August 22, 2016, prepared by Acorn Engineering, Inc., on behalf of Redfern Properties, LLC.

Comments (*Comments in italics from previous memorandum*)

- 1) *The Applicant has submitted requests for ability to serve to the City of Portland for sewer and Portland Water District for water.* Water District approval has been received, but the sewer approval is outstanding.
- 2) The Applicant has addressed all other prior comments.



Shukria Wiar <shukriaw@portlandmaine.gov>

70 Anderson Street

Jeff Tarling <jst@portlandmaine.gov>

Thu, Jul 21, 2016 at 9:21 AM

To: Shukria Wiar <shukriaw@portlandmaine.gov>

Hi Shukria -

In review of the landscape plan for the proposed 70 Anderson Street the following tree & landscape recommendations would improve the project:

- * Street-trees - extend the street tree planting to include Lancaster Street as well as Anderson Street. After taking a closer look the space is too tight or restrictive to include two trees in the tree planters.
- * Tree planters should not be raised due to on-street parking, they should be rectangular in shape 4' x 7' ideal.
- * Landscape treatment should be considered for the area near the parking lot.
- * Ornamental grasses proposed for the 5' boarder is acceptable, applicant may want to consider alternatives, woody plants or herbaceous plant material / perennials that offer flowers / texture and year around interest.

Thanks

Jeff Tarling
Portland Parks & Recreation - City Arborist
55 Portland Street
Portland, ME. 04101
(207) 874.8820
jst@portlandmaine.gov

MEMORANDUM

To: FILE

From: Shukria Wiar

Subject: Application ID: 2016-160

Date: 9/22/2016

Comments Submitted by: Keith Gautreau/Fire on 9/19/2016

Premises Identification

The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.

Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer. If the building entry faces a different street, both the street name and number should be large enough to read from the street.

Address numbers must be a minimum of 4 inches high.

The number should be in Arabic numerals rather than spelled out (for example, "130" instead of "One Hundred and Thirty").

Color: Addresses should be in a color that contrasts with the background.

Whenever possible, should be illuminated.

Provide additional address signs at entrances to the property when the building address is not legible from the public street.

Buildings set back in groups that share common entrances can make quickly locating a specific building and the shortest route difficult. On such sites, additional signs with directional arrows and/or diagrams of the buildings and access layout should be posted.

Comments Submitted by: Keith Gautreau/Fire on 9/19/2016

There is a hydrant at the corner of Lancaster and Anderson that will be sufficient for the proposed project. There is no need for a letter for capacity to serve from PWD.

Comments Submitted by: Keith Gautreau/Fire on 9/19/2016

Emergency access is really good to this site. With Anderson Lane access to three sides of site is available.

Planning and Urban Development Department

Planning Division



Subject: R-6 Small Infill Design Review – 70 Anderson Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Friday, September 16, 2016

A design review according to the *City of Portland Design Manual* Standards was performed for the proposed new construction of a multi-family dwelling at 70 Anderson Street. The review was performed by Caitlin Cameron, Urban Designer, Nell Donaldson, Planner, and Shukria Wiar, Planner, all within the Planning Division of the Department of Planning & Urban Development. The project was reviewed against the *R-6 Small Infill Development Design Principles & Standards* (Appendix 7 of the Design Manual).

Findings of the Design Review:

For an alternative design review, all principles must be met, a majority of the standards must be met, and all of the Principle A standards must be met. The proposed design passes all of the criteria – please refer to comments below.

- **Notes in bold address revisions to the design.**
- **Notes in red reflect standards not met.**

Principle A Overall Context – Met – see below.

- *A-1 Scale and Form:* The scale the project is larger than most buildings on this small street, but the height is three stories and does not overshadow the neighboring 2.5 or 3 story residential buildings. The form is mostly defined by the gabled roof which is a traditional New England roof form.
- *A-2 Composition of Principal Facades:* The compositions of the street-facing facades are consistent with context in terms of using symmetrical bays (two or three bays).
- *A-3 Relationship to the Street:* The building placement is consistent with the spacing of the residential fabric – slightly setback from sidewalk to allow for stoops and provide some privacy. **The ground floor was raised 12" to bring the building more into conformance with the predominant residential character – ground floors are raised and slightly set back to create a sense of privacy for ground-floor living spaces.**

Principle B Massing – Met – The roof pitch and height of the gable roofs now reflect and reinforce the traditional building character of the neighborhood.

- *B-1 Massing:* The proposed mass is wider on the street than the typical building context but the use of row houses mitigates that massing.
- *B-2 Roof Forms:* **The gable roof was revised to have an 8:12 pitch and the trim details revised to create a more vertical proportion from the Anderson Street view.**
- *B-3 Main Roofs and Subsidiary Roofs:* Met – there is a clear main roof form.

- *B-4 Roof Pitch:* The standard requires gable roofs to have a slope between 7:12 and 12:12.
- *B-5 Façade Articulation:* The project revision employs two of the required articulation elements – covered entries and bays. **Bays were added to Lancaster Street to meet the standard. Though the standard is technically met, staff would prefer the bays appear on all four units facing the street to create a consistent rhythm and legibility of the row houses.**
- *B-6 Garages:* Not applicable.

Principle C Orientation to the Street – Met – The project is oriented to the street; **applicant was asked to address privacy issues for ground-floor living spaces by raising ground floor and window sill heights.**

- *C-1 Entrances:* The entry to each unit is well-emphasized with the canopy.
- *C-2 Visual Privacy:* **Visual privacy was addressed by shortening ground floor windows to be higher than 48" above adjoining sidewalk grade; the ground floor was raised and additional 12" to help create privacy for ground-floor living spaces.**
- *C-3 Transition Spaces:* The project uses a canopy at each entrance but very little transition space is provided.

Principle D Proportion and Scale – Met – The scale of the buildings overall are harmonious and human-scaled.

- *D-1 Windows:* The majority of windows are rectangular and have vertical proportion; **window proportion was changed to better reflect the proportions found in context.**
- *D-2 Fenestration:* The project appears to meet the 12% fenestration requirement and appropriately scaled to the massing of the building.
- *D-3 Porches:* Not applicable

Principle E Balance – Met – The building façade composition creates a sense of balance with good use of overall and local symmetry and articulation of façade materials.

- *E-1 Window and Door Height:* The majority of window and door head heights align along a common horizontal datum.
- *E-2 Window and Door Alignment:* The majority of windows shall stack so that centerlines of windows are in vertical alignment.
- *E-3 Symmetricality:* Primary window compositions are arranged symmetrically around discernable vertical axes.

Principle F Articulation – Met – Based on the information given, it appears the project employs visually interesting and well composed facades.

- *F-1 Articulation:* It is a little bit difficult to discern the trim and window details of the project however, if there is a little bit of a shadow line created with these details, as it appears there would be, then the standard is met.
- *F-2 Window Types:* Two window types
- *F-3 Visual Cohesion:* The visual cohesion of the façade is good.
- *F-4 Delineation between Floors:* The first floor is delineated through trim and change of clapboard reveal.
- *F-5 Porches, etc.:* The stoop and canopy are well integrated into the overall design.
- *F-6 Main Entries:* The main entry is emphasized with prominent placement facing the street, the use of a canopy.

- *F-7 Articulation Elements:* It appears the rake of the roof meets the 6" requirement; the trim details are not clear; there do not appear to be offsets in the principal façades.

Principle G Materials – Met – The material choices are well-placed and clapboard is contextual for residential architecture in this neighborhood.

- *G-1 Materials:* The residential context is predominantly clapboards with occasional shingle or brick. **Project will use clapboard with panel at the bays and tile at the base.**
- *G-2 Material and Façade Design:* The materials are appropriately placed according to their nature.
- *G-3 Chimneys:* Not applicable.
- *G-4 Window Types:* Two window types.
- *G-5 Patios and Plazas:* Internal plaza space uses stone steps and a concrete brick paver with rain garden and planting areas.



To: Shukria Wiar, Planner, Planning & Urban Development Department

From: Tyler Norod, Housing Planner, Housing & Community Development Division

Date: September 19, 2016

Subject: 70 Anderson Street– Inclusionary Zoning Conditional Use

Conditional Use is authorized by Division 30, Section 14-487, Ensuring Workforce Housing, to secure the creation of Workforce Housing Units as part of new residential projects that propose 10 or more units. The ordinance requires a minimum of 10% of the project to be restricted for Workforce Households and that the number of bedrooms required under Section 14-487(e)3 be at least 10% of the total number of bedrooms made available as part of the project. The project located at 70 Anderson Street proposes the creation of 10 three-bedroom townhouse units. Based on the total number of units the project will be required to provide at least one (1) workforce unit with a minimum of three bedrooms affordable to households earning up to 100% of area median income (AMI).

By providing one (1) three-bedroom unit on-site, the project has met the minimum requirements set forth in Section 14-487.

Staff recommends the Board Approve this Conditional Use provided the Applicant and the City enter into an Affordable Housing Agreement (AHA) before a Building Permit may be issued. The Affordable Housing Agreement will outline the details of the affordability restrictions placed on the workforce units based on the City's Inclusionary Zoning Implementation Regulations and will be filed as covenant to the property's deed with the Cumberland County Registry of Deeds before a Certificate of Occupancy may be issued.

Sincerely,

Tyler Norod
Housing Planner

70 Anderson St Survey Review 9 22 2016

William Clark <wbc@portlandmaine.gov>

Fri, Sep 23, 2016 at 9:55 AM

To: Shukria Wiar <shukriaw@portlandmaine.gov>

Cc: Barbara Barhydt <bab@portlandmaine.gov>, Victoria Morales <vmorales@portlandmaine.gov>, Michael Goldman <mig@portlandmaine.gov>

Hi Shukria,

Here is my review of the Site Plan dated 8 15 2016.

Items of note:

1. Need to show property corners to set as requested in my 7/12/2016 review.
2. Proposed Granite Monument to set is not shown.
3. As discussed the Survey Note #5 states that Fee Interest in Anderson Lane apparently lies with the heirs of Moses Gould as described in a deed recorded in Book 290, Page 310. The unrecorded release deed from Portland Housing Authority to Redfern Properties does not state that the Portland Housing Authority acquired title from the heirs of Moses Gould. Barbara said she would talk with Corporation Counsel. I was just worried that this may come up in the future and cause problems for future owners. I defer to Corporation Counsel on this item.
4. Needs Stamp of the Professional Land Surveyor.

Thanks,

Bill

--

William Clark, PLS
Senior Project Engineer
DPW Engineering
City of Portland
55 Portland St.
Portland, ME 04101
[207 874 8847](tel:2078748847)



C-10 Site Plan Rev 8 15 2016 Survey Review 9 22 2016.PDF
905K

Fwd: Support for 70 Anderson

Caitlin Cameron <ccameron@portlandmaine.gov>
To: "Wiar, Shukria" <shukriaw@portlandmaine.gov>

Mon, Jul 25, 2016 at 1:39 PM

----- Forwarded message -----

From: **Christian MilNeil** <c.neal.milneil@gmail.com>

Date: Mon, Jul 25, 2016 at 1:36 PM

Subject: Support for 70 Anderson

To: Caitlin Cameron <CCameron@portlandmaine.gov>, HCD@portlandmaine.gov, Tom Errico
<thomas.errico@tylin.com>

Cc: Jonathan Culley <jonathan@redfernproperties.com>, Catherine Culley <catherine@redfernproperties.com>, Jessica MilNeil <jessicamilneil@gmail.com>, Abby King <abigailking@gmail.com>

To the Portland Planning Board and planning staff:

As an East Bayside neighbor (at 45 Smith Street), and as an enthusiastic supporter of more diverse and more affordable housing construction, I'd like to register my support of Redfern Properties' proposal for 70 Anderson Street.

I do think that Ms. Cameron makes legitimate critiques of the proposed buildings in her design review memo. But I also think that the project architect has produced good work elsewhere in our city recently, and I'm confident that the design will continue to evolve to the benefit of the development's future residents.

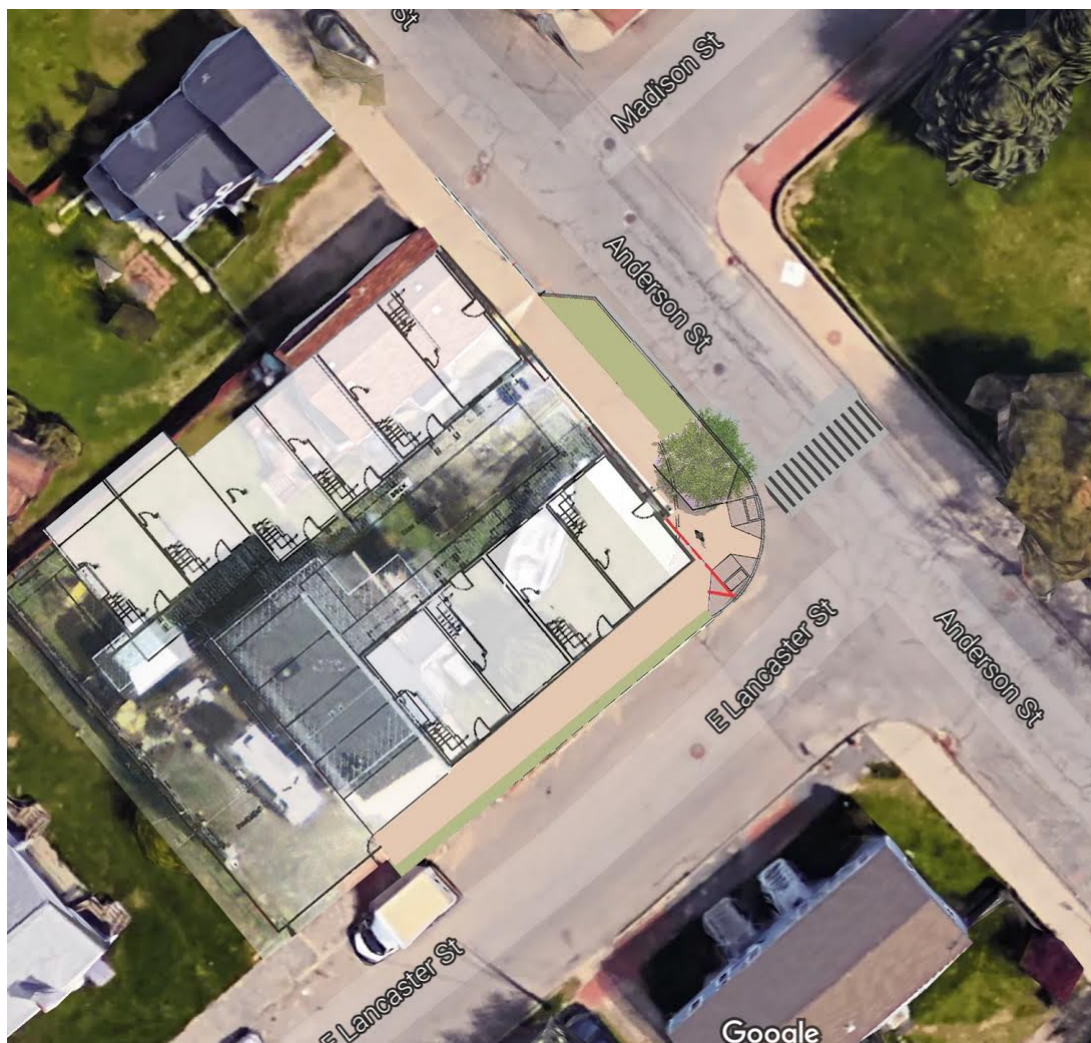
I'd like to call out particular praise for the applicants' taking advantage of the new R6 zone's allowances for reduced parking. By dedicating more of their site to homes, instead of to pavement, the developers will reduce the cost of the housing to future buyers and make the new development more accommodating to the city's thousands of car-free households – a market segment that's long been neglected in new construction.

Making the city more inviting to car-free households is an easy way to make city living more affordable and reduce the traffic impacts of new construction, and the Planning Board should welcome this with open arms.

On a related note, I have had some conversations with the developers' engineer and with people in the East Bayside Neighborhood Organization about getting an enhanced sidewalk and crosswalk at this site across Anderson Street, in order to extend the "neighborhood byway" traffic-calming and stormwater-treatment amenities now under construction north of Fox Street (a rough concept is sketched below).

This would require the sacrifice of 2-3 on-street parking spaces in favor of a landscaped curb extension. Speaking as a neighbor who walks and drives through here frequently, I can attest that the parking is rarely used and the addition of some shade and greenery (along with a safer crosswalk) would be most welcome. It would be great to have the Planning Board's blessing for this concept as well...

Yours,
-Christian MilNeil
45 Smith Street #2



—
Caitlin Cameron, AICP, Associate AIA, LEED AP
Urban Designer
Planning & Urban Development Department
389 Congress Street
Portland, ME 04101
phone: (207) 874-8901
email: ccameron@portlandmaine.gov

70 Anderson St Initial Workshop Feedback

Karen Snyder <karsny@yahoo.com>

Wed, Jul 27, 2016 at 3:01 PM

Reply-To: Karen Snyder <karsny@yahoo.com>

To: "shukriaw@portlandmaine.gov" <shukriaw@portlandmaine.gov>

Cc: Belinda Ray <bsr@portlandmaine.gov>, Munjoy Hill Neighborhood Organization <jay.norris@munjoyhill.org>, Anne Rand <rdanne@aol.com>, "estrimling@portlandmaine.gov" <estrimling@portlandmaine.gov>, Jon Hinck <jhinck@portlandmaine.gov>

Hi Shukria,

At a request of some Bayside Neighbors, I attended the initial workshop last night of the 70 Anderson St new project. I was quite disheartened to see the same shenanigans going on with a Planning board where the impression to the local residents concerns were not taken seriously and a favorable bias to the developer. Last night's workshop illustrated this point.

For 70 Anderson workshop, the developer Jonathon Culley is asking for four waivers all ready knowing the current ordinances. The four waivers are:

1. The 7 parking spots are only large enough for compact cars. Would families that can afford these 3 bedroom townhouses really have compact cars? More like SUVs.
- Of course he only put in the minimum parking spaces based on the latest changes in the R6 on parking where it is not required to put in parking spots for the first 3 units.
2. The required street trees for this project is 10. He can only fit 4 on Anderson street sidewalk and no street trees on Lancaster St because the sidewalk is too tight because the townhouses are too big. But don't worry, he will have 6 trees between the buildings and he thinks this should qualify for street trees. No, six trees inside a property does NOT qualify as a street tree.
3. Not enough room for parking landscaping due to the tight spaces.
4. Lack of aisle way for entrances.

Culley is also only putting the minimum which is just one affordable house based on the Ensure Workforce Housing Fairness Act.

I am also concerned about Elizabeth Boepple who is a land lawyer and appears to be unfairly biased to developers especially since I heard her comments last night that the street tree ordinance is usually waived in favor of the developer. That seems quite a biased statement. What is the good of having street tree ordinances if the planning board continuously waives the replacement of trees on the sidewalks? Do they want to turn Portland into Manhattan concrete and steel environment for the rich only to live?

In conclusion, instead of the planning board being preoccupied with the color of the proposed townhouses, they need to address more substantial concerns of the local residents.

1. The adjoining neighbor who wants to put solar panels on roof and Culley's design could potentially block the sun for this neighbor.
2. The adjoining neighbors concern of the abatement of these buildings and how it will affect his children and the garden where he grows his vegetables.
3. Yet once again concern of affordable housing of Jonathan Culley and the minimum requirement of having one affordable house on this site based on the Ensure Workforce Housing Fairness Act.
4. The 4 waivers which the Planning Board didn't seem to concerned with and the impression that they will be waived quite easily these waivers for not having properly sized parking spaces, lack of parking landscaping, and the lack of street trees.

I suggest the planning board start focusing on making the developers actually adhere to the ordinances rather than being waived of ordinances since they are putting in “market rate” residences at the opposition of local residents.

Regards,

Karen Snyder

Munjoy Hill Property Owner

Re: 70 Anderson St Initial Workshop Feedback-Clarification

Karen Snyder <karsny@yahoo.com>

Thu, Jul 28, 2016 at 7:52 AM

Reply-To: Karen Snyder <karsny@yahoo.com>

To: "shukriaw@portlandmaine.gov" <shukriaw@portlandmaine.gov>

Cc: Belinda Ray <bsr@portlandmaine.gov>, Munjoy Hill Neighborhood Organization <jay.norris@munjoyhill.org>, Anne Rand <mdanne@aol.com>, "estrimling@portlandmaine.gov" <estrimling@portlandmaine.gov>, Jon Hinck <jhinck@portlandmaine.gov>

Hi Shukria,

I want it to be clear that I oppose the Planning board approving the 4 waivers for this project.

I will reiterate I also think the Planning board should make the developer work with the surrounding concerned neighbors about abatement and potentially blocking solar panels and to come up with solutions that are agreeable to these neighbors since they will have to endure the construction.

The Planning Board should be working to alleviate the concern and discomfort of the local tax paying property owners and NOT the developer.

Karen Snyder
Munjoy Hill Property Owner

From: Karen Snyder <karsny@yahoo.com>

To: "shukriaw@portlandmaine.gov" <shukriaw@portlandmaine.gov>

Cc: Belinda Ray <bsr@portlandmaine.gov>; Munjoy Hill Neighborhood Organization <jay.norris@munjoyhill.org>; Anne Rand <mdanne@aol.com>; "estrimling@portlandmaine.gov" <estrimling@portlandmaine.gov>; Jon Hinck <jhinck@portlandmaine.gov>

Sent: Wednesday, July 27, 2016 3:01 PM

Subject: 70 Anderson St Initial Workshop Feedback

Hi Shukria,

At a request of some Bayside Neighbors, I attended the initial workshop last night of the 70 Anderson St new project. I was quite disheartened to see the same shenanigans going on with a Planning board where the impression to the local residents concerns were not taken seriously and a favorable bias to the developer. Last night's workshop illustrated this point.

For 70 Anderson workshop, the developer Jonathon Culley is asking for four waivers all ready knowing the current ordinances. The four waivers are:

1. The 7 parking spots are only large enough for compact cars. Would families that can afford these 3 bedroom townhouses really have compact cars? More like SUVs.
 - Of course he only put in the minimum parking spaces based on the latest changes in the R6 on parking where it is not required to put in parking spots for the first 3 units.
2. The required street trees for this project is 10. He can only fit 4 on Anderson street sidewalk and no street trees on Lancaster St because the sidewalk is too tight because the townhouses are too big. But don't

worry, he will have 6 trees between the buildings and he thinks this should qualify for street trees. No, six trees inside a property does NOT qualify as a street tree.

3. Not enough room for parking landscaping due to the tight spaces.
4. Lack of aisle way for entrances.

Culley is also only putting the minimum which is just one affordable house based on the Ensure Workforce Housing Fairness Act.

I am also concerned about Elizabeth Boepple who is a land lawyer and appears to be unfairly biased to developers especially since I heard her comments last night that the street tree ordinance is usually waived in favor of the developer. That seems quite a biased statement. What is the good of having street tree ordinances if the planning board continuously waives the replacement of trees on the sidewalks? Do they want to turn Portland into Manhattan concrete and steel environment for the rich only to live?

In conclusion, instead of the planning board being preoccupied with the color of the proposed townhouses, they need to address more substantial concerns of the local residents.

1. The adjoining neighbor who wants to put solar panels on roof and Culley's design could potentially block the sun for this neighbor.
2. The adjoining neighbors concern of the abatement of these buildings and how it will affect his children and the garden where he grows his vegetables.
3. Yet once again concern of affordable housing of Jonathan Culley and the minimum requirement of having one affordable house on this site based on the Ensure Workforce Housing Fairness Act.
4. The 4 waivers which the Planning Board didn't seem to concerned with and the impression that they will be waived quite easily these waivers for not having properly sized parking spaces, lack of parking landscaping, and the lack of street trees.

I suggest the planning board start focusing on making the developers actually adhere to the ordinances rather than being waived of ordinances since they are putting in "market rate" residences at the opposition of local residents.

Regards,

Karen Snyder

Munjoy Hill Property Owner

70 Anderson St.

jp_monro@myfairpoint.net <jp_monro@myfairpoint.net>

Mon, Jul 25, 2016 at 4:20 PM

Reply-To: jp_monro@myfairpoint.net

To: shukriaw@portlandmaine.gov

Cc: Deb Andrewss <DGA@portlandmaine.gov>, Ryan Senatore <ryan@senatorearchitecture.com>, Caitlin Cameron <ccameron@portlandmaine.gov>

Dear Shukira,

I am opposed to insisting that the ground floor be raised in the new residential construction at 70 Anderson Street, despite its being a listed R-6 infill standard and despite the recommendation based on that standard by Caitlin Cameron. Here's her citation:

" **Not met.** - A-3 Relationship to the Street: The building placement is consistent with the spacing of the residential fabric – slightly setback from sidewalk to allow for stoops and provide some privacy. **The ground floor is not raised and is not consistent with residential development patterns.**"

I object based on our experience on May Street, with the newly constructed house of Barack and Mimi Olins. They were required to raise their ground floor according to this standard, I believe.

What have been the effects? Does the building better reflect existing buildings as a result? No. On the contrary it has been made more markedly different for two reasons.

First, it was already going to be as tall a building as any other on the street. Now it has been made even taller. (Indeed, here on May Street it's tall skinniness is the primary way it distinguishes itself from other buildings. It was unfortunate that standards were applied to make it conform even less in this most prominent regard.)

Second, an exposed concrete frost wall no more reflects neighboring buildings than clapboard down to the ground. In fact, I would argue that it is less representative of neighboring buildings, since none of them have exposed concrete, and exposed concrete simply accentuates the modernity of the Ollins's building and would presumably do the same on Anderson Street.

A third objection is that the additional costs of shifting from a slab to a frost wall, combined with additional entry steps, grading and filling is not insignificant.

In short, I can see no countervailing value for this imposed additional expense.

As a result, I would urge the applicant to apply for a waiver of this standard, and I would urge you on the planning staff to recommend its acceptance by the Planning Board.

Respectfully,

Peter Monro, 32 May St. 04102

(207) 318-6052 jp_monro@myfairpoint.net

My meeting with Jonathan Culley

Steve Davis <sspringerdavis@gmail.com>

Thu, Aug 4, 2016 at 5:06 PM

To: shukriaw@portlandmaine.gov

Dear Shukria-

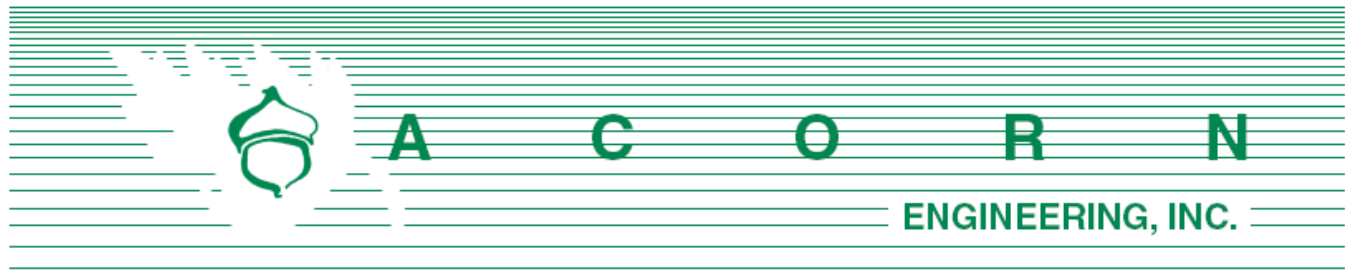
A while back I met with you at City Hall to discuss Redfern Properties proposal to develop 70 Anderson St., building ten townhouses. You were generous with your time and went through everything with me, and I came away having learned a lot.

I thought that I would follow up with you to tell you that I met with Jonathan Culley yesterday for about an hour to discuss parking for his townhouses. He was gracious and welcoming, responding clearly to all of my questions and concerns. I left the meeting well-informed, and I now feel that he and his company are responsible planners trying to the best for the neighborhood at both 70 and 89 Anderson St..

My wife and I, at 25 Anderson St. look forward to the completion of both properties and feel that Redfern Properties are doing well by our evolving neighborhood and the city of Portland.

Sincerely,

Steve Davis



Shukria Wiar – City Planner
Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

August 23, 2016

Subject: Final Site Plan and Subdivision Application
Redevelopment of 70 Anderson Street - Portland, Maine

Dear Shukria Wiar,

Redfern Properties, LLC is pleased to submit the accompanying package of submission materials related to the proposed 10-unit townhouse urban infill redevelopment of 70 Anderson Street. This submission package is intended to meet the City's Final Submission Requirements as outlined in the Level III Application procedures.

The following documents and drawings are to be uploaded into the City's electronic submission site to supplement those already submitted for the Preliminary Application:

Documents:

- Final Site Plan Application
- Comment Response Letter
- *Updated* Architectural Narrative
- Section 3: *Updated* Construction Management Plan
- Section 5: *Updated* Stormwater Management Plan
- Section 6: *Updated* Utility Cover
- Section 9: *Updated* Conformity with Applicable Zoning Requirements
- Section 10: *Updated* Request for Waivers
- Section 11: *Updated* Summary of Written Easements
- Section 12: Impervious Surface Exhibit
- Section 13: AutoTurn Exhibit
- Section 14: Photometric Specifications Sheet
- Section 15: Stormwater Drainage System Maintenance Agreement

Drawings:

- *Updated* Civil Plan Set, Dated 8/22/16
 - Existing Conditions Plan, Dated 5/2/16
 - Landscape Plan, Dated 8/23/16
- *Updated* Architectural Plan Set, Dated 8/8/16

If you have any questions regarding these materials or the completeness of the application materials, please contact us within the next five (5) days.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Savage".

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.





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

Planning and Urban Development Department
Planning Division

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

Level III: Site Plan Development includes:

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

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: <http://me-portland.civicplus.com/DocumentCenter/Home/View/1080>

Design Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2355>

Technical Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2356>

Planning Division

Fourth Floor, City Hall
389 Congress Street
p.m. (207) 874-8719

planning@portlandmaine.gov

Office Hours

Monday thru Friday
8:00 a.m. – 4:30

PROJECT NAME:70 Anderson Street Redevelopment

PROPOSED DEVELOPMENT ADDRESS:70 Anderson Street Portland, Maine 04101

PROJECT DESCRIPTION:

Redevelopment of an existing lot with a single level home and detached garage into ten townhouse units with parking to the rear of the property.

CHART/BLOCK/LOT: 023-B-021**PRELIMINARY PLAN**4/26/16 (date)**FINAL PLAN**8/22/16 (date)**CONTACT INFORMATION:**

Applicant – must be owner, Lessee or Buyer Jonathan Culley Name: Redfern Properties, LLC Business Name, if applicable: Address: P.O. Box 8816 Portland, ME 04104 City/State : Zip Code:	Applicant Contact Information Work #: (207) 776-9715 Home #: Cell #: Fax#: e-mail: jonathan@redfernproperties.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	Owner Contact Information Work #: Home #: Cell #: Fax#: e-mail:
Agent/ Representative Name: Acorn Engineering, Inc. Will Savage, P.E. Address: 158 Danforth Street Portland, ME 04102 City/State : Zip Code:	Agent/Representative Contact information Work #: (207) 775-2655 Home #: (207) 317-1884 Cell #: Fax#: e-mail: wsavage@acorn-engineering.com
Billing Information Name: (See Applicant Information) Address: City/State : Zip Code:	Billing Contact Information Work #: Home #: Cell #: Fax#: e-mail:

Engineer Acorn Engineering, Inc. Name: Will Savage, P.E. Address: 158 Danforth Street Portland, ME 04012 City/State : Zip Code:	Engineer Contact Information Work #: (207) 775-2655 Home #: Cell #: Fax#: e-mail: wsavage@acorn-engineering.com
Surveyor Titcomb Associates Name: Nick Elliston, PLS Address: 133 Gray Road Falmouth, ME 04105 City/State : Zip Code:	Surveyor Contact Information Home #: Work #: (207) 797-9199 Cell #: Fax#: e-mail: NElliston@titcombsurvey.com
Architect Ryan Senatore Architecture Name: Ryan Senatore, AIA Address: 565 Congress St, Suite 304 Portland, ME 04101 City/State : Zip Code:	Architect Contact Information Work #: (207) 747-5159 Home #: Cell #: Fax#: e-mail: ryan@senatorearchitecture.com
Attorney Pierce Atwood LLP Name: Eben Adams Address: Merrill's Wharf, 254 Commercial St Portland, ME 04101 City/State : Zip Code:	Attorney Contact Information Work #: (207) 791-1175 Home #: Cell #: Fax#: e-mail: eadams@pierceatwood.com
Designated person/person(s) for uploading to e-Plan: Name: William Savage, P.E. e-mail: wsavage@acorn-engineering.com Name: Olivia Dawson, E.I. e-mail: odawson@acorn-engineering.com Name: e-mail:	

APPLICATION FEES:

Level III Development (check applicable reviews) ☒ Less than 50,000 sq. ft. (\$750.00) ☐ 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 (\$50.00 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 (\$1,500) ☒ Stormwater Quality (\$250) ☒ Subdivisions (\$500 + \$25/lot) # of Lots <u>1</u> x \$25/lot = <u>\$25</u> ☐ Site Location (\$3,500, 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
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INSTRUCTIONS FOR ELECTRONIC SUBMISSION:

Please refer to the application checklist (attached) for a detailed list of submission requirements.

- Fill out the application completely and e-mail the **application only** to planning@portlandmaine.gov (Please be sure to designate a person who will be responsible for uploading documents and drawings.) This step will generate the project ID number for your project.
- An invoice for the application fee will be e-mail to you. Payments can be made on-line at [Pay Your Invoice](#) , by mail or in person at City Hall, 4th Floor. Please reference the Application Number when submitting your payment which is located in the upper left hand corner of the invoice.
- The designated person responsible for uploading documents and drawings will receive an email from eplan@portlandmaine.gov with an invitation into the project. At this time, you will upload all corresponding documents and plans into the project. For first time users you will receive a temporary password which you must change on entry. Make note of your username and password for any future projects.

Reminder: Before the project can move forward, the application fee shall be paid in full and all required documents and drawings shall be uploaded into e-plan correctly.

- Follow the link below (Applying Online Instructions) for step by step instructions on how to do the following:
 Tab 1 - Setting up the appropriate compatibility settings for your PC and getting started in e-plan.
 Tab 2 - Preparing your drawings, documents and photos for uploading using the correct naming conventions
 Tab 3 - Preparing and uploading revised drawings and documents

[Applying Online Instructions](#)

- When ready, upload your files and documents into the following folders:
 "Application Submittal – Drawings"
 "Application Submittal – Documents"

6. Once a preliminary check has been made of the submittal documents and drawings, staff will move them to permanent folders labeled Drawings and Documents. As the process evolves you will be able to log in and see markups, comments and upload revisions as requested into these folders.

APPLICANT SIGNATURE:

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

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

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

Signature of Applicant: 	Date: 8/22/2016
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PROJECT DATA

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

Total Area of Site	9065 sq. ft.
Proposed Total Disturbed Area of the Site	9065 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)	4376 sq. ft.
Impervious Area (Total Proposed)	7236 sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	1054 sq. ft.
Building Footprint (Total Proposed)	12332 sq. ft.
Building Floor Area (Total Existing)	1054 sq. ft.
Building Floor Area (Total Proposed)	36996 sq. ft.
Zoning	
Existing	R-6
Proposed, if applicable	
Land Use	
Existing	Single-Family
Proposed	Attached Single-Family
Residential, If applicable	
# of Residential Units (Total Existing)	1-unit
# of Residential Units (Total Proposed)	10-unit
# of Lots (Total Proposed)	1 Lot
# of Affordable Housing Units (Total Proposed)	1-unit
Proposed Bedroom Mix	
# of Efficiency Units (Total Proposed)	None
# of One-Bedroom Units (Total Proposed)	None
# of Two-Bedroom Units (Total Proposed)	None
# of Three-Bedroom Units (Total Proposed)	Ten
Parking Spaces	
# of Parking Spaces (Total Existing)	Two
# of Parking Spaces (Total Proposed)	Seven
# of Handicapped Spaces (Total Proposed)	N/A
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	None
# of Bicycle Spaces (Total Proposed)	Ten (Internal & Secure)
Estimated Cost of Project	\$1.8 Million

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	GENERAL WRITTEN SUBMISSIONS CHECKLIST
X		1	Completed Application form
X		1	Application fees
X		1	Written description of project
X		1	Evidence of right, title and interest
N/A		1	Evidence of state and/or federal approvals, if applicable
X		1	Written assessment of proposed project's compliance with applicable zoning requirements
X		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
X		1	Written requests for waivers from site plan or technical standards, if applicable.
X		1	Evidence of financial and technical capacity
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);
X			Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);
X			Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed;
X			Exterior building elevations.

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

Applicant Checklist	Planner Checklist	# of Copies	SITE PLAN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)
X		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		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;
N/A			Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
X			Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
X			Location of all snow storage areas and/or a snow removal plan;
N/A			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);
N/A			Location and proposed alteration to any watercourse;
N/A			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
N/A			Proposed buffers and preservation measures for wetlands;
X			Existing soil conditions and location of test pits and test borings;
X			Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
X			A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;
X			Grading plan;
X			Ground water protection measures;
X			Existing and proposed sewer mains and connections;

- Continued on next page -

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

MAINE REAL ESTATE TAX PAID

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **CECELIA M. BICKFORD** f/k/a Cecelia M. Yargeau of Portland, Maine ("Grantor"), for consideration paid, GRANTS to **REDFERN PROPERTIES LLC**, a Maine limited liability company having a mailing address of P.O. Box 8816, Portland, Maine 04104 ("Grantee"), with Warranty Covenants, the land and any improvements thereon situated in the City of Portland, Cumberland County, Maine, being more particularly bounded and described as follows:

See EXHIBIT A attached hereto and made a part hereof.

WITNESS my hand and seal this 1st day of September, 2015.

Witness:

Eben Adams

Cecelia M Bickford
Cecelia M. Bickford

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

September 1st, 2015

Personally appeared the above-named Cecelia M. Bickford, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Eben Adams

~~Notary Public~~/Maine Attorney at Law

Name: Eben Adams

My Commission Expires: _____

EXHIBIT A

A certain lot or parcel of land situated on the northerly side line of Lancaster Street, adjoining the westerly side line of Anderson Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the northerly side line of Lancaster Street and the westerly side line of Anderson Street;

Thence in a generally westerly direction by the northerly side line of Lancaster Street, 105 feet, more or less to land now or formally of the Portland Housing Authority, known as Kennedy Park;

Thence in a general northerly direction by the easterly side line of said land now or formally of the Portland Housing Authority, known as Kennedy Park, 80 feet, more or less, to the southerly side line of Anderson Lane;

Thence in a generally easterly direction by the southerly side line of Anderson Lane, 105 feet, more or less, to the westerly side line of Anderson Street;

Thence in a general southerly direction by the westerly side line of Anderson Street, 80 feet, more or less, to the northerly side line of Lancaster Street and the point of beginning.

This conveyance is made SUBJECT TO the covenants and restrictions set forth in a deed from Portland Renewal Authority recorded in the Cumberland County Registry of Deeds in Book 3129, Page 374; as affected by Quitclaim Deed from Portland Renewal Authority to Cecelia M. Bickford recorded at the Cumberland County Registry of Deeds together herewith.

Being the same premises conveyed by Warranty Deed from Grace Bickford to Cecelia M. Yargeau and Rocky P. Yargeau dated March 10, 1982 and recorded in Cumberland County Registry of Deeds in Book 4929, page 256; Further reference is made to a Quitclaim Deed with Covenant from Rocky P. Yargeau to Cecelia M. Yargeau dated July 26, 2006 and recorded in the Cumberland County Registry of Deeds in Book 24231, Page 280 and to a Quitclaim Deed with Covenant from Cecelia M. Yargeau n/k/a Cecelia M. Bickford, dated September 12, 2006, and recorded in the Cumberland County Registry of Deeds in Book 24418, Page 195.

Received
Recorded Register of Deeds
Sep 01, 2015 02:17:40P
Cumberland County
Nancy A. Lane

RELEASE DEED

PORTLAND HOUSING AUTHORITY, a Maine public and body corporate and politic having a mailing address of 14 Baxter Boulevard, Portland, Maine 04101 (the "Grantor") for consideration paid, releases to REDFERN PROPERTIES, LLC, a Maine limited liability company with a mailing address of P.O. Box 8816, Portland, Maine 04104 (the "Grantee"), all of the Grantor's right, title, or interest in and to that portion of the private way known as Anderson Lane located in Portland, Cumberland County, Maine that abuts Grantee's property at the corner of Lancaster Street and Anderson Street, in Portland, Maine, as described in a deed to Grantee from Cecelia M. Bickford date September 1, 2015 and recorded in the Cumberland County Registry of Deeds in Book 32559, Pate 282.

IN WITNESS WHEREOF, Portland Housing Authority has caused this instrument to be executed and delivered by Mark B. Adelson, its Executive Director, this 17th day of June, 2016.



Witness

PORTLAND HOUSING AUTHORITY

By: 

Mark B. Adelson
Its: Executive Director

STATE OF MAINE
CUMBERLAND ss.

June 17, 2016

Personally appeared before me the above named Mark B. Adelson, Executive Director of Portland Housing Authority, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said Portland Housing Authority.

Before me,



Notary Public
Printed Name: Heidi Deleo

Date Commission Expires: HEIDI DELEO

NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES FEBRUARY 27, 2022



12RETTD

RETTD

00

**MAINE REVENUE SERVICES
REAL ESTATE TRANSFER TAX
DECLARATION**

TITLE 36, M.R.S.A. SECTIONS §§4641-4641N

1. County

CUMBERLAND

2. Municipality/Township

PORTLAND

**3. GRANTEE/
PURCHASER**

3a) Name LAST or BUSINESS, FIRST, MI

REDFERN PROPERTIES, LLC

3c) Name, LAST or BUSINESS, FIRST, MI

3e) Mailing Address

P.O. BOX 8816

3f) City

PORTLAND

3b) SSN or Federal ID

3d) SSN or Federal ID

3g) State

ME

3h) Zip Code

04104

BOOK/PAGE—REGISTRY USE ONLY

**4. GRANTOR/
SELLER**

4a) Name, LAST or BUSINESS, FIRST, MI

PORTLAND HOUSING AUTHORITY

4c) Name, LAST or BUSINESS, FIRST, MI

4b) SSN or Federal ID

01-6001034

4d) SSN or Federal ID

4e) Mailing Address

14 BAXTER BLVD

4f) City

PORTLAND

4g) State

ME

4h) Zip Code

04101

5. PROPERTY

5a) Map

Block

Lot

Sub-Lot

5b) Type of property—Enter the code number that **best** describes the property being sold. (See instructions)→

5c) Physical Location

ANDERSON LANE

Check any that apply:

☐ No tax maps exist

5d) Acreage

☐ Multiple parcels☐ Portion of parcel**6. TRANSFER TAX**

6a) Purchase Price (If the transfer is a gift, enter "0")

6a

0.00

6b) Fair Market Value (enter a value **only** if you entered "0" in 6a) or if 6a) was of nominal value)

6b

0.00

6c) Exemption claim — ☒ Check the box if either grantor or grantee is claiming exemption from transfer tax and explain.

Grantor is a governmental entity and exempt under 36 MRSA § 4641-C(1)

7. DATE OF TRANSFER (MM-DD-YYYY)

MONTH DAY YEAR

8. WARNING TO BUYER—If the property is classified as Farmland, Open Space, Tree Growth, or Working Water-front a substantial financial penalty could be triggered by development, subdivision, partition or change in use.☐ CLASSIFIED**9. SPECIAL CIRCUMSTANCES**—Were there any special circumstances ☒ in the transfer which suggest that the price paid was either more or less than its fair market value? If yes, check the box and explain:

Release by Grantor, of its easement interest, if any, in and to a private way abutting Grantor's adjoining property.

10. INCOME TAX WITHHELD—Buyer(s) not required to withhold Maine income tax because:☒ Seller has qualified as a Maine resident☐ A waiver has been received from the State Tax Assessor☒ Consideration for the property is less than \$50,000☐ Foreclosure Sale**11. OATH**

Aware of penalties as set forth by Title 36 §4641-K, we hereby swear or affirm that we have each examined this return and to the best of our knowledge and belief, it is true, correct, and complete. Grantee(s) and Grantor(s) or their authorized agent(s) are required to sign below:

Grantee _____ Date _____

Grantor Margaret Brann Date 6/16/16

Grantee _____ Date _____

Grantor _____ Date _____

12. PREPARER

Name of Preparer Margaret Brann

Phone Number 207-772-1941

Mailing Address Drummond Woodsum

E-Mail Address mbrann@dwmlaw.com

84 Marginal Way, Suite 600, Portland, ME 04101

Fax Number 207-772-3627

<http://www.maine.gov/revenue/propertytax/transfertax/transfertax.htm>

Portland Housing Authority

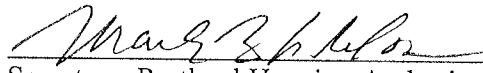
Secretary's Certificate

The undersigned, being the duly authorized Secretary of Portland Housing Authority, does hereby certify that the following resolution was adopted by the Board of Commissioners of Portland Housing Authority at a meeting of the Board of Commissioners on June 16, 2016, at which a quorum was present and acting throughout.

RESOLVED: That the Portland Housing Authority (the "Authority") release to Redfern Properties, LLC, all right, title and interest of the Authority in and to that portion of Anderson Lane, adjoining property of Redfern Properties, LLC at the corner of Anderson Street and Lancaster Street, in Portland, Maine, in order to facilitate the creation of additional dwelling units by Redfern Properties, LLC on its property at the corner of Lancaster Street and Anderson Street in Portland, Maine.

RESOLVED: That the Executive Director, Mark B. Adelson, be authorized to execute a release deed in accordance with the foregoing resolution.

June 16, 2016


Secretary, Portland Housing Authority

9. 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.

9.1 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 site is located on the corner of Anderson and East Lancaster Street. Both are low volume, residential public roads with some additional cut-through traffic on Anderson Street during typical rush hour times. The proposed driveway is situated on the lower volume street access, East Lancaster, at a point furthest from the intersection with Anderson Street. It is predicted that the incremental increase in traffic volume will not create or aggravate any hazards and thus not impact overall safety.

2. Access and Circulation:

a. Site Access and Circulation.

(i) The development will provide safe access and internal circulation for both pedestrians and vehicles.

(ii) Points of access and egress are located to the greatest extent practical from the both intersections on East Lancaster Street. It is expected that the proposed driveway will serve at most seven vehicles and thus will not create a conflict with existing turning movements or traffic flows. As commonly found within urban environment and more specifically within the East Lancaster and Anderson St. neighborhood, some of the parking spaces will require backing out of the driveway to exit the property. The overall width of the driveway is generous and will thereby aid in the ability for vehicle drivers to safely observe oncoming pedestrian traffic within the nine-foot-wide sidewalk. Refer to the Auto-Turn Exhibit for a visual representation of the site mobility.

(iii) The site does not feature drive up services as mentioned in this requirement.

b. Loading and Servicing.

(i) Not required. There will be adequate area along adjacent streets and within the proposed drive aisle for infrequent periods of tenants moving in/out of the building.



c. Sidewalks.

- (i) The existing sidewalk along both street frontages are made of concrete, bituminous, or brick and are proposed to be reconstructed to City Standards as part of the project.
- (ii) Due to the substandard condition of the existing sidewalks and likelihood that the proposed construction will impact the sidewalk integrity, the sidewalks will be replaced, with curb added in or reclaimed to areas, as noted on the Civil Site Plan, C-10.
- (iii) Internal sidewalks will be provided to facilitate the movement of pedestrians to the City ROW and to and from parking spaces.

3. Public Transit Access:

- a. The development does not exceed twenty (20) or more residential dwelling units.
- b. A new transit stop is not proposed as part of the project.
- c. A new transit stop is not proposed as part of the project.

4. Parking:

a. Location and Required Number of Vehicle Parking Spaces:

- (i) The proposed parking lot meets the one space per unit after three units parking requirement. With the proposed ten units, seven parking spaces maximizes available space on-site and fulfills the requirement.
- (ii) A parking study is not required.
- (iii) The amount of parking is does not exceed the requirements.
- (iv) The applicant is requesting a waiver for the proposed parking lot design; some spaces are currently compact with six spaces at 8.25' X 18' and one space at the standard 9' X 18' with a drive aisle at 20'. This design was proven to be accessible and maneuverable by completing an Auto-Turn analysis, a vehicle circulation CAD accessory. The produced simulations (refer to the Auto-Turn Exhibits, SK-20 and SK-21) show circulation to be possible.
- (v) The parking lot will be constructed of a permanent and durable bituminous surface that is not subject to ponding or erosion.

b. Location and Required Number of Bicycle Parking Spaces:

- (i) There are ten proposed secure, outdoor bicycle parking spaces provided in the rear of the site; refer to C-10 for additional information. These spaces will be accessed



by the parking lot and screened with a four-foot fence.

c. Motorcycles and Scooter Parking:

- (i) The project does not provide designated motorcycle/scooter parking but on-street opportunities exist within Anderson Street.

d. Snow Storage:

- (i) Snow storage space will be provided in two landscaped areas bordering the parking lot. All excess snow not able to be contained in these designated areas will be removed and transferred offsite by the snow contractor in accordance with Maine DEP and City of Portland snow removal and dumping regulations.
- (ii) Snow storage shall not be located where it will adversely impact the functionality of the stormwater management system.

5. Transportation Demand Management (TDM):

- a. A TDM plan is not required for this project.
- b. A TDM plan is not required for this project.
- c. A TDM plan is not required for this project.

(b) Environmental Quality Standards

1. Preservation of Significant Natural Features:

- a. The existing site contains no prominent significant natural features therefore no issue related to the preservation of these features applies.
- b. Not applicable.

2. Landscaping and Landscaping Preservation:

a. Landscape Preservation.

- (i) There is only one existing, mature tree on site as identified in the Existing Conditions Plan; it is proposed that it be replaced with landscaping elements as noted in the Landscape Plan.
- (ii) There are no existing trees within the property setback.
- (iii) Due to the existing, sparse landscaping on site, no protection during construction will be necessary.
- (iv) The applicant does not require a waiver as described previously.
- (v) Not applicable.



b. Site Landscaping.

(i) Landscaped Buffers:

- (a) The outdoor solid waste storage located within the parking area is to be screened with a four-foot fence (refer to L-1, Landscape Plan) and not visible from the public sidewalks, street, and adjacent properties.
- (b) The project has eighty-three linear feet of frontage along Anderson Street and 105 feet along East Lancaster; per requirement, it is proposed that a minimum of six shrubs or shrub alternatives are planted within this setback as noted in greater detail in the Landscape Plan.
- (c) Not applicable.
- (d) Not applicable.

(ii) Parking Lot Landscaping:

- a) Landscaping is to be provided in select areas bordering the parking lot including the space between the retaining wall and asphalt border, a trellis wall to support vine growth along the rain garden, and a space along the East Lancaster Street frontage. Refer to the Landscape Plan for species details.
- b) Not applicable.
- c) Not applicable.
- d) Not applicable.
- e) Not applicable.
- f) Not applicable.

(iii) Street Trees:

- (a) Six new street trees are proposed to be planted within the City ROW: two along Anderson Street and four on East Lancaster Street. The remaining street tree requirement will be fulfilled by the trees populating the abutting Portland Housing Authority properties subject to a formal agreement. If no such agreement is reached, then a contribution to the Portland Tree Fund will be made per City requirement. Refer to the Site Plan for additional details.
- (b) Due to site constraints within the property, it is not feasible to plant the remaining street trees within ten feet of the property lines per waiver requirement. Therefore, the applicant is requesting that the trees planted on the abutting Portland Housing Authority properties count towards the total



tree requirement count.

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

- (i) The site is proposed to be graded as such to direct the majority of runoff into a roof dripline filter or rain garden BMP as listed within and designed to the standards of the State of Maine BMP Manual; all remaining stormwater will be directed offsite into East Lancaster and the existing municipal systems within Anderson Street. There is no anticipated ponding or flooding using this design.
- (ii) The majority of stormwater runoff from the site is proposed to be treated using infiltration via a roof dripline or rain garden BMP. All remaining runoff will be redirected into the stormwater line within Anderson Street. The redirected runoff is less than what is currently produced within the site. Therefore, the project will not increase the net rate of runoff nor adversely impact adjacent lots or the City street system.
- (iii) The project will increase the stormwater flows directly within the Anderson Street separated sewer system but will not increase the overall flows within nor create adverse impacts to the East Bayside neighborhood or wastewater treatment plant when compared to existing conditions.
- (iv) The City's separated storm sewer system is anticipated to accommodate the increase in stormwater flow; any increase will not exceed the capacity of the existing system within Anderson Street.

b. A site specific Stormwater Management Plan has been developed for the project to show compliance with Section 5 of the Technical Manual, including the basic, general, and flooding standards of MeDEP Chapter 500. Please refer to the Stormwater Management Plan for more information.

c. The project is not located in a watershed of an urban impaired stream as listed by the MaineDEP.

d. Not applicable.

e. The development is not anticipated to pose a risk to groundwater contamination either during or post-construction. The project is serviced by a public wastewater system.

f. The development will provide for adequate and sanitary disposal or sewage in accordance with Section 2 of the Technical Manual.

(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 public and residential 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 have fire suppression.

3. Availability and Adequate Capacity of Public Utilities:

a. Public utilities in the vicinity of the site have the capacity to serve the proposed project. More information on utilities is included within the ability to serve letters from the respective utility companies.

b. All electrical service lines will be underground.

c. All new utility infrastructures will meet the provisions of the Technical Manual.

d. The project will be served by connection to the public sewer system within Anderson Street

e. The sanitary sewer collection system meets all applicable sections of the Technical Manual. The stormwater management system is designed to meet the standards of Chapter 500.

f. The proposed building includes provisions for on-site storage of trash and recyclables temporarily until waste is removed from the site via a private hauler.

(d) Site Design Standards.

1. Massing, Ventilation and Wind Impact:

a. The bulk, location and height of the existing building does not result in adverse impacts to abutting properties.

b. The proposed building is designed to minimize bulk and height and is positioned as such to affect abutting buildings as little as possible.

c. Proposed HVAC venting per unit is to be a de minimis change from existing conditions.



2. Shadows:
 - a. Not applicable.
3. Snow and Ice Loading:
 - a. The proposed building will have a pitched roof with overhangs above every entryway. All accumulated snow and ice will not impede or block such entrances nor fall into public way or adjacent properties.
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 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. Refer to the submitted lighting cut sheets for additional information on the parking lot and residential door lights.
 - (ii) All proposed exterior lighting will employ house-side shielding per requirement.
 - b. Architectural and Specialty Lighting
 - (i) No architectural or specialty lighting is proposed.
 - (ii) No up-lighting is proposed.
 - c. Street Lighting
 - (i) No new street lights are proposed.
7. Noise and Vibration:



All HVAC and Mechanical equipment shall be accordance with the applicable zoning requirements.

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) Not applicable.
 - (iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

9. Zoning Related Design Standards:

- a. The project will be designed to meet the design standards within the R6 Zone.



11. Summary of Written Easements

- **Existing Easements** – The Existing Conditions Plan developed by Titcomb Associates identified an existing easements regarding Anderson Lane; details outlining the rights to the paper street are recorded within Book 293, Page 128.
- **Proposed Easements** – All existing easements will be released prior to project start. No other easements are anticipated for this project.



10. Written Request for Waivers

The following is a list of known project related waivers.

1. **Compact Parking Spaces** – Given the compact and high unit density of the proposed project, it is not feasible to fit seven standard parking spaces while maintaining a maneuverable drive aisle and internal sidewalks. Therefore, the applicant is seeking a waiver for six compact spaces at 8.25' X 18' to be acceptable alternatives to the standard 9' X 18' space; the remaining parking space will be a standard size.
2. **Drive Aisle Width** – The applicant is seeking a waiver for the standard 24' drive aisle to be reduced to the proposed 20' aisle. This width was determined to be maneuverable with compact spaces using an Auto-Turn analysis, a vehicle circulation CAD accessory. The produced simulations show circulation to be possible.
3. **Street Trees** – The applicant is seeking a waiver to the street trees requirements for multi-family residential properties. Due to the large proposed building footprint, parking lot within the site, and limited street frontage, it is not feasible to plant the required one street tree per residential unit within the City ROW. There is room for two street trees along Anderson Street and four trees along East Lancaster Street. The remaining street tree requirement will be fulfilled by the trees populating the abutting Portland Housing Authority properties subject to a formal agreement. If no such agreement is reached, then a contribution to the Portland Tree Fund will be made per City requirement. Refer to the Site Plan for additional details.
4. **Parking Lot Landscaping** – By maximizing total on-site parking spaces, there is no remaining space for additional landscaping such as tree and shrub plantings per City requirement. However, it is proposed that the landscaped buffer between the retaining wall and pavement edge as a base for vine plantings, the green screen along the rain garden, and landscaping along the East Lancaster Street frontage act as a substitute to the two tree per five parking space requirement.





April 21, 2016

City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: 70 Anderson Street Apartment Project

To whom it may concern:

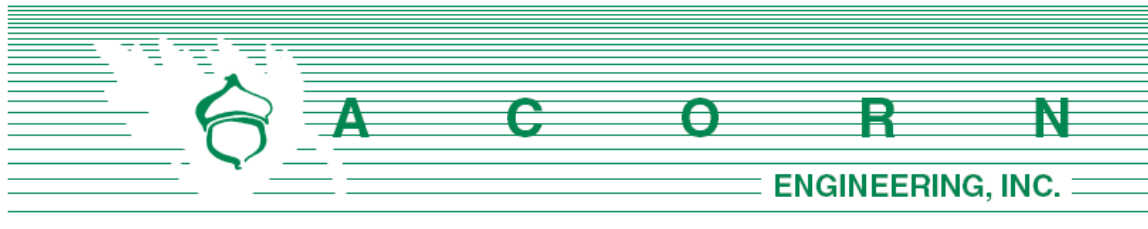
Redfern Properties and its affiliates are well known to NBT Bank. I have worked with Redfern for nearly 10 years and have been directly involved in the financing of numerous successful projects. NBT Bank is providing financing for Redfern's current apartment project at 89 Anderson Street. The Bank is interested in entertaining financing for 70 Anderson Street and believes Redfern has the financial capacity to successfully complete the proposed project. We are looking forward to more substantive conversations as this project materializes.

Please feel free to contact me should you need any additional information. I can be reached at (207) 808-4486.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joe Delano". The signature is stylized with a large, sweeping loop at the end.

Joe Delano
Vice President
NBT Bank Maine



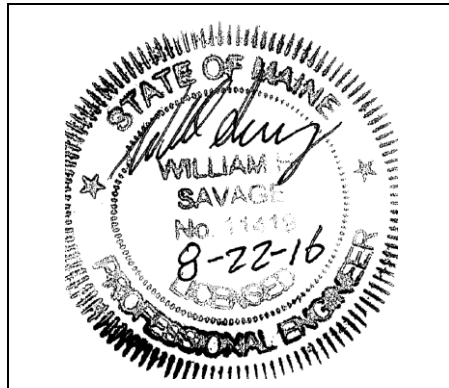
STORMWATER MANAGEMENT **REPORT**

Prepared For:

**Redfern Properties, LLC
70 Anderson Redevelopment
70 Anderson Street
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102**



**April 2016
Rev. August 2016**

INTRODUCTION

Acorn Engineering, Inc. has been retained by Redfern Properties, LLC to provide civil engineering services for the proposed redevelopment of 70 Anderson Street (1 East Lancaster Street). The proposed project is to develop an existing single family residence into ten townhouses.

A stormwater analysis will be prepared to demonstrate that the project will meet the following requirements of the City of Portland (the City):

- City of Portland Land Use Ordinance Chapter 14, Article V. Site Plan Section 14-523. Required Approvals and Applicability (F) Level III Site Plan Review.
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.

The proposed project will include the redevelopment of existing, impervious area including rooftops, and paved asphalt and concrete driveways. The project will result in a net increase of impervious area above 1,000 sf, as such, is required to include stormwater management features for stormwater quality & quantity control. The stormwater analysis is documented with supporting calculations and reports attached to this narrative.

The current course of action is to provide primary water quality treatment to the stormwater through filtration utilizing a Maine Department of Environmental Protection – Rain Garden (Bioretention Cell) and Roof Dripline Filtration approved stormwater Best Management Practice (BMP); for the remainder of this report, ‘Rain Garden’ will be used in place of ‘Bioretention Cell’. The implemented BMPs are to provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area.

EXISTING CONDITIONS

The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated January 14th, 2016.

Abutting Uses:

➤ North	R-6 Zone	Multi-Family Residential
➤ West	R-6 Zone	Multi-Family Residential
➤ South	R-6 Zone	Multi-Family Residential
➤ East	R-6 Zone	Multi-Family Residential

The property is also near a recreation open space, Kennedy Park (Cunningham Playground), that is due west of the property.

About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Street (a portion of the East Lancaster driveway is concrete), a 1.5 story dwelling, a detached garage, and covered shed. The remaining surface is a grassy lawn. The site as a whole is relatively flat with an average



grade of approximately 3% sloping to the rear of the property. Based on existing conditions, the stormwater runoff is directed to the westernmost corner of the site and eventually enters the Fox Street municipal stormwater system.

The project team is not aware of the presence of any existing significant natural features located on the site. Given the urban setting, and existing free-draining soils, a field inventory of significant natural feature was not undertaken. The project is not located within a watershed classified as an Urban Impaired Stream.

PROPOSED DEVELOPMENT

The proposed project is a 10-unit redevelopment of an existing single-family lot. The new ten units will be orientated as such to create a courtyard and central walking space through the property. Within the courtyard, a Rain Garden is proposed as a central focus on stormwater mitigation on site and will be landscaped with perennials, shrubs and trees as designed Soren Denoird Design Studio. The side setback along the abandoned paper street, Anderson Lane, is to be partially vegetated and contain the proposed Roof Dripline Filtration BMP. The final landscaping design has been provided by Soren Denoird Design Studio.

Tenant parking is to be provided on-site with a driveway access from East Lancaster Street. Pedestrian access to the site shall be provided off of Anderson Street into the central courtyard and via East Lancaster Street along the parking area.

The development will be served by the Portland Water District, underground power/cable/communications, and the municipal sewer system. The project anticipates incorporating Maine DEP approved stormwater Best Management Practices to meet the General and Flooding Standards.

GENERAL STANDARDS - WATER QUALITY

The Roof Dripline Filtration system and the Rain Garden was sized to meet or exceed the requirements set forth within the MDEP Volume III BMPs Technical Design Manual, Chapter 7.6 and 7.2 respectively. Filter BMP systems have shown to be effective at filtering out and removing a wide range of pollutants from stormwater runoff.

Impervious Treatment Area

The majority of the impervious runoff is from the roof and 30% of all roof stormwater runoff shall be redirected into the Roof Dripline BMP. The water will then filter through a series of permeable layers before exfiltrating into the ground below the system. All runoff not exiting the BMP will be transported to the municipal stormwater system within Anderson Street via a perforated distribution pipe; the pipe is positioned within the BMP as such to act as the foundation drain as well.

The remaining impervious runoff to be treated shall be redirected into the Rain Garden within the courtyard. This runoff includes that redirected from a portion of the rooftops as well as the internal brick sidewalks and shall flow into the rain garden whose plants and storage area shall provide initial treatment. The stormwater is to be detained above the



surface before flowing vertically through the permeable soil filter layer before exfiltrating into the ground below. All remaining treated stormwater not dispersed into the ground, shall then be collected within perforated pipes and released slowly by the outlet control at an attenuated rate. Larger storm events are to overflow into an oversized horizontal atrium grate.

The treatment of the impervious surface by the BMPs are as follows:

Table 1 - Impervious Treatment Area Table					
	Existing Impervious Area (SF)	Proposed Total Impervious Area (SF)	Net change in Impervious Area (SF)	Proposed Impervious Area with Treatment (SF)	% Overall New Imp. Area Treated
Roof Dripline				1260	
Rain Garden				2207	
TOTAL	4376	7236	2860	3467	121%

As shown above the project anticipates meeting and exceeding the required treatment for new impervious surfaces through the use of the filter BMPs.

Rain Garden Calculations

According to the requirements for a rain garden as defined in the Volume III: BMPs Technical Design Manual, Chapter 7.2, the surface area of the filter shall be no less than the sum of 7% of the tributary impervious area and 3% of the tributary vegetated area. The filter area is calculated by the following formula:

$$[(\text{Imp. SF} \times 0.07) + (\text{Veg. SF} \times 0.03)] = \text{Filter Area (SF)}$$

Please refer to Table 2 below.

Table 2 – Total Filter Surface Area, displays the proposed Rain Garden sizing requirements, actual size and the percentage of required area.

Table 2 –Total Filter Surface Area			
	Required Filter Area (SF)	Actual Filter Area (SF)	Percentage of Required Area (%)
Rain Garden	172	275	160%

The outflow from the Rain Garden is then tributary to the municipal stormwater system. As shown, the size of the soil filter area will meet and exceed the surface area requirements. Values from the HydroCAD calculations attached to this report.

Water Quality Volume

In accordance with the Volume III: BMPs Technical Design Manual, a water quality volume of 1.0 inch times the tributary impervious area plus 0.4 inch times the tributary landscaped developed area is required to be treated by the Roof Dripline and Rain Garden. The water quality volume is calculated by the following formula:

$$\left(\frac{\text{Imp. SF} \times 1.0''}{12''/1'} \right) + \left(\frac{\text{Dist. SF} \times 0.4''}{12''/1'} \right) = \text{Treatment Volume (CF)}$$

The proposed water quality volume is as follows:

Table 4 - Water Quality Volume Table				
	Developed Area (SF)	Impervious Area (SF)	Treatment Volume Required (CF)	Treatment Volume Provided
Roof Dripline	596	1,260	125	126
Rain Garden	569	2,207	203	431
Total	1,165	3,467	328	557

As shown, the size of the combined water quality volume will meet and exceed the treatment volume requirements. Values from the HydroCAD calculations are attached to this report.

HydroCAD Adjustments

A simulation water quality outlet (vertical orifice) is modeled to mimic the minimum 24-hour release time through the soil filter media. This is completed by adjusting the rainfall amount in HydroCAD until the inflow volume is equal to or greater than the calculated treatment volume. The storm events are modeled as type III, 24-hour storm events in HydroCAD.

A vertical orifice is then modeled in HydroCAD at the outlet structures of each BMP. The simulation orifice diameter is sized to mimic the percolation rate through the soil filter media, a physical orifice is not proposed.

FLOODING STANDARD – WATER QUANTITY

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10", 4.60", and 5.80" respectively. Rainfall amounts are from the Northeast Regional Climate Center website (<http://precip.eas.cornell.edu>), Extreme Precipitation Tables.

Both the pre and post-development conditions were modelled so that all runoff would enter the Fox Street municipal stormwater system. This assumption is based on the existing grades sloping downward from the property, Anderson Street, and East Lancaster towards Fox



Street and allows the two conditions and their corresponding peak flows to be compared directly.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number or to the nearest tenth for urban infill project. Due to the small size of the project the stormwater runoff shall be rounded to the nearest tenth of a cubic foot per second (cfs).

Time of Concentration (T_c)

A time of concentration (T_c) of 5 minutes was applied to the subcatchment for both the pre and post-development condition, given the urban setting.

Curve Number

Conservative curve number (CN) runoff values were used within the subcatchment for the landscaped area. The stormwater calculations used the following CN values in the post development condition for vegetated areas, as follows:

- Woods/Grass Combination Good

Given the landscaping plan is to design a densely planted perennial gardens within the rain garden and street frontages, the Woods/Grass Combination was deemed an appropriate CN value for the projected portion of the project area to receive such landscaping. The remaining landscaping along the side setbacks to be mostly grass covered.

Pre-development Calculations

The pre-development condition was modeled as one subcatchment to determine the net impact of the development.

- Subcatchment 1 – The subcatchment area is defined by the property line to the corner of Anderson and East Lancaster Street

A Pre-Development Watershed Map developed for this project can be viewed in Attachment A, and a copy of the HydroCAD calculations is included within Attachment C, or this report. Peak flow rates for the storm events are as follows:

Table 4 – Pre-Development Peak Stormwater Flows			
Drainage Area	2 – Year Storm Event (cfs)	10 – Year Storm Event (cfs)	25 – Year Storm Event (cfs)
Fox Street	0.2	0.5	0.7



Post-development Calculations:

The one predevelopment subcatchment was broken into four separate subcatchments for the post-development condition.

- Subcatchment 1 – Northernmost roof surface and landscaped area along the side setback
- Subcatchment 2 – Central most roof surfaces, courtyard brick sidewalks, and landscaped area within the rain garden
- Subcatchment 3 – Southernmost roof surface, paved parking, remaining brick sidewalk surface, retaining wall, transformer area, and landscaped areas along the East Lancaster Street frontage and rear setback
- Subcatchment 4 – Landscaped area and entrance steps along the Anderson Street frontage

The post development calculations include changes to the land use and compensation provided by the BMP systems. The following table represents comparison of predevelopment and post-development condition peak runoff rates for the proposed development and tributary area.

Table 5 – Comparison of Peak Flows						
Drainage Area	2 – Year Storm Event (cfs)		10 – Year Storm Event (cfs)		25 – Year Storm Event (cfs)	
Fox Street	Pre	Post	Pre	Post	Pre	Post
	0.22	0.26	0.5	0.4	0.7	0.6

As shown in Table 5 the net impact of the post development peak flows shall remain below the predevelopment levels for the ten and twenty-five-year storm. The net change between the pre and post-development flows for the two-year storm was 0.04 cubic feet per gallon. Given that it is a standard of care to round to the nearest whole number and the analysis was completed to the tenth of a cubic foot due to the small project scope, this net change, though greater, is de minimis.

A Post-Development Watershed Map created for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment C of this report.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Typical of the East End of Portland the Soil Survey list, Deerfield and Hinckley are the existing onsite soil series. The Deerfield series is composed of deep, moderately well drained soils while the Hinckley series consists of very deep, excessively drained soils; both are formed in glaciofluvial materials. The permeability of Deerfield and Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum with typically a low groundwater table. Given the soils information, listed above, no onsite wastewater is

proposed, the applicant does not intend to perform a more intense hydric soil boundary delineation or permeability test because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/12 are met. Acorn has used the conservative exfiltration rate of 2.41 in/hr when modeling the roof dripline and rain garden in HydroCAD.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 3 - “K” Value		
Soils Type	Subsurface	Substratum
Deerfield	0.17	0.17
Hinckley	0.17	0.17

The soil “K” values for the soils, listed above, show a low susceptibility to erosion. The site’s susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil “K” values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will still be of considerable importance.

Conclusion

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. As a result, the design of the proposed development and stormwater system does not anticipate to create erosion, drainage or runoff problems either in the development or with respect to adjoining properties.

Attachments

Attachment A: Pre Development Watershed Map
 Attachment B: Post Development Watershed Map
 Attachment C: HydroCAD Calculations
 Attachment D: Soils Map

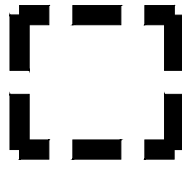


GENERAL NOTES:

1. REFER TO STORMWATER REPORT FOR MORE INFORMATION
2. GIVEN THE URBAN SETTING, SMALL WATERSHED AREA AND PREDOMINANCE OF IMPERVIOUS AREAS A 5 MINUTE TIME OF CONCENTRATION WAS USED FOR BOTH THE PRE-DEVELOPMENT AND POST-DEVELOPMENT CONDITIONS.

1

SUBCATCHMENT NUMBER



SUBCATCHMENT EXTENTS

apparent fence
encroachment into
Housing Authority
0.2'±

FLOWLINES, TYP.

concrete sidewalk

ANDERSON LANE

(private)

POND 1: ROOF DRIPLINE BMP

POND 2: RAIN GARDEN

POND 1 & 2 OUTLET TO
ANDERSON STREET
SEPARATED STORM SYSTEM

apparent overhang
encroachment into
right of way
0.3'±

FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
PRELIMINARY APP	WHS
FINAL APP	WHS

DRAWING NAME: POST-DEVELOPMENT STORMWATER PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC

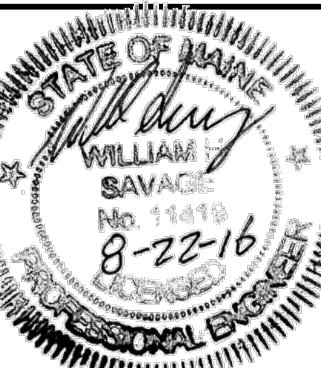
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.

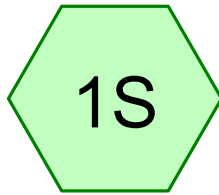
158 DANFORTH ST. PORTLAND, MAINE 04102
(207) 775-2655

FOR THE STATE OF MAINE, I HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MAINE, LICENSE NO. 13419, AND I AM THE DESIGNER OF THIS PROJECT. I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY, AND I AM NOT RESPONSIBLE FOR ANY CONSEQUENCES OF THIS DESIGN.

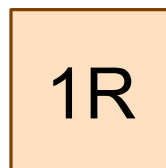
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JN: 1067
SCALE: NTS
DESIGNED BY: WHS
DRAWN BY: OUD
CHECKED BY: WHS



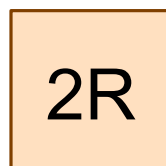
DRAWING NO.
POST



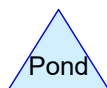
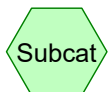
Pre 70 Anderson



POI#1



Fox St



Drainage Diagram for Pre_4-26-16

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.101	49	50-75% Grass cover, Fair, HSG A (1S)
0.004	68	<50% Grass cover, Poor, HSG A (1S)
0.002	96	Gravel surface, HSG A (1S)
0.043	98	Building (1S)
0.058	98	Paved parking & roofs (1S)
0.208		TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.108	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.100	Other	1S
0.208		TOTAL AREA

Pre_4-26-16*Type III 24-hr 2-year Rainfall=3.10"*

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Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson

Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=0.92"

Tc=5.0 min CN=73 Runoff=0.22 cfs 0.016 af

Reach 1R: POI#1

Inflow=0.22 cfs 0.016 af

Outflow=0.22 cfs 0.016 af

Reach 2R: Fox St

Inflow=0.22 cfs 0.016 af

Outflow=0.22 cfs 0.016 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.016 af Average Runoff Depth = 0.92"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

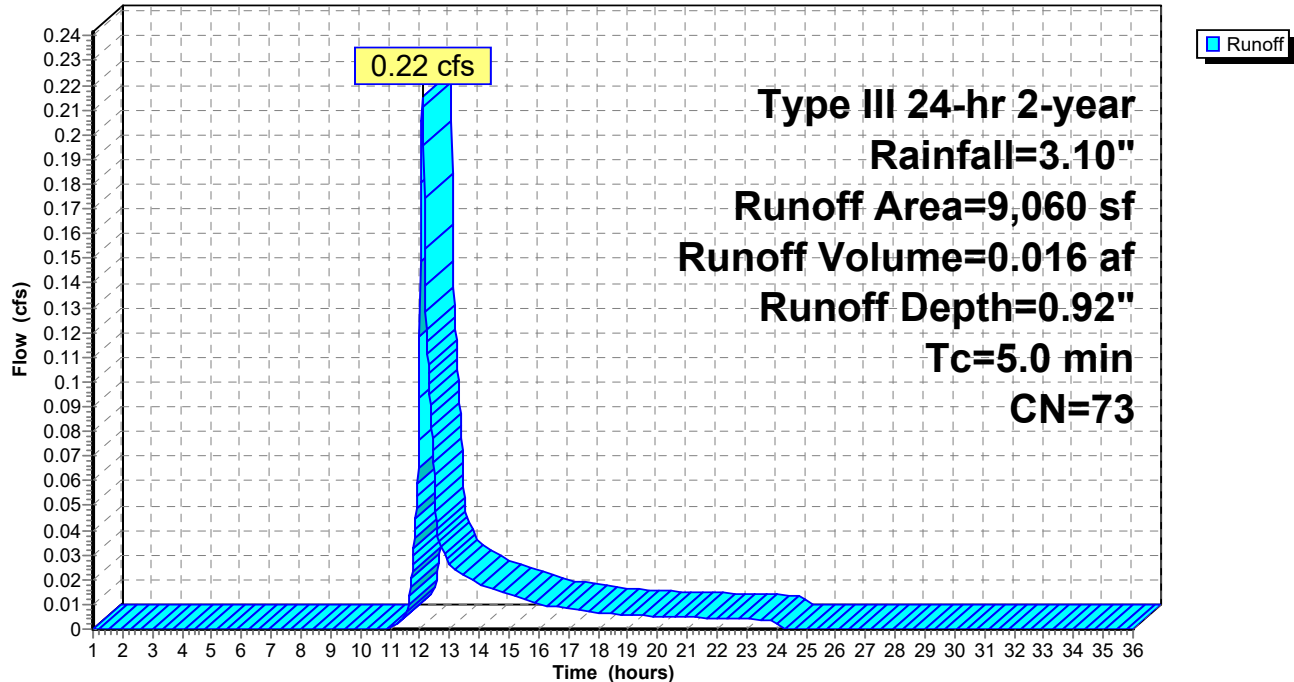
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		Pervious Area
	4,376		Impervious Area

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

Subcatchment 1S: Pre 70 Anderson

Hydrograph

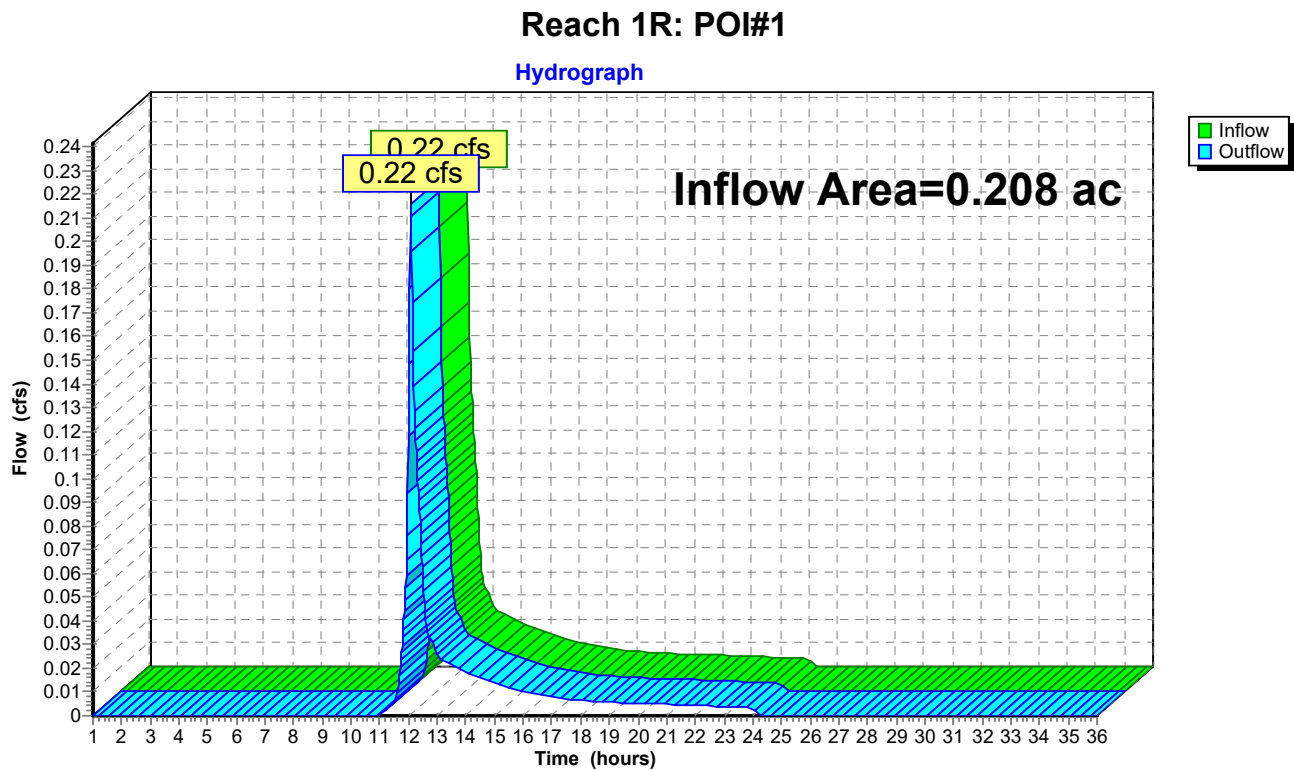


Summary for Reach 1R: POI#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 0.92" for 2-year event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

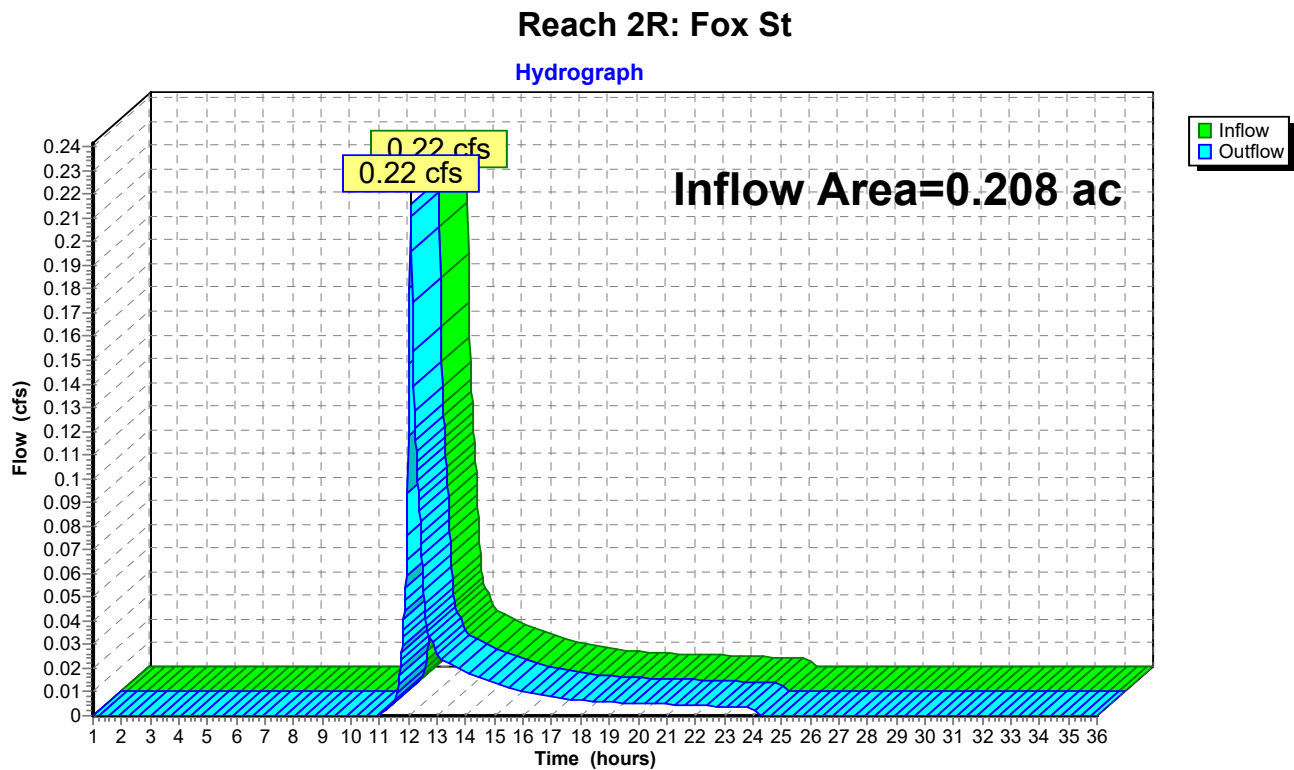


Summary for Reach 2R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 0.92" for 2-year event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs



Pre_4-26-16*Type III 24-hr 10-year Rainfall=4.60"*

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Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson

Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=1.97"

Tc=5.0 min CN=73 Runoff=0.49 cfs 0.034 af

Reach 1R: POI#1

Inflow=0.49 cfs 0.034 af

Outflow=0.49 cfs 0.034 af

Reach 2R: Fox St

Inflow=0.49 cfs 0.034 af

Outflow=0.49 cfs 0.034 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.034 af Average Runoff Depth = 1.97"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

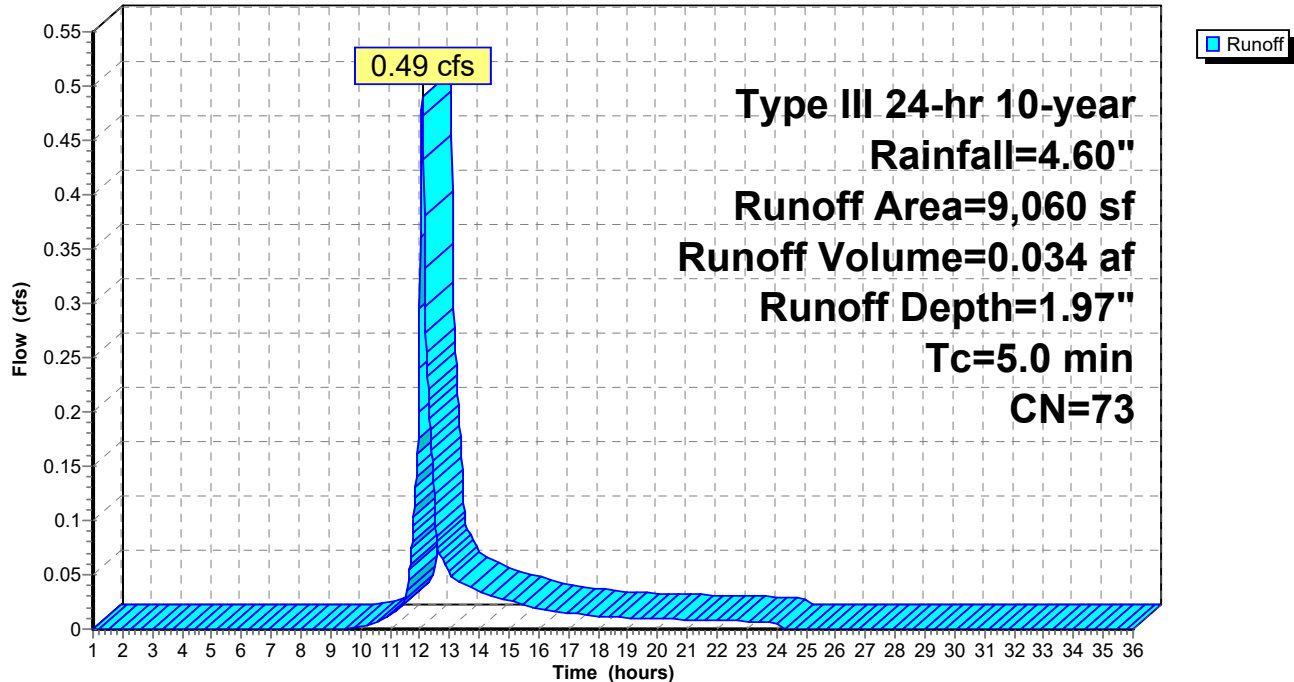
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		Pervious Area
	4,376		Impervious Area

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

Subcatchment 1S: Pre 70 Anderson

Hydrograph

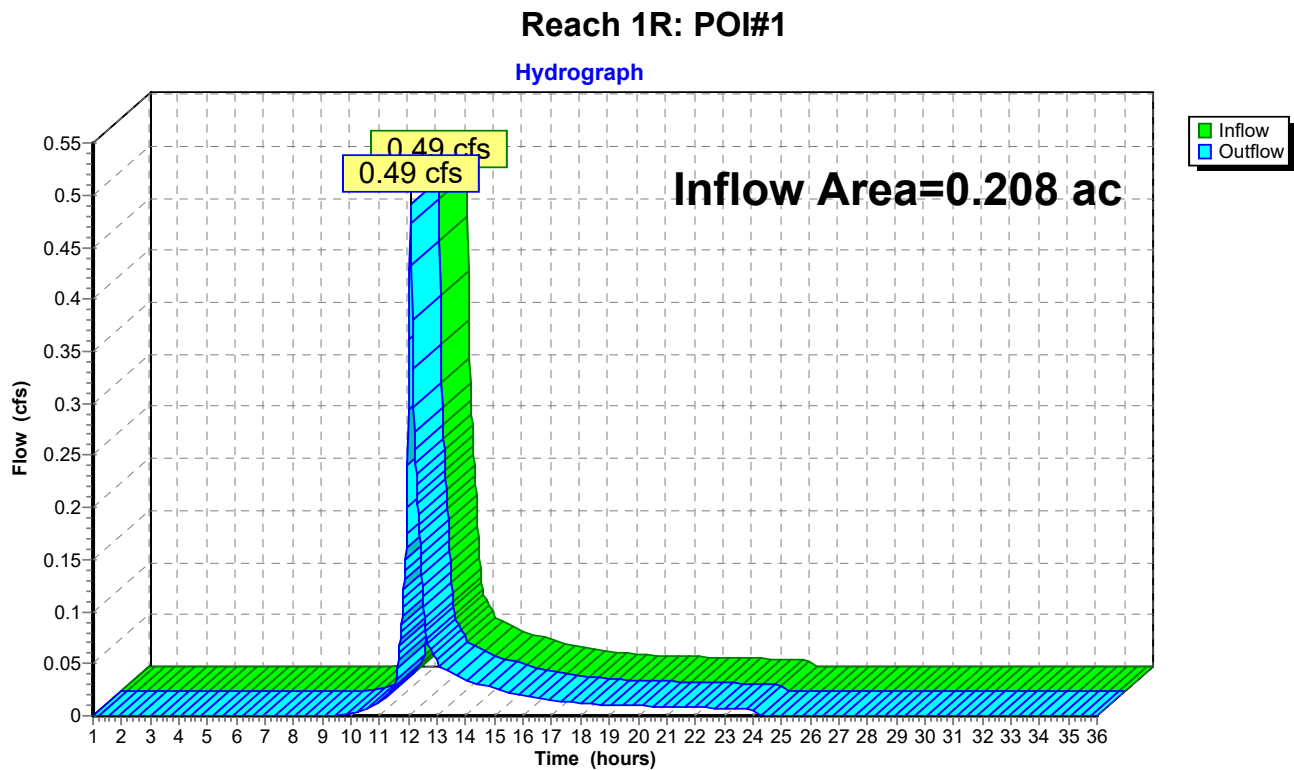


Summary for Reach 1R: POI#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 1.97" for 10-year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

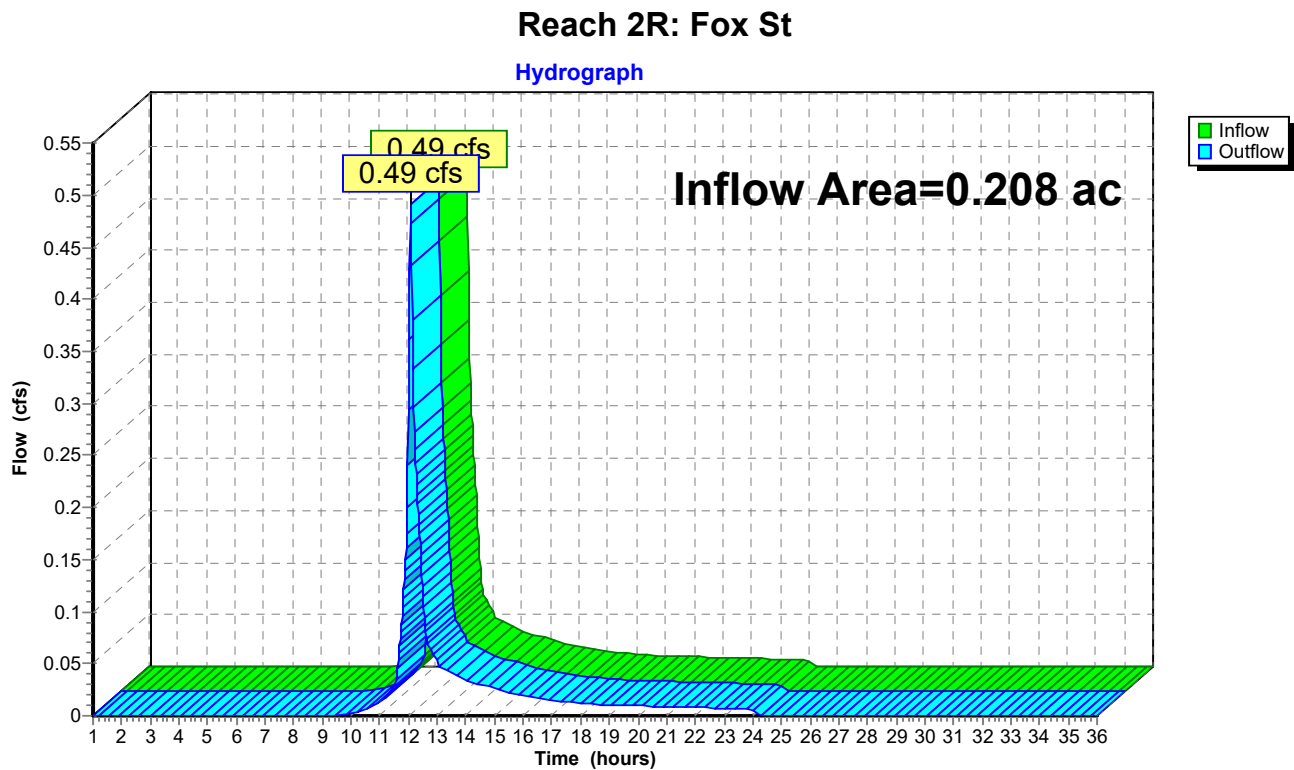


Summary for Reach 2R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 1.97" for 10-year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs



Pre_4-26-16*Type III 24-hr 25-year Rainfall=5.80"*

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Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson

Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=2.92"

Tc=5.0 min CN=73 Runoff=0.74 cfs 0.051 af

Reach 1R: POI#1

Inflow=0.74 cfs 0.051 af

Outflow=0.74 cfs 0.051 af

Reach 2R: Fox St

Inflow=0.74 cfs 0.051 af

Outflow=0.74 cfs 0.051 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.051 af Average Runoff Depth = 2.92"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

Runoff = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

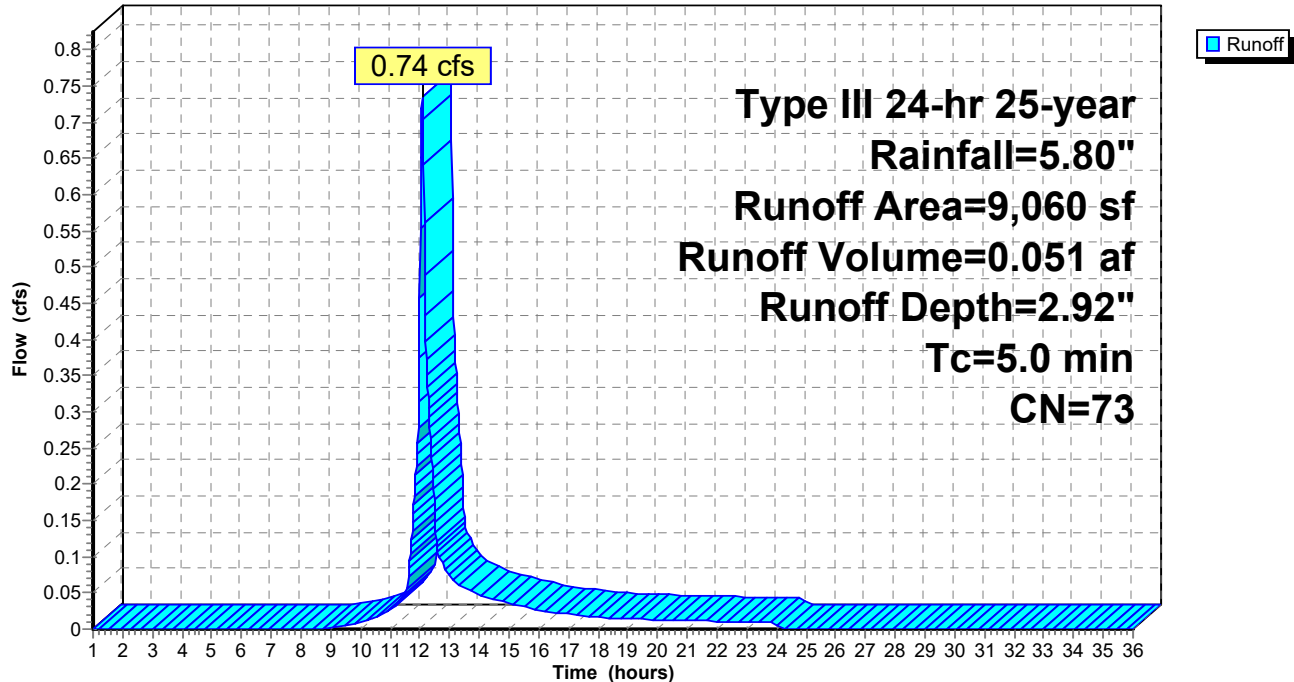
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		Pervious Area
	4,376		Impervious Area

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

Subcatchment 1S: Pre 70 Anderson

Hydrograph

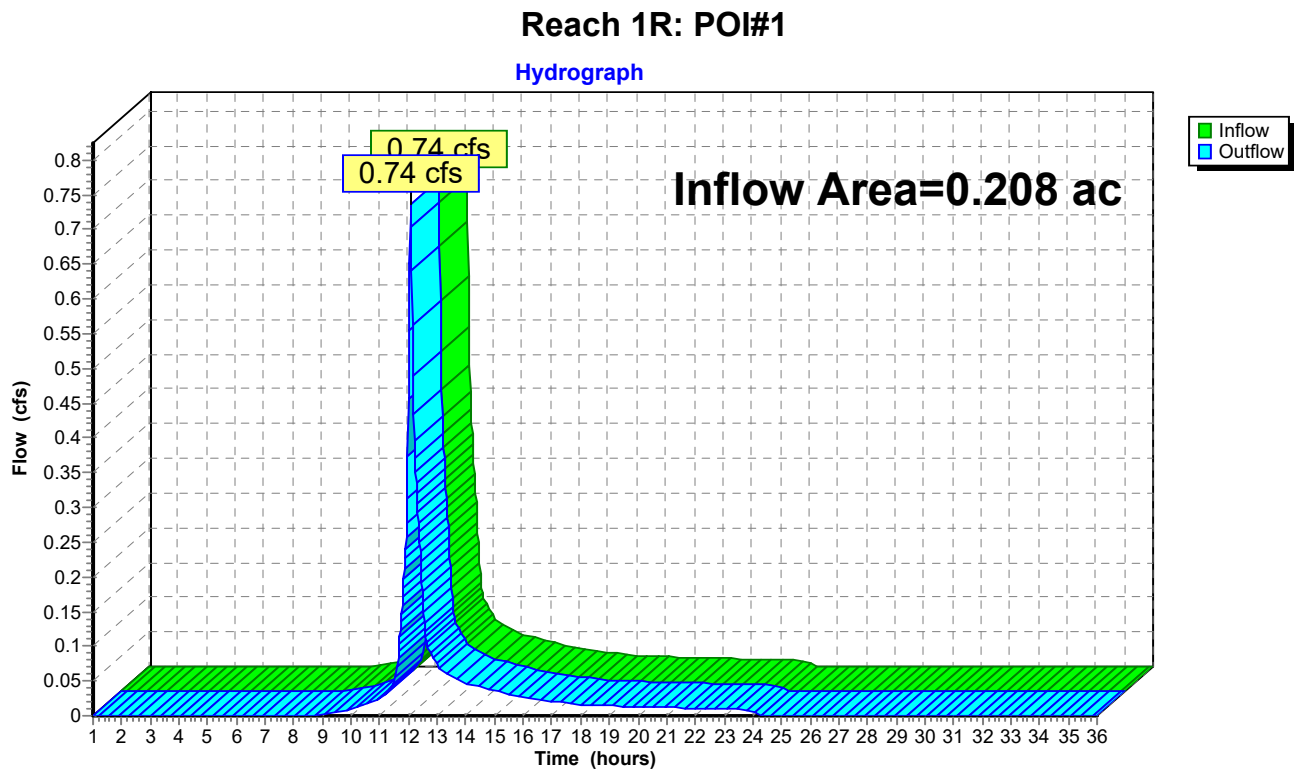


Summary for Reach 1R: POI#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af
Outflow = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

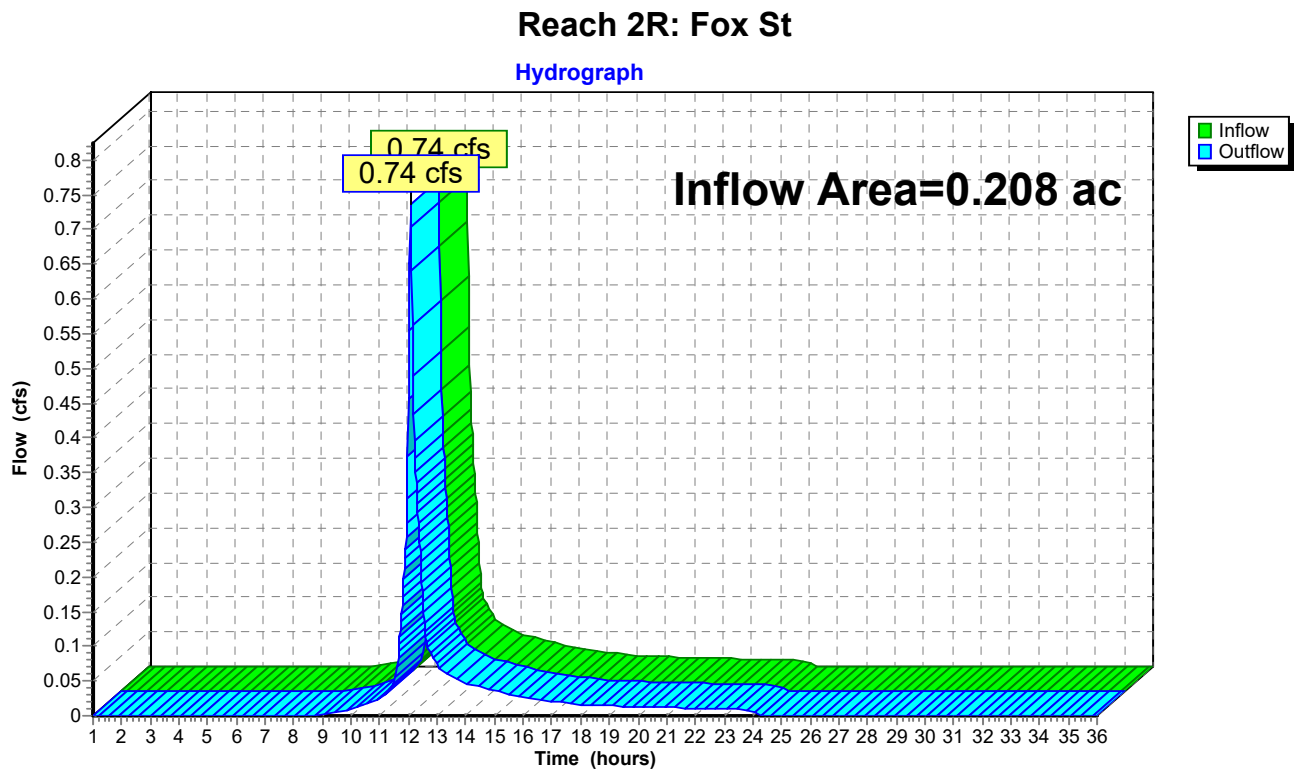


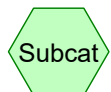
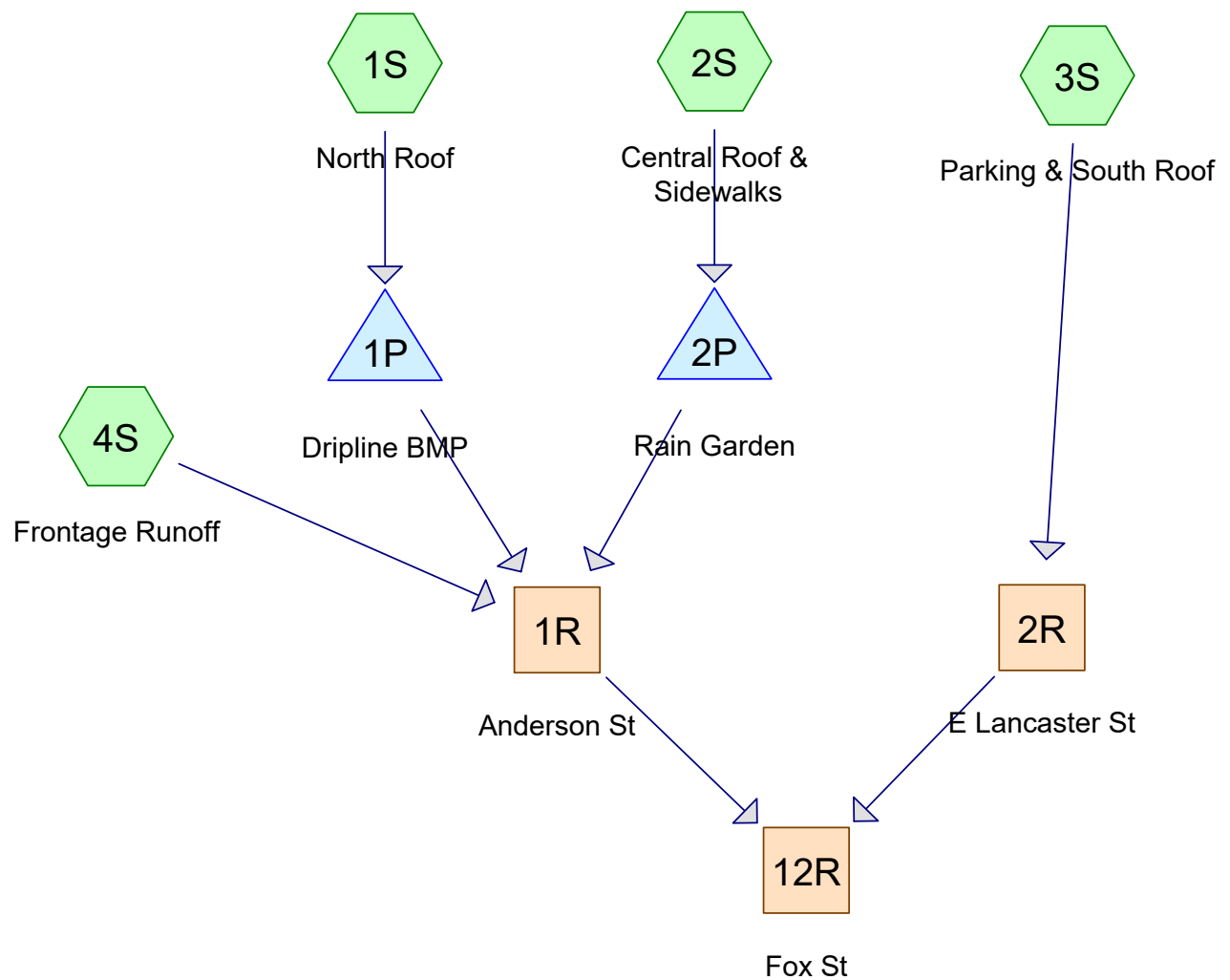
Summary for Reach 2R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af
Outflow = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.02 hrs

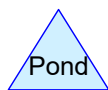




Subcat



Reach



Pond



Link

Drainage Diagram for Post_8-22-16

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.037	32	Woods/grass comb., Good, HSG A (1S,2S,3S,4S)
0.004	77	Crushed Stone, HSG A (3S)
0.019	96	Brick Pavers, HSG A (2S,3S,4S)
0.001	98	Concrete, HSG A (3S)
0.049	98	Paved Parking, HSG A (3S)
0.097	98	Roofs, HSG A (1S,2S,3S)
0.000	98	Transformer Top, HSG A (3S)
0.208		TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.208	HSG A	1S, 2S, 3S, 4S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.208		TOTAL AREA

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: North Roof

Runoff Area=1,856 sf 67.89% Impervious Runoff Depth=1.14"

Tc=5.0 min CN=77 Runoff=0.06 cfs 0.004 af

Subcatchment2S: Central Roof & Sidewalks

Runoff Area=2,776 sf 60.59% Impervious Runoff Depth=1.60"

Tc=5.0 min CN=84 Runoff=0.12 cfs 0.008 af

Subcatchment3S: Parking & South Roof

Runoff Area=4,270 sf 81.97% Impervious Runoff Depth=2.26"

Tc=5.0 min CN=92 Runoff=0.26 cfs 0.018 af

Subcatchment4S: Frontage Runoff

Runoff Area=163 sf 0.00% Impervious Runoff Depth=0.13"

Tc=5.0 min CN=51 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St

Inflow=0.00 cfs 0.000 af

Outflow=0.00 cfs 0.000 af

Reach 2R: E Lancaster St

Inflow=0.26 cfs 0.018 af

Outflow=0.26 cfs 0.018 af

Reach 12R: Fox St

Inflow=0.26 cfs 0.019 af

Outflow=0.26 cfs 0.019 af

Pond 1P: Dripline BMP

Peak Elev=11.54' Storage=42 cf Inflow=0.06 cfs 0.004 af

Discarded=0.02 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.004 af

Pond 2P: Rain Garden

Peak Elev=15.52' Storage=123 cf Inflow=0.12 cfs 0.008 af

Discarded=0.02 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.031 af Average Runoff Depth = 1.79"
28.94% Pervious = 0.060 ac 71.06% Impervious = 0.148 ac

Summary for Subcatchment 1S: North Roof

Runoff = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

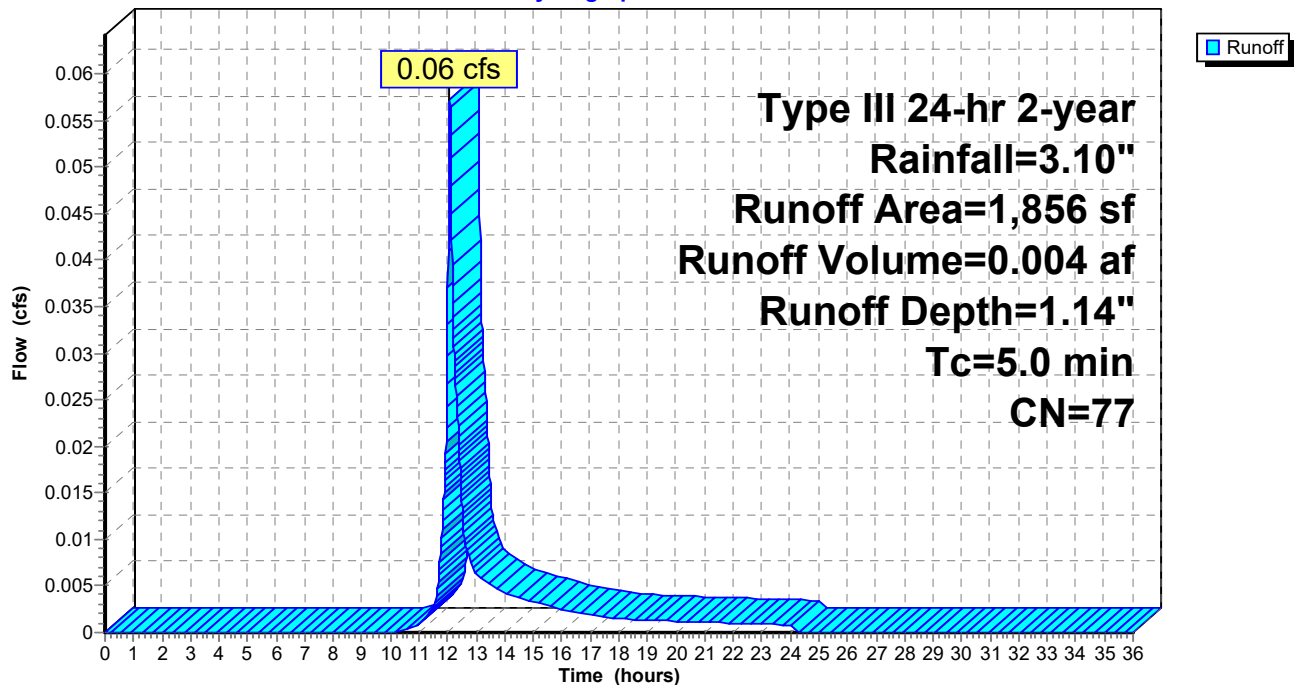
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,260	98	Roofs, HSG A
	596	32	Woods/grass comb., Good, HSG A
	1,856	77	Weighted Average
	596		Pervious Area
	1,260		Impervious Area

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

Subcatchment 1S: North Roof

Hydrograph



Summary for Subcatchment 2S: Central Roof & Sidewalks

Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

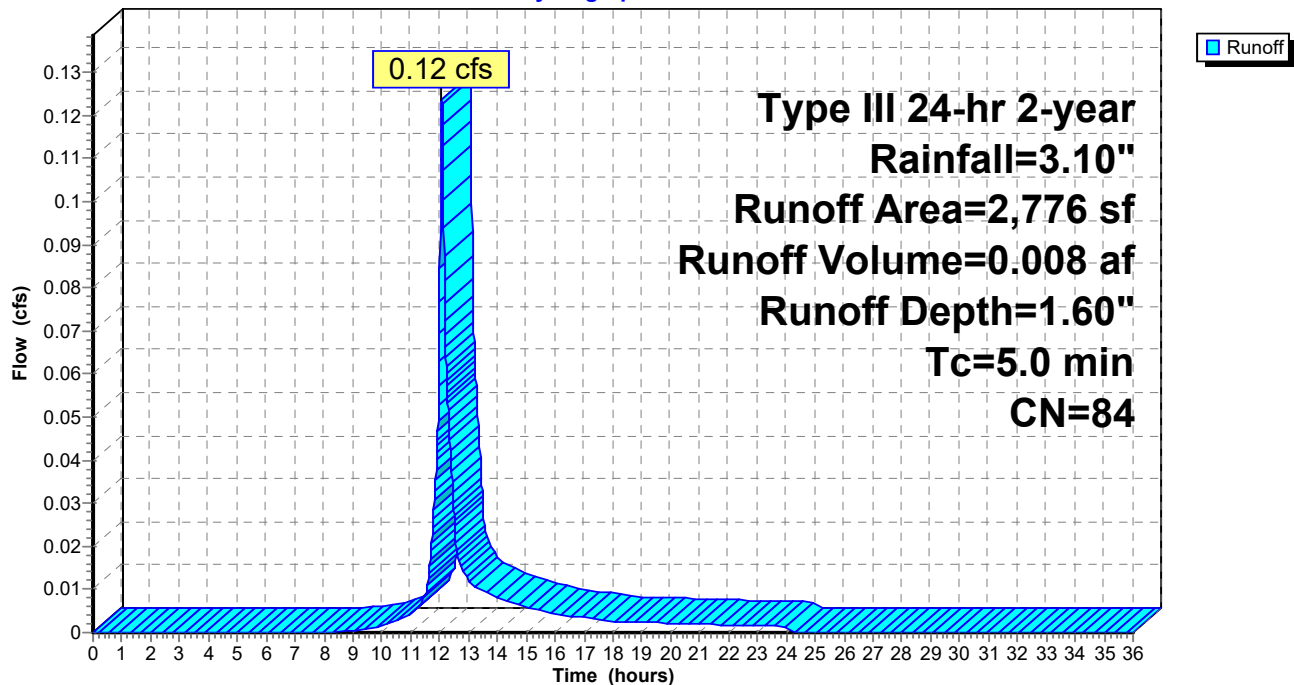
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG A
*	843	98	Roofs, HSG A
*	525	96	Brick Pavers, HSG A
	569	32	Woods/grass comb., Good, HSG A
	2,776	84	Weighted Average
	1,094		Pervious Area
	1,682		Impervious Area

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

Subcatchment 2S: Central Roof & Sidewalks

Hydrograph



Summary for Subcatchment 3S: Parking & South Roof

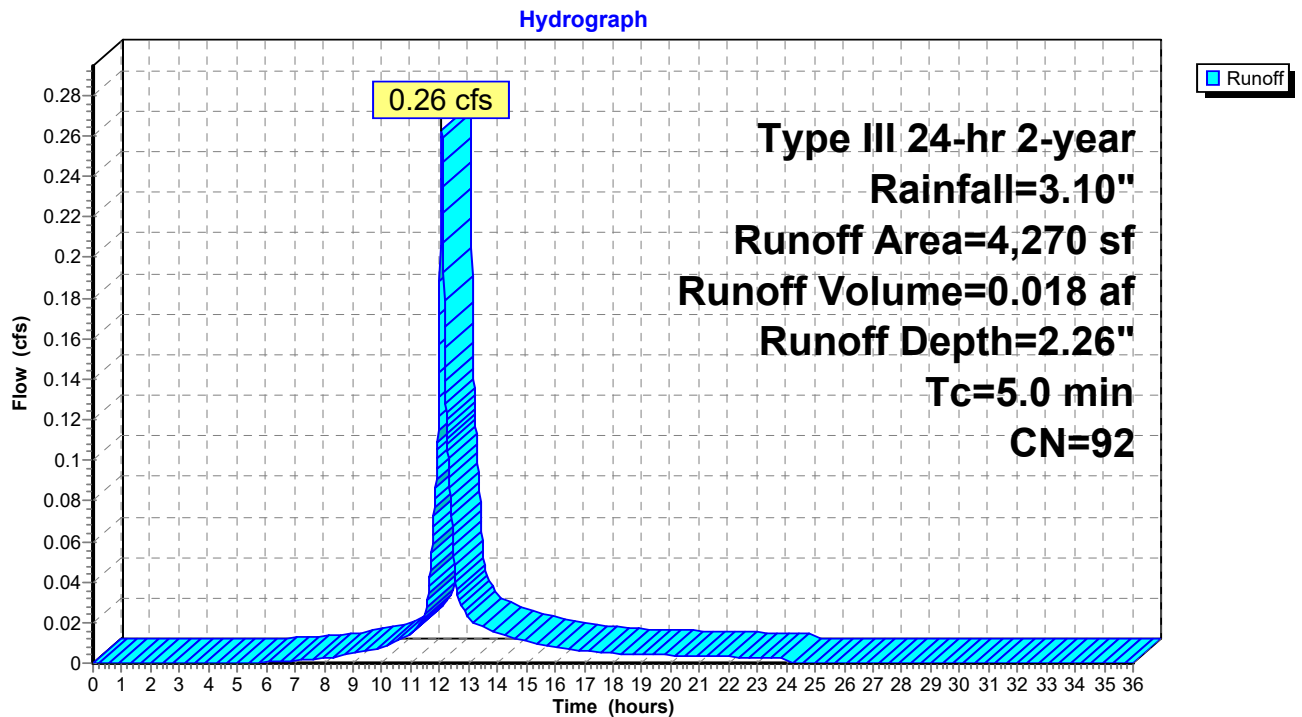
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.018 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,150	98	Paved Parking, HSG A
*	257	96	Brick Pavers, HSG A
*	1,270	98	Roofs, HSG A
	342	32	Woods/grass comb., Good, HSG A
*	171	77	Crushed Stone, HSG A
*	64	98	Concrete, HSG A
*	16	98	Transformer Top, HSG A
	4,270	92	Weighted Average
	770		Pervious Area
	3,500		Impervious Area

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

Subcatchment 3S: Parking & South Roof



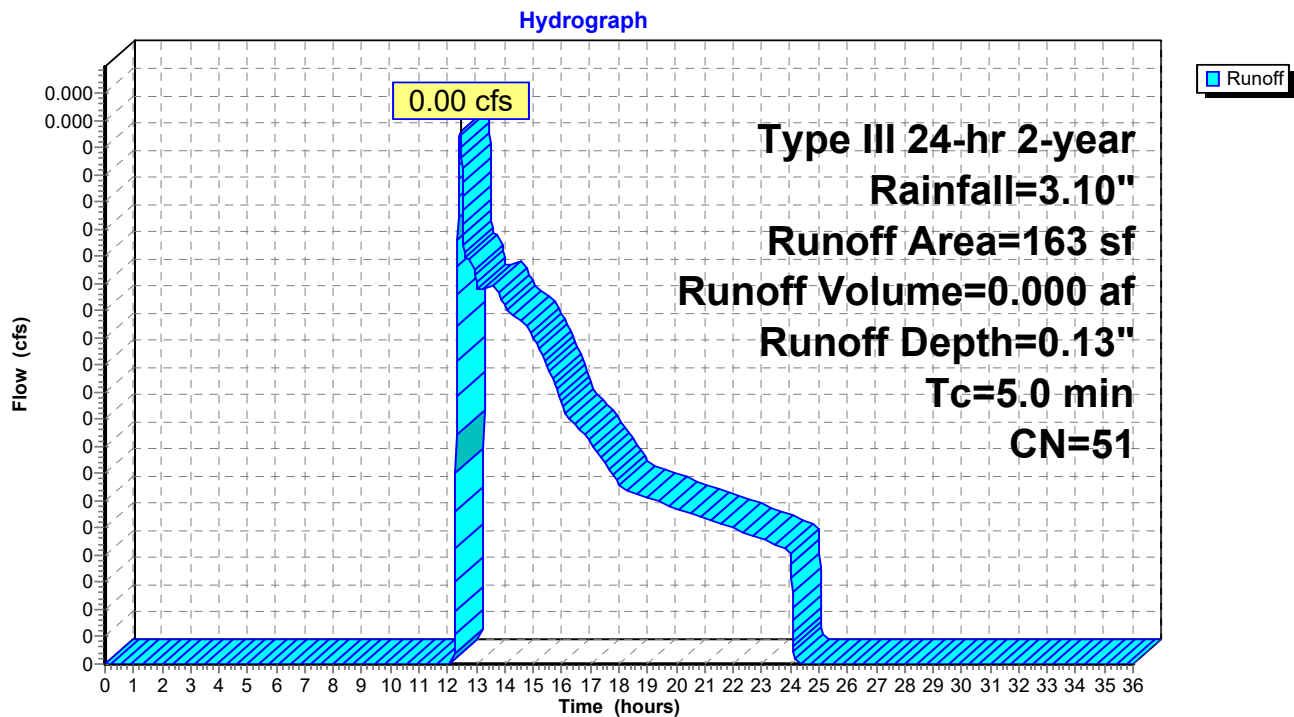
Summary for Subcatchment 4S: Frontage Runoff

Runoff = 0.00 cfs @ 12.45 hrs, Volume= 0.000 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.10"

Area (sf)	CN	Description
115	32	Woods/grass comb., Good, HSG A
* 48	96	Brick Pavers, HSG A
163	51	Weighted Average
163		Pervious Area

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

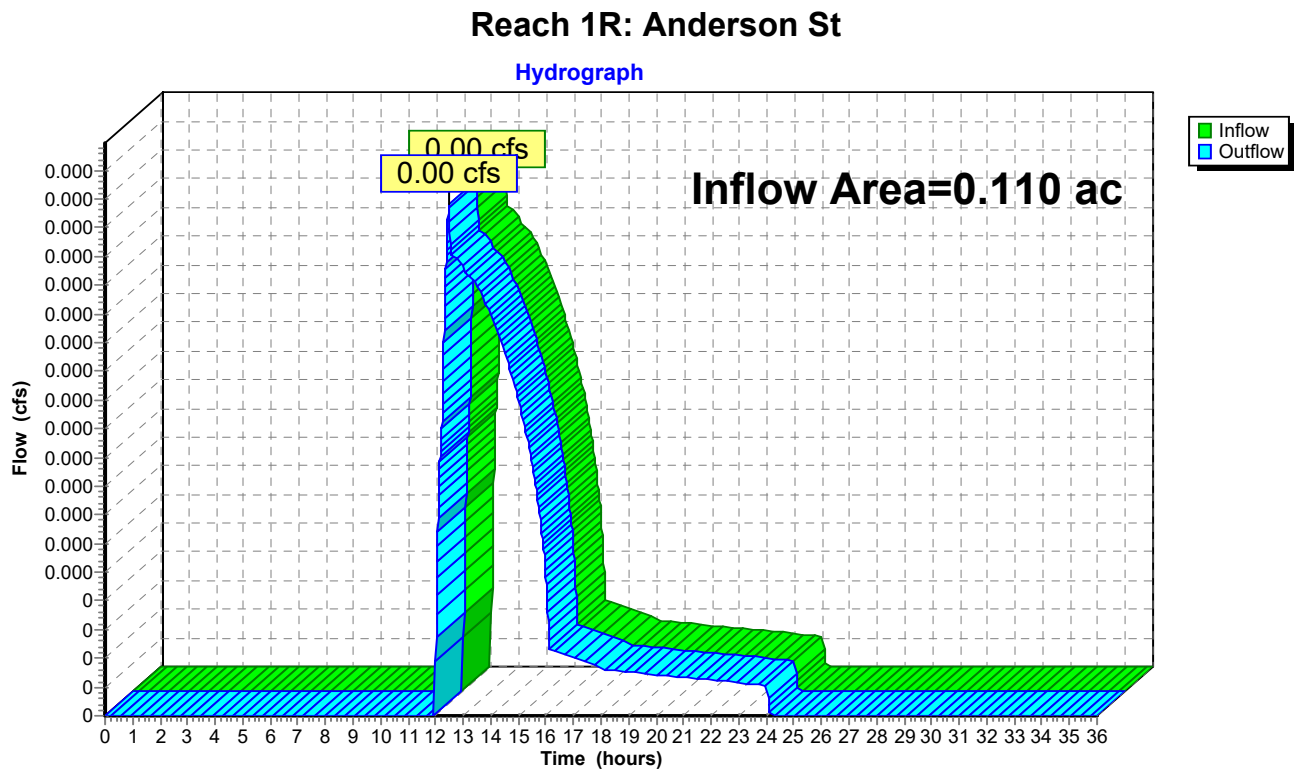
Subcatchment 4S: Frontage Runoff

Summary for Reach 1R: Anderson St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.110 ac, 61.36% Impervious, Inflow Depth = 0.01" for 2-year event
Inflow = 0.00 cfs @ 12.47 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.47 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Reach 2R: E Lancaster St

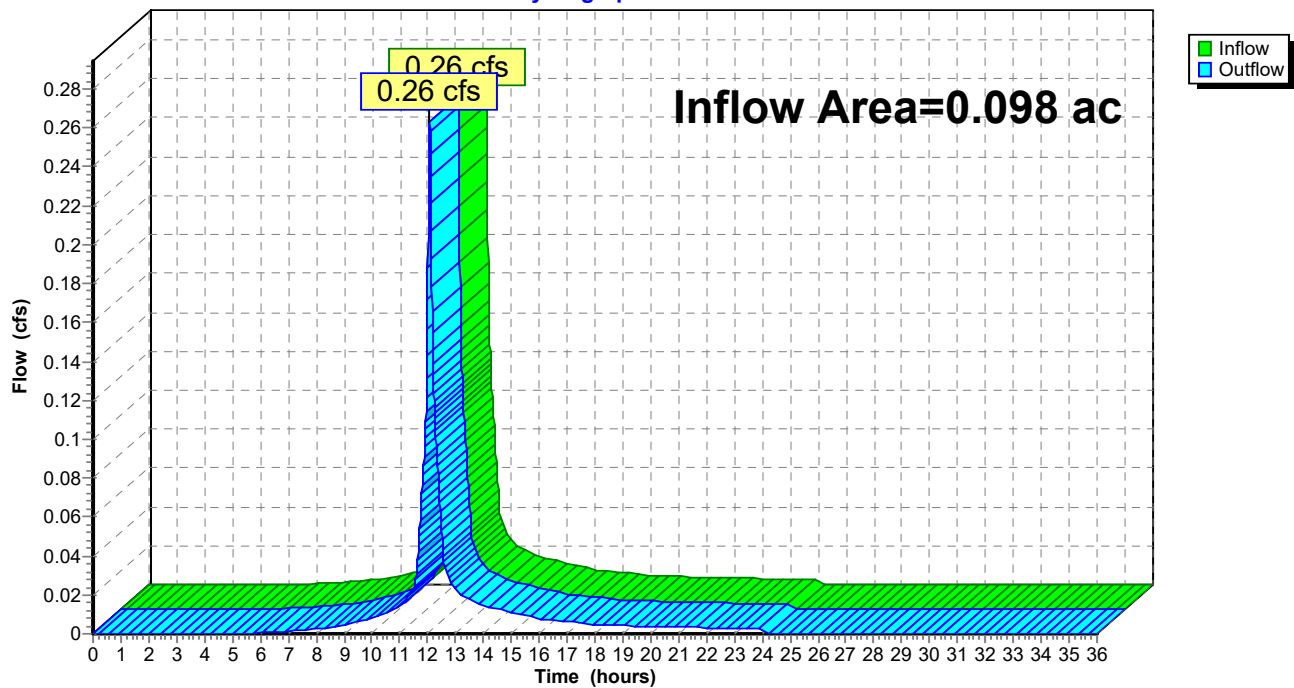
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.098 ac, 81.97% Impervious, Inflow Depth = 2.26" for 2-year event
Inflow = 0.26 cfs @ 12.07 hrs, Volume= 0.018 af
Outflow = 0.26 cfs @ 12.07 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: E Lancaster St

Hydrograph

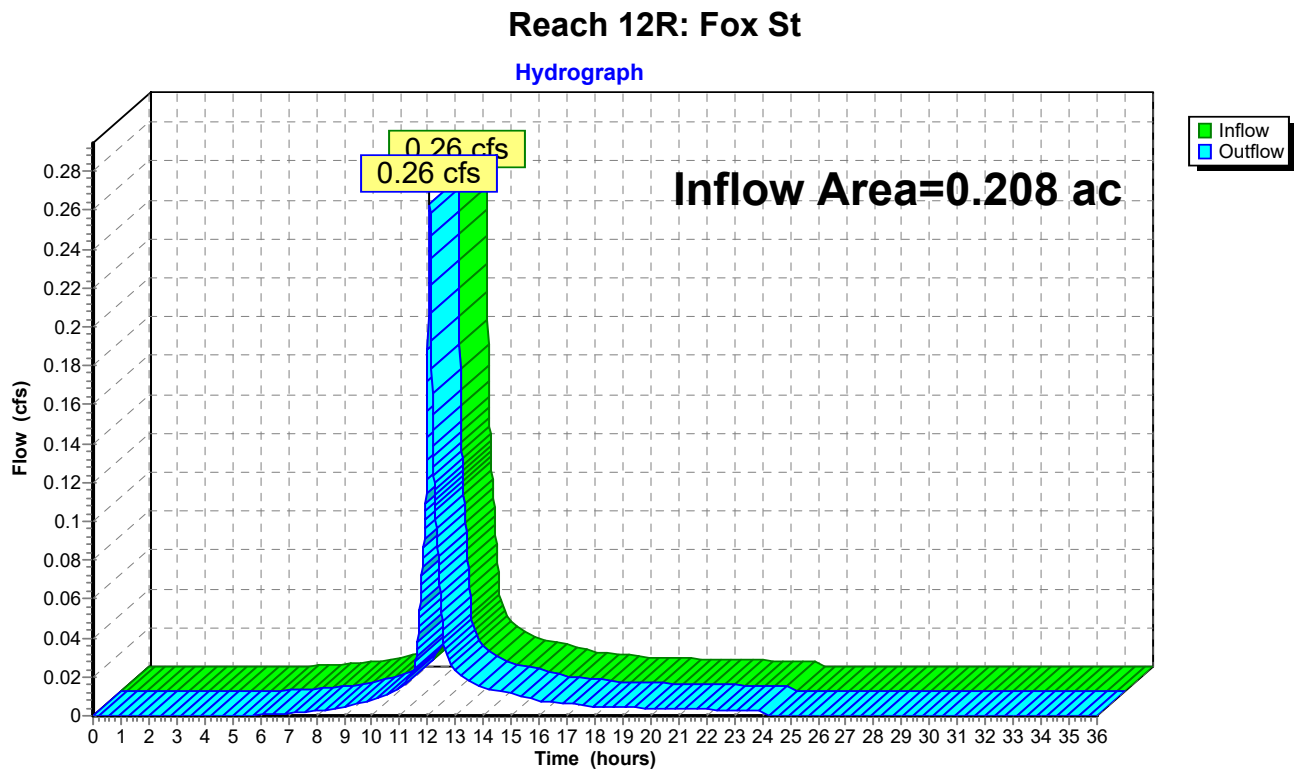


Summary for Reach 12R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 71.06% Impervious, Inflow Depth = 1.07" for 2-year event
Inflow = 0.26 cfs @ 12.07 hrs, Volume= 0.019 af
Outflow = 0.26 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Dripline BMP

Inflow Area = 0.043 ac, 67.89% Impervious, Inflow Depth = 1.14" for 2-year event
 Inflow = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af
 Outflow = 0.02 cfs @ 12.48 hrs, Volume= 0.004 af, Atten= 73%, Lag= 23.7 min
 Discarded = 0.02 cfs @ 12.48 hrs, Volume= 0.004 af
 Primary = 0.00 cfs @ 12.48 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 11.54' @ 12.48 hrs Surf.Area= 135 sf Storage= 42 cf

Plug-Flow detention time= 21.6 min calculated for 0.004 af (100% of inflow)
 Center-of-Mass det. time= 21.6 min (874.9 - 853.3)

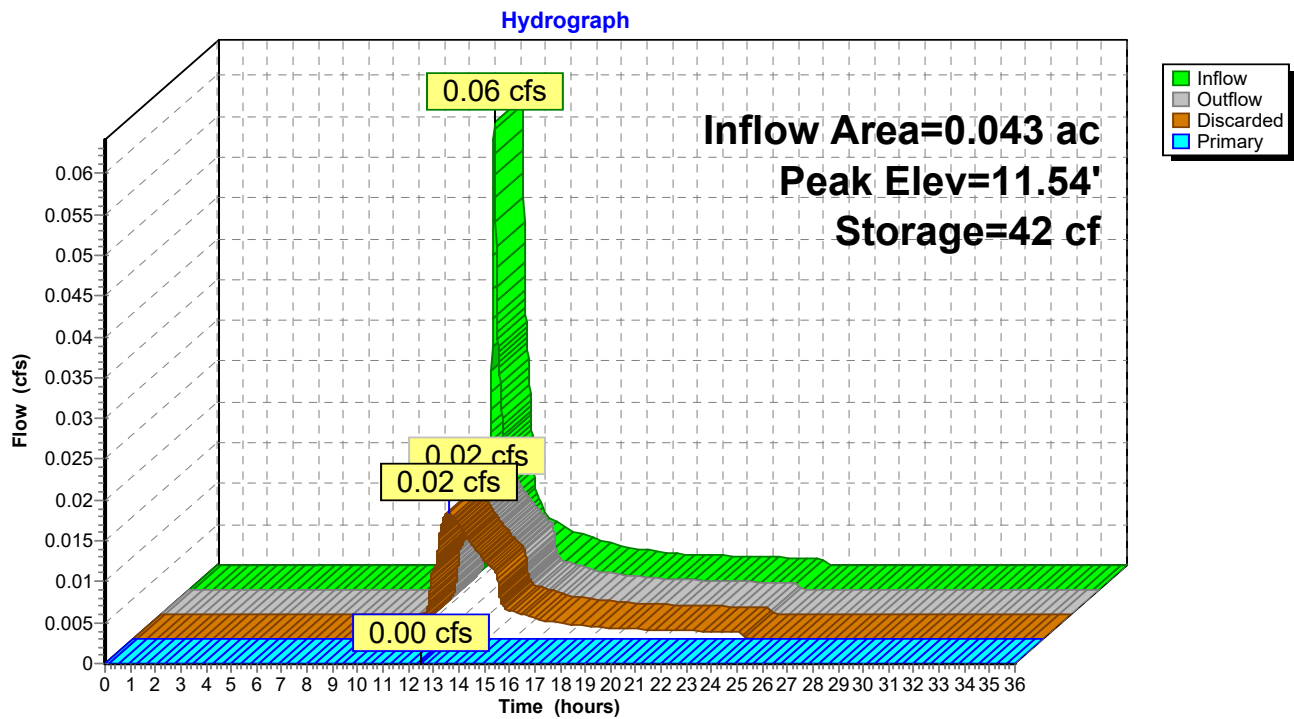
Volume	Invert	Avail.Storage	Storage Description
#1	14.08'	126 cf	3.00'W x 90.00'L x 1.17'H Prismatic - Water Quality Volume 316 cf Overall x 40.0% Voids
#2	13.08'	27 cf	3.00'W x 90.00'L x 1.00'H Prismatic - Soil Filter Media 270 cf Overall x 10.0% Voids
#3	11.75'	18 cf	6.0"D x 90.00'L 6" Pipe Storage S= 0.0025 '/' Inside #4
#4	10.75'	119 cf	1.50'W x 90.00'L x 2.33'H Prismatic - Crushed Stone 315 cf Overall - 18 cf Embedded = 297 cf x 40.0% Voids
		290 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.53'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.40' S= 0.0026 '/' Cc= 0.900 n= 0.010
#2	Device 1	11.53'	1.0" Vert. Orifice/Grate X 0.10 C= 0.600
#3	Discarded	10.75'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.02 cfs @ 12.48 hrs HW=11.54' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 12.48 hrs HW=11.54' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.00 cfs of 0.00 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.03 fps)

Pond 1P: Dripline BMP



Summary for Pond 2P: Rain Garden

Inflow Area = 0.064 ac, 60.59% Impervious, Inflow Depth = 1.60" for 2-year event
 Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af
 Outflow = 0.02 cfs @ 12.73 hrs, Volume= 0.008 af, Atten= 87%, Lag= 39.0 min
 Discarded = 0.02 cfs @ 11.73 hrs, Volume= 0.008 af
 Primary = 0.00 cfs @ 12.73 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 15.52' @ 12.73 hrs Surf.Area= 275 sf Storage= 123 cf

Plug-Flow detention time= 61.3 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 61.3 min (891.4 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	17.90'	431 cf	Water Quality Volume (Prismatic) Listed below (Recalc)
#2	15.90'	55 cf	Loam/Soil/Gravel Filter Media (Prismatic) Listed below (Recalc)
			550 cf Overall x 10.0% Voids
#3	14.40'	165 cf	Crushed Stone (Prismatic) Listed below (Recalc)
			413 cf Overall x 40.0% Voids
		651 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.90	275	0	0
18.40	443	180	180
18.90	564	252	431

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.90	275	0	0
17.90	275	550	550

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.40	275	0	0
15.90	275	413	413

Device	Routing	Invert	Outlet Devices
#1	Primary	14.65'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.51' S= 0.0628 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	14.65'	0.1" Vert. WQV C= 0.600
#3	Device 1	18.40'	6.0" Horiz. Atrium Grate (High Flow Outlet) X 2.00 Limited to weir flow C= 0.600
#4	Discarded	14.40'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 11.73 hrs HW=14.45' (Free Discharge)

↑**4=Exfiltration** (Exfiltration Controls 0.02 cfs)

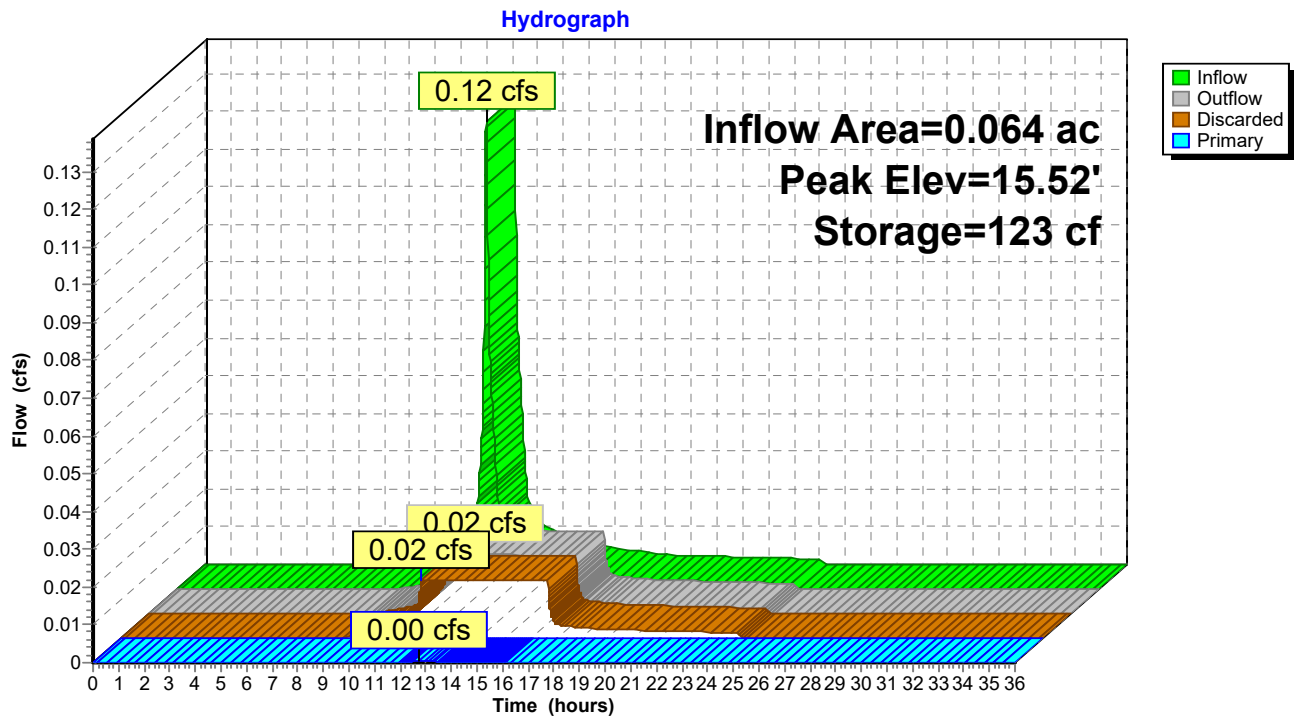
Primary OutFlow Max=0.00 cfs @ 12.73 hrs HW=15.52' (Free Discharge)

↑**1=Culvert** (Passes 0.00 cfs of 0.66 cfs potential flow)

↑**2=WQV** (Orifice Controls 0.00 cfs @ 4.48 fps)

↑**3=Atrium Grate (High Flow Outlet)** (Controls 0.00 cfs)

Pond 2P: Rain Garden



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Type III 24-hr 10-year Rainfall=4.60"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Roof

Runoff Area=1,856 sf 67.89% Impervious Runoff Depth=2.29"

Tc=5.0 min CN=77 Runoff=0.12 cfs 0.008 af

Subcatchment 2S: Central Roof & Sidewalks Runoff Area=2,776 sf 60.59% Impervious Runoff Depth=2.91"

Tc=5.0 min CN=84 Runoff=0.22 cfs 0.015 af

Subcatchment 3S: Parking & South Roof Runoff Area=4,270 sf 81.97% Impervious Runoff Depth=3.70"

Tc=5.0 min CN=92 Runoff=0.42 cfs 0.030 af

Subcatchment 4S: Frontage Runoff

Runoff Area=163 sf 0.00% Impervious Runoff Depth=0.58"

Tc=5.0 min CN=51 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St

Inflow=0.00 cfs 0.001 af

Outflow=0.00 cfs 0.001 af

Reach 2R: E Lancaster St

Inflow=0.42 cfs 0.030 af

Outflow=0.42 cfs 0.030 af

Reach 12R: Fox St

Inflow=0.42 cfs 0.031 af

Outflow=0.42 cfs 0.031 af

Pond 1P: Dripline BMP

Peak Elev=12.49' Storage=104 cf Inflow=0.12 cfs 0.008 af

Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

Pond 2P: Rain Garden

Peak Elev=17.94' Storage=230 cf Inflow=0.22 cfs 0.015 af

Discarded=0.05 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.015 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.054 af Average Runoff Depth = 3.11"
28.94% Pervious = 0.060 ac 71.06% Impervious = 0.148 ac

Summary for Subcatchment 1S: North Roof

Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 2.29"

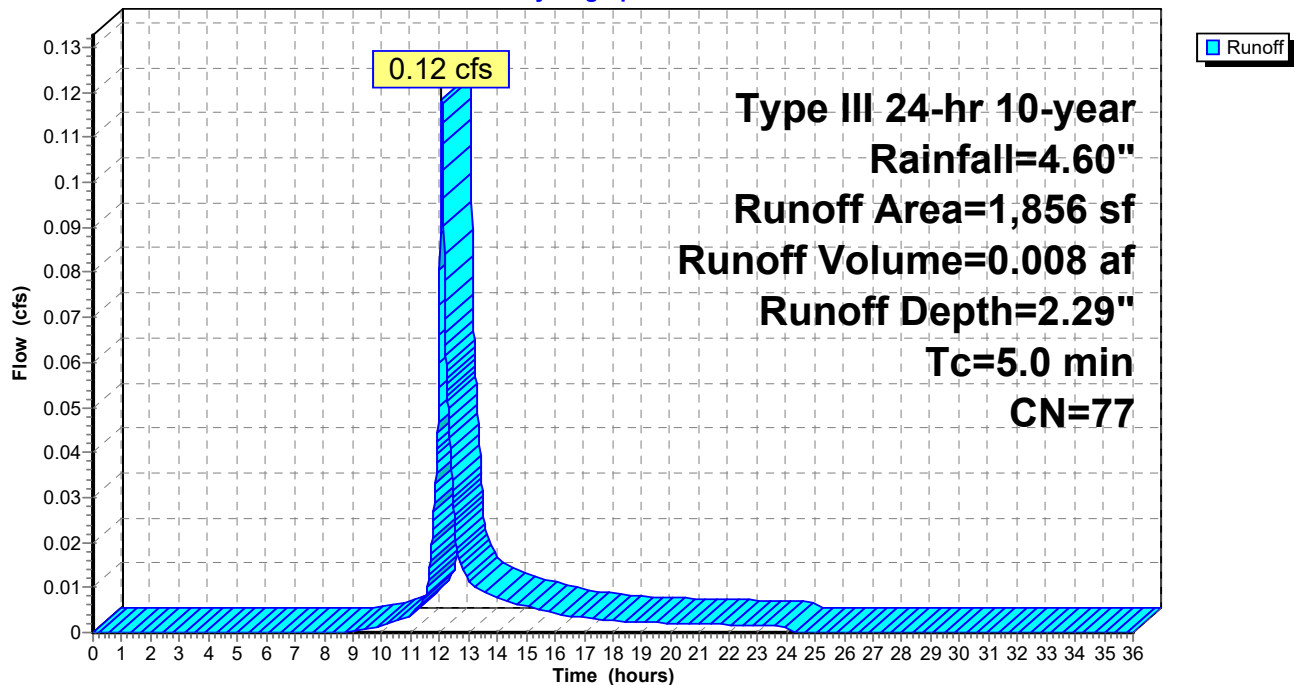
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,260	98	Roofs, HSG A
	596	32	Woods/grass comb., Good, HSG A
	1,856	77	Weighted Average
	596		Pervious Area
	1,260		Impervious Area

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

Subcatchment 1S: North Roof

Hydrograph



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Type III 24-hr 10-year Rainfall=4.60"

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Summary for Subcatchment 2S: Central Roof & Sidewalks

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

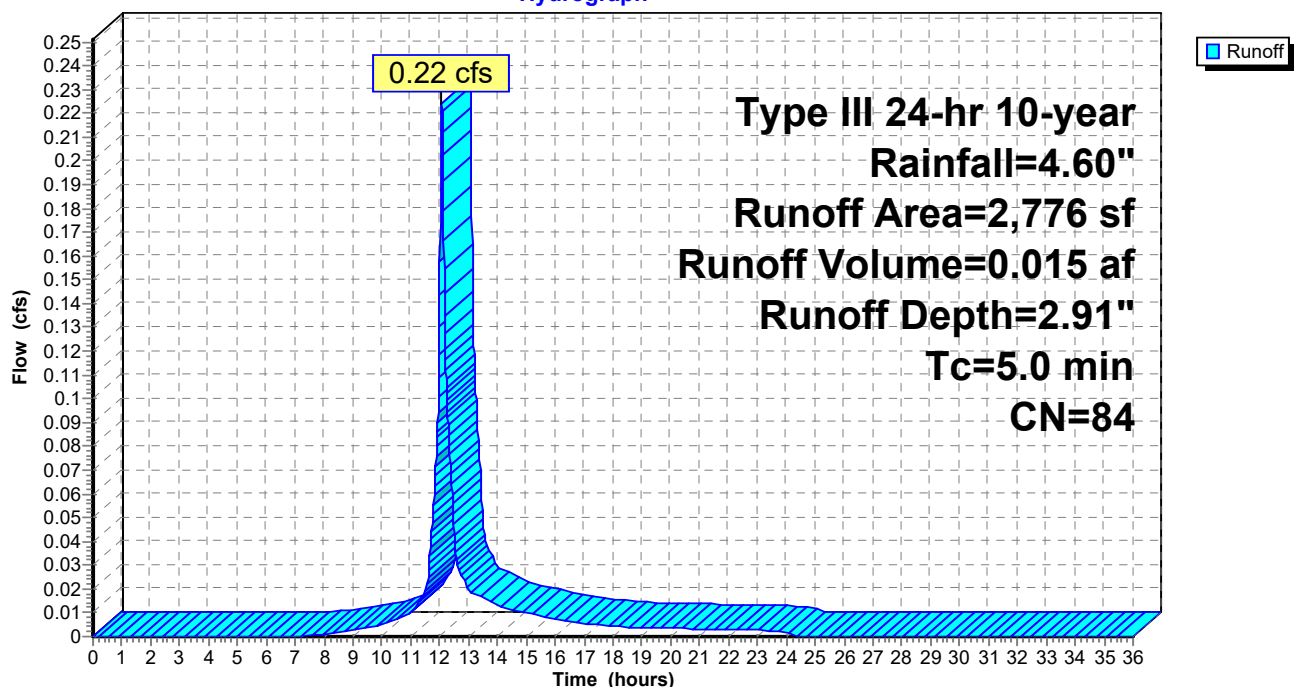
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG A
*	843	98	Roofs, HSG A
*	525	96	Brick Pavers, HSG A
	569	32	Woods/grass comb., Good, HSG A
	2,776	84	Weighted Average
	1,094		Pervious Area
	1,682		Impervious Area

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

Subcatchment 2S: Central Roof & Sidewalks

Hydrograph



Summary for Subcatchment 3S: Parking & South Roof

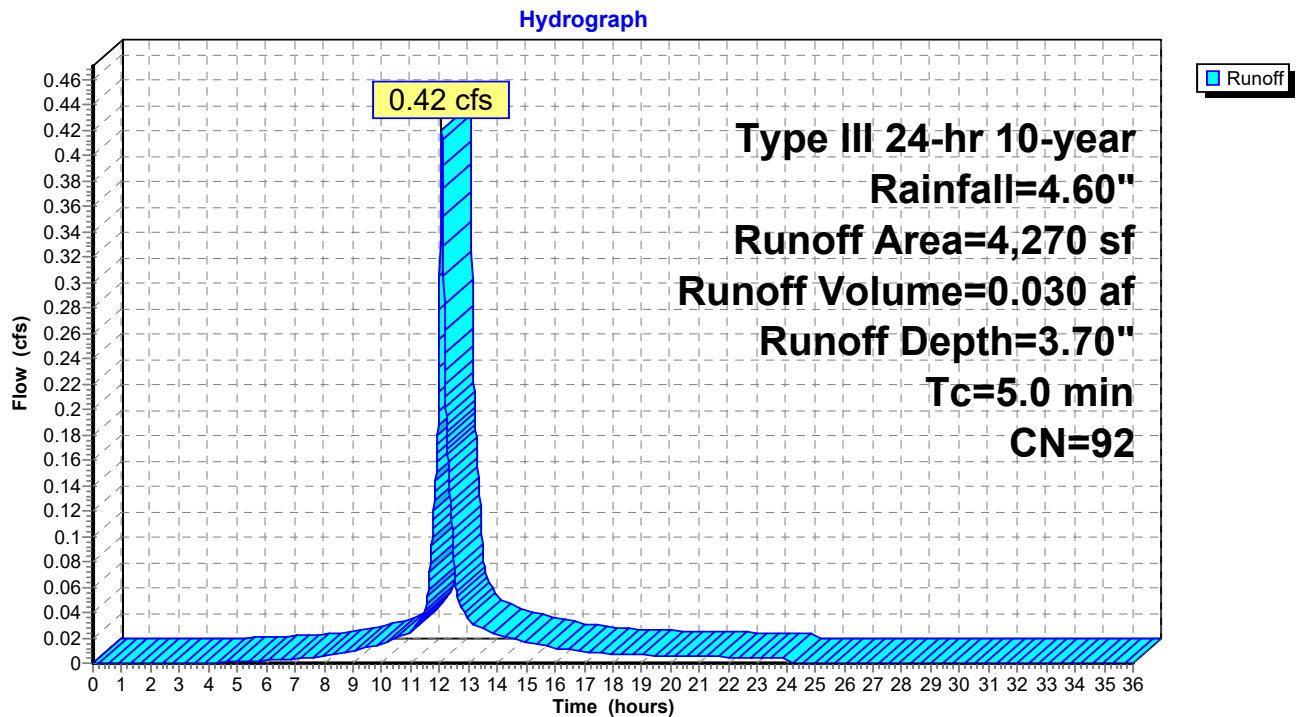
Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.030 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,150	98	Paved Parking, HSG A
*	257	96	Brick Pavers, HSG A
*	1,270	98	Roofs, HSG A
	342	32	Woods/grass comb., Good, HSG A
*	171	77	Crushed Stone, HSG A
*	64	98	Concrete, HSG A
*	16	98	Transformer Top, HSG A
	4,270	92	Weighted Average
	770		Pervious Area
	3,500		Impervious Area

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

Subcatchment 3S: Parking & South Roof



Summary for Subcatchment 4S: Frontage Runoff

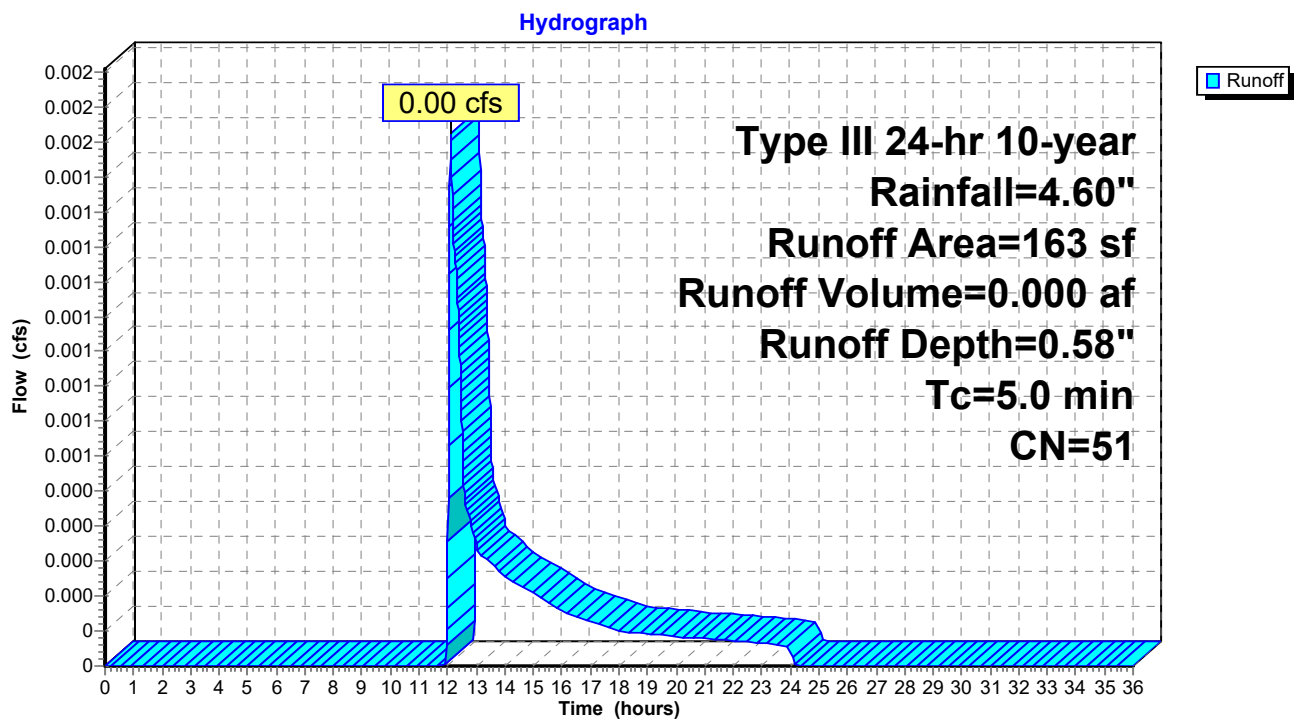
Runoff = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-year Rainfall=4.60"

Area (sf)	CN	Description
115	32	Woods/grass comb., Good, HSG A
* 48	96	Brick Pavers, HSG A
163	51	Weighted Average
163		Pervious Area

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

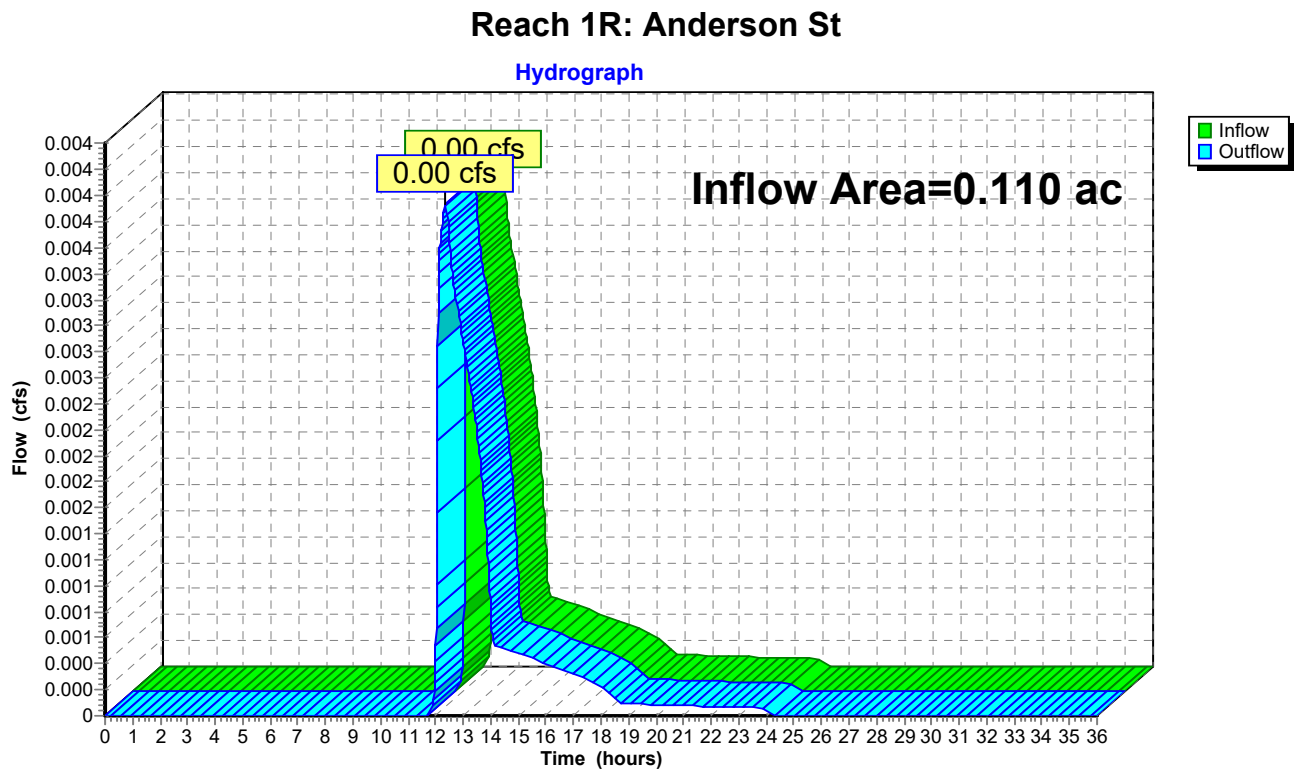
Subcatchment 4S: Frontage Runoff

Summary for Reach 1R: Anderson St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.110 ac, 61.36% Impervious, Inflow Depth = 0.07" for 10-year event
Inflow = 0.00 cfs @ 12.34 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.34 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Reach 2R: E Lancaster St

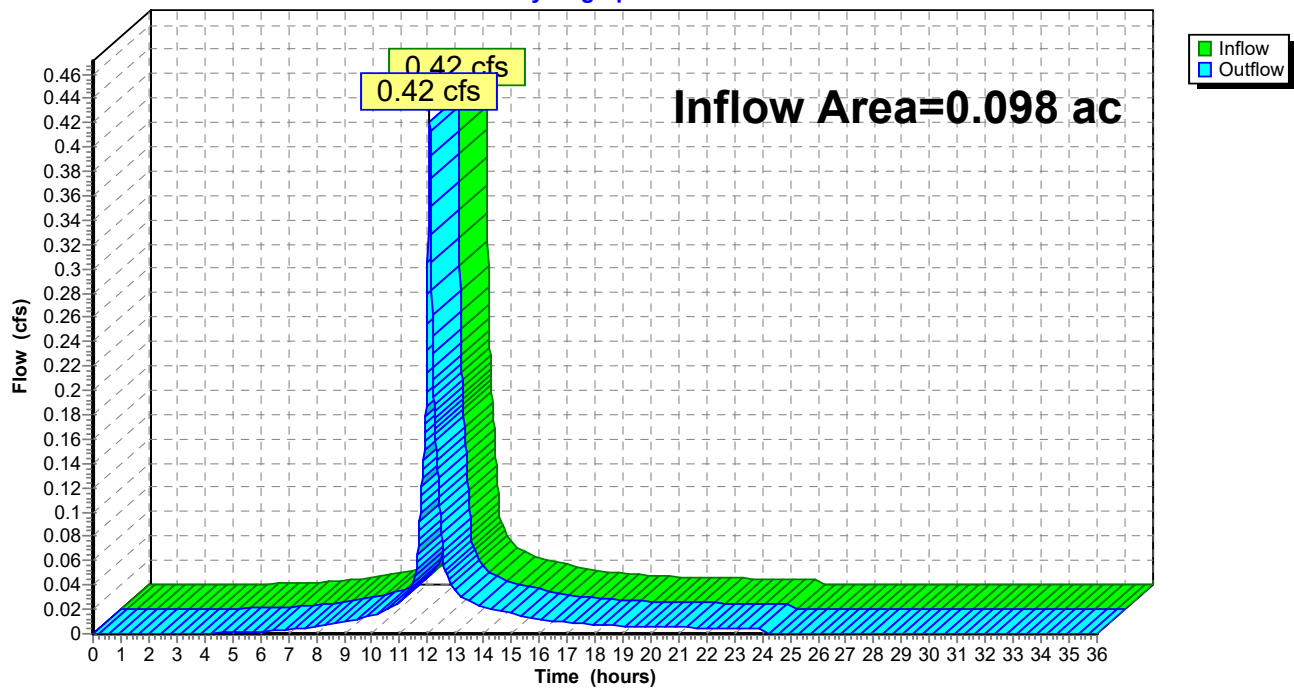
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.098 ac, 81.97% Impervious, Inflow Depth = 3.70" for 10-year event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 0.030 af
Outflow = 0.42 cfs @ 12.07 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: E Lancaster St

Hydrograph

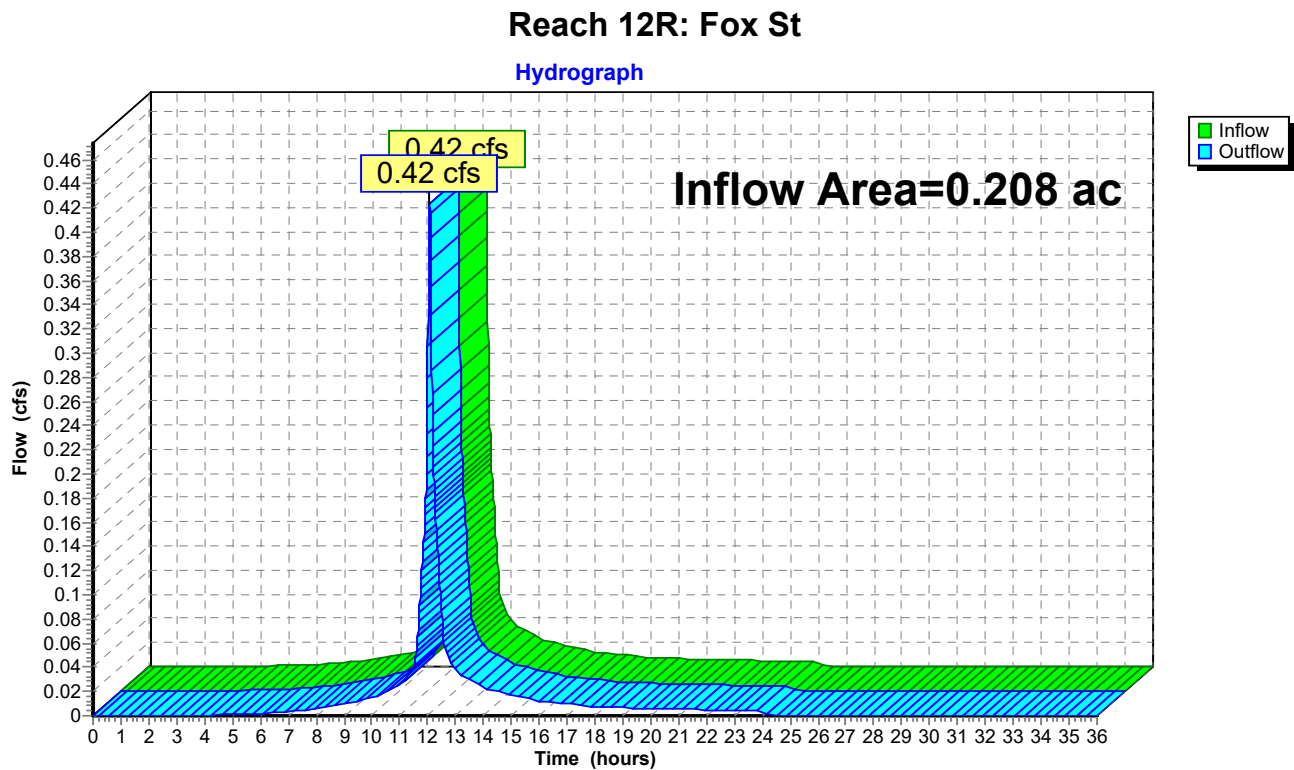


Summary for Reach 12R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 71.06% Impervious, Inflow Depth = 1.78" for 10-year event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 0.031 af
Outflow = 0.42 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Dripline BMP

Inflow Area = 0.043 ac, 67.89% Impervious, Inflow Depth = 2.29" for 10-year event
 Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af
 Outflow = 0.03 cfs @ 12.49 hrs, Volume= 0.008 af, Atten= 77%, Lag= 24.7 min
 Discarded = 0.03 cfs @ 12.49 hrs, Volume= 0.008 af
 Primary = 0.00 cfs @ 12.49 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 12.49' @ 12.49 hrs Surf.Area= 135 sf Storage= 104 cf

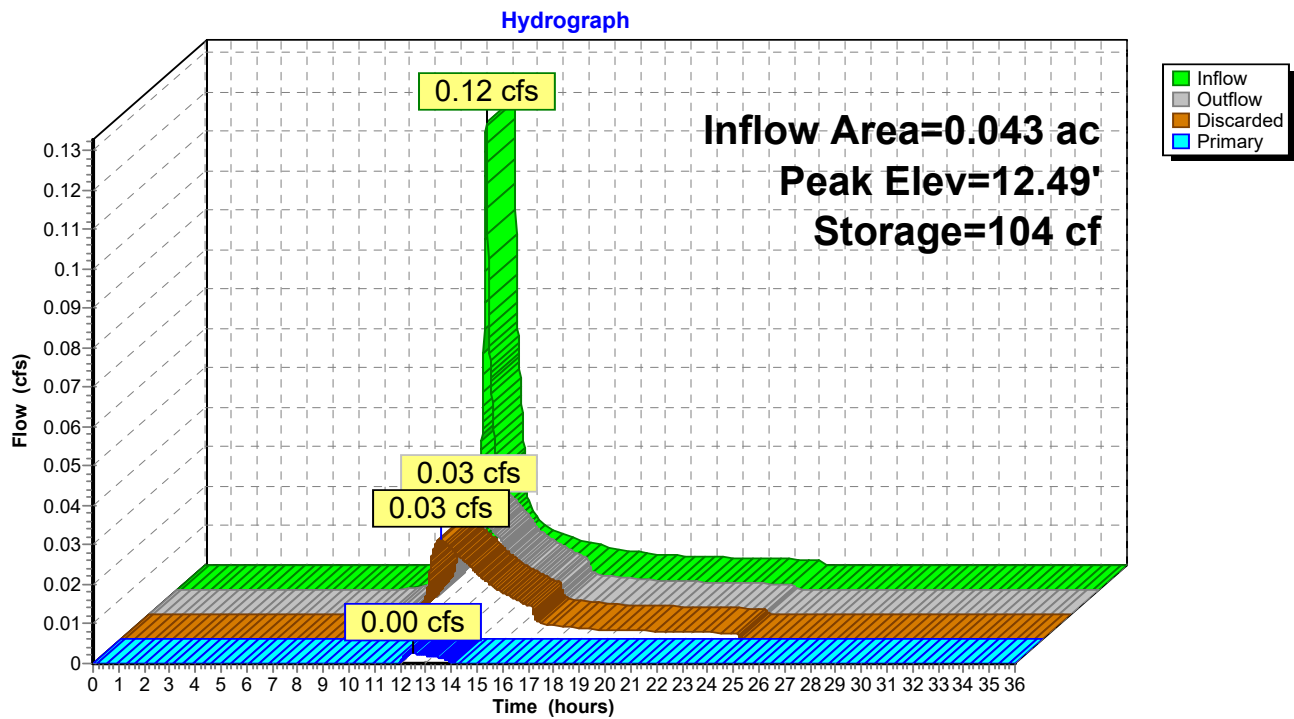
Plug-Flow detention time= 35.4 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 35.4 min (868.1 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.08'	126 cf	3.00'W x 90.00'L x 1.17'H Prismaoid - Water Quality Volume 316 cf Overall x 40.0% Voids
#2	13.08'	27 cf	3.00'W x 90.00'L x 1.00'H Prismaoid - Soil Filter Media 270 cf Overall x 10.0% Voids
#3	11.75'	18 cf	6.0"D x 90.00'L 6" Pipe Storage S= 0.0025 '/' Inside #4
#4	10.75'	119 cf	1.50'W x 90.00'L x 2.33'H Prismaoid - Crushed Stone 315 cf Overall - 18 cf Embedded = 297 cf x 40.0% Voids
		290 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.53'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.40' S= 0.0026 '/' Cc= 0.900 n= 0.010
#2	Device 1	11.53'	1.0" Vert. Orifice/Grate X 0.10 C= 0.600
#3	Discarded	10.75'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.03 cfs @ 12.49 hrs HW=12.49' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 12.49 hrs HW=12.49' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.00 cfs of 0.60 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.46 fps)

Pond 1P: Dripline BMP

Summary for Pond 2P: Rain Garden

Inflow Area = 0.064 ac, 60.59% Impervious, Inflow Depth = 2.91" for 10-year event
 Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.015 af
 Outflow = 0.05 cfs @ 12.50 hrs, Volume= 0.015 af, Atten= 79%, Lag= 25.3 min
 Discarded = 0.05 cfs @ 12.50 hrs, Volume= 0.015 af
 Primary = 0.00 cfs @ 12.50 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 17.94' @ 12.50 hrs Surf.Area= 837 sf Storage= 230 cf

Plug-Flow detention time= 81.4 min calculated for 0.015 af (100% of inflow)
 Center-of-Mass det. time= 81.4 min (894.3 - 813.0)

Volume	Invert	Avail.Storage	Storage Description
#1	17.90'	431 cf	Water Quality Volume (Prismatic) Listed below (Recalc)
#2	15.90'	55 cf	Loam/Soil/Gravel Filter Media (Prismatic) Listed below (Recalc)
			550 cf Overall x 10.0% Voids
#3	14.40'	165 cf	Crushed Stone (Prismatic) Listed below (Recalc)
			413 cf Overall x 40.0% Voids
		651 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.90	275	0	0
18.40	443	180	180
18.90	564	252	431

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.90	275	0	0
17.90	275	550	550

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.40	275	0	0
15.90	275	413	413

Device	Routing	Invert	Outlet Devices
#1	Primary	14.65'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.51' S= 0.0628 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	14.65'	0.1" Vert. WQV C= 0.600
#3	Device 1	18.40'	6.0" Horiz. Atrium Grate (High Flow Outlet) X 2.00 Limited to weir flow C= 0.600
#4	Discarded	14.40'	2.410 in/hr Exfiltration over Surface area

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Type III 24-hr 10-year Rainfall=4.60"

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Discarded OutFlow Max=0.05 cfs @ 12.50 hrs HW=17.94' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.05 cfs)

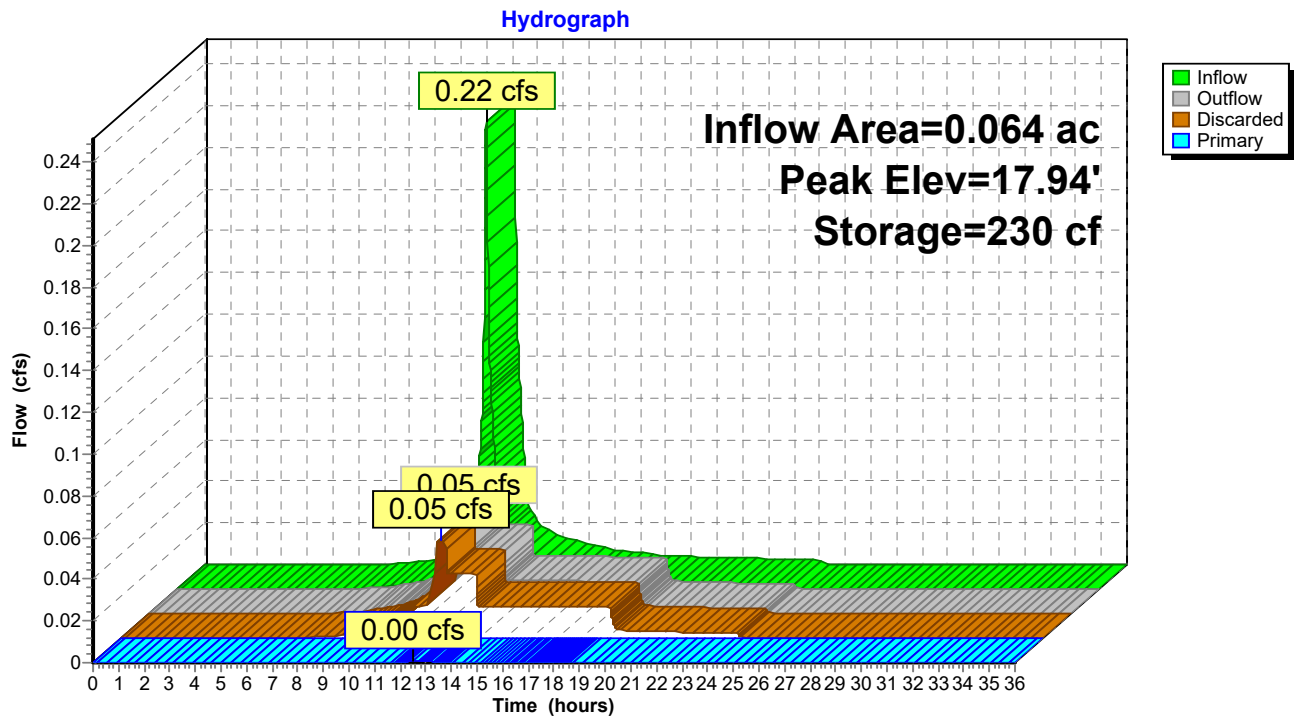
Primary OutFlow Max=0.00 cfs @ 12.50 hrs HW=17.94' (Free Discharge)

↳ **1=Culvert** (Passes 0.00 cfs of 1.45 cfs potential flow)

↳ **2=WQV** (Orifice Controls 0.00 cfs @ 8.72 fps)

↳ **3=Atrium Grate (High Flow Outlet)** (Controls 0.00 cfs)

Pond 2P: Rain Garden



Post_8-22-16

Type III 24-hr 25-year Rainfall=5.80"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: North Roof

Runoff Area=1,856 sf 67.89% Impervious Runoff Depth=3.31"

Tc=5.0 min CN=77 Runoff=0.17 cfs 0.012 af

Subcatchment2S: Central Roof & Sidewalks Runoff Area=2,776 sf 60.59% Impervious Runoff Depth=4.01"

Tc=5.0 min CN=84 Runoff=0.31 cfs 0.021 af

Subcatchment3S: Parking & South Roof Runoff Area=4,270 sf 81.97% Impervious Runoff Depth=4.87"

Tc=5.0 min CN=92 Runoff=0.55 cfs 0.040 af

Subcatchment4S: Frontage Runoff

Runoff Area=163 sf 0.00% Impervious Runoff Depth=1.12"

Tc=5.0 min CN=51 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St

Inflow=0.01 cfs 0.001 af

Outflow=0.01 cfs 0.001 af

Reach 2R: E Lancaster St

Inflow=0.55 cfs 0.040 af

Outflow=0.55 cfs 0.040 af

Reach 12R: Fox St

Inflow=0.55 cfs 0.041 af

Outflow=0.55 cfs 0.041 af

Pond 1P: Dripline BMP

Peak Elev=13.48' Storage=147 cf Inflow=0.17 cfs 0.012 af

Discarded=0.05 cfs 0.011 af Primary=0.00 cfs 0.001 af Outflow=0.05 cfs 0.012 af

Pond 2P: Rain Garden

Peak Elev=18.24' Storage=332 cf Inflow=0.31 cfs 0.021 af

Discarded=0.05 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.021 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.073 af Average Runoff Depth = 4.22"
28.94% Pervious = 0.060 ac 71.06% Impervious = 0.148 ac

Summary for Subcatchment 1S: North Roof

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 3.31"

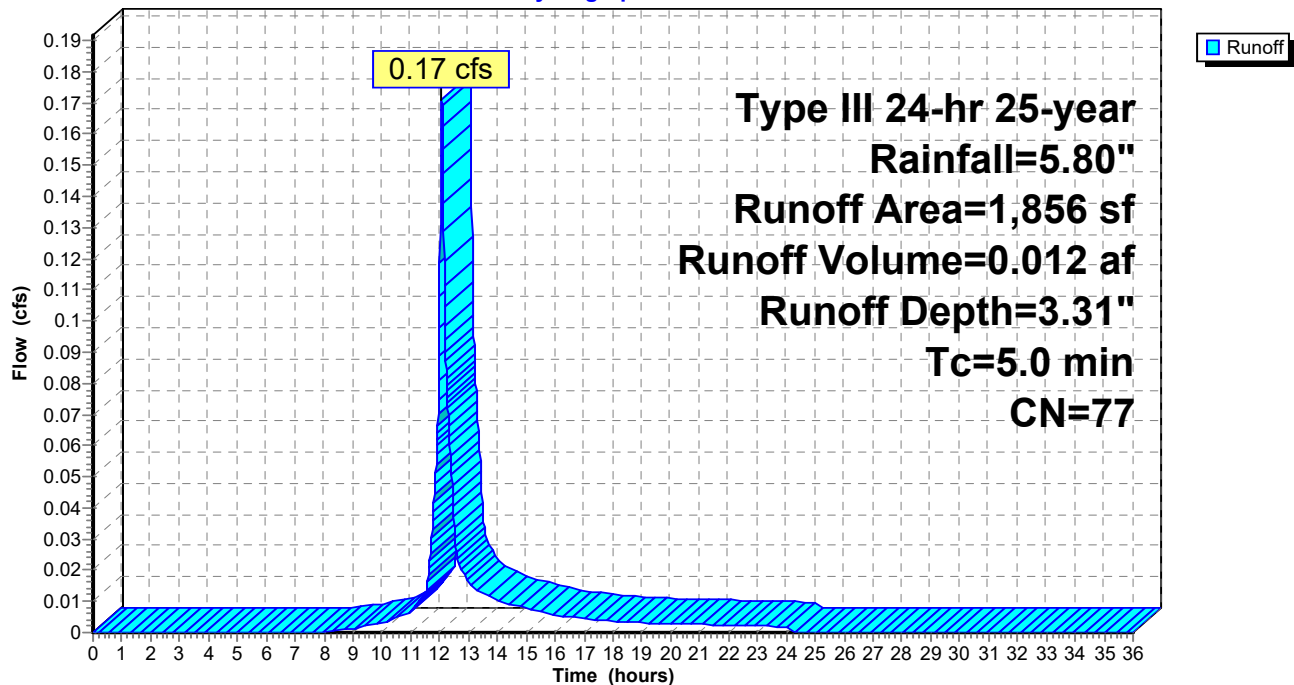
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,260	98	Roofs, HSG A
	596	32	Woods/grass comb., Good, HSG A
	1,856	77	Weighted Average
	596		Pervious Area
	1,260		Impervious Area

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

Subcatchment 1S: North Roof

Hydrograph



Summary for Subcatchment 2S: Central Roof & Sidewalks

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.021 af, Depth= 4.01"

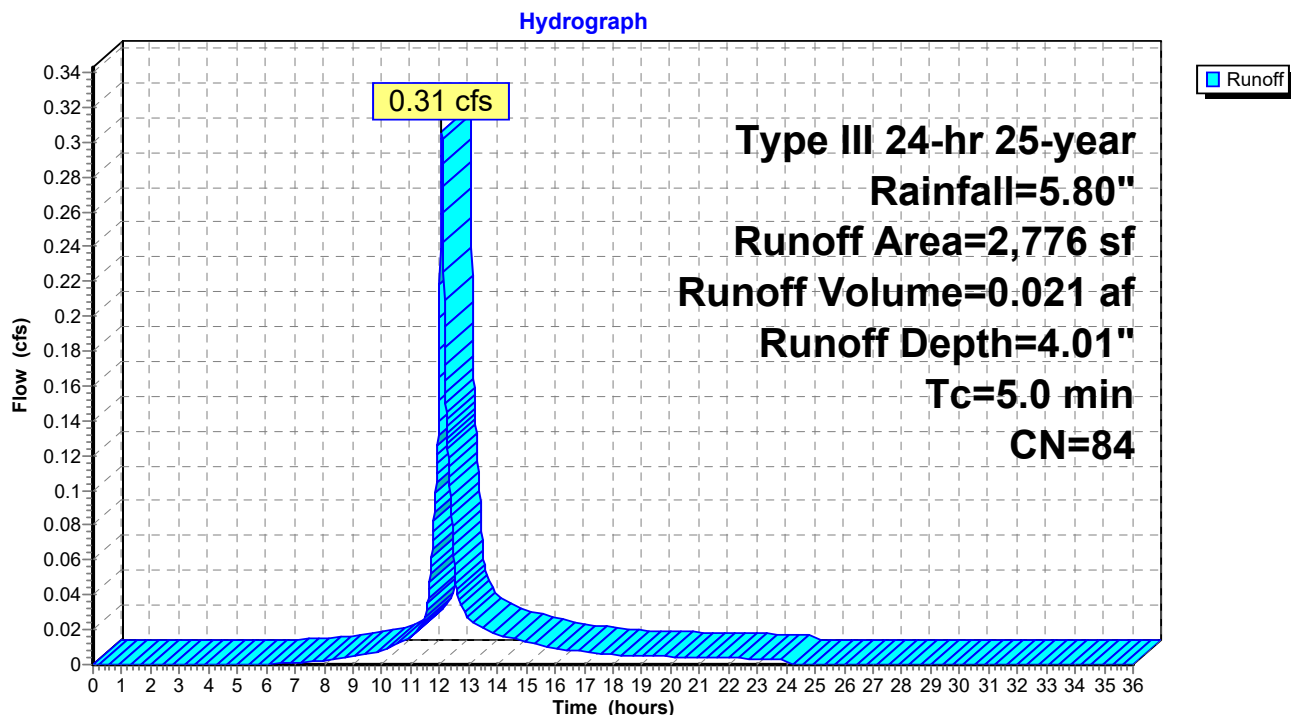
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG A
*	843	98	Roofs, HSG A
*	525	96	Brick Pavers, HSG A
	569	32	Woods/grass comb., Good, HSG A
	2,776	84	Weighted Average
	1,094		Pervious Area
	1,682		Impervious Area

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

Subcatchment 2S: Central Roof & Sidewalks



Summary for Subcatchment 3S: Parking & South Roof

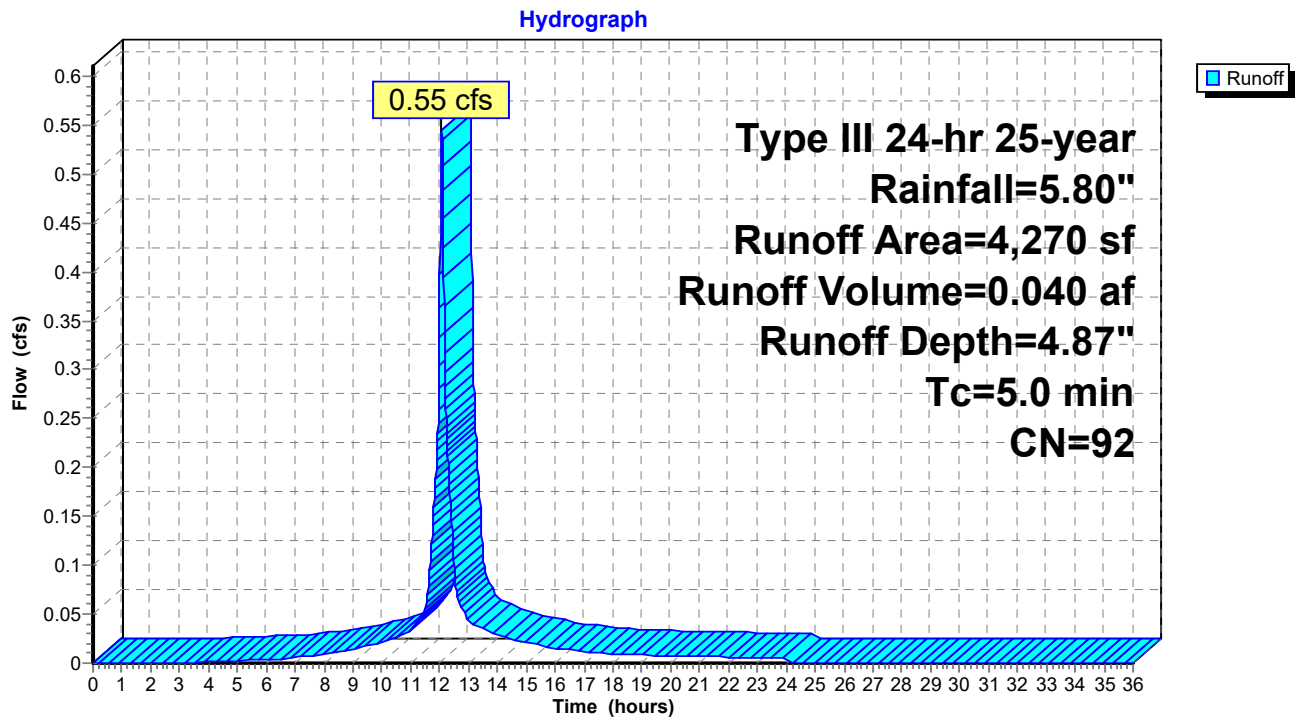
Runoff = 0.55 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,150	98	Paved Parking, HSG A
*	257	96	Brick Pavers, HSG A
*	1,270	98	Roofs, HSG A
	342	32	Woods/grass comb., Good, HSG A
*	171	77	Crushed Stone, HSG A
*	64	98	Concrete, HSG A
*	16	98	Transformer Top, HSG A
	4,270	92	Weighted Average
	770		Pervious Area
	3,500		Impervious Area

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

Subcatchment 3S: Parking & South Roof



Summary for Subcatchment 4S: Frontage Runoff

Runoff = 0.00 cfs @ 12.09 hrs, Volume= 0.000 af, Depth= 1.12"

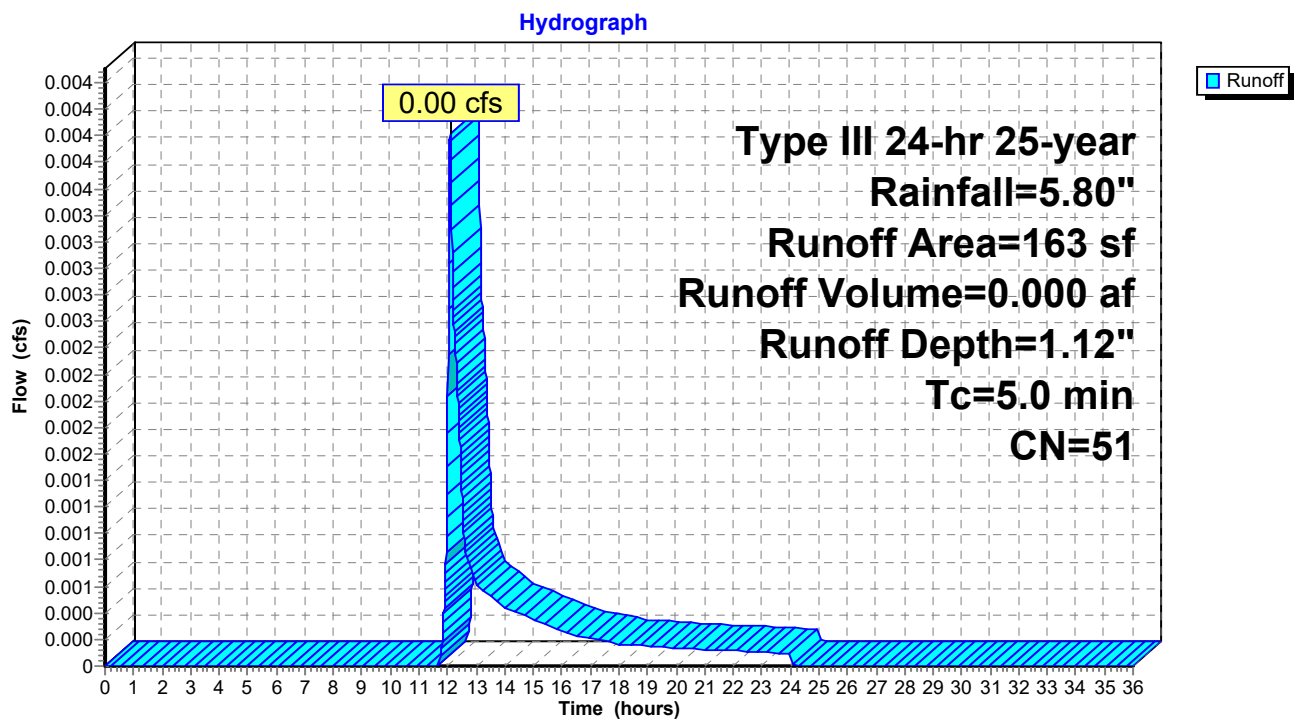
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	115	32	Woods/grass comb., Good, HSG A
	48	96	Brick Pavers, HSG A
	163	51	Weighted Average
	163		Pervious Area

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

Subcatchment 4S: Frontage Runoff

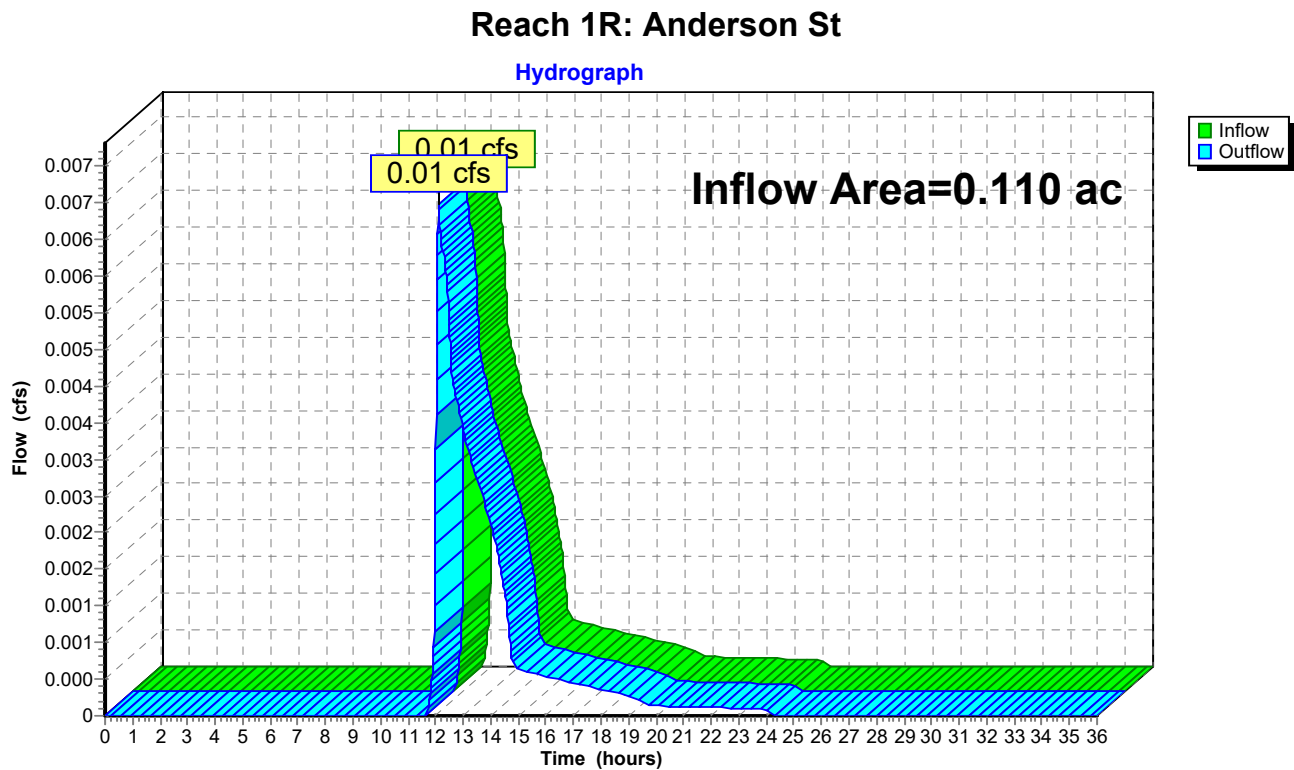


Summary for Reach 1R: Anderson St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.110 ac, 61.36% Impervious, Inflow Depth = 0.11" for 25-year event
Inflow = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af
Outflow = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Reach 2R: E Lancaster St

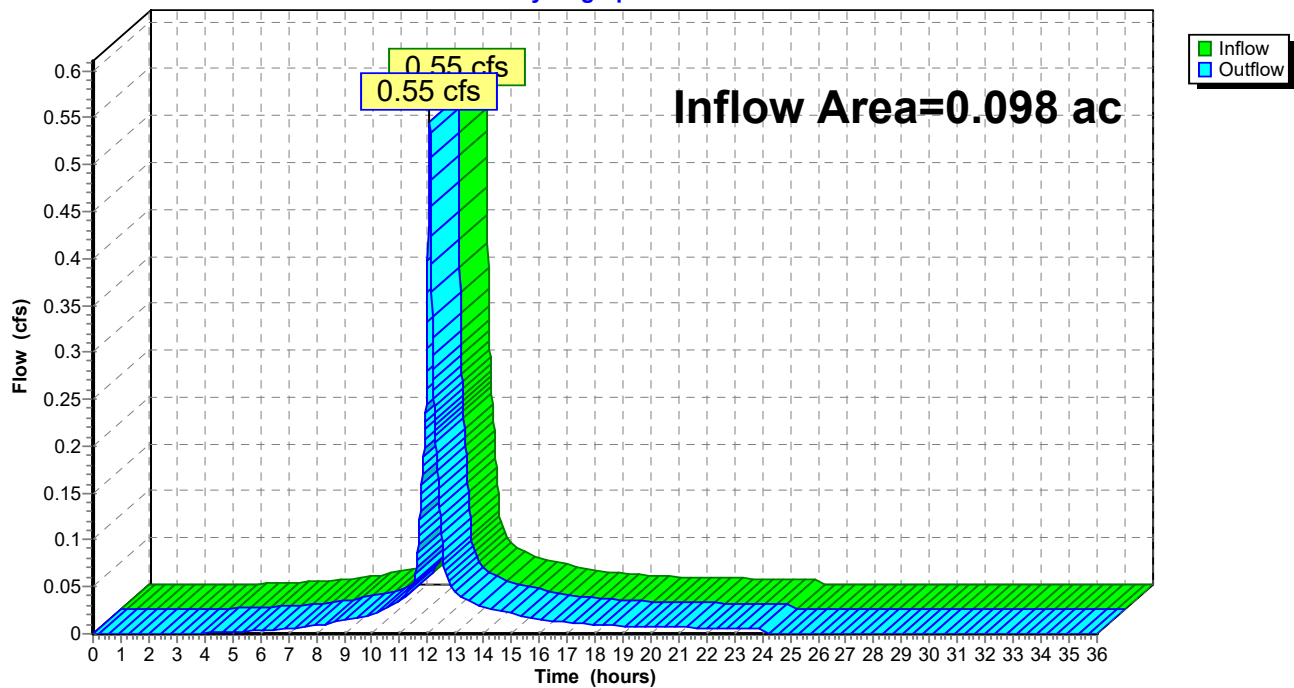
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.098 ac, 81.97% Impervious, Inflow Depth = 4.87" for 25-year event
Inflow = 0.55 cfs @ 12.07 hrs, Volume= 0.040 af
Outflow = 0.55 cfs @ 12.07 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: E Lancaster St

Hydrograph

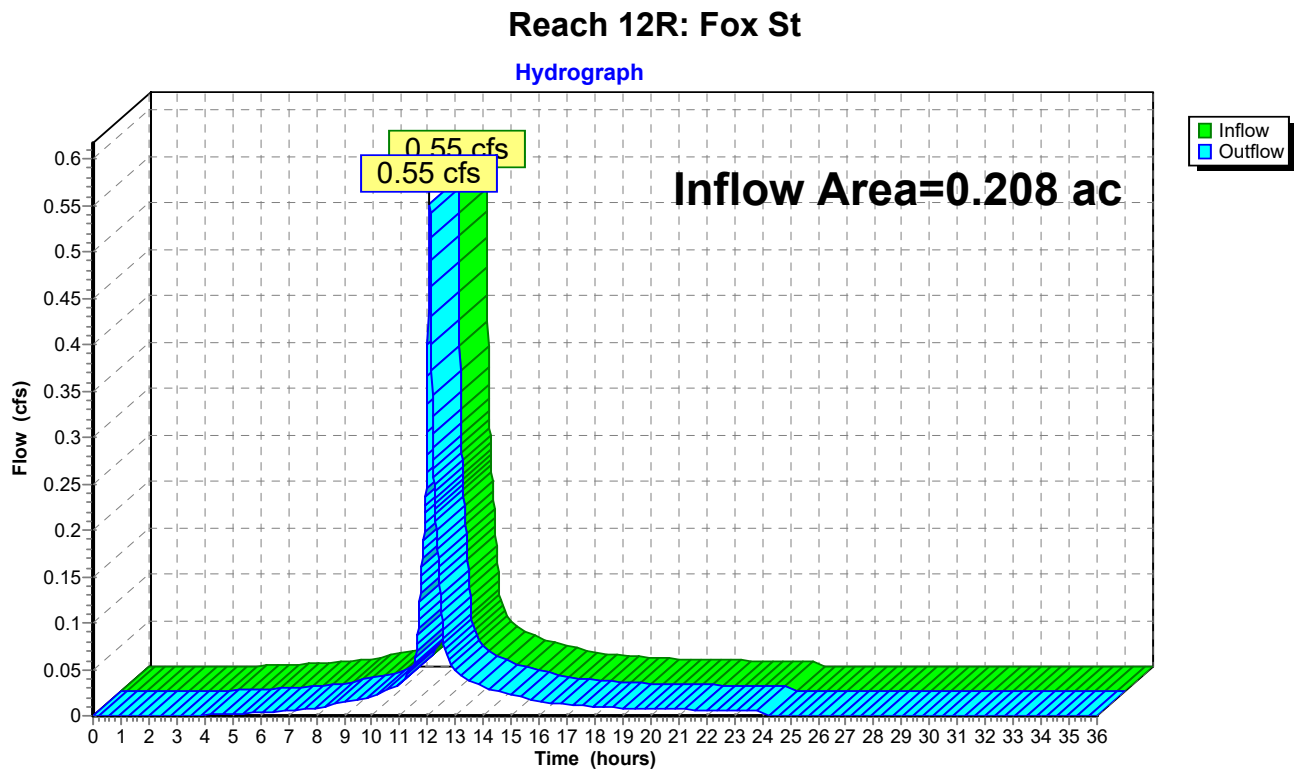


Summary for Reach 12R: Fox St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.208 ac, 71.06% Impervious, Inflow Depth = 2.36" for 25-year event
Inflow = 0.55 cfs @ 12.07 hrs, Volume= 0.041 af
Outflow = 0.55 cfs @ 12.07 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Dripline BMP

Inflow Area = 0.043 ac, 67.89% Impervious, Inflow Depth = 3.31" for 25-year event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.05 cfs @ 12.39 hrs, Volume= 0.012 af, Atten= 68%, Lag= 19.1 min
 Discarded = 0.05 cfs @ 12.39 hrs, Volume= 0.011 af
 Primary = 0.00 cfs @ 12.39 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 13.48' @ 12.39 hrs Surf.Area= 405 sf Storage= 147 cf

Plug-Flow detention time= 38.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 38.5 min (860.7 - 822.1)

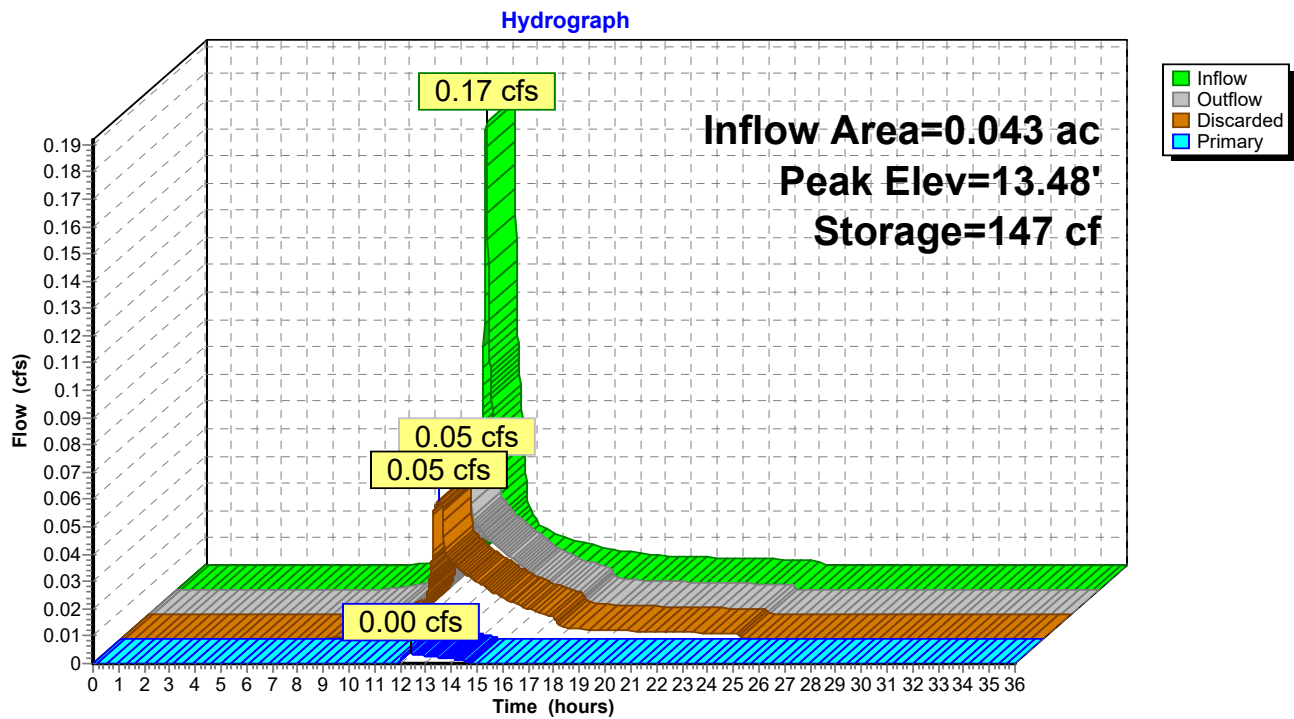
Volume	Invert	Avail.Storage	Storage Description
#1	14.08'	126 cf	3.00'W x 90.00'L x 1.17'H Prismaoid - Water Quality Volume 316 cf Overall x 40.0% Voids
#2	13.08'	27 cf	3.00'W x 90.00'L x 1.00'H Prismaoid - Soil Filter Media 270 cf Overall x 10.0% Voids
#3	11.75'	18 cf	6.0"D x 90.00'L 6" Pipe Storage S= 0.0025 '/' Inside #4
#4	10.75'	119 cf	1.50'W x 90.00'L x 2.33'H Prismaoid - Crushed Stone 315 cf Overall - 18 cf Embedded = 297 cf x 40.0% Voids
		290 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.53'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.40' S= 0.0026 '/' Cc= 0.900 n= 0.010
#2	Device 1	11.53'	1.0" Vert. Orifice/Grate X 0.10 C= 0.600
#3	Discarded	10.75'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.05 cfs @ 12.39 hrs HW=13.48' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 12.39 hrs HW=13.48' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.00 cfs of 0.98 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.66 fps)

Pond 1P: Dripline BMP



Summary for Pond 2P: Rain Garden

Inflow Area = 0.064 ac, 60.59% Impervious, Inflow Depth = 4.01" for 25-year event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.021 af
 Outflow = 0.05 cfs @ 12.53 hrs, Volume= 0.021 af, Atten= 83%, Lag= 27.5 min
 Discarded = 0.05 cfs @ 12.53 hrs, Volume= 0.021 af
 Primary = 0.00 cfs @ 12.53 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 18.24' @ 12.53 hrs Surf.Area= 938 sf Storage= 332 cf

Plug-Flow detention time= 82.1 min calculated for 0.021 af (100% of inflow)
 Center-of-Mass det. time= 82.1 min (885.9 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	17.90'	431 cf	Water Quality Volume (Prismatic) Listed below (Recalc)
#2	15.90'	55 cf	Loam/Soil/Gravel Filter Media (Prismatic) Listed below (Recalc)
			550 cf Overall x 10.0% Voids
#3	14.40'	165 cf	Crushed Stone (Prismatic) Listed below (Recalc)
			413 cf Overall x 40.0% Voids
		651 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.90	275	0	0
18.40	443	180	180
18.90	564	252	431

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.90	275	0	0
17.90	275	550	550

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.40	275	0	0
15.90	275	413	413

Device	Routing	Invert	Outlet Devices
#1	Primary	14.65'	6.0" x 50.0' long Culvert CMP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 11.51' S= 0.0628 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	14.65'	0.1" Vert. WQV C= 0.600
#3	Device 1	18.40'	6.0" Horiz. Atrium Grate (High Flow Outlet) X 2.00 Limited to weir flow C= 0.600
#4	Discarded	14.40'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 12.53 hrs HW=18.24' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.05 cfs)

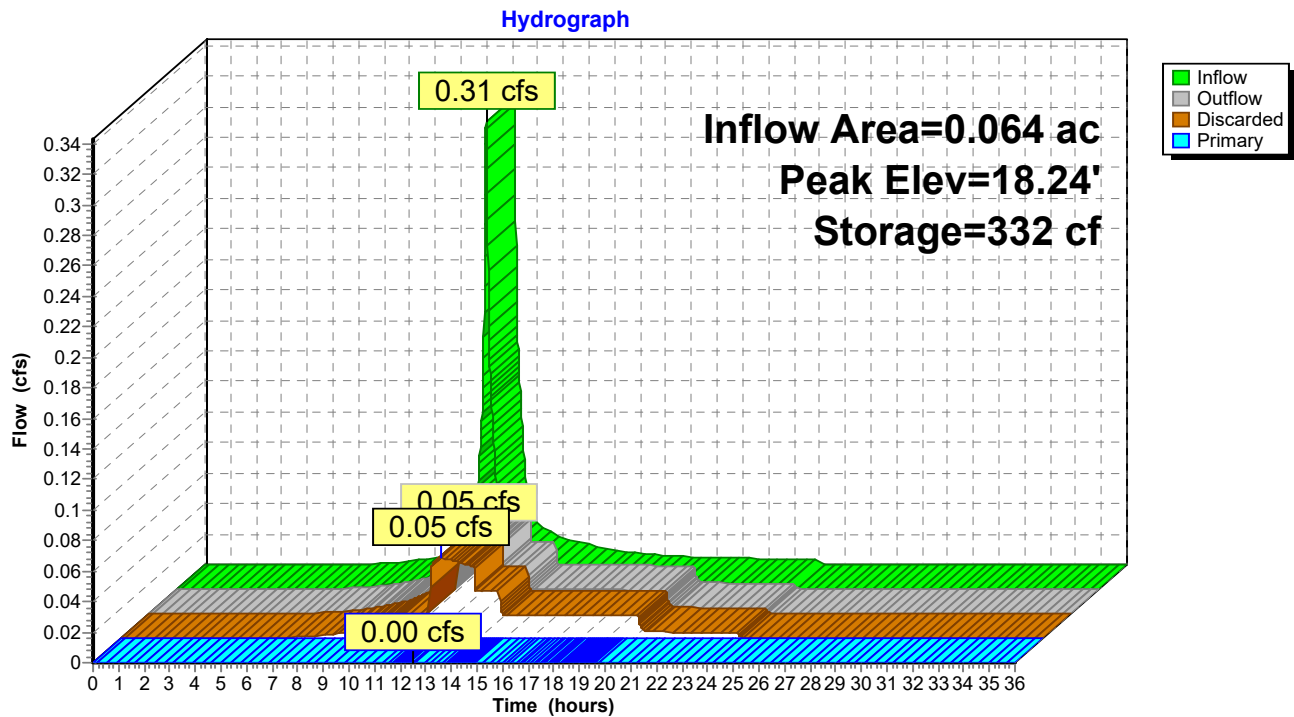
Primary OutFlow Max=0.00 cfs @ 12.53 hrs HW=18.24' (Free Discharge)

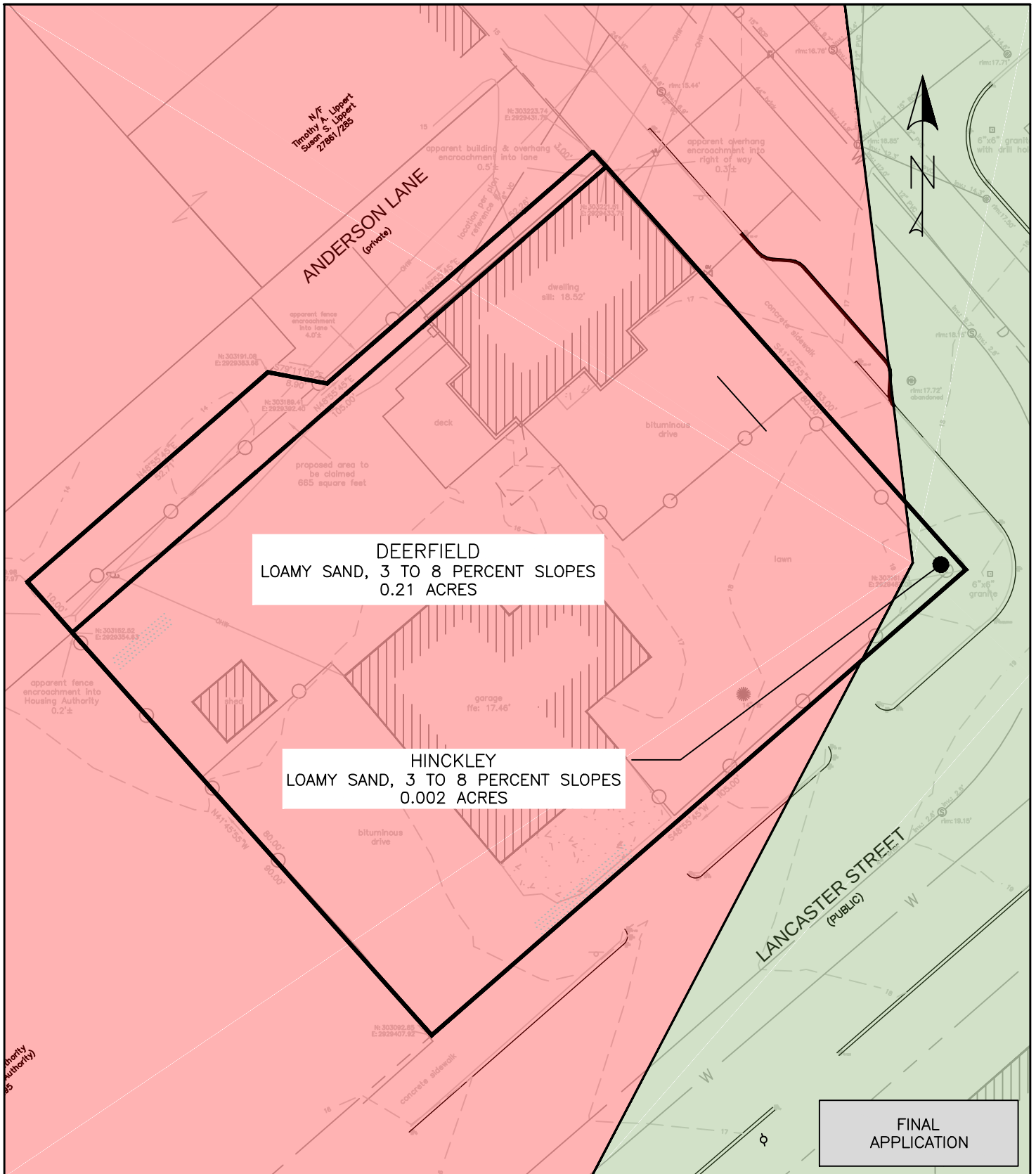
↳ **1=Culvert** (Passes 0.00 cfs of 1.52 cfs potential flow)

↳ **2=WQV** (Orifice Controls 0.00 cfs @ 9.11 fps)

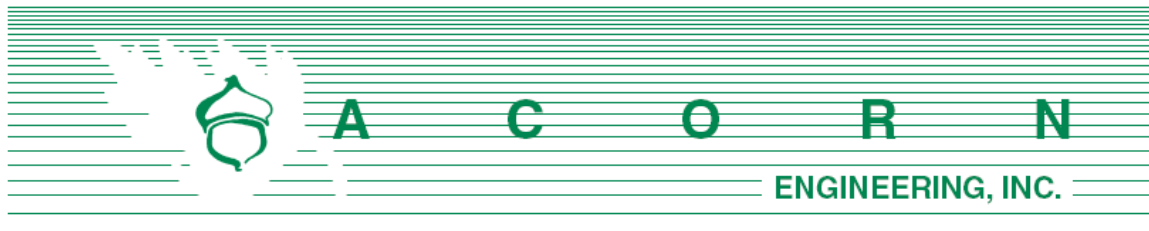
↳ **3=Atrium Grate (High Flow Outlet)** (Controls 0.00 cfs)

Pond 2P: Rain Garden





THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.	FILE: CIVL_1067 DATE: 4/22/16 JUN: 1067 SCALE: 1"=20' DESIGN BY: OJD DRAWN BY: OJD CHECKED BY: WHS	 ACORN ENGINEERING, INC. ACORN ENGINEERING, INC. P.O. BOX 3372 PORTLAND, MAINE 04104 (207) 775-2655	DRAWING NAME: SOILS MAP	ISSUED FOR PRELIM APP	BY DATE WHS 4/26/16
	DRAWING NO. SOILS		PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT		REV. DATE
			CLIENT: REDFERN PROPERTIES, LLC PORTLAND, ME 04104		



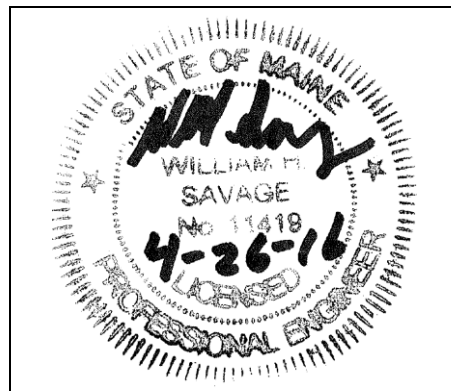
EROSION & SEDIMENTATION **CONTROL REPORT**

Prepared For:

**Redfern Properties, LLC
70 Anderson Redevelopment
70 Anderson Street
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102**



April 2016

INTRODUCTION

Acorn Engineering, Inc. has been retained by Redfern Properties, LLC to provide civil engineering services for the proposed redevelopment of 70 Anderson Street (1 East Lancaster Street). The proposed project is to develop an existing single family residence into ten townhouses.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended January 11, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2014.

1.0 EXISTING CONDITIONS

The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated January 14th, 2016.

Abutting Uses:

- | | | | |
|---|-------|----------|--------------------------|
| ➤ | North | R-6 Zone | Multi-Family Residential |
| ➤ | West | R-6 Zone | Multi-Family Residential |
| ➤ | South | R-6 Zone | Multi-Family Residential |
| ➤ | East | R-6 Zone | Multi-Family Residential |

The property is also near a recreation open space, Kennedy Park (Cunningham Playground), that is due west of the property.

About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Street (a portion of the East Lancaster driveway is concrete), a 1.5 story dwelling, a detached garage, and covered shed. The remaining surface is a grassy lawn. The site as a whole is relatively flat with an average grade of approximately 3%.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Given the soils information, listed above, no onsite wastewater is proposed, the applicant does not intend to perform a more intense hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/12 are met.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 3 - "K" Value		
Soils Type	Subsurface	Substratum
Deerfield	0.17	0.17
Hinckley	0.17	0.17

The soil "K" values for the soils, listed above, show a low susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance, given the long sustained slopes.

1.2 Existing Erosion Problems

There are no existing erosion control issues.

1.3 Critical Areas

Critical areas that would require special attention during construction are the areas adjacent to the municipal stormwater system. This includes, but is not limited to, the catch basins located at the corner of Madison and Anderson Street and at Anderson and East Lancaster.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures



The following temporary erosion and sedimentation control measures are planned for the project's construction period:

- 2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:
 - Stone size shall be 2-3 inches, or reclaimed or recycled concrete equivalent.
 - The thickness of the entrance stone layer shall be no less than 6 inches.
 - The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
 - Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
 - The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public road ways.
- 2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.
- 2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.
- 2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.
- 2.1.5 O'Brien Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.
- 2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.



- 2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14 gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be “toed” into the ground.
- 2.1.8 Stormdrain inlet protection shall be provided to stormdrains through the use of any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached $\frac{1}{2}$ the design height.
- 2.1.9 Dust control shall be accomplished by the use of any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7 day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.
- 2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.
- 2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

- 2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4” of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.
- 2.2.2 All stormwater devices shall be installed and tributary areas stabilized prior receiving stormwater.
- 2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

- 3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

- 4.1 Erosion Control Details and Specifications are included in the plan set.



5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4 inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and



either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs



per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a “storm event”. A “storm event” shall consist 0.5 inches of rain within a 24 hour period. The following Erosion and Sediment Control - Best Management Practices (BMP’s) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Stabilized Stone Construction Entrances



The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.





7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence installation of drainage infrastructure.
5. Prioritize the downhill foundation walls to contain runoff within the site while providing an engineered outlet with siltation barrier to the municipal stormwater system within O'Brion.
6. Commence earthwork operations, wall and foundation installation.
7. Commence installation of utilities.
8. Continue earthwork and grading to subgrade as necessary for construction.
9. Complete installation of drainage infrastructure, as well as other utility work.
10. Complete remaining earthwork operations.
11. Install sub-base and base gravels in paved areas.
12. Install paving, curbing and brickwork.
13. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
14. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete remove all temporary erosion control measures.
15. Touch up areas without a vigorous catch of grass with loam and seed.
16. Complete site signage and striping.
17. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.



9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan



TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.



PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.





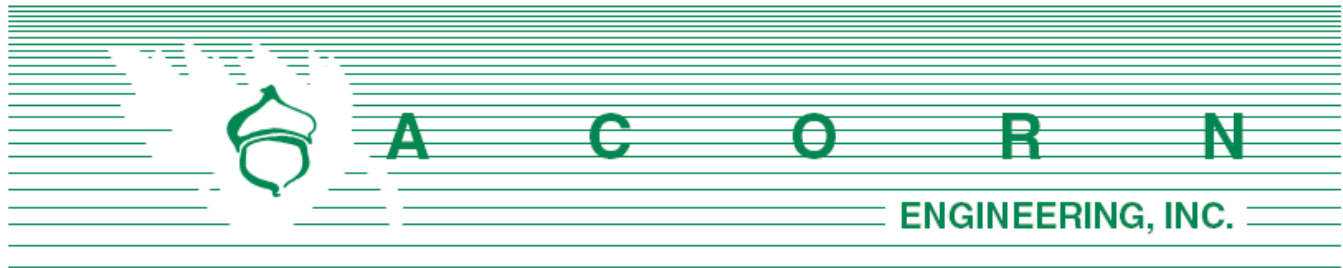
**PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST**



A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review.

1. Name, address, telephone number of applicant
- 2.
3. Name address, telephone number of architect
4. Proposed uses of any structures [NFPA and IBC classification]
- 5.
6. Square footage of all structures [total and per story]
7. Elevation of all structures
8. Proposed fire protection of all structures
 - **As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)**
9. Hydrant locations
10. Water main[s] size and location
11. Access to all structures [min. 2 sides]
12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1



Assistant Chief Keith Gautreau
City of Portland Fire Department
380 Congress St.
Portland, ME 04101

April 26th, 2016

Subject: 70 Anderson St. Site Review – Fire Department Checklist
Section 8 of Application

On behalf of Redfern Properties, LLC the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant

Redfern Properties, LLC
P.O. Box 8816
Portland, Maine 04104
(207) 776-9715

2. Name address, telephone number of architect

Ryan Senatore Architects
565 Congress St., Suite 304
Portland, Maine 04101

Proposed uses of any structures [NFPA and IBC classification]

The Code Analysis will be provided under separate cover by Ryan Senatore Architecture.

3. Square footage of all structures [total and per story]

1 st Floor	4211	sf
2 nd Floor	4211	sf
3 rd Floor	4211	sf
Total	12,633	sf

4. Elevation of all structures

The average building height is less than 45 feet at three stories tall for each unit (10). See the attached elevations provide by the Architect for additional information.

5. 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 professional design which will be performed prior the request for a building permit.

6. Hydrant locations

An existing hydrant is located at the corner of East Lancaster and Anderson Street. The hydrant is located approximately 40 ft. from the nearest building edge. Hydrant flow data from the Portland Water District once received may be made available to the Fire Department upon request.

7. Water main size and location

The development will be serviced by the existing water main within East Lancaster Street. A 4" fire service line will extend from the existing water main to the building fire suppression system. The building is expected to have an internal sprinkler risers and a Fire Department pump connection on the street side of the building.

8. Access to all structures [min. 2 sides]

Access to the structure is provided on Anderson and East Lancaster Street as well as internally within the site using the paved, bituminous driveway and parking lot.

9. The Architect will provide a code summary 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 densely developed area and is fronted by a public street. The following street widths are currently available:

- Anderson Street: 32 ft.
- East Lancaster Street: 32 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.

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).

Response: 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.



Response: As depicted on the site plan, the proposed building layout provides a minimum of two paved access points to the structure: one from either East Lancaster or Anderson Street and internally from the parking lot.

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.*

Response: 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.

Response: The building will be provided with exterior doors that will be within 50' of a Fire Department access route, namely Anderson Street.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Response: Not applicable; no covered driveway proposed.

3.4.6. Elevators shall be sized to accommodate an 80 x 24-inch stretcher.

Response: Not applicable; no proposed elevators.

3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.

Response: The applicant will work with the City's Public Services Division to assign street addresses and numbering to meet City Standards.

Please let me know if you have any additional questions or comments.

Sincerely,



William H. Savage, P.E.
Principal
Acorn Engineering, Inc.

7. Solid Waste Disposal

Per City requirement, all solid waste generated by the ten residential units will be collected by a private, authorized collector and not collected by the city. The ten unit owners, or their property management company shall be responsible for relocating the solid waste and recyclable material to the space allocated for solid waste storage as necessary and noted on the Site Plan (C-10).

The solid waste containers will be fully enclosed and screened from the public view.



6. Utilities

The proposed project will include installation of new utility services to the buildings and individual units.

As identified in the Existing Conditions Plan, the site has existing overhead services that connect to the front and rear of the property with one line spanning directly over the lot; this overhead utility will be rerouted underground as part of the project and the existing pole on subject property will be removed. There is also an existing gas valve and outdated service to the single family residence that will be abandoned; there is currently no gas planned for this project.

Ability to serve letters have been sent out to the respectively utility companies in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use, Section 14-527(g)(7). Please refer to the attached responses. Pending responses will be forwarded to the planner once received.





Central Maine Power

162 Canco Road, Portland, Maine 04103

1-800-750-4000

March 31, 2016

Acorn Engineering Inc.
C/O Ms. Oliva Dawson
PO Box 3372
Portland, Maine 04104-3372

RE: Electric Service, 70 Anderson Street, Portland, Maine

Dear Ms. Dawson,

This letter is to advise you Central Maine Power has sufficient single phase electrical capacity in the area to serve the subject project.

Once the project is accepted by the City of Portland, the owner will need to call our Customer Service Center at 1-800-565-3181 to sign up for a New Account and a Work Request Order so we may start a cost estimate.

Please provide to CMP what size service and voltage the Customer will be requiring in order to get the needed information for costs and easements possibilities.

If you have any questions please feel free to call me at 828-2882.

Sincerely,

Paul DuPerre
Energy Service Specialist



5 Davis Farm Rd
Portland, ME 04103
207- 797-1866 office
207- 797-1098 fax

March 25, 2016

To Whom It May Concern:

This letter is to inform that FairPoint Communications has the capacity and willingness to serve the proposed residential 10 unit building to be located on an existing lot at 70 Anderson St in Portland. FairPoint currently has aerial facilities on a pole across the street from the proposed building. FairPoint would require underground conduit from the existing pole to the new building for future service. Please do not hesitate to contact me with any questions.

Sincerely,

Scott Derrig

FairPoint Outside Plant Engineer

207-797-1866



Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

May 9, 2016

Acorn Engineering, Inc.
PO Box 3372
Portland, ME 04104

Attn: Olivia Dawson
Re: 70 Anderson Street - Portland
Ability to Serve with PWD Water

Dear Ms. Dawson:

The Portland Water District has received your request for an Ability to Serve determination for the noted site submitted on March 25, 2016. 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.

Conditions of Service

The following conditions of service apply:

- New 2-inch domestic and 4-inch fire services may be tapped off the 8-inch water main in Lancaster Street as shown on a plan entitled Utility Plan, 70 Anderson Street, Sheet C-20 as revised 5/3/16.
- Based on the fixture count you provided, we have calculated the peak flow for the domestic service to be 47 gallons per minute. We will require an 1-1/2" OMNI C2 meter for this service.
- The existing 3/4-inch service line will need to be terminated at the main by shutting the corporation and cutting the copper.
- Once the project is ready for construction, the owner or contractor will need to make an appointment to come in and complete a service application form and pay the necessary fees.

Existing Site Service

According to District records, the project site does currently have existing water service. A 3/4-inch diameter copper 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 an 12-inch diameter ductile iron water main on the northeast side of Anderson Street, an 8-inch cast iron main on the southeast side of East Lancaster Street and a public fire



hydrant located across from the site. Recent flow data is not available in this area. The most recent static pressure reading was 102 psi on August 14, 2015.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

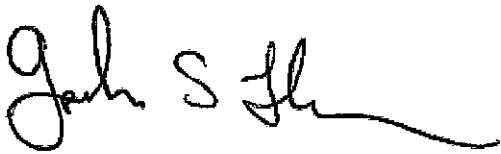
The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have not indicated whether this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Should private fire protection be required, 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 MEANS to request a hydrant flow test and we will work with you to get more complete data.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

A handwritten signature in black ink, appearing to read "Gordon S. Johnson", with a long horizontal flourish extending to the right.

Gordon S. Johnson
Engineering Services Manager

William Savage

From: Pelletier, Mark <mark.pelletier@twcable.com>
Sent: Monday, March 28, 2016 8:53 AM
To: Olivia Dawson
Subject: RE: Ability to Serve Request: 70 Anderson Street Redevelopment

Olivia,

Time Warner Cable can provide all TWC services to this new MDU bldg.. We have existing cable and fiber plant on pole line on Anderson St.

We will require 1- 4inch schedule 40 conduit from riser pole to utility room. Both ends of conduit to swept up above grade. 1 against base of pole and 1 into utility room.

Please keep me in the loop to construction start times etc.

Mark

*Mark Pelletier
Construction Project Coordinator 4
Time Warner Cable
118 Johnson Rd
Portland Me 04102
207-253-2324
mark.pelletier@twcable.com*

From: Olivia Dawson [mailto:odawson@acorn-engineering.com]
Sent: Friday, March 25, 2016 9:53 AM
To: Pelletier, Mark <mark.pelletier@twcable.com>
Subject: Ability to Serve Request: 70 Anderson Street Redevelopment

Good Morning,

Acorn Engineering, Inc., on behalf of Redfern Properties, LLC, is sending a formal Ability to Serve letter to your office for the proposed development of 70 Anderson Street in Portland, Maine.

Attached is the Ability to Serve Letter, preliminary Utility Plan, and an existing conditions survey as completed by Titcomb Associates.

Please do not hesitate to contact myself or our office with any questions or clarifications.

Thanks!

Olivia Dawson
Engineer
*Registered E.I. in Maine
Registered E.I.T in New York*

Acorn Engineering, Inc
PO Box 3372
Portland, Maine 04104
www.acorn-engineering.com

C: 585.797.8780
B. 207.775.2655
F. 207.358.7979

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March 28, 2016

Acorn Engineering
Attn: Olivia Dawson
Po Box 3372
Portland Maine 04104

Subject: 70 Anderson Street, Portland Maine
Re: Ability to Serve

Dear Miss. Dawson:

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that natural gas can be made available from our distribution system to serve your proposed mixed use redevelopment project.

There is an existing ½ plastic gas service to the existing building that will need to be cut off prior to construction. Any improvements to the existing distribution system necessary to provide this service, as well as the design of the gas system in the project itself will be established as the overall design and scope of your project progresses.

All work necessary to provide service will be performed in accordance with the Maine Public Utilities Commission requirements.

ME GAS CUSTOMER ENERGY SOLUTIONS
376 Riverside Industrial Parkway
Portland, ME 04103



If you have any further questions or require additional information, please contact me directly at (207) 541-2536 or at Harmon@unitil.com.

Sincerely,
Bridget L. Harmon
Business Development Representative
Unitil Corporation
(o) 207-541-2536 (f) 207-541-2586

ME GAS CUSTOMER ENERGY SOLUTIONS
376 Riverside Industrial Parkway
Portland, ME 04103

3. Construction Management Plan

Project Address: 70 Anderson Street

Project Description:

The proposed project is a residential 10-unit redevelopment of a single family residence. The site is currently occupied by a 1.5 story home, detached garage, and small shed. The proposed site is to be redeveloped using access via the proposed driveway on East Lancaster Street.

Project Team Summary:

Owner:	Redfern Properties, LLC
General Contractor:	To Be Determined
Civil Engineer:	Acorn Engineering, Inc.
Architect:	Ryan Senatore Architecture
Structural Engineer:	Structural Integrity
Landscape Architect:	Soren Denoird Design Studio

Timeline and Schedule:

Projected Start Date:	Fall 2016
Project Duration:	Approximately One Year
Projected Completion:	Summer 2017
Street Interruption:	During the installation of utilities within the street.
Sidewalk Interruption:	During the installation of utilities and foundation wall construction.

Emergency Contact: Jonathan Culley
(207) 776-9715

Estimated Work Hours:	7:00 am to 5:00 pm
Delivery Truck Access:	Contact Jonathan Culley or the owner's representative to coordinate.
Worker Parking:	On the street.

Redfern Properties, LLC and their contractor will work with the City of Portland, and adjacent landowners to minimize any project impacts.

The contractor will remain solely and completely responsible for enforcement of and compliance with 1) all contract plans and specifications and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case both by the contractor and its subcontractors. These include all OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. The General Contractor will remain responsible for safeguarding the general public.

Refer to the Civil/ Site Plan Set, Sheet C-03 Demolition, Erosion Control, & Construction Management Plan, for visual representation of the measures to be taken during construction.



April 25, 2016

Nell Donaldson
Planner
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: 70 Anderson Street - Design Narrative

The proposed buildings to be located at the corner of East Lancaster and Anderson Streets in Portland's East Bayside Neighborhood consist of a 10 unit townhouse style apartments. these apartments are within two buildings on the site, a 4 unit building and a six unit building.

Prior to developing the building concept we spent much time walking the streets of East Bayside, taking photos, analyzing existing streetscapes, existing development densities, building massing, forms, materials and textures. This approach allowed us to develop a design concept that is grounded by the existing neighborhood context but reflects our contemporary time.

The neighborhood is comprised of a diverse palate of Architectural forms, scales and density. We noted that the predominant residential form is that of a multi-story structure with a gable roof form. We designed 70 Anderson to reflect this vernacular massing predominant in the neighborhood, the streetscape along Anderson Street has two Gables facing the street. The facade on East Lancaster is the longer elevation which we designed to clearly reflect the use within, a townhouse. Portland has a history of townhouse development, these are buildings that use a rhythm of fenestration color and details to demark the different units in typically a playful manner. We designed 70 Anderson by using color and texture to scale and define the residential units, each unit per building has its unique color defining unit boundaries. We also recognize the importance of the units having defined entrances facing the street, we have provided entry doors and projecting canopies both along East Lancaster and Anderson Streets to engage the sidewalk and

207-650-6414

senatorearchitecture.com

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enhance the streetscape. The buildings are placed close to the street similar to the historic building placement of the neighborhood.

Building Scale is a very important in this neighborhood, we have utilized color (as described above) as well as texture and massing to scale the buildings to fit in with their surroundings. We opted to break the project into two buildings to scale them down to a more typical building width found within the neighborhood. We have used differing siding exposures on the facades to help define the first floor from the second and third floor above, this siding texture changes is trimmed by a horizontal trim band between the two. We have added a substantial fascia trim detail to cap the buildings and transition from the third floor to the roof above.

The siding materials proposed are factory finished composite lap siding chosen for its traditional crisp appearance and long term durability. The windows proposed are dark in color to enhance the contrast to the siding color and also further reinforce the crisp simplicity of the design. The roofing proposed is an Architectural asphalt shingle dark in color similar to many roofs found throughout the neighborhood.

70 Anderson is an urban infill project that will help define the city block it is located on. The design of the building is derived from the Vernacular Architecture that exists in the neighborhood, we have used color, texture, massing and rhythm as tools to scale the project and integrate it into the existing neighborhood fabric.

We look forward to discussing the project at the upcoming Planning Board workshop.

Sincerely,



Ryan Senatore, AIA LEED AP

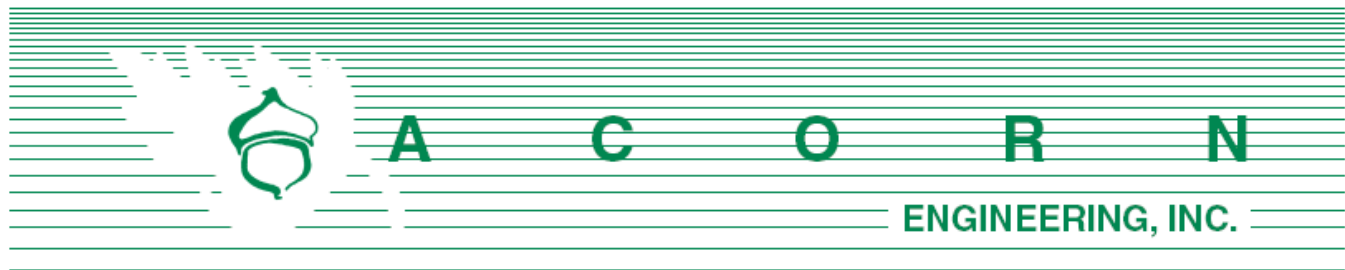
Principal

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Planning and Urban Development Department
Planning Division and Housing and Community Development
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

June 28th, 2016

Subject: Conditional Use for Ensuring Workforce Housing Inclusionary Zoning
Planning Board Review
Redevelopment of 70 Anderson Street - Portland, Maine

Dear Tyler Norod,

Redfern Properties, LLC is pleased to submit the accompanying package of submission materials related to the proposed 10-unit townhouse urban infill redevelopment of 70 Anderson Street and its compliance with the standards set by the Workforce Housing Inclusionary Zoning. Per requirement, the development will include one workforce housing unit for rent in accordance with Division 30, Affordable Housing of the Land Use Ordinance.

This submission package is intended to meet the City's Inclusionary Zoning Submission Requirements as outlined in the Planning Board Review Application. The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. The lot is currently occupied by a single story home with a detached garage and shed and is proposed to be redeveloped into townhouses classified as ten "attached single-family" residences. The development site is located within the City's R-6 Zoning District, and complies with the permitted uses within the zone.

All ten townhouses are three-bedroom, 1,254 square foot units with identical interior standards; the proposed workforce unit does not differ in size or standard from the market-rate units. The market strategy for the workforce unit will also mimic the strategy of the market-rate units and is proposed to be approached in the same fashion.

Accompanying this cover letter are the following materials:

- Site Plan Application
- Section 1: Title, Right and Interest
- Section 2: Conformity with Conditional Use Standards
- Section 3: Floor Plans and Interior Standards

Redfern Properties LLC and the design team look forward to your review of this project. The applicant is currently working with their lawyer to create a Draft Workforce Housing Agreement; the draft will be submitted under a separate cover. Please find one (1) hard copy of the application materials including one set each of 11x17 and full size plans, along with a CD containing PDF files

for all submitted materials. If you have any questions regarding these materials or the completeness of the application materials, please contact us within the next five (5) days.

Sincerely,



William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.





Conditional Use for Ensuring Workforce Housing Inclusionary Zoning Planning Board Review Application Portland, Maine

Planning and Urban Development Department
Planning Division and Housing and Community Development

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 Conditional Use review of applications to ensure workforce housing in development projects that create ten or more new dwelling units. The units may be for rent or for sale and created through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a non-residential use to residential use, or any combination of these elements. At least ten percent (10%) of the units in the project shall meet the definition of workforce housing unit for sale or rent. All developments of ten units or more a conditional uses subject to Planning Board review on the condition that they comply with the requirements of section 14-487.

A. Ensuring Workforce Housing: Standards -Section 14-484

(d) Workforce Housing Minimum At least ten percent (10%) of the units in the project shall meet the definition of workforce housing unit for sale or for rent. The number of units required is rounded down to a whole number if providing units on- or off-site, or shall include a fractional value in cases where a project prefers to pay a fee-in-lieu as per (e)3. below.

(e) Standards

1. Projects shall not be segmented or phased to avoid compliance with these provisions. In cases where projects are completed in phases, affordable units shall be provided in proportion to the development of market rate units unless otherwise permitted through regulations.
2. Workforce units are encouraged to be integrated with the rest of the development, should use a common entrance and should provide no indications from common areas that these units are workforce housing units.
3. Workforce units need not be the same size as other units in the development but the number of bedrooms in such units, either on- or off-site, shall be 10 percent of the total number of bedrooms in the development. For the purposes of this section, for every 400 square feet in a market rate unit will count as a bedroom if the actual number of bedrooms in the unit is lower.
4. As an alternative to providing workforce housing units, projects may pay a fee in lieu of some or all of the units. In-lieu fees shall be paid into the Housing Trust Fund as defined in Sec. 14-489. The fee for affordable units not provided shall be \$100,000 per unit, adjusted annually in the same way as the fee under Division 29 for Housing Replacement.
5. Workforce housing units for sale, if converted to workforce housing units for rent, shall become subject to the income limits and other requirements of such units.
6. If at least 33 percent of the units in a development are workforce units, the development is eligible for subsidy through an Affordable Housing TIF, subject to City Council approval.

7. The term of affordability for the required 10 percent workforce units provided shall be defined as follows:

Percentage of Workforce Units Provided	Minimum Term of Affordability for Required Workforce Units
10%	Longest term permitted under federal, state and local laws and ordinances
25%	30 years
50%	20 years
100%	10 years

(f) Implementing Regulations. Regulations to further specify the details of this section shall be developed, including, but not limited to:

1. Specific methodology for income verification;
2. Situations where less than permanent affordability might be considered; and
3. Guidelines for meeting the requirement that off-site units be "in the same neighborhood".

B. Site Plan Application: Please submit the Conditional Use Application in addition to the applicable Site Plan Application.

PROJECT NAME: 70 Anderson Street Redevelopment

PROPOSED DEVELOPMENT ADDRESS: 70 Anderson Street Portland, Maine 04101

ASSESSOR'S CHART/BLOCK/LOT (s): 023-B-021 **Applicable Zone:** R-6

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Jonathan Culley Redfern Properties, LLC Business Name, if applicable: Address: P.O. Box 8816 Portland, ME 04104 City/State : Zip Code:	Applicant Contact Information Work # (207)776-9715 Home# Cell # Fax# e-mail: jonathan@redfernproperties.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Billing Information Name: (See Applicant Information) Address: City/State : Zip Code:	Billing Information Work # Cell # Fax# e-mail:

RIGHT, TITLE OR INTEREST: (See attached)

(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.)

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

Subject property is currently occupied by a single family, single level home and detached garage and shed.

PROJECT DESCRIPTION:

The proposed project is to redevelop the lot into ten townhouses forming two separate buildings with on-site parking in the rear.

INCLUSIONARY ZONING:	
# IZ Units	1
On-Site IZ Units	1
Off-Site IZ Units	
# IZ Homeownership Units	
# IZ Rental Units	
# IZ Efficiencies	
# IZ 1-Beds	
# IZ 2-Beds	
# IZ 3-Beds	
IZ Fee In-Lieu	

APPLICATION FEES:

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

___ Conditional Use Review to Ensure Workforce Housing (\$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 thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at <http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal>
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 Building Inspections Office to start the review process.

Applicant Checklist	Planner Checklist	# of Copies	Written Submissions Checklist
X		1	Application form that is completed and signed.
X		1	Cover letter stating the nature of the project.
X		1	Evidence of right, title and interest.
X		1	Written Submittals that address the conditional use standards of Sec. 14-484, including unit size and bedroom count
*		1	Draft Workforce Housing Agreement
X		1	Proposed Marketing Strategy
N/A		1	Written Proposal for providing workforce units on-site, off-site, or payment of fee-in-lieu.
N/A		1	If the project is to be phased, provide written description of project phasing and accommodation of workforce units.
Plans and Construction Details Submission Checklist			
X		1	An accompanying site plan application, as applicable.
X		1	Floor Plans of all units and identifying proposed designated workforce housing units
X		1	Interior Standards for Units for market rate and workforce housing units, including kitchen, bathroom, flooring and closet amenities
N/A		1	If workforce units are proposed off-site, provide vicinity map with project location and workforce unit locations within the applicable census block group map or within 1500 feet of the project.

The Conditional Use Application to Ensure Workforce Housing must be complete, including but not limited to the contact information, project data, application checklist, 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:

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>AGENT</i> <i>W.M. Dwyer</i>	Date: <i>6/28/16</i>
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*Draft Workforce Housing Agreement to be submitted by the applicant under separate cover

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: <http://me-portland.civicplus.com/DocumentCenter/Home/View/1080>

Design Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2355>

Technical Manual: <http://me-portland.civicplus.com/DocumentCenter/View/2356>

Planning Division

Fourth Floor, City Hall
389 Congress Street
(207) 874-8719

Housing and Community Development

Room 313, Third Floor, City Hall
389 Congress Street
(207) 482-5028

Office Hours

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

2. Conformity with Conditional Use Standards

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-487.

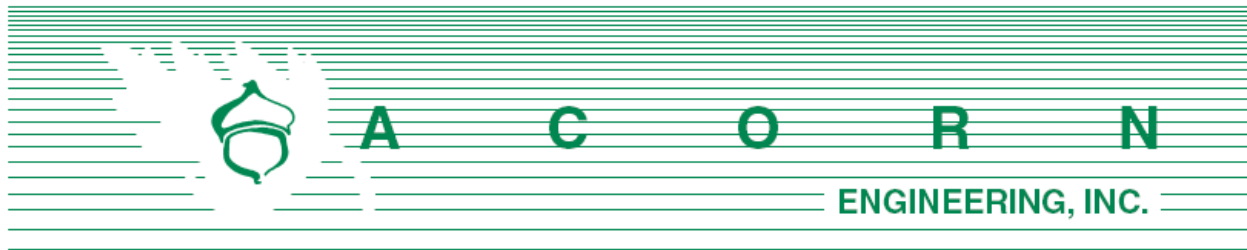
2.1 OVERVIEW

This project conforms with all the applicable design standards of Section 14-487 (e) as demonstrated in the following narrative.

(e) Standards

1. The proposed project is not anticipated to be segmented or phased and is to be completed in a single construction period. Therefore, the workforce unit will be available for rent at the same time the market-rate units are available.
2. The proposed workforce unit is to share the same common entrance and parking lot as the market-rate units; the front facades and entrance designs are identical.
3. All ten townhouses including the workforce housing unit have three-bedrooms and are 1,254 square feet.
4. Not Applicable
5. Any conversion of the workforce units will be subject to the conditions set by the inclusionary zoning standards.
6. This project is composed of 10% workforce unit and is therefore ineligible for the Affordable Housing TIF subsidy.
7. The workforce units shall have the longest term of affordability as permitted under federal, state, and local laws and ordinances as required.





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

August 23, 2016

Subject: 70 Anderson Street Redevelopment
Comment Response Letter

On behalf of Redfern Properties, LLC we are pleased to respond to the civil-related comments provided by multiple reviewers.

To facilitate the review comments are provided below in italics followed by Acorn Engineering, Inc.'s response.

Shukria Wiar – Memorandum to Portland Planning Board 7/18/16

Comment – *VIII. ZONING ANALYSIS: The proposed residential ten unit townhouses are a permitted use in the Residential R-6 which allows multi-family dwellings. Under the R-6 zone all of the dimensional requirements are being met, except for maximum lot coverage. The applicant will need to show documentation that they meet this standard.*

Response – Per City ordinance the maximum lot coverage for the R-6 zone is 60%. As outlined in SK-10 Impervious Surface Exhibit (see submitted) this requirement is being met in addition to the landscape open area.

Comment – *Per the city's land use ordinance, the following materials should be submitted at time of final review:*

- *A subdivision plat meeting all plat requirements as noted in 14-496; and*
- *Final plan submittal requirements as noted in 14-527(f) and (g). The final site plan should include:*
 - *State plane coordinates to the four property corners to be set;*
 - *Clarification regarding the location of curbing;*
 - *Documentation of distance to property line at ground floor and above 35', where a setback applies per the R-6 zone;*
 - *The stamp of a professional engineer; and*
 - *Overhead Easement along Anderson Street.*

Response – The final civil plan set including the Subdivision Plat will adhere to the requirement as set by the City Code of Ordinances, Section 14-527 and 14-496 respectively. The entrances and canopies have been removed along Anderson St., and an overhead easement is no longer required.

Comment – *The proposals include 2 bicycle parking spaces at the rear of the existing building, which meets the ordinance standard of 2 bicycle spaces per 5 vehicle spaces. The bicycle rack should be located on the property and not in the right of way. There is space near the parking area that the rack can be relocated at.*

Response – At the neighborhood meeting attendees requested additional bicycle parking. In response we have now designated ten secure bicycle parking within the fenced in area at the northwest property corner. Given the need to minimize the impervious area and obstructions adjacent to the parking field we are no longer proposing the two bicycle spaces within the right of way nor in the landscaped area between the parking field and right of way.

Comment – *There is a fence at the westerly side of the property and staff recommends a screening at the northerly side as well.*

Response – Per continued conversations and coordination with the abutting land owner at 76 Anderson Street, a fence along the shared northerly property line will not be proposed in accordance with the abutter's wishes. The westerly side will continue to be proposed as fenced.

Comment – *The applicant is proposing a transformer and a solid waste storage at the rear of the property that will be visible from the E. Lancaster Street. According to the cover letter, both the solid waste and transformer will be screened; the plans will need to show this as well.*

Response – The Site Plan has been revised to show and note a proposed four-foot cedar fence to screen the transformer and solid waste storage area while maintaining access. Based upon continued conversations with CMP we are confident that the surface transformer will not be required; the preferred service would be provided from two transformers mounted to a new CMP pole along East Lancaster Street. Please refer to the Utility Plan for additional information.

Comment – *The applicant will need to show how snow removal is being handled on site. If the applicant will be storing snow on site, the plans will need to show the proposed on-site snow storage areas.*

Response – As noted on the Site Plan, there are two onsite snow storage areas surrounding the parking area; all excess snow not able to be contained in these designated areas will be removed and transferred offsite by the snow contractor in accordance with Maine DEP and City of Portland snow removal and dumping regulations.

Comment – *The applicant has not submitted a lighting and photometric plan. As a subdivision, street lighting may be required to provide lighting for the area by the entrance and parking spaces. This will be reviewed when a lighting plan is submitted. All exterior site lighting including lighting of building entrances will be cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties or streets. Illumination levels will be adequate but not excessive for the safety, comfort and convenience of occupants and user of the site and will conform to all applicable standards of Section 12 of the Technical Manual.*

Response – The applicant is proposing to use energy efficient motion activated LED lights on the side of the building to illuminate the parking field and bicycle parking/waste storage



area. The lighting will be cutoff with no light emitted above the horizontal plane. In addition, the six-foot tall fence will further prevent light from spilling over onto adjacent properties. Each individual building entrance will have their own residential wall mounted light. The lights will be energy efficient LED's that are dark sky friendly. Please refer to the Utility Plan for the location of the parking lot lighting and the submitted lighting cut sheets for additional information on the parking lot and residential door lights.

Tom Errico – 7/20/16 Email

Comment – *Given low trip generation estimates for the project, a traffic impact study is not required. The project would not be expected to have a significant impact on traffic mobility and safety.*

Response – Thank you for your review. We are in agreement that the project will not have a significant traffic impact to East Lancaster Street and Anderson Street.

Comment – *The applicant is proposing parking spaces (one space meets City standards) that are slightly narrower than City standards (8.25 feet vs. 9 feet. And Auto-Turn analysis should be provided documenting adequate vehicle circulation.*

Response – Standard parking space and drive aisle width was sacrificed to provide additional landscaping and internal pedestrian circulation. An Auto-Turn analysis has been completed and is attached outlining the maneuverability of vehicles within the site using the proposed parking spaces. As noted at the planning board workshop residents of the townhouses may include families and their associated vehicles. As used on past City of Portland permitted projects our vehicle turning movement simulation uses the Architectural Library, Name - Composite Passenger Vehicle, Type Large Car. The Length is 16.75 ft. with a wheelbase of 9.42 ft. Similarly, a Honda Odyssey Minivan has a length of 16.91 ft. and a wheelbase of 9.83 ft.

Vehicles smaller than a minivan can pull head first into a space, back up and then pull forward out of the parking lot. A minivan can pull head first into space, backup up, pull forward, backup and then pull forward out of the parking lot. A vehicle parking in the end parking space would need to back out of the parking lot, if all the adjacent side parking space are full. We believe the parking lot drive aisle and parking space dimension will allow for adequate vehicle circulation within the urban context.

Comment – *The applicant is proposed a parking aisle width of 20 feet and this does not meet City standards. An Auto-Turn analysis should be provided documenting adequate vehicle circulation.*

Response – Please refer to the response above.

Comment – *The driveway apron along the sidewalk shall have a maximum cross slope of 2%. The plans shall include details specifying this requirement.*

Response – Additional information and detail was added to the Bituminous Driveway Apron Detail on C-40 to further emphasize that the max 2% cross slope along the five-foot-wide sidewalk within the apron.



Comment – *A crosswalk on Anderson Street (to Madison Street) may be a requirement for this project. I am coordinating this item with other City staff and will provide feedback in the future.*

Response – Redfern and Acorn support the installation of a crosswalk at the intersection of Madison and Anderson St. Furthermore, Redfern supports the idea originally presented by Christian Milneil of integrating into one side of the crosswalk vehicle calming and possibly stormwater quality measures. Should the neighborhood and City be in support then Redfern would be willing to provide a contribution for construction cost. We will await further information from Tom Errico and City Staff and request that a mutually beneficial agreement be a potential condition of approval. Acorn has revised the Site Plan to depict one potential crosswalk/traffic calming option.

Comment – *I continue to review and coordinate the design of the proposed sidewalk ramp on the project corner. I am coordinating with other City staff on the ramp design and will provide feedback in the future.*

Response – Thank you for your review and design coordination with the City.

Comment – *The Construction Management Plan should provide details on how the sidewalks along the property will be managed during construction.*

Response – The Construction Management Plan has been updated to reflect locations of sidewalk closures and appropriate signage to designate the closed areas. Pedestrians will be redirected across the street using an existing cross walk within Anderson Street and a proposed temporary crosswalk on East Lancaster Street.

Lauren Swett, P.E. – 7/20/16 Email

Comment – *The Applicant has submitted requests for ability to serve to the City of Portland for sewer and Portland Water District for water. The Applicant should note that they will be required to provide evidence of capacity to serve and approval of the proposed design from the City of Portland and Portland Water District.*

Response – Please refer to the attached capacity to serve letter from the Portland Water District. Acorn has made multiple requests to the City of Portland for the sewer capacity to serve letter.

Comment – *In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:*

- a) Basic Standard: *Plans, notes, and details have been provided to address erosion and sediment control requirements and inspection and maintenance requirements, in accordance with the Basic Standard.*
- b) General Standard: *The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing to install a rain garden and*



a roof drip edge filter as stormwater management BMPs. It appears that the proposed systems will provide adequate stormwater treatment in accordance with Maine DEP standards. We have the following comments on the stormwater design:

- a. Additional clarification is needed on the HydroCAD model of the Rain Garden. The modeled storage is unclear. It appears that separate volumes have been calculated for the water quality volume, loam/soil filter layer, and crushed stone layer, but it is not clear if only the void space within the soil materials was included as storage. It also appears, based on elevations, that the calculated volumes for water quality volume and loam/soil filter may overlap. The Maine DEP BMP standard for bioretention cells allows for one third of the soil filter volume to be included as storage volume when designing a system.
 - b. The Applicant should clarify the exfiltration invert included in the model for the rain garden. The elevation doesn't match the base elevation of the rain garden.
 - c. The Applicant has noted that a vertical orifice/grate has been modeled for both the rain garden and the roof drip edge outlet to provide for 24-hour stormwater detention. This orifice is not identified on the plans.
- c) Flooding Standard: The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. A comparison of pre-development flows with post-development flows shows that there is no increase in the 10-year and the 25-year storm events, but there is a small increase in the 2-year storm. We are in agreement that the level of increase indicated by the Applicant for this storm event is minor and should not negatively impact the site or City of Portland stormwater system. Please see additional comments under the general standard for questions in regards to the stormwater modeling method utilized for the site and the stormwater BMPs. If any changes are made to the stormwater model, compliance with the flooding standard will be reevaluated as required.

Response –

- a) Thank you for your review; we are in agreement that the requirements set within the Basic Standard are met.
- b) The project stormwater report and HydroCAD modelling has been revised to include the following edits per your review:
 - a. The HydroCAD analysis now models storage within the layer using the appropriate void ratio for that layer's material makeup. Given the size of the rain garden the soil filter volume is not required to meet the channel protection volume (water quality volume). Refer to the attached revised Stormwater Management Plan for additional information on the proposed changes.
 - b. The values were revised; the exfiltration invert now matches the base of the rain garden.
 - c. From the revised Stormwater Report, "A simulation water quality outlet (vertical orifice) is modeled to mimic the minimum 24-hour release time through the soil filter media. This is completed by adjusting the rainfall amount in HydroCAD until the inflow volume is equal to or greater than the calculated treatment volume. The storm events are modeled as type III, 24-hour storm events in HydroCAD.



A vertical orifice is then modeled in HydroCAD at the outlet structures of each BMP. The simulation orifice diameter is sized to mimic the percolation rate through the soil filter media, a physical orifice is not proposed.” Given the small size of the tributary area we believe a traditional outlet control structure is unnecessary.

- c) Thank you for your review; we are in agreement that the increase in the 2-year storm event is de minimis and will not impact the site or the City of Portland municipal stormwater system. The changes to the HydroCAD calculations discussed above did not increase the 2-year post development flows.

Comment – *All of the bituminous pavement details should be corrected to refer to 12.5mm HMA (not 9.5 mm) for the surface courses of pavement, in accordance with the City of Portland Technical Standards.*

Response – The Local Bituminous Pavement Profile and City of Portland Arterial Bituminous Pavement Profile on C-40 have been revised to reflect 12.5mm HMA as a top surface course per City of Portland technical standard.

Comment – *A call-out note for street trees is included on the Site Plan (sheet C-10), but the trees and planters within the sidewalk are not shown.*

Response – Street trees and tree wells per L-1 Landscape Plan have been added to C-10 Site Plan.

Comment – *The Applicant has noted that there will be an existing sewer lateral abandoned at the site. The Applicant should include a note referencing the City’s technical standards for sewer lateral abandonment. Per Section 2 of the standards, a permit will be required, and the City will need to be notified at the time of demolition so that the Sewer Maintenance Division may assist with the abandonment.*

Response – A callout has been added to C-20 Utility Plan noting that the existing sewer lateral is to be abandoned per City of Portland technical standard. The contractor will be responsible for contacting the City at the time of demolition to ensure compliance of the removal process.

Comment – *Pavement trenching/repair in the roadway should be noted on the plan at the locations of the connections to the storm drain.*

Response – Hatches denoting the approximate and estimated extent of utility trenching within Anderson Street for the proposed stormwater outlet has been added to C-10 Site Plan and C-30 Grading & Drainage Plan.

Comment – *The plans show a foundation drain with connected in-line drains around the southern-most building. The Applicant should clarify where this system will discharge.*

Response – The foundation drain has been revised to show a connection to the rain garden outlet prior to entering the existing municipal stormwater drain within Anderson Street.



Comment -- *The rain garden is shown with numerous sewer and water service crossings. The Applicant should verify that these utility pipes will be adequately deep beneath the rain garden system to provide for adequate frost protection. The landscaping plan identifies serviceberry as the trees planted within the raingarden. The Applicant should verify that these plants will not be in conflict with the utility crossings. The pipe trench detail included in the plans notes that no trees should be planted within five feet of a sewer pipe.*

Response – The proposed sewer services have been revised to run below the internal brick sidewalks on either side of the rain garden instead of running below it; the proposed individual domestic water service will now be routed below each building slab.

Jeff Tarling – 7/21/16 Email

Comment – *Street trees: Extend the street tree planting to include Lancaster Street as well as Anderson Street. After taking a closer look the space is too tight or restrictive to include two trees in the tree planters.*

Response – The street trees are to be revised to reflect one tree per planter and also be proposed along East Lancaster Street. The Final Landscape Plan defines the planter location, size, and species.

Comment -- *Tree planters should not be raised due to on street parking, they should be rectangular in shape 4' x 7' ideal.*

Response – Street trees are revised to be planted in 4'X6' metal tree grates flush with the surrounding sidewalk. The flush grates will be used to maintain a minimum 5' pedestrian accessible route within the sidewalk.

Comment -- *Landscape treatment should be considered for the area near the parking lot.*

Response – Landscaping will be provided in two areas bordering the parking lot along the East Lancaster Street property frontage and along the retaining wall and cedar fence. Please refer to the revised Landscape Plan.

Comment -- *Ornamental grasses proposed for the 5' border is acceptable, applicant may want to consider alternatives, woody plants or herbaceous plant material / perennials that offer flowers / texture and year-round interest.*

Response – Please refer to the revised Landscape Plan.



Caitlyn Cameron – 7/20/16 Review

Comment -- *G-5 Patios and Plazas: More info needed: Internal patio space design not clear – what are material choices?*

Response – The Site Plan (C-10) has been revised to clarify the internal sidewalk material and is further detailed in C-40, Concrete Brick Paver Profile. The landscape architect has proposed the use of the Genest Katahdin series for its natural stone look and antiqued edge.

Please let me know if you have any additional questions or comments.

Sincerely,



William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.



August 23, 2016

Shukria Wiar
Planner
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: 70 Anderson Street - Design Revisions

Shukria,

Please see the attached revised design for the 70 Anderson Street project indicating the revisions we made after our meeting with you and Caitin Cameron. We have made the following revisions to the design in order to address the comments:

- 1.) We have raised the first floor elevation 12" to provide a raised base relationship that was requested.
- 2.) A base cladding material has been added to the buildings to further emphasize the buildings base and its relationship to the pedestrian level.
- 3.) The sills of the first floor windows adjacent to the streets have been raised to provide privacy to the units from the street.
- 4.) The gable roof pitch has been increased to 8:12 giving the buildings a more vertical proportion similar to the other gable roofs in the surrounding neighborhood.
- 5.) A siding color contrast and slight projection at the gable end creates a vertical bay that further enhances the vertical orientation of the gable end facade.
- 6.) We have added projecting bays to the facades as a means to articulate the facades facing the streets.
- 7.) The buildings color scheme has been simplified which now consists of two major colors, one for each building.

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101



We look forward to discussing the design revisions at the upcoming Planning Board meeting.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Senatore", written in a cursive, fluid style.

Ryan Senatore, AIA LEED AP

Principal

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101

23 August 2016

70 Anderson Street: Project Landscape Narrative

The 70 Anderson Street Project is a proposed redevelopment of the corner lot on Anderson and East Lancaster Street. The site is organized to fit (2) residential structures with 10 combined dwelling units, (7) spaces of vehicular parking, additional bicycle parking and a rain garden (to process onsite storm-water).

The macro landscape design goals for this project were to match the new building's scale / style and character with the finer textured neighborhood context while providing a durable and beautiful residential living environment. The side by side gabled structures reference a Maine vernacular farmhouse architectural style with a lite overlay of contemporary detailing. Trellises and screens occur through the property to add visual interest; integrating the buildings with the planted streetscape (grasses / vines). The central 'court' area between the buildings is composed as a lush / densely planted rain garden where storm-water is processed as a focal design feature.

There are ((6) newly proposed street trees, (2) on Anderson Street and (4) on Lancaster. Armstrong Maples were selected for their upright form to break up the building facades, yet not encroach on the buildings. Internal pedestrian walkway circulation is paved with a locally fabricated Genest concrete unit paver, while the perimeter street sidewalks are city standard Pinehall brick.

Best regards,

A handwritten signature in black ink, appearing to read 'Soren deNiord', written in a cursive, flowing style.

Soren deNiord, Principal, ASLA

STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed 70 Anderson Street Redevelopment shown on the Subdivision Plat recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the “Plan”) and associated Grading, Drainage & Erosion Control Plan (Sheet C-30), dated 8/22/16 prepared by Acorn Engineering, Inc. of P.O. Box 3372, Portland, ME 04104 dated and pursuant to a condition thereof, Redfern Properties, LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of P.O. Box 8816, Portland, Maine 04101, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the “Owner”), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the rain garden, roof dripline filter, storm drain pipes, and underdrain pipes (hereinafter collectively referred to as the “stormwater system”) as shown on the Stormwater Maintenance Agreement Drainage Plan, Drawing EX-01, attached hereto as **Exhibit B** and in strict compliance with the approved Stormwater Inspection & Maintenance Plan and Stormwater Maintenance and Inspection Log, dated 8/22/16, copies attached as **Exhibit A and C** respectively and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance and Inspection Log in the forms attached as **Exhibit C**. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property and abutters thereto; further, that the said City of Portland or said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system, including but not limited to the rain garden, roof dripline

filter, storm drain pipes, underdrain pipes, and other drainage structures thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall not confer upon the City of Portland or any other person the right to utilize said stormwater system for public use or for the development of any other property, and the Owner shall bear no financial responsibility by virtue of this Agreement for enlarging the capacity of said system for any reason whatsoever.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the subdivision and/or site plan most recently and formally approved by the Planning Board of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Works and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and lienied if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings or residential units and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or lienning it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of August, 2016.

REDFERN PROPERTIES, LLC
A Maine limited liability company

Jonathon Culley, Manager

STATE OF MAINE
CUMBERLAND, ss.

Date: _____

Personally appeared the above-named Jonathon Culley, Manager of Redfern Properties, LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

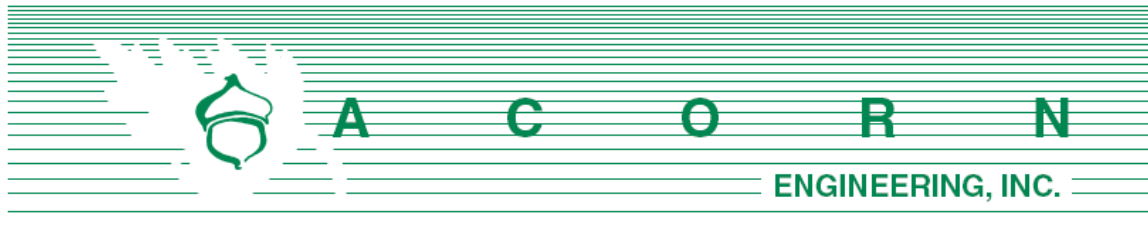
Notary Public/Attorney at Law

Print name: _____

Exhibit A: Stormwater Inspection & Maintenance Plan

Exhibit B: Stormwater Maintenance Agreement Drainage Plan

Exhibit C: Stormwater Maintenance and Inspection Log



POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

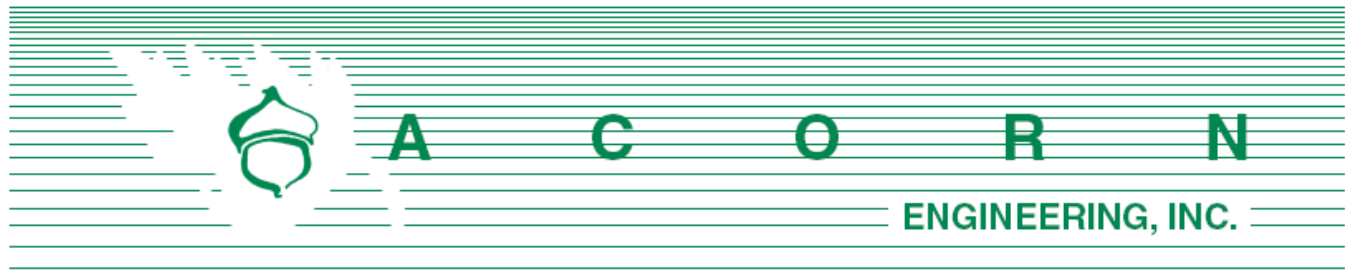
**Redfern Properties, LLC
70 Anderson Street Redevelopment
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104**



AUGUST 2016



RESPONSIBLE PARTY

The owner, Redfern Properties, LLC, and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Services prior to June 30th.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading, Drainage, & Erosion Control Plan, revised August 22nd, 2016 or the latest version for the location of the BMPs.

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

OPERATION AND MAINTENANCE ACTIVITY

Underdrained Bioretention Cell “Rain Garden”:

The maintenance of the rain garden shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 7.2 Underdrained Bioretention Cell BMP.

- The soil filter shall be inspected after every major storm within the first year to ensure the filter area is draining within a 48-hour period and no less than a 24-hour period, and that the plants are establishing. Thereafter, the filter should be inspected at least once every six months to ensure that is draining within a 48-hour period following a one-inch storm or greater.
- Soil filter modification shall occur if the filter bed is draining in less than 24 hours. The top six inches of the filter shall be replaced with six inches of loam, per the most recent Maine DEP specification. Soil filter replacement shall be replaced with fresh material on a yearly basis.
- The filter area shall not be fertilized unless it is absolutely necessary.
- Harvesting and pruning of excessive growth shall be done occasionally. Weeding to control unwanted or invasive plants may be necessary and plants that are not thriving must be replaced.
- Inspect the overflow outlet at least annually to ensure it is in good working order and unobstructed from trash and debris. Removed sediments should be disposed of in an acceptable manner.

Roof Dripline Filter:

The maintenance of the roof dripline shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 7.5 Roof Dripline Filtration BMP and Chapter 7.2 Underdrained Bioretention Cell BMP.

- The stone reservoir layer shall be inspected after every major storm within the first year to ensure the filter area is draining within a 48-hour period and no less than a 24-hour period. Thereafter, the filter should be inspected at least once every six months to ensure that is draining within a 48-hour period following a one-inch storm or greater.
- Any debris must be removed from the reservoir course at any time. Weeding of any growth is to be done as necessary to keep the stone layer clear.
- Cleanout to be visually inspected for possible obstruction during periodic inspections. If more than one foot of standing water is observed, remove any sediments or obstructions and dispose of in an acceptable manner.
- No gutter may be installed on the roof line above the dripline.

Sweeping:

Annual sweeping of the parking lot and internal sidewalks following the snow melt for accumulated winter sand, if necessary. All material is to be appropriately disposed of.



Storm Drains:

The storm drain shall be annually inspected for the presence of accumulated sediment or debris. Any sediment shall be removed as required.

- The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Inspect and legally dispose of accumulated sediment and debris within the storm drains between basins. Liquids must be decanted on-site and returned to the catch basin.

Landscaped, Vegetated and Areas Adjacent to Retaining Walls:

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (< 90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the contract documents.

If signs of rill erosion or scour are present within areas tributary to the retaining walls, Acorn Engineering should be immediately contacted to perform an inspection and/or to contact the appropriate professional. Periodic inspections of the retaining walls shall be performed, under separate contract, by a Professional Geotechnical Engineer.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Rain Garden	X	X		X
Roof Dripline	X	X		X
Storm Drains		X		X
Sweeping	X			X
Landscaped/Vegetated/Wall Areas	X			X



ISSUED FOR		BY DATE
FINAL APP		WHS 8/22/16
DRAWING NAME: STORMWATER MAINTENANCE AGREEMENT DRAINAGE PLAN	PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT	CLIENT: REDFERN PROPERTIES, LLC PORTLAND, ME 04104
 ACORN ENGINEERING, INC. P.O. BOX 3372 PORTLAND, MAINE 04104 (207) 775-2655		
FILE:	CIVIL 1067	
JN:	1067	
SCALE:	1"=20'	
DESIGN BY:	OJD	
DRAWN BY:	OJD	
CHECKED BY:	WHS	
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.		
DRAWING NO.		
EX-01		

STORMWATER MAINTENANCE AND INSPECTION LOG

BIORETENTION CELL "RAIN GARDEN" BMP:							
Location: 70 Anderson Street, Portland ME 04101				Latitude: 43.665095 Longitude: -70.254757			
Description of Located Point: Center of Property, In Between Buildings				Inspector: Date of Inspection: Weather Conditions:			
Days since last precipitation				MEDEP Permit # YES			
Quantity of last precipitation (in)				Design Drawings:			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Underdrained Ditch, Vegetated Underdrain Soil Filter, Bio-retention Cell, etc.							
Soil filter retains the design volume for a drain down time greater than 24-hours and less than 48-hours	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
Permeability is between 2.4 and 4 in/hr	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Filter bed consists of at least 6 in of loam	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Filter bed planting height is no less than 6"	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Filter area is properly planted, showing no bare spots and free of unwanted vegetative growth	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
The outlet control structures (2) are in good working condition and free of debris	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Plantings are in good condition and do not show signs of rot or decay	☐	☒	☐	☐ Yes ☐ No ☐ N/A			

STORMWATER MAINTENANCE AND INSPECTION LOG

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
General							
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION LOG

ROOF DRIPLINE FILTER BMP:							
Location: 70 Anderson Street, Portland ME 04101				Latitude: 43.665186 Longitude: -70.254877			
Description of Located Point: Along the rear of Building B to the northwest of the property				Inspector: Date of Inspection: Weather Conditions:			
Days since last precipitation				MEDEP Permit # YES			
Quantity of last precipitation (in)				Design Drawings:			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Underdrained Ditch, Vegetated Underdrain Soil Filter, Bio-retention Cell, etc.							
Reservoir stone layer retains the design volume for a drain down time greater than 24-hours and less than 48-hours	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
Permeability is between 2.4 and 4 in/hr	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Reservoir stone is at least 12" deep	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Reservoir layer is free from growth	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
The cleanout is free from obstruction and flowing freely, less than 1' of standing water is observed	☐	☒	☐	☐ Yes ☐ No ☐ N/A			

STORMWATER MAINTENANCE AND INSPECTION LOG

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
General							
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION LOG

STORMWATER PIPE:							
Location: 70 Anderson Street, Portland ME 04101				Latitude: 43.665288			
				Longitude: -70.244181			
Description of Located Point: Stormwater Drain outlet to Municipal System				Inspector			
				Date of Inspection:			
				Weather Conditions:			
Days since last precipitation:				MEDEP Permit #: N/A			
Quantity of last precipitation (in):				Design Drawings: YES			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Inlets, Outlets, & Storm Drains							
Pipe is free of obstruction, accumulated sediment and debris	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Pipe inlet and outlet is free of obstruction, accumulated sediment and debris	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
Pipe, inlet and outlet is free of collapses and structural damage	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
Outlet and inlet are properly conveying stormwater and no erosion is visible	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☒	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☒	☒	☐				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION LOG

VEGETATED AREAS:							
Location: 70 Anderson Street, Portland ME 04101				Latitude: 43.665095			
				Longitude: -70.254757			
Description of Located Point: Bordering the parking lot, terraces, and within the Rain Garden				Inspector:			
				Date of Inspection:			
				Weather Conditions:			
				Design Drawings: YES			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Embankments							
Slopes and embankments are in good condition.	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Site is free of rill erosion	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
General							
Site is free of locations with less than 90% vegetative cover	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Plantings are capable of withstanding concentrated flows	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							

Minuteman 5™**LED Retrofit Kit + Housing For Decorative Wall Pack**

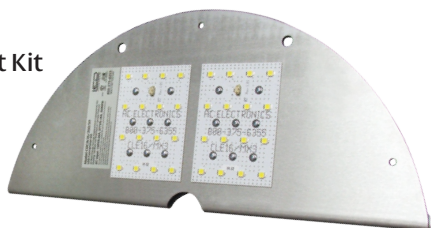
Contains LED Retrofit Kit and LED Lighting Housing



Made In USA

DESIGNLIGHTS
CONSORTIUM**AC Electronics LED Retrofit Kit + Housing vs. Standard HID Lights**

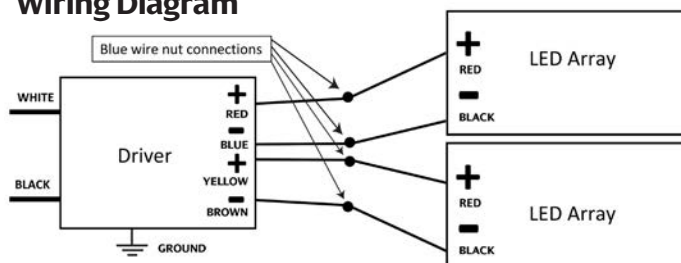
Wall Pack Light Source	Input Wattage	Lifespan Hrs/Yrs	Energy Use (24hrs/day) Annual	Annual Cost (maintenance + electricity) @ \$0.11/kWh	Electrical Cost Savings
HID	165	24,000/ 2.7	1446 kWh	\$159.00	
LED	35	50,000/ 5.7	307 kWh	\$33.74	79%

LED
Retrofit Kit+ LED Lighting
Housing= Minuteman 5™
LED Retrofit
Kit + Housing**Kit Model Number AC302/36/350 6**

— Includes Grandlite® Housing SM302 —

Includes:

- Two-Output Channel, Class 2 LED Driver, Model Number: AC-D18C350UVH
- 2 PCB LED Arrays with 28 Cree MX-6 LEDs mounted to industrial grade aluminum LED Driver bracket
- Instructions for Installation
- All Required Assembly and Mounting Hardware
- Grandlite® SM302 Lighting Housing

Wiring Diagram**Warranty**

LED Retrofit Kit + Housing warranty is only valid when it is used in the Grandlite® fixture it was designed to be used in unless otherwise approved in writing by AC Electronics. Any other use in any other fixture assembly or use with non-AC specified or supplied components will void this warranty.

*AC warrants to the purchaser that this LED Retrofit Kit + Housing will be free from defects in material or workmanship for a period of 5 years from date of manufacture, when operated at a maximum ambient temperature of 110°F or 45°C, when properly installed and under normal conditions of use.

See www.aceleds.com for complete warranty policy.

Grandlite® is a registered trademark of Grandlite® International Corporation. AC Electronics is not associated with Grandlite® international.

Specifications

Item	Specification
Input Voltage	120-277V, 50/60Hz
LED CRI	75
Fixture CRI	74
LED Color Temperature	5000K
Fixture Color Temperature	5410
Fixture Lumens	2637 Lumen
Kit Lumens Outside Fixture	3501 Lumen
Lumen Maintenance	≥70% @ 5 years
Fixture Efficacy	75 Lumen/Watt
Zonal Lumen Requirement	0-90°; 100% 80-90° <10%
Warranty	5 years*
LED Quantity (Brand: Cree MX-6)	28
LED TMP Temperature @25°C	61°C
Input Power	35W
Driver Efficiency	88%
Power Factor @277V	0.999
THD @277V	8%
Driver TMP temp @25°C Ambient	56°C
Noise	<24dB
EMI	FCC part 15
Max Operating Temperature	45°C Ambient
Min Operation Temperature	-40°C
LED Retrofit Kit Dimensions / Weight	2"H x 17"W x 7"D / 3 lbs.
Assembled Fixture Dimensions / Weight	7.1"H x 18.1"W x 9.25"D / 12 lbs.



Note: LM79 and ies files are available upon request.

Note: All specifications refer to the installed kit.

Tork® 2107 Photocell**Approved For Use With AC LED Retrofit Kits**

- 120/277V 1800 VA Ballast Load
- 1 To 5 FC Turn On Light Level
- 3 To 15 FC Turn Off Light Level
- SPST Switch
- 16 AWG 6 Inch Wire Lead Terminal
- Temperature Rating -40 to 140°F
- 1/2" Conduit Mounting
- Not included, available from secondary sources

**CREE**
Inside**ACeLEDs**
POWER DESIGNS

A division of AC Electronics

SQUARE – model: WS-W386

LED Interior & Exterior Sconce

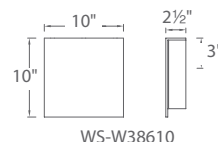
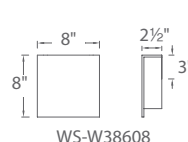


Fixture Type:

Catalog Number:

Project:

Location:



PRODUCT DESCRIPTION

Four equal sides and a stream of light. Square artfully provides geometry to wall surfaces in the daytime when mounted in multiples while providing safe illumination of pathways and dramatic visual intrigue in the evening. Perfect for wall grazing surfaces.

FEATURES

- Dark Sky friendly
- ADA compliant, low profile design
- ETL & cETL, wet location listed, IP65 rated
- CEC Title 24 Compliant
- Aluminum construction
- Full range dimming when used with compatible dimmers
- No transformer or driver required
- 277V option available (special order)
- 50,000 hour rated life
- Color Temp: 3000K
- CRI: 90

SPECIFICATIONS

Construction: Aluminum construction.

Light Source: High output LED.

Finish: Titanium (TT), Bronze (BZ).

Standards: ETL & cETL damp location listed. IP65 rated. ADA compliant. CEC Title 24. Dark Sky friendly.

ORDER NUMBER

Model	Width	Wattage	Voltage	LED Lumens	Delivered Lumens	Finish
WS-W38608	8"	9W	120V	486	398	BZ Bronze
WS-W38610	10"	15W		836	720	TT Titanium

Example: **WS-W38608-BZ**

For 277V special order, add an "F" before the finish: **WS-W38608F-BZ**

modernforms.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters/Eastern Distribution Center
44 Harbor Park Drive
Port Washington, NY 11050

Central Distribution Center
1600 Distribution Ct
Lithia Springs, GA 30122

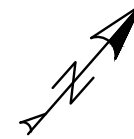
Western Distribution Center
1750 Archibald Avenue
Ontario, CA 91760

WAC Lighting retains the right to modify the design of our products at any time as part of the company's continuous improvement program.

GENERAL NOTES:

1. IMPERVIOUS SURFACES AS DEFINED BY CITY OF PORTLAND CODE OF ORDINANCES SECTION 14-47.

SURFACE SUMMARY			
	HATCH	AREA	
BUILDINGS		4100 SF	
PAVEMENT		2153 SF	
BRICK SIDEWALK		903 SF	
RETAINING WALL		64 SF	
TRANSFORMER PAD		16 SF	
TOTAL IMPERVIOUS		7236 SF	80%
TOTAL LOT COVERAGE		4100	45%
TOTAL PERVIOUS		1829 SF	20%
TOTAL AREA		9065	



N/F
Land Renewal Authority
(Land Housing Authority)
2818/53

TRANSFORMER PAD

RETAINING WALL

PAVED PARKING LOT

BUILDING B

RAIN GARDEN

BUILDING A

ANDERSON STREET
(PUBLIC)

LANCASTER STREET
(PUBLIC)

FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
FINAL APP
BY DATE
WHS 8/22/16

DRAWING NAME:
IMPERVIOUS SURFACE EXHIBIT
PROJECT NAME:
70 ANDERSON STREET
REDEVELOPMENT
CLIENT:
REDFERN PROPERTIES, LLC
PORTLAND, ME 04104

ACORN
ENGINEERING, INC.
ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

FILE: CIVIL 1067
JN: 1067
SCALE: 1"=20'
DESIGN BY: OJD
DRAWN BY: OJD
CHECKED BY: WHS

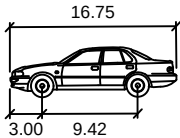
THIS PLAN SHALL NOT BE
MODIFIED WITHOUT WRITTEN
PERMISSION FROM ACORN
ENGINEERING, INC. ANY
ALTERATIONS, AUTHORIZED
OR OTHERWISE, SHALL BE
AT THE USER'S SOLE RISK
AND WITHOUT LIABILITY TO
ACORN ENGINEERING, INC.

DRAWING NO.

SK-10

GENERAL NOTES:

1. SIMULATION ANALYSIS COMPLETED USING AUTOTURN, A VEHICLE CIRCULATION CAD ACCESSORY.

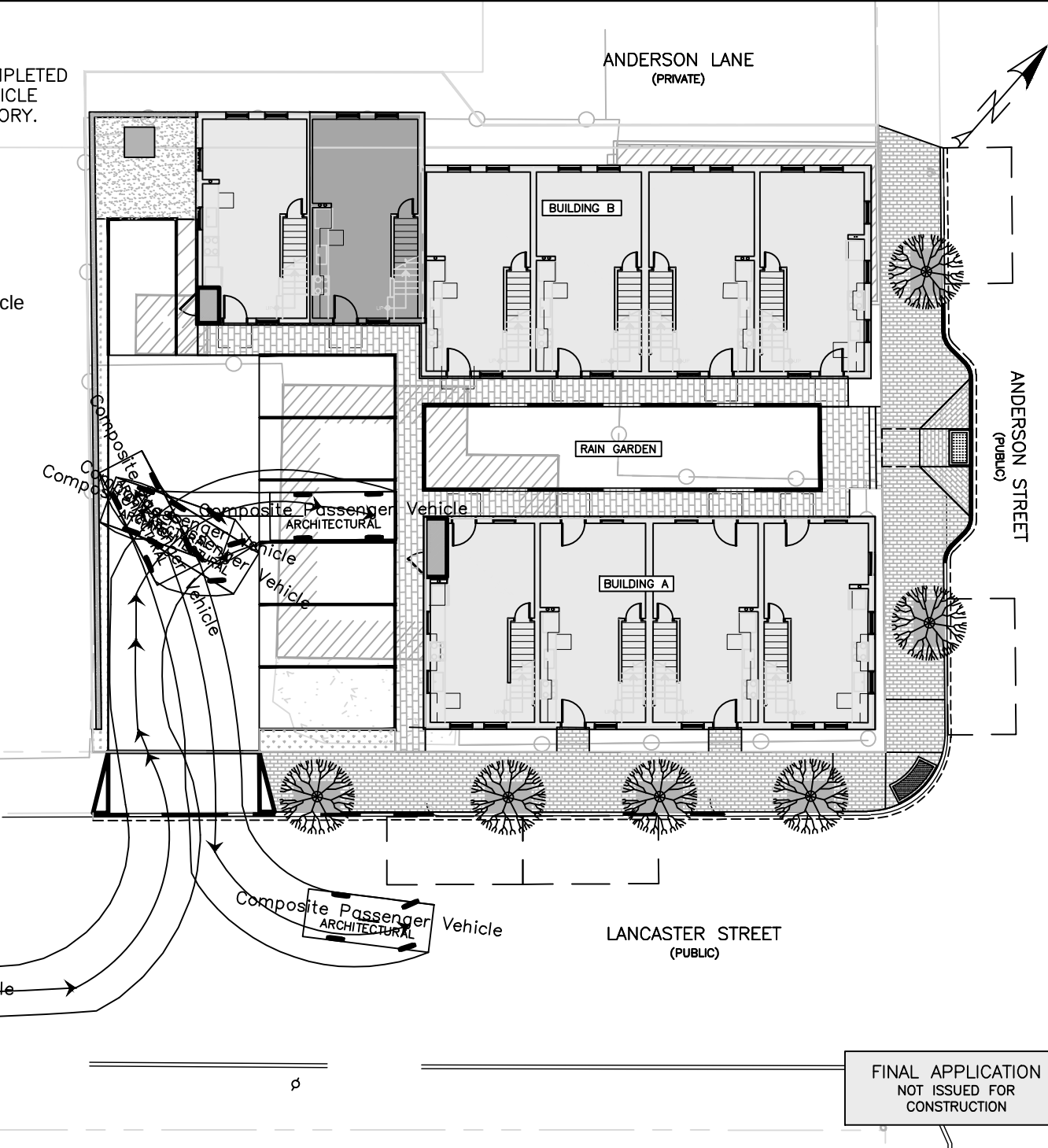


Composite Passenger Vehicle

	feet
Width	: 6.33
Track	: 6.33
Lock to Lock Time	: 6.0
Steering Angle	: 26.4

Authority
Authority)

5



Composite Passenger Vehicle
ARCHITECTURAL

Composite Passenger Vehicle
ARCHITECTURAL

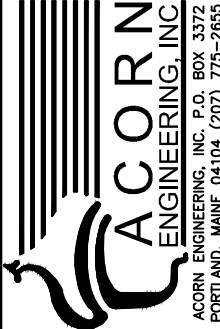
FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
FINAL APP
BY DATE
WHS
8/22/16

DRAWING NAME:
AUTOTURN EXHIBIT:
COMPOSITE VEHICLE

PROJECT NAME:
70 ANDERSON STREET
REDEVELOPMENT

CLIENT:
REDFERN PROPERTIES, LLC
PORTLAND, ME 04104



FILE: CIVL 1067
JN: 1067
SCALE: 1"=20'
DESIGN BY: OJD
DRAWN BY: OJD
CHECKED BY: WHS

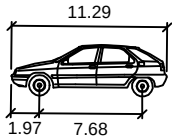
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DRAWING NO.

SK-20

GENERAL NOTES:

1. SIMULATION ANALYSIS COMPLETED USING AUTOTURN, A VEHICLE CIRCULATION CAD ACCESSORY.

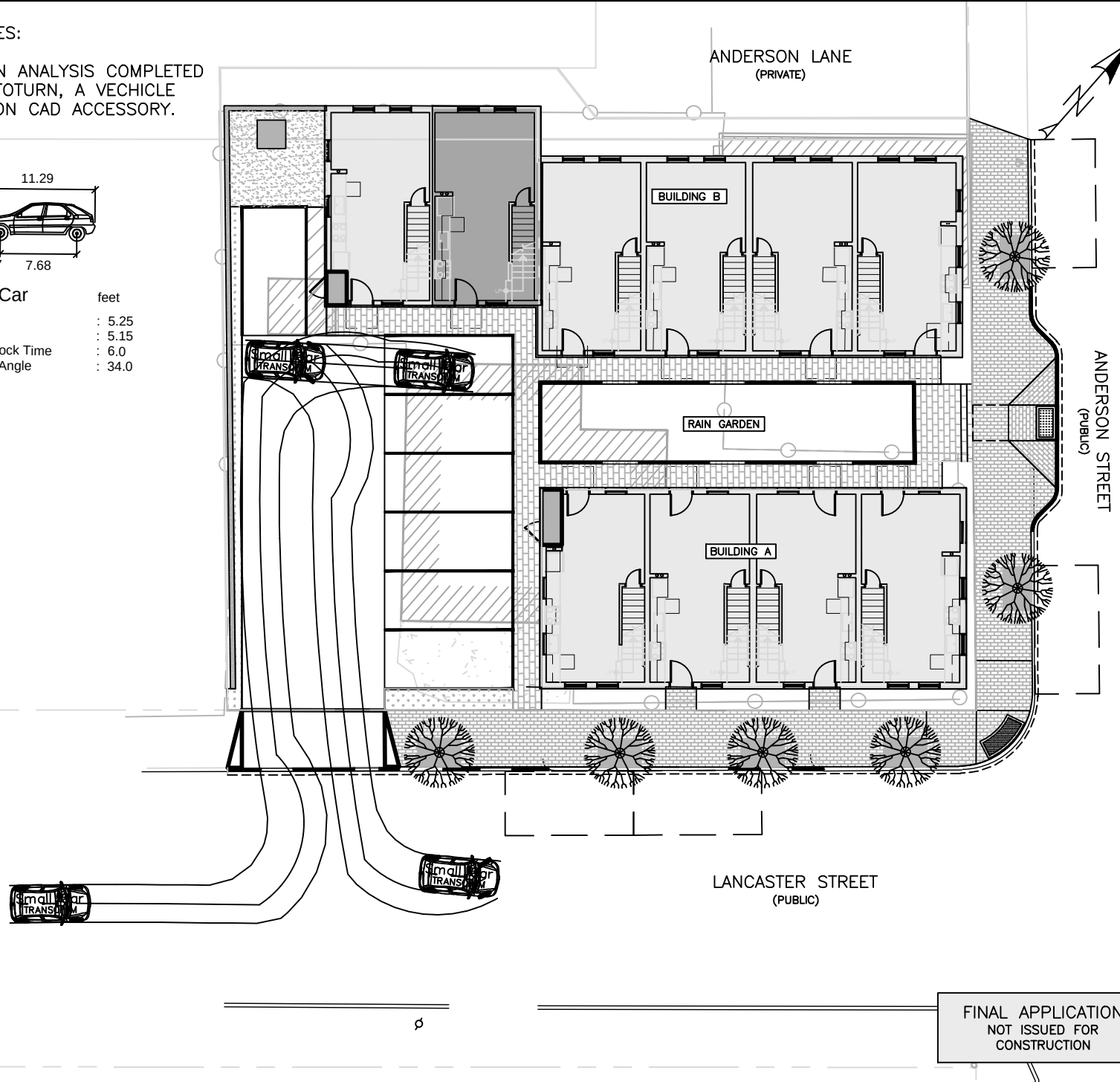


Small Car

feet

Width	: 5.25
Track	: 5.15
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

Authority
Authority)



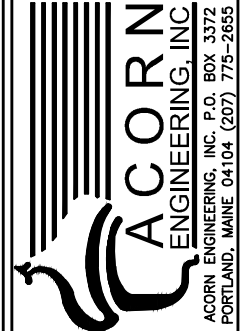
ISSUED FOR
FINAL APP

BY
DATE
WHS
8/15/16

DRAWING NAME:
AUTOTURN EXHIBIT: SMALL CAR

PROJECT NAME:
70 ANDERSON STREET
REDEVELOPMENT

CLIENT:
REDFERN PROPERTIES, LLC
PORTLAND, ME 04104



FILE: CIVL 1067
JN: 1067
SCALE: 1"=20'
DESIGN BY: OJD
DRAWN BY: OJD
CHECKED BY: WHS

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.

SK-21

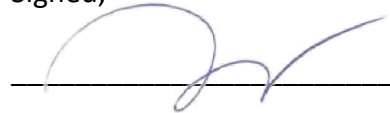
70 Anderson Street
Neighborhood Meeting Certification

I, Jonathan Culley, of Redfern Properties LLC hereby certify that a neighborhood meeting was held on August 3, 2016 at the project site, 70 Anderson Street, Portland at 5:30pm.

I also certify that on July 20, 2016, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.
2. Residents on the "interested parties" list.
3. A digital copy of the notice was also provided to the Planning Division at jmy@portlandmaine.gov and Shukria Wiar shukriaw@portlandmaine.gov the assigned planner, to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,

 _____ 8/18/2016

Attached to this certification are:

1. Copy of the invitation sent
2. Attendee sheet
3. Meeting minutes

Attendee List

70 Anderson St. Townhome Project

Neighborhood Meeting related to Level III Site Plan Application

August 3, 2016, 5:30pm

On site @ 70 Anderson

Name	Address
Cynthia Cochran	17 Hammond St.
Ellen Bailey	17 Hammond St.
Michele Castner	86 Anderson St.
Hope Chrupcula	86 Anderson St.
Tim Lippert	76 Anderson St.
Susan Lippert	76 Anderson St.
Kim Teret	73 Anderson St.
Will Pratt	12 Madison St.
Liz Berg	19 Anderson St.
Ian Jacob	State St.
Norma Winslow	6 East Lancaster

70 Anderson Street

Neighborhood Meeting – Level III Site Place Application

Meeting held August 3, 2016 @ 5:30pm at the project site, 70 Anderson, Portland

Meeting Minutes:

Please note that minutes are not verbatim, but we have made our best efforts to reflect meaning and intent.

The meeting began at 5:40pm. Jonathan Culley, principal of Redfern Properties introduced himself and the design team consisting of Ryan Senatore of Ryan Senatore Architecture and Civil Engineer Will Savage of Acorn Engineering.

Culley explained the City of Portland's approval process, that this evening's meeting is related to the Level III Site Plan Application. Culley explained that a Planning Board workshop had been held on July 26th and that a Planning Board Hearing would likely be scheduled for September.

Culley shared background on Redfern Properties, briefly described our existing project at 89 Anderson and then described the background on the 70 Anderson project. Culley then turned the floor over to Will Savage who described the site layout, parking considerations, storm water practices, landscaping plans (including street tree requirements), solid waste removal, and other engineering considerations.

Will Savage and Culley also discussed the curb extension proposed by Christian Milneil to serve as a traffic calming measure. Culley indicated that Redfern was willing to fund such a project but needed the City to make some determinations as to feasibility.

Will Savage turned the floor over to Ryan Senatore. Ryan showed a building rendering and discussed the architecture of the 2 separate buildings. Ryan discussed the memo from Caitlin Cameron, the City's urban designer related to the project's architecture.

The floor was then opened for questions.

Q. Will there be dumpsters?

We will have roll away garbage cans that our private trash removal company will wheel into the road and empty into the garbage truck. So trash removal will be private.

Q. There was a discussion about the City's street tree requirements?

Culley and Savage discussed the City ordinance and potential ways to meet the requirements on the Ordinance.

Q. Questions about adequacy of parking plans?

Culley discussed the parking situation, acknowledging that 7 spots may not be enough for this project. The first way to mitigate was to provide some additional parking at 89 Anderson where we believe we

have excess parking. Second, Culley showed a satellite image of the neighborhood showing abundant street parking availability. Finally, Culley discussed Smart Growth theories that suggest that building less parking will ultimately lead to better and more vibrant neighborhoods.

Q. Will parkers at 89 Anderson pay an additional fee?

Culley explained that parking is included in rent but we would deduct money from rent if people do not have cars. Culley indicated that people with cars would not be able to opt out of parking and get the money and then park on the street.

Q. How many parking spaces at 89 Anderson?

There are 53 spots for the 53 apartments. The units at 89 Anderson are small, mostly studio and 1 bedroom.

Q. Why are these apartments 3 bedrooms?

Redfern's other projects are mostly small apartments, not suitable for families. We see a market for larger apartments. No one is building family sized apartments, and this project is an opportunity to do this relatively affordably.

Q. Will taxes go up in this neighborhood?

Culley explained that this project should not increase taxes, that taxes might change when the city reassesses, but we have no information on that.

Q. What are you doing for bicycling parking?

Savage explained the bicycle parking plan.

Q. Is there covered bicycle parking? It seems as though if you are attracting families, you might need covered bike parking.

Point taken. We will see if there is anything additional we can do on this.

Q. Green screens have not been successful? I would suggest against this.

Point taken.

Q. Why are you building in this neighborhood?

We like East Bayside for diversity, the active neighborhood organizations, the food and creative energy in the neighborhood. Also, land is cheaper in East Bayside than in other neighborhoods, so we can afford to build rental housing in this neighborhood.

Q. There is a lot of crime down here?

We understand that and are hopeful that our development means more eyes and more people on the street and will result in a safer neighborhood.

Q. The entrances are in the courtyard?

Yes, 3 units enter on East Lancaster and 7 enter off the courtyard.

Q. The Anderson Street façade is not particularly welcoming.

We agree that the Anderson St needs to be more welcoming. We will keep working on this.

Q. What do the other sides of the house look like?

We have a sketch-up model and will work on providing additional views.

Q. Did you get feedback that they didn't like the multiple colors?

Yes, we felt like the Planning Board was not particularly supportive of these ideas.

Q. What is the overall height?

The roof pitch is at about 39' right now. The height limit is 45' in the R-6 zone.

Q. What are the materials?

The cladding is fiber cement.

Q. Where are you in the process? Is this approved?

No, we will likely have a Public Hearing before the Planning Board in September. Public Comment will be taken at this meeting. We encourage you to participate.

The Site Plan review is the only review, there is no zone change required here.

Q. Will you be managing this building?

My wife and I intend to own this building for a long time. We will hire a property manager.

Q. What is the deal with 'Anderson Lane'?

Anderson Lane is a private way. This not a city right of way. It is a private way and Portland Housing Authority recently released its rights to us. We are working with the Lipperts to divide the remaining rights in Anderson Lane.

Q. A discussion ensued about the potential curb extension.

A number of people indicated support for the Christian Milneil proposed curb extension. Alternative traffic calming measures were discussed. Many neighbors were supportive of the curb extension.

Culley re-iterated that Redfern would be a funding source if there was agreement between the neighborhood and city that such an improvement was desired.

Q. Will the sidewalk be brick or concrete?

The City standard is brick so we will rebuild the sidewalks with brick.

Q. Can you comment on the environmental impacts of demolishing the buildings?

There is a requirement for asbestos abatement prior to demolition. We are looking into the impacts of lead paint and I am working on this and will forward new information as it becomes available.

The meeting was adjourned at 6:46pm.

REDFERN PROPERTIES, LLC
PORTLAND, MAINE

DRAWING NO.
C-01

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CY	CUBIC YARD
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
DMH	DRAINAGE MANHOLE
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
GAL.	GALVANIZED
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
OD	OUTSIDE DIAMETER
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TWC	TIME WARNER CABLE
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
UGE/T/C	ELECTRIC/TELEPHONE/CABLE
UGT/C	UNDERGROUND TELEPHONE/CABLE

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN AUTOCAD FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD NOT AVAILABLE EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY AND TOPOGRAPHIC FROM THE PLAN TITLED EXISTING CONDITIONS SURVEY BY TITCOMB ASSOCIATES FOR REDFERN PROPERTIES, DATED JANUARY 14TH, 2016.
8. SUBSURFACE DATA MAY BE OBTAINED FOR THE STRUCTURAL ENGINEER'S DESIGN. THE CONTRACTOR SHALL REQUEST AND REVIEW THE GEOTECHNICAL REPORT PRIOR TO SUBMITTING A BID. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT IF ONE IS COMMISSIONED BY REDFERN PROPERTIES, LLC.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AND ALL ADJACENT PROPERTIES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
10. THE CONTRACTOR SHALL REVIEW ACORN'S CONSTRUCTION MANAGEMENT PLAN. CONTRACTOR SHALL REMAIN RESPONSIBLE ANTICIPATED PROJECT SCHEDULE AND CLOSURES. CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONSTRUCTION MANAGEMENT, MEANS AND METHODS, TRAFFIC CONTROL, ETC. SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF ADJACENT PROPERTIES INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL.

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR ENGINEER'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
9. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
10. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE.
12. THE ENGINEER BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.

3. ALL SITE SOILS—RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS, AS WELL AS SITE DRAINAGE, SHALL BE REVIEWED BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF MAINE.
4. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT.
5. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.
6. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
7. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
8. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
9. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.
10. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, OR ELEVATION AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO THEIR ORIGINAL LOCATION BY A REGISTERED LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALE DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
3. SIGNAGE, STRIPING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF PORTLAND, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE, AND TO LOCATE PROPOSED FOUNDATION CORNERS.
6. CONTRACTOR TO ENSURE THAT DRIVEWAYS AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND IN USE AT ALL TIMES.

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF SITE PLAN – LEVEL III AND SUBDIVISION PERMIT FROM THE CITY OF PORTLAND.
2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY LOAM WILL BE ACCEPTABLE FOR REUSE WITH THEIR ESTIMATE.
2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING. CONTRACTOR SHALL REQUEST BORING LOGS FOR REFERENCE IF ANY ARE AVAILABLE.
3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY PRIVATE ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE OWNER. PRIOR TO THE CONTRACTOR BEGINNING THE WORK, THE CONTRACTOR SHALL REQUEST PROOF OF SUCH EASEMENT OR TEMPORARY RIGHTS. SHOULD EASEMENTS OR TEMPORARY RIGHTS NOT BE AVAILABLE THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. THE MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. NO ADDITIONAL PAYMENT FOR UNSUITABLE MATERIALS.
6. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF $N=0.012$ OR LESS.
7. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
8. NATIVE SOILS: IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER IF REQUESTED.

1. ALL ROUTINE MAINTENANCE ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
2. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
3. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.
5. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.
6. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR TO BYPASS EXISTING SEWER FLOW CONTROL AT CONNECTION TO EXISTING SYSTEM AT NO ADDITIONAL COST.
3. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES.
4. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED BEFORE BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
5. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.
6. CONTRACTOR TO PROVIDE 5-6' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.

7. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAIN ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN ON SHEET C-42.
8. WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT "WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURES", MOST RECENT REVISION.
9. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH CITY OF PORTLAND, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
10. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
11. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
13. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
14. COORDINATE EXIT POINT FOR SECONDARY SERVICE WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN ENGINEERING WITHIN THE UTILITY PLAN.
15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.
16. 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.

[illegible]

LEGEND

- Monument — found
- Iron marker — found
- Property line (locus)
- Property line (abutter)
- Right of way line
- Fence
- Board fence
- Edge of pavement
- Curb
- Sign
- Utility pole
- Guy wire
- Gas valve
- Water valve
- Water shutoff
- Fire hydrant
- Sewer manhole
- Manhole
- Catch basin
- Overhead utility line
- Sewer line
- Storm drain
- Underground water line
- Underground gas line
- Contours (1ft)
- Contours (5ft)
- FFE
- Finished floor elevation
- N/F
- Now or formerly of
- Deed reference (Book/Page)
- Coniferous tree
- Existing building
- Concrete

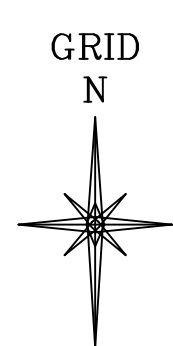
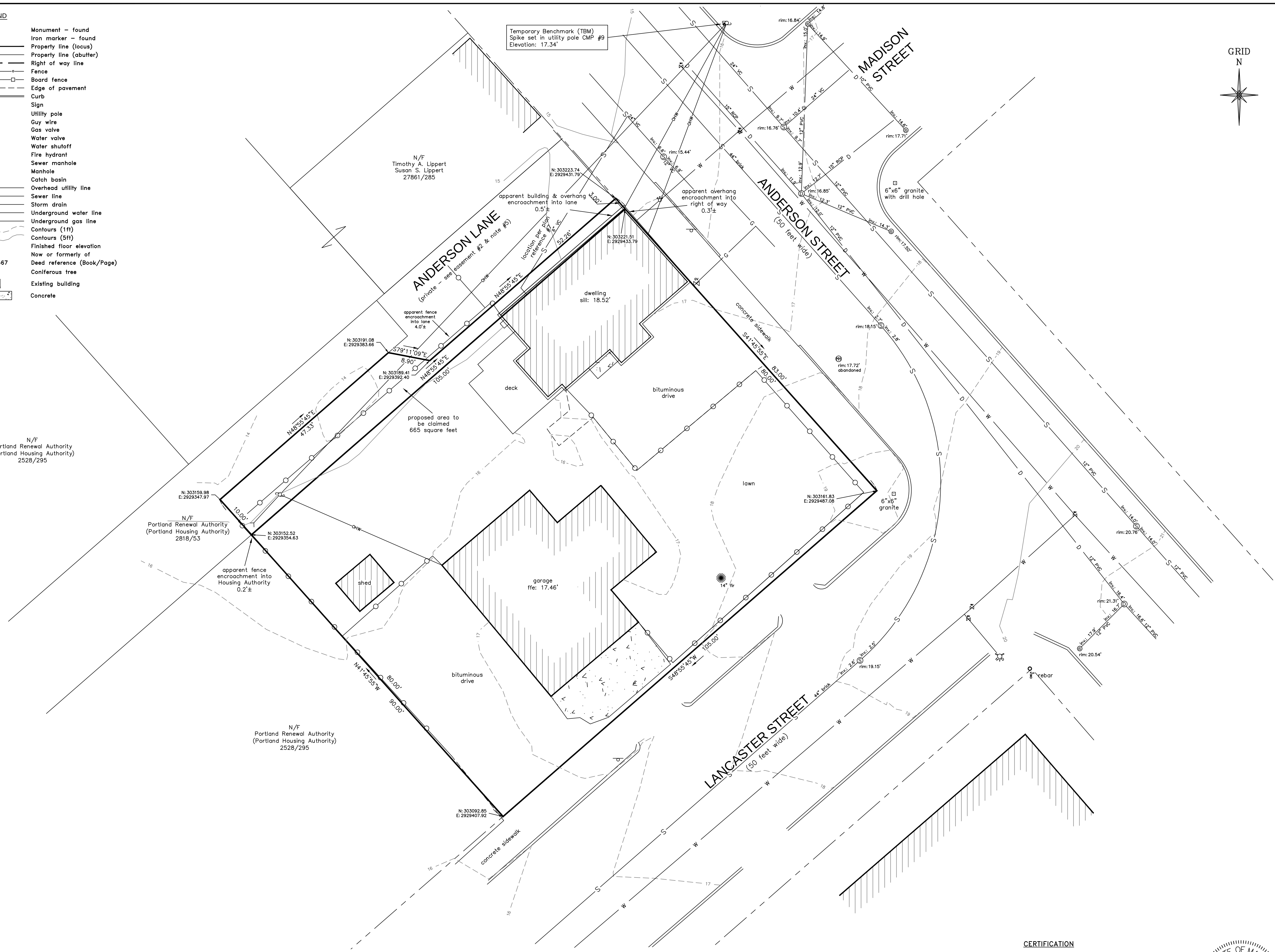
N/F
Portland Renewal Authority
(Portland Housing Authority)
2528/295

N/F
Portland Renewal Authority
(Portland Housing Authority)
2818/53

N/F
Portland Renewal Authority
(Portland Housing Authority)
2528/295

N/F
Timothy A. Lippert
Susan S. Lippert
27861/285

Temporary Benchmark (TBM)
Spike set in utility pole CMP #9
Elevation: 17.34'



VICINITY MAP
No Scale

NOTE:

- 1) Book and Page references are to the Cumberland County Registry of Deeds.
- 2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone. Coordinate information based on City of Portland Existing Conditions Survey for Anderson Street, Fox Street, and Gould Street dated April 1, 2014 provided by the City of Portland Engineering Department.
- 3) Elevations are based on City of Portland Datum derived from a benchmark located at the intersection of Fox Street & Anderson Street. Elevation data provided by City of Portland Engineering Department.
- 4) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.
- 5) The fee interest in Anderson Lane apparently lies with the heirs of Moses Gould as described in a deed recorded in Book 290, Page 310.
- 6) Property lies within Zone C based on FIRM Community #230051 Panel #0013-B, dated July 17, 1986. It does not lie within a special flood hazard area.
- 7) Project area was covered by snow and ice at the time of the survey and some features may have been obscured and not shown on this plan.

LAN REFERENCE:

- 1) Plan of Property made for Bayside Park Urban Renewal Project ME R-1 (Condemnation Area IV) by H.I. & E.C. Jordan dated March 26, 1964. Recorded in Plan Book 67, Page 12.
- 2) Plan of Property made for Bayside Park Urban Renewal Project ME R-1 (Condemnation Area III) by H.I. & E.C. Jordan dated September 13, 1962. Recorded in Plan Book 61, Page 65.
- 3) Street right of way locations obtained from the City of Portland Engineering Department.
- 4) Plan of Boundary Survey made for Redfern Properties by Titcomb Associates dated October 2, 2015.
- 5) Plan of Anderson Street Reconstruction by City of Portland, Maine Parks and Public Works Department dated October 13, 1994, Sheets 2 and 3 of 30. On file at the City of Portland Engineering Department.
- 6) Plan of Madison Street & Greenleaf Street Reconstruction by Gorilla-Palmer dated May 2009. On file at the City of Portland Engineering Department.
- 7) Sewer Connection Card for #70 Anderson Street by Portland Sewer Division dated January 4, 1962.

EA EMENT ENC MBRANCE:

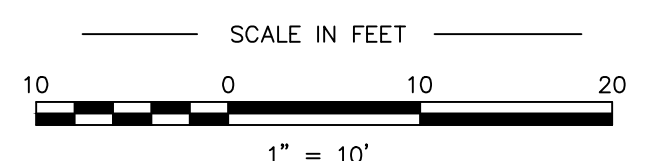
- 1) Subject to covenants and restrictions as set forth in a deed from Portland Renewal Authority recorded in Book 3129, Page 374; as affected by Quitclaim Deed from Portland Renewal Authority to Cecelia M. Bickford recorded in Book 32559, Page 280.
- 2) Rights to Anderson Lane exist as described in a deed between Moses Gould and Thomas McEwan recorded in Book 293, Page 128.

AREA

8,400 Square Feet

OWNER OF RECORD

Redfern Properties LLC
PO Box 8816
Portland, ME 04104
Book 32559, Page 282

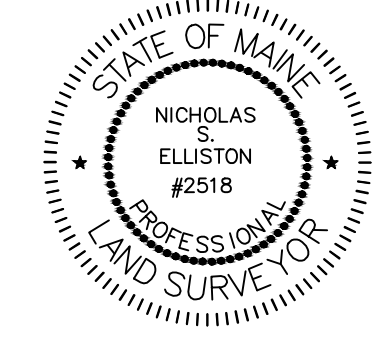


CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston

Nicholas S. Elliston, P.L.S. #2518



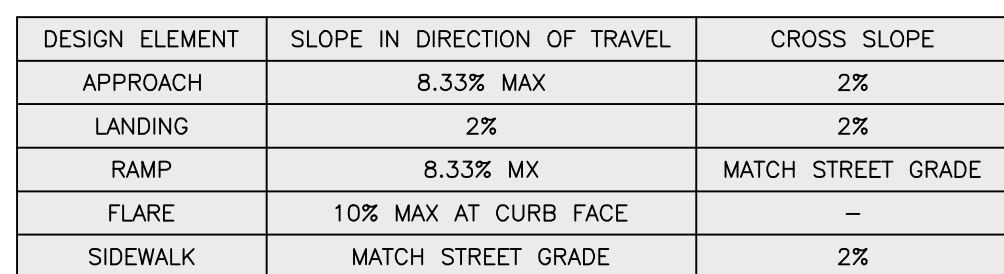
REV. 1 05/02/16 Additional topography, proposed additional property nse		
PLAN OF Existing Conditions		
70 Anderson Street Portland, Maine		
MADE FOR Redfern Properties		
PO Box 8816 Portland, Maine		
JOB #215064	DATE: January 14, 2016	SCALE: 1" = 10'
BOOK #890	 133 Gray Road, Falmouth, Maine 04105 (207)797-9199 www.titcombsurvey.com	
215064_R1.dwg		
FILE #9804		

*REFER TO BUILDING ELEVATION PLANS AS DEVELOPED BY RYAN SENATORE ARCHITECTURE
 **PER SECTION 14-487 OF THE TECHNICAL MANUAL, ALL DEVELOPMENTS MEETING THE WORKFORCE HOUSING UNIT REQUIREMENT ARE SUBJECT TO A 25% DENSITY BONUS

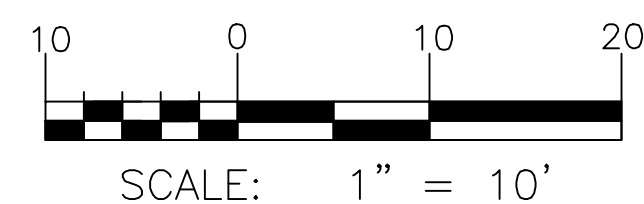
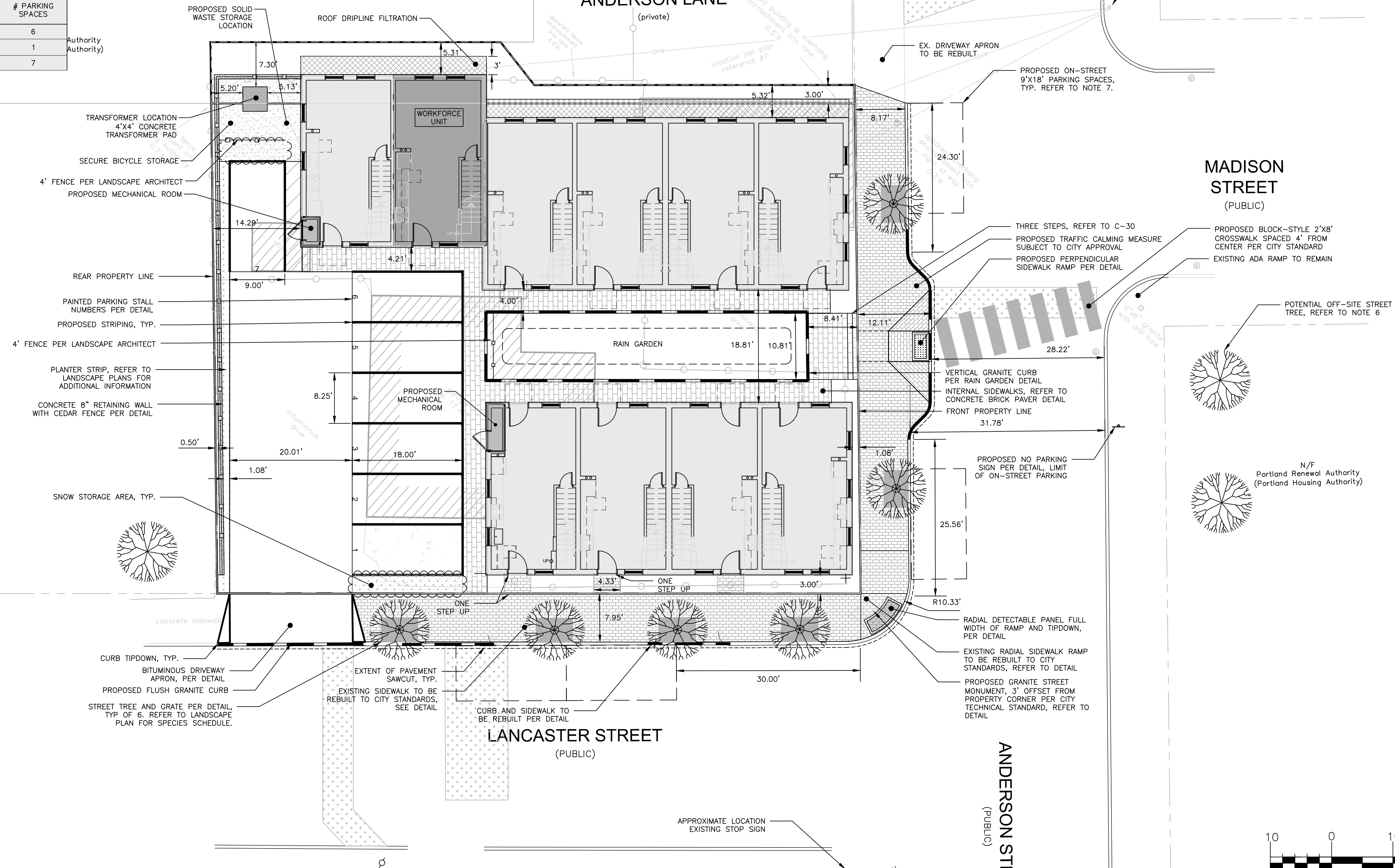
1. CONTRACTOR SHALL PLACE NEW CURBING IN LOCATIONS WITHOUT EXISTING CURBING, IN ACCORDANCE WITH DETAIL. EXISTING TYPEDOWNS ARE LOCATED AT ALL CURB CUTS, FOR PURPOSES OF BIDDING, CONTRACTOR SHALL NOTE THAT ALL TYPEDOWNS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH DETAIL, AND THAT EXISTING TYPEDOWNS MAY NOT MEET THE PORTLAND STANDARD.
2. INTERIOR STRIPING AS INDICATED ON SITE PLAN SHALL BE 4" WIDE. STRIPING SHALL BE WHITE UNLESS OTHERWISE NOTED.
3. REFERENCE TO THE LANDSCAPE PLAN DEVELOPED BY SOREN DENIGRO DESIGN STUDIO FOR PLANTING SCHEDULES AND ASSOCIATED PLANTING DETAILS.
4. PER SECTION 14-332.1(k), NO PARKING IS REQUIRED FOR THE FIRST THREE UNITS IN THE R-6 ZONE.
5. SNOW STORAGE SHALL BE CONFINED IN DESIGNATED AREAS ONLY, SNOW TRANSPORTED OFFSITE TO BE BROUGHT TO A MAINE DEP APPROVED "SNOW MOUND" UNLESS SPECIFIED OTHERWISE IN MAINE DEP CHAPTER 573. SNOW CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO VEGETATION, LANDSCAPING, HARDSCAPING, OR BUILDINGS, INCLUDING REPAIRS, ARISING FROM THEIR ACTIVITIES AND MUST ENSURE THAT ALL UTILITIES ARE ACCESSIBLE.
6. OFF-SITE PLANTING OF STREET TREES ON PORTLAND HOUSING AUTHORITY LANDS SHALL BE 10 FEET TALL, 1.5" DBH, AND 100% SURVIVAL. IF AN AGREEMENT WITH PORTLAND HOUSING AUTHORITY, IF NO AGREEMENT IS REACHED, A CONTRIBUTION TO THE PORTLAND TREE FUND WILL BE MADE PER CITY REQUIREMENT.
7. ONLY STREET PARKING DELINEATION IS FOR GRAPHIC REPRESENTATION ONLY AND NOT FOR CONSTRUCTION.

PARKING SUMMARY	
PARKING DIMENSION	# PARKING SPACES
COMPACT (8.25'X18')	6
STANDARD (9'X18')	1
TOTAL SPACES	7

POTENTIAL OFF-SITE STREET
TREE, REFER TO NOTE 6



PERPENDICULAR SIDEWALK RAMP
1" = 5'



FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
100 BOA BOYS PORTLAND, ME 04104


ACORN ENGINEERING, INC.
 58 DANFORTH ST., PORTLAND, MAINE 04102
 (207) 775-2655

FILE:	1067_CIVIL
IN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS



DRAWING NO.

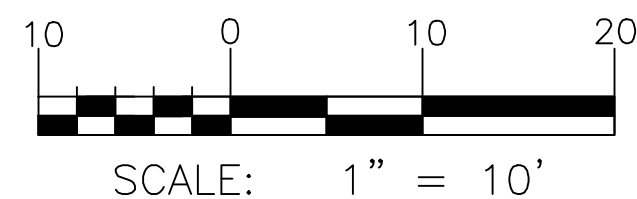
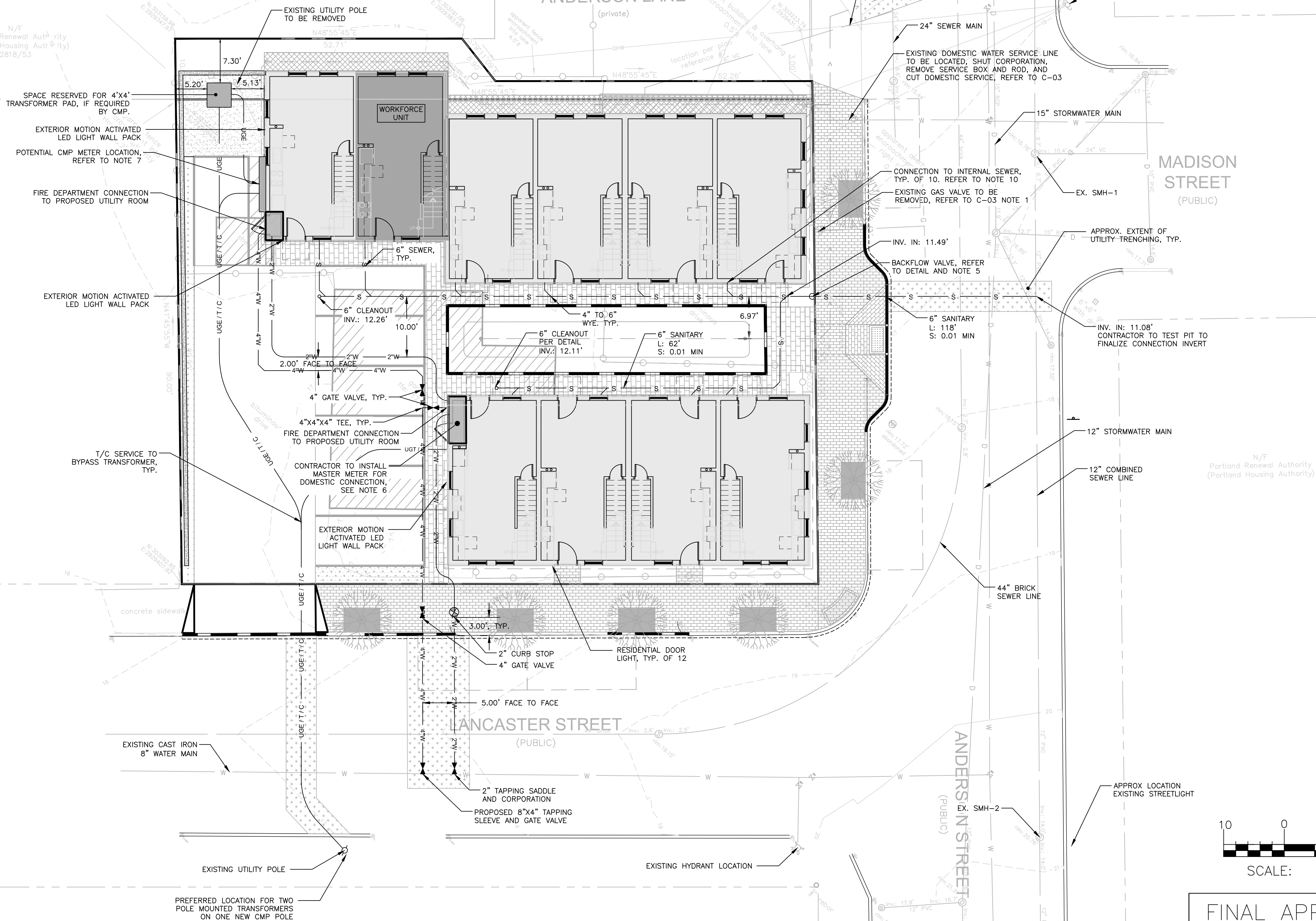
C-10

2. STORMWATER DRAINAGE INFRASTRUCTURE INDICATED ON SHEET C-30.
3. LOCATION OF PROPOSED CONNECTIONS APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
4. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT OR COMPLETE. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH UTILITY COMPANY AND DIS. SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO BE AWARE OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY SURVEY, PRIOR TO ANY CHANGES.
4. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS EXTEND TO OUTSIDE WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
5. SEWER: SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. IF THE EXISTING 24" VC SEWER MAIN IN ANDERSON STREET CONTINUES PAST THE PROPERTY AS DETERMINED DURING TEST FITTING, CONTRACTOR TO CONNECT TO EITHER SEWER MAIN; CONTRACTOR TO CONTACT ENGINEER BEFORE CONNECTING TO SEWER MAIN. CONTRACTOR TO CONTACT ENGINEER FOR FIELD CONDITIONS FROM INVERT VARY FROM DESIGN.
6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY MEP ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE PROVIDED BY MEP ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. WATER PIPE SIZES MAY BE SMALLER THAN PROPOSED WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES FROM PORTLAND WATER DISTRICT, CITY OF PORTLAND.
7. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION BY M.E.P. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. TELEPHONE AND CABLE SERVICE TO BYPASS CMP TRANSFORMER; M.E.P. TO FINALIZE SERVICE CONNECTION LOCATION TO PROPERTY.
8. GAS UTILITIES: NO GAS SERVICE IS PROPOSED TO THE SITE.
9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY FAIRPOINT AND CHARTER COMMUNICATIONS PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE.
10. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTION LOCATION TO EACH RESIDENTIAL UNIT.
11. IF THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE SANITARY SEWER LATERAL AND DOMESTIC WATER SERVICE LINES CANNOT BE ACHIEVED, THEN A MINIMUM OF 18" VERTICAL AND HORIZONTAL SEPARATION IS TO BE MET. ARCHITECT AND M.E.P. TO FINALIZE FINAL SERVICE CONNECTION LOCATIONS.

MINIMUM HORIZONTAL UTILITY SEPARATION					
UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	—	6'	5'	4'	6'
WATER	6'	—	5'	6'	3'
SEWER	5'	5'	—	5'	10'
GAS	4'	6'	5'	—	6'
STORMWATER	6'	3'	10'	6'	—

STRUCTURE SCHEDULE				
STRUCTURE	INTERIOR DIAMETER	RIM	INV. IN	INV. OUT
EX. SMH-1	—	16.76'	9.7' (12" PVC) 10.4' (24" VC)	9.7' (24" VC)
EX. SMH-2	—	20.76'	14.0' (12" PVC)	14.0' (12" PVC)

* EXISTING STRUCTURES AS DEFINED BY THE EXISTING CONDITIONS SURVEY DATED MAY 2ND, 2016 BY TITCOMB ASSOCIATES



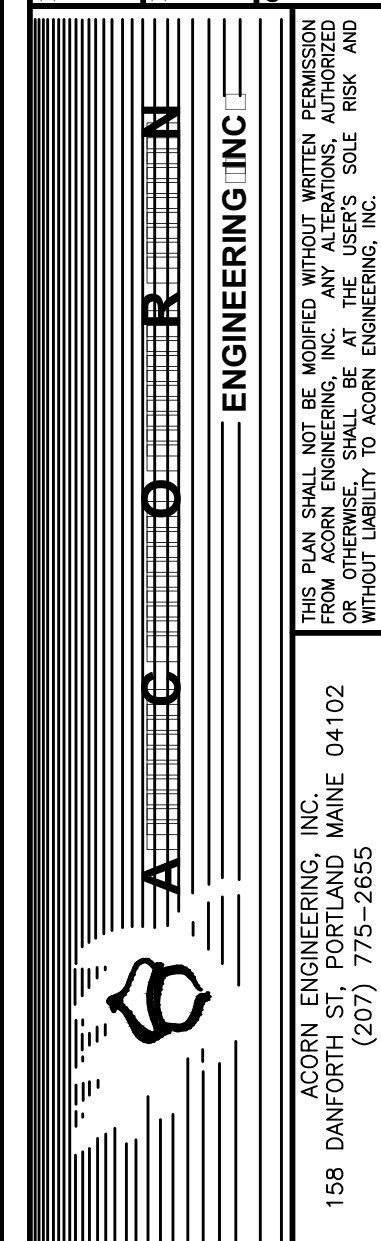
FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

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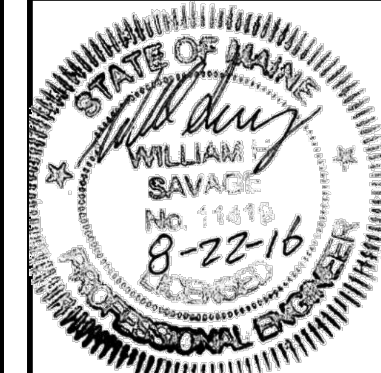
DRAWING NAME: UTILITY PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104



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JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

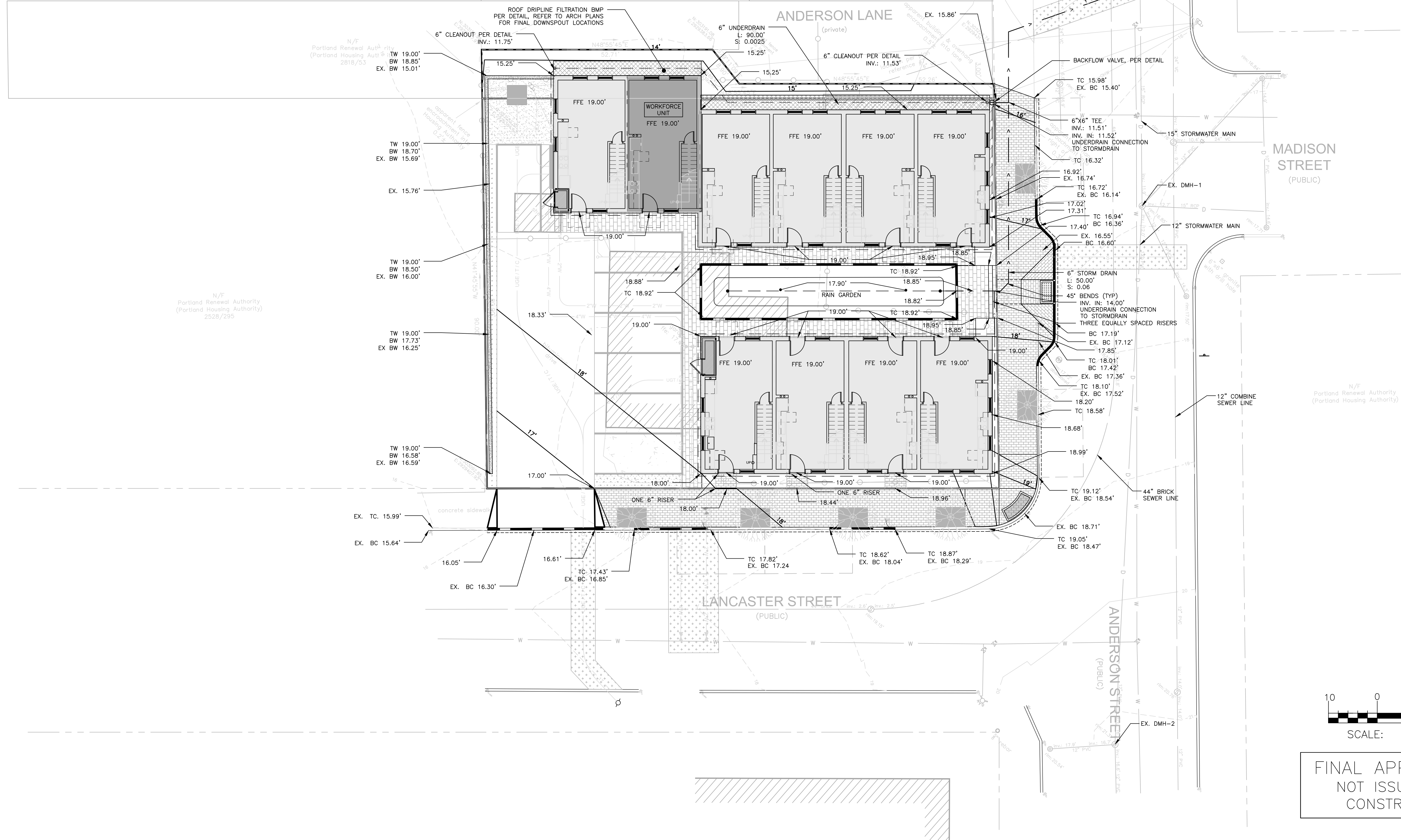


DRAWING NO.
C-20

1. REFER TO STRUCTURAL ENGINEER'S PLANS FOR FOUNDATION WALL DESIGN. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
2. CONTRACTOR SHALL ENSURE THAT FOUNDATION DRAINS AND UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
3. REFER TO THE STORMWATER REPORT FOR STORMWATER ANALYSIS AND BMP SIZING CALCULATIONS.

STRUCTURE SCHEDULE				
STRUCTURE	INTERIOR DIAMETER	RIM	INV. IN	INV. OUT
EX. DMH-1	—	16.85'	12.9' (N 12" PVC) 12.7' (NE 15" RCP) 12.3' (SE 12" PVC) 12.0' (S 12" PVC)	11.9' (NW 15" RCP)
EX. DMH-2	—	21.31'	16.5' (SE 12" PVC) 16.2' (SW 12" PVC)	16.4' (NW 12" PVC)

* EXISTING STRUCTURES AS DEFINED BY THE EXISTING CONDITIONS SURVEY DATED MAY 2ND, 2016 BY ITICOMB ASSOCIATES

[illegible]

DRAWING NAME: **GRADING & DRAINAGE PLAN**

PROJECT NAME: **70 ANDERSON ST REDEVELOPMENT**

CLIENT: **REDFERN PROPERTIES, LLC**
P.O. BOX 5815 PORTLAND, ME 04104

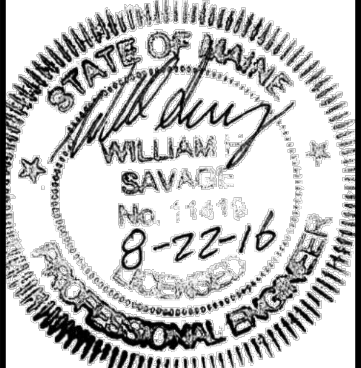
ACORN ENGINEERING, INC.
158 DANFORTH ST., PORTLAND MAINE 04102
(207) 775-2655

THIS PLAN SHALL NOT BE MOIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY THE ENGINEER, SHALL BE INDICATED BY A "C" FOR CHANGE, AND WITHOUT LIABILITY TO ACORN ENGINEERING.

A C O R N

ENGINEERING INC.

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JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS



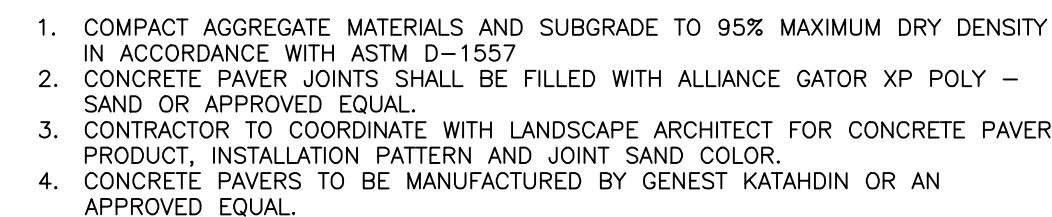
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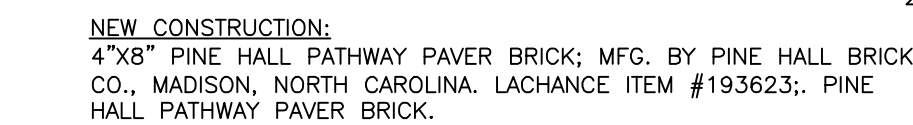
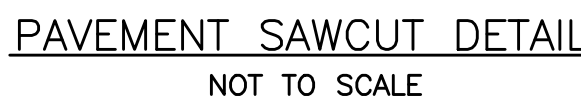
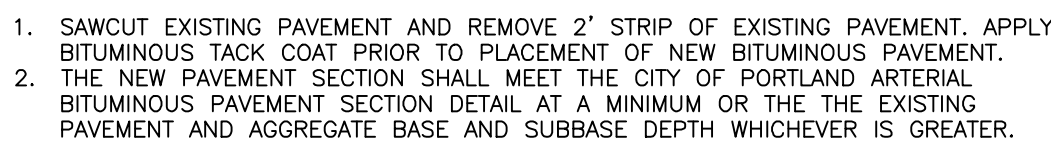
CITY OF PORTLAND ARTERIAL
BITUMINOUS PAVEMENT PROFILE:
ANDERSON STREET
NOT TO SCALE



LOCAL BITUMINOUS PAVEMENT PROFILE:
EAST LANCASTER STREET
PRIVATE PARKING LOT
NOT TO SCALE

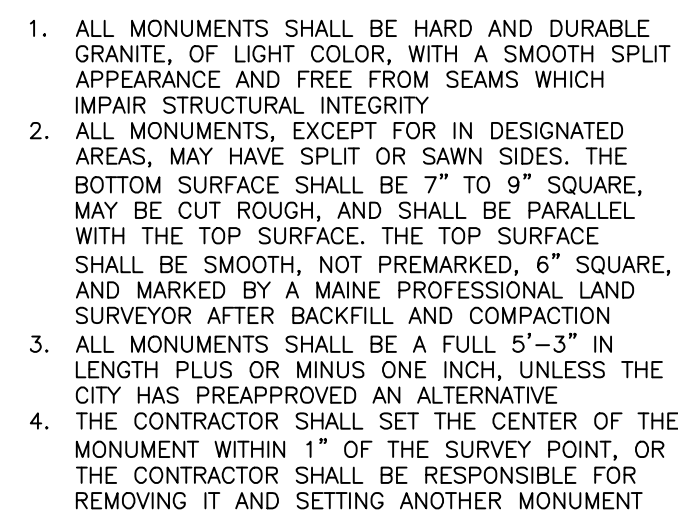
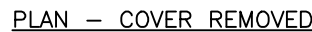


CONCRETE BRICK PAVER PROFILE
NOT TO SCALE



2. INSTALL BRICK FLUSH UP TO BUILDING, PAVEMENT, STAIRS, CONCRETE SURFACES, CURB OR LANDSCAPED AREAS.

BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL
NOT TO SCALE



GRANITE STREET MONUMENT
NOT TO SCALE



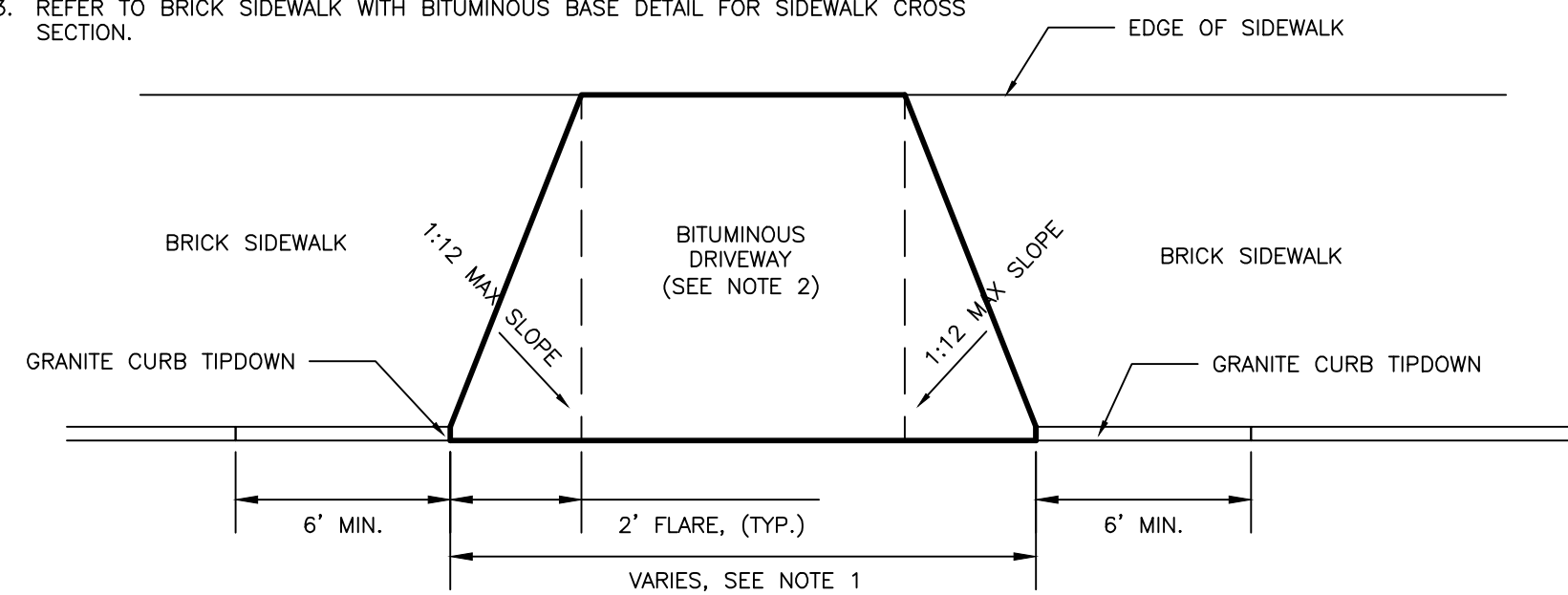
1. CURB SHALL BE RESET IN ACCORDANCE WITH MDOT 609.08 WITH THE EXCEPTION OF CURB SPACING TO BE INSTALLED PER DETAIL.

VERTICAL GRANITE CURB AND TIPDOWN INSTALLATION IN EXISTING STREETS DETAIL



BITUMINOUS DRIVEWAY APRON DETAIL
NOT TO SCALE

1. REFER TO GRADING, DRAINAGE AND EROSION CONTROL PLANS FOR SITE GRADING.
2. REFER TO BITUMINOUS DRIVEWAY APRON DETAIL FOR APRON CROSS-SECTION.
3. REFER TO BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL FOR SIDEWALK CROSS-SECTION.



DRIVEWAY APRON LAYOUT DETAIL

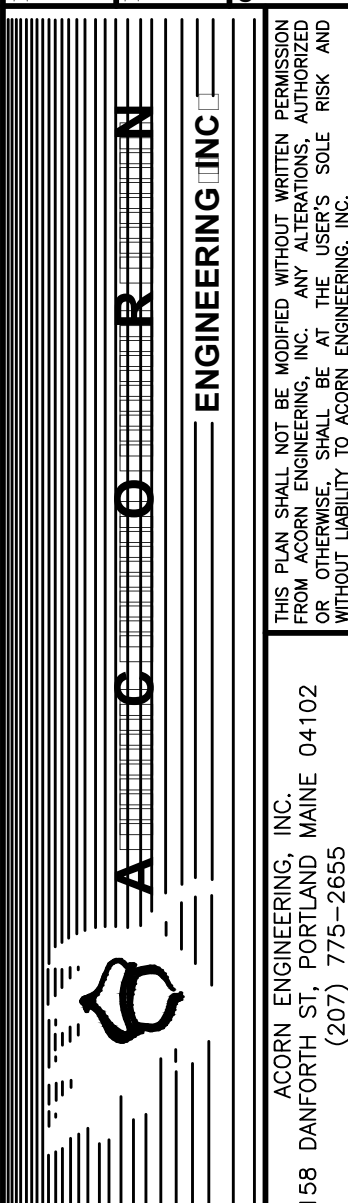
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FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

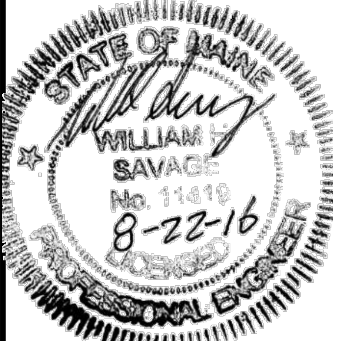
DRAWING NAME: SITE DETAILS - 1

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

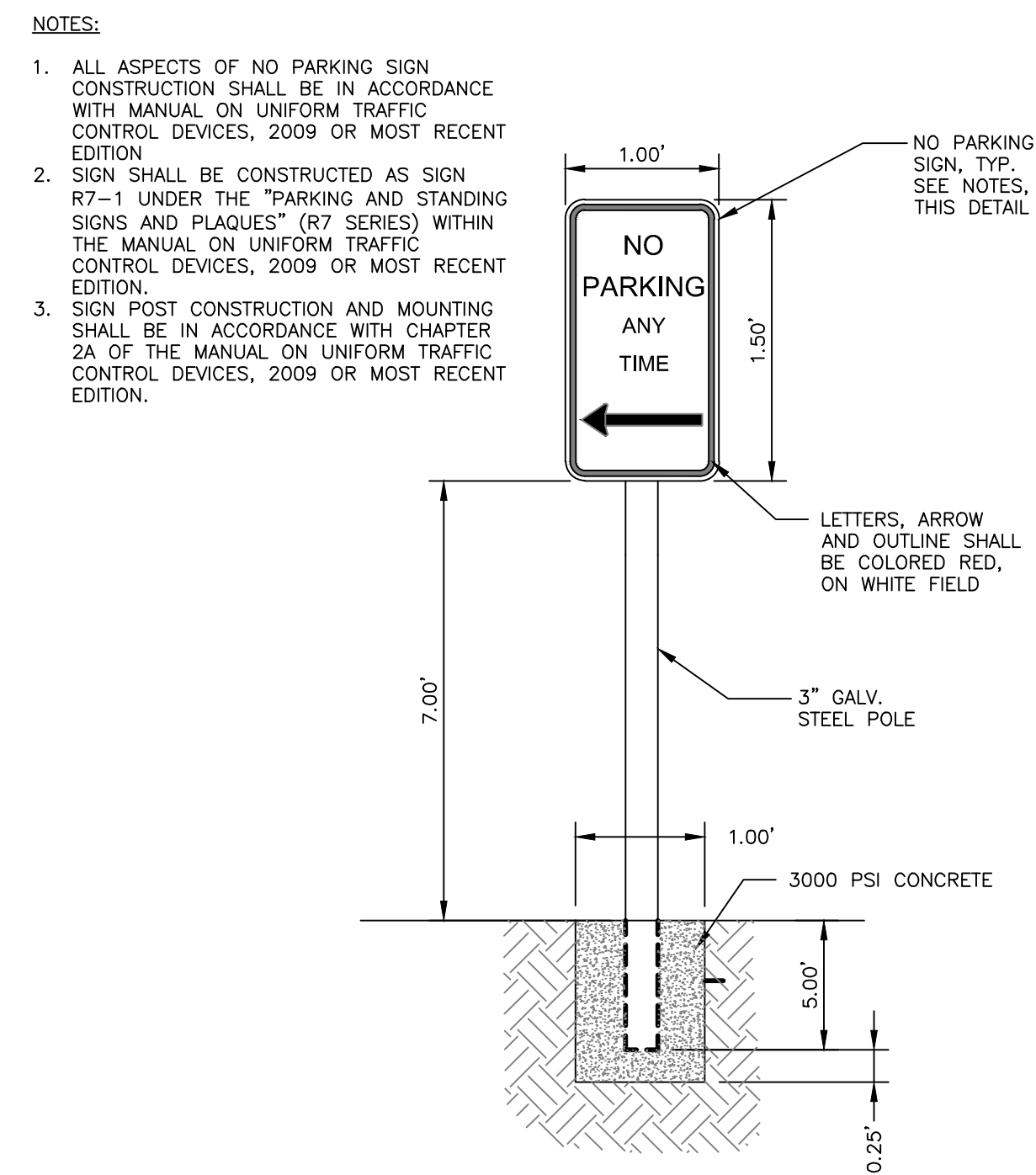
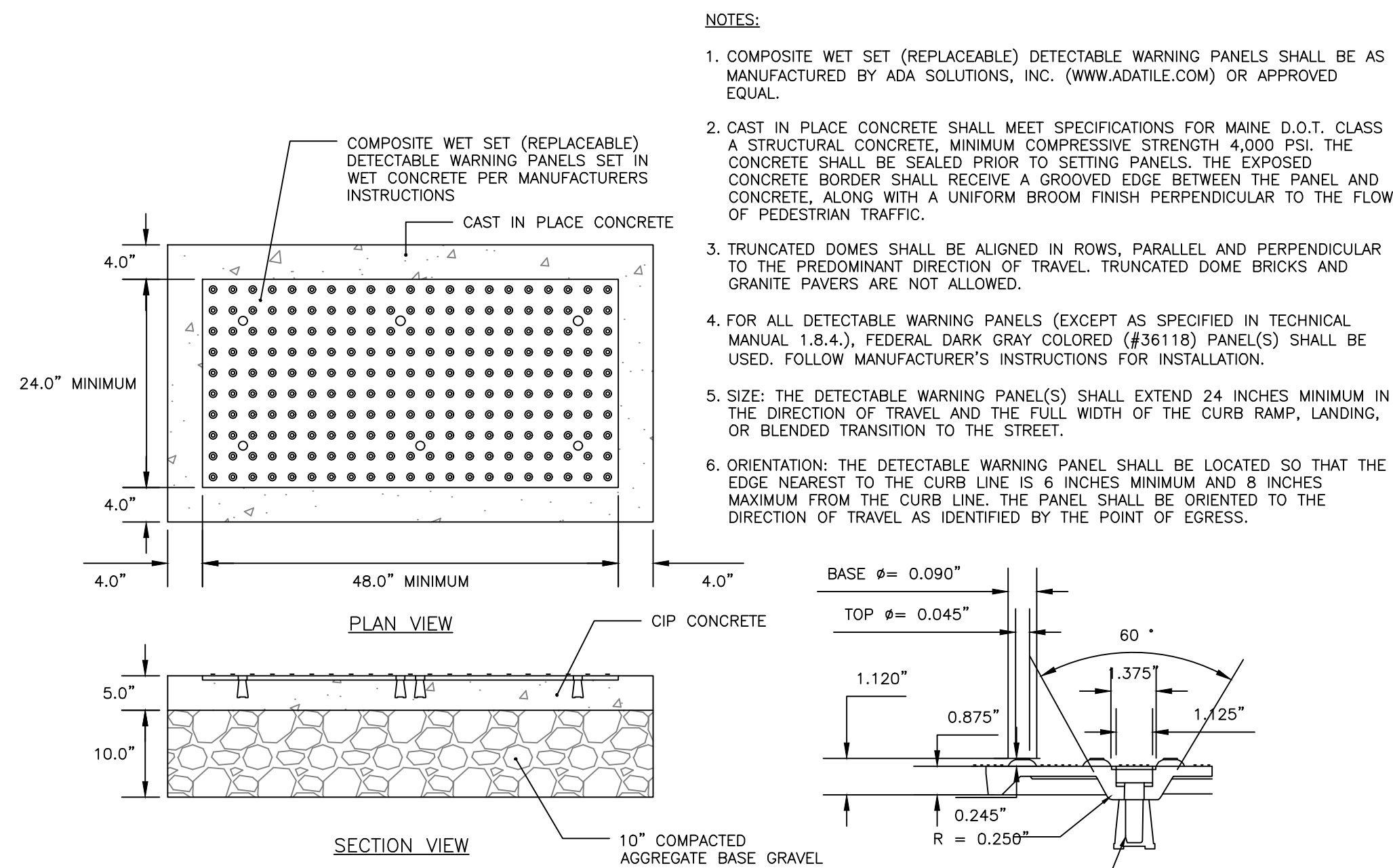
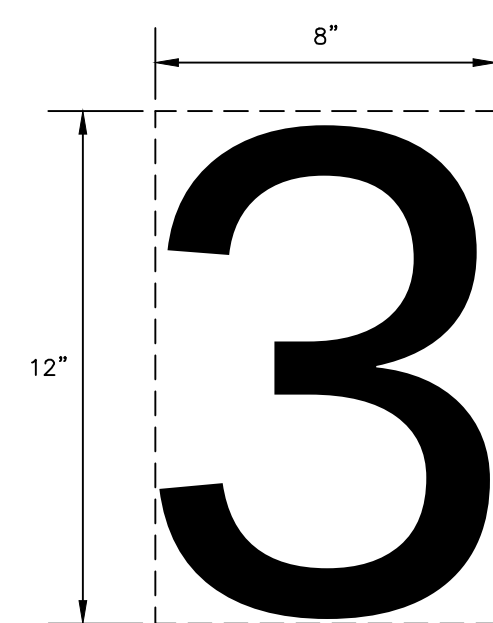
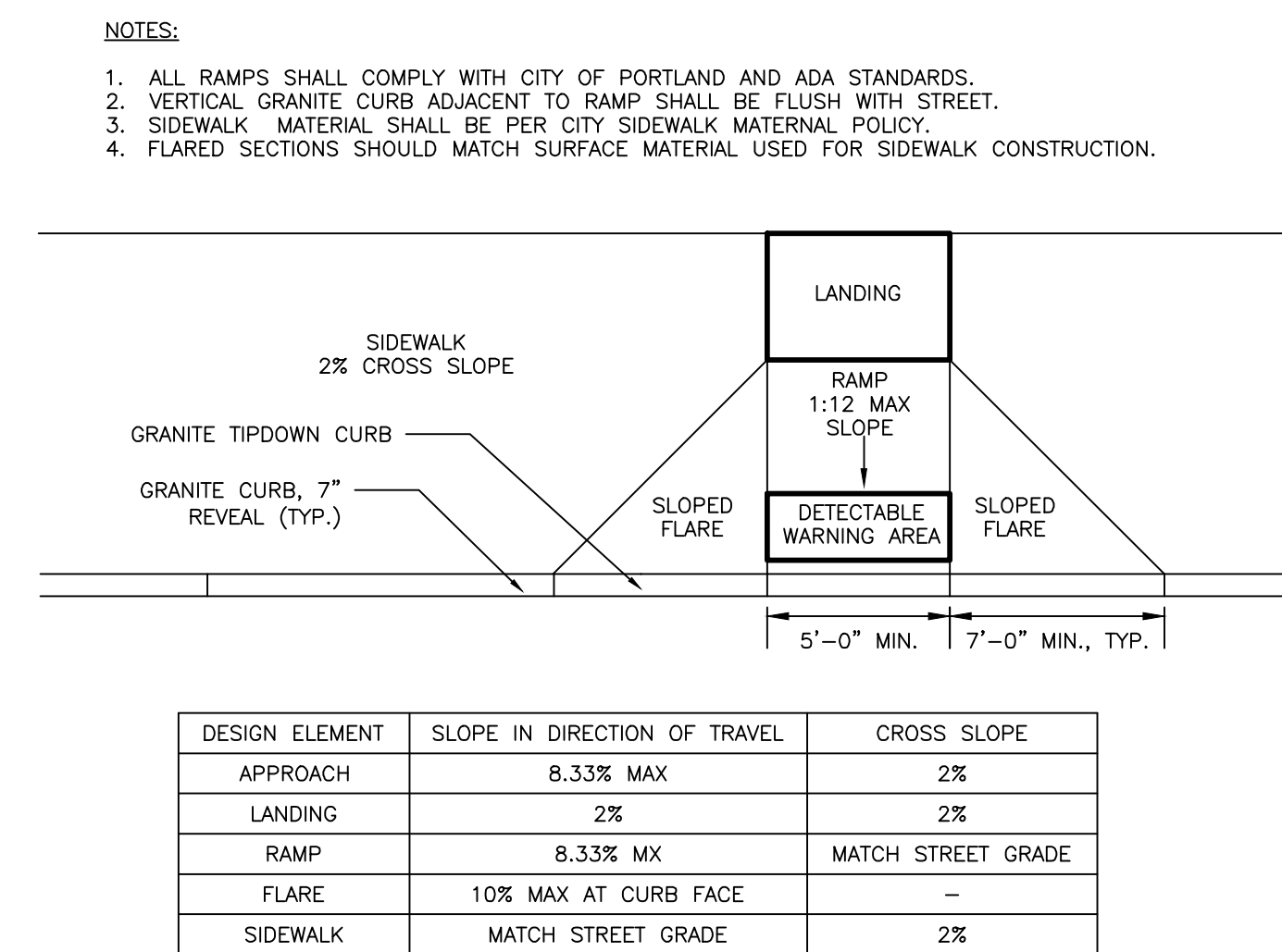
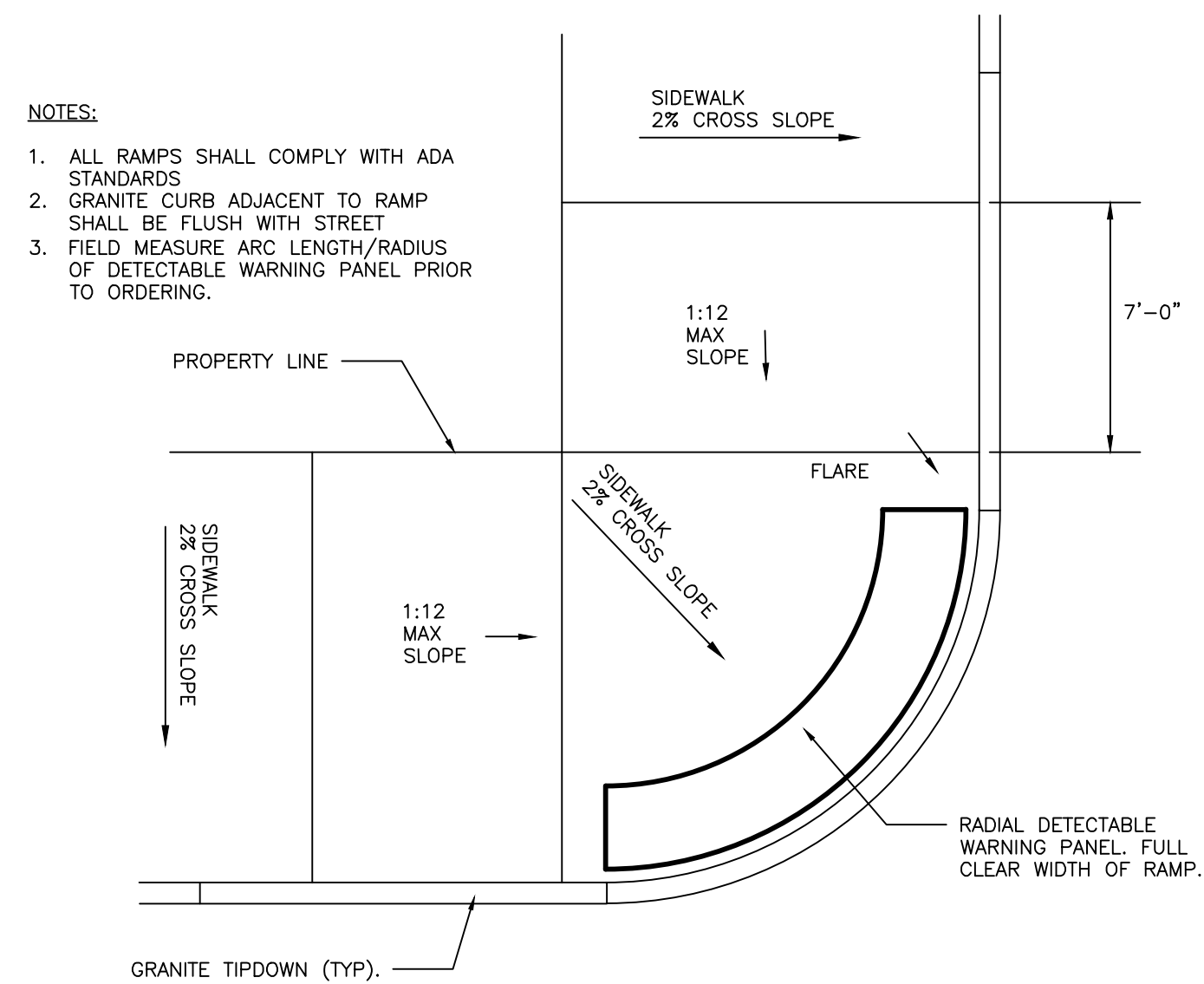


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SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS



DRAWING NO.

C-40



FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
PRELIMINARY APP	DATE
FINAL APP	WHS
	4/25/16
	WHS
	8/22/16
REVISION	REV.
	DATE

SITE DETAILS - 2

70 ANDERSON STREET REDEVELOPMENT

PROJECT NAME:

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104



ACORN ENGINEERING, INC.

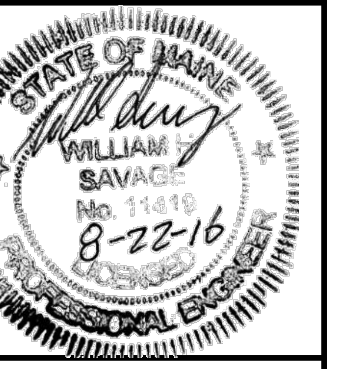
158 DANFORTH ST. PORTLAND MAINE 04102
(207) 773-2055

A C O R N

ENGINEERING INC.

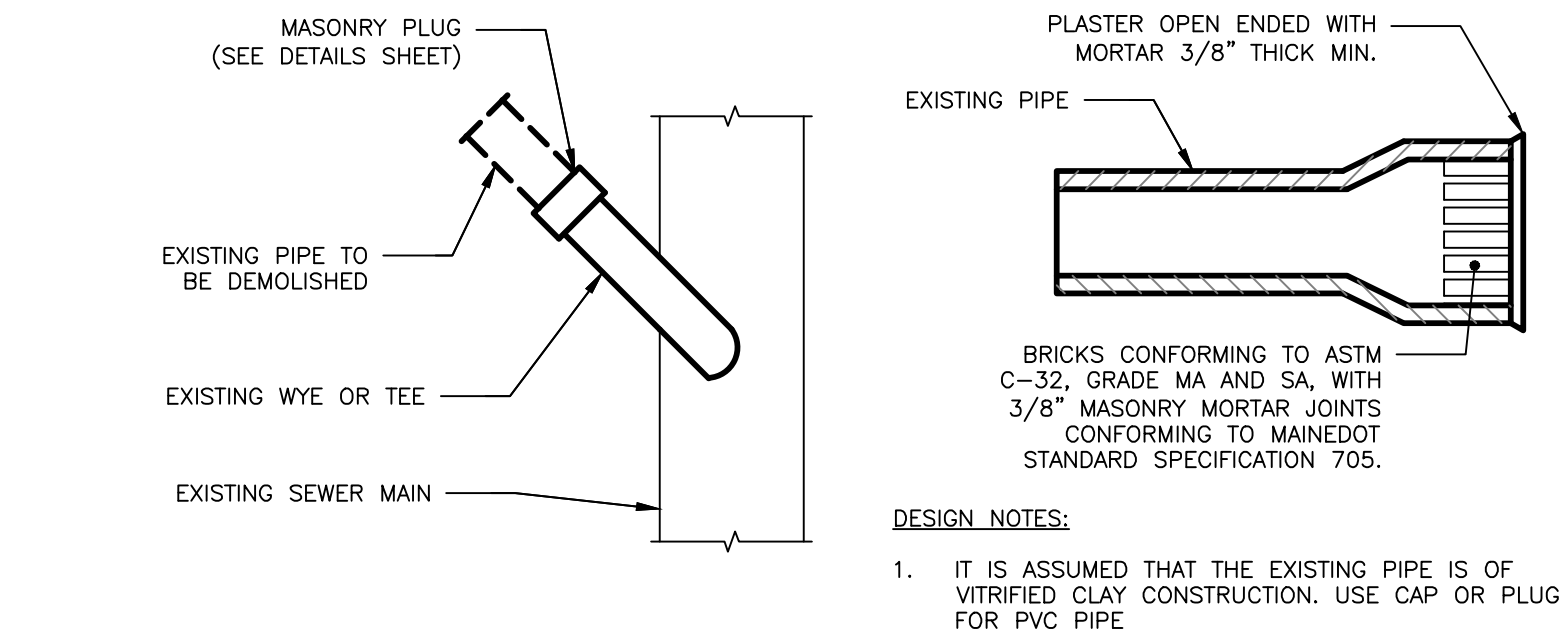
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION
FROM ACORN ENGINEERING, INC. THE USER'S SOLE RISK
OR OTHERWISE, SHALL BE IN THE USER'S SOLE RISK
AND WITHOUT LIABILITY TO ACORN ENGINEERING.

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N:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

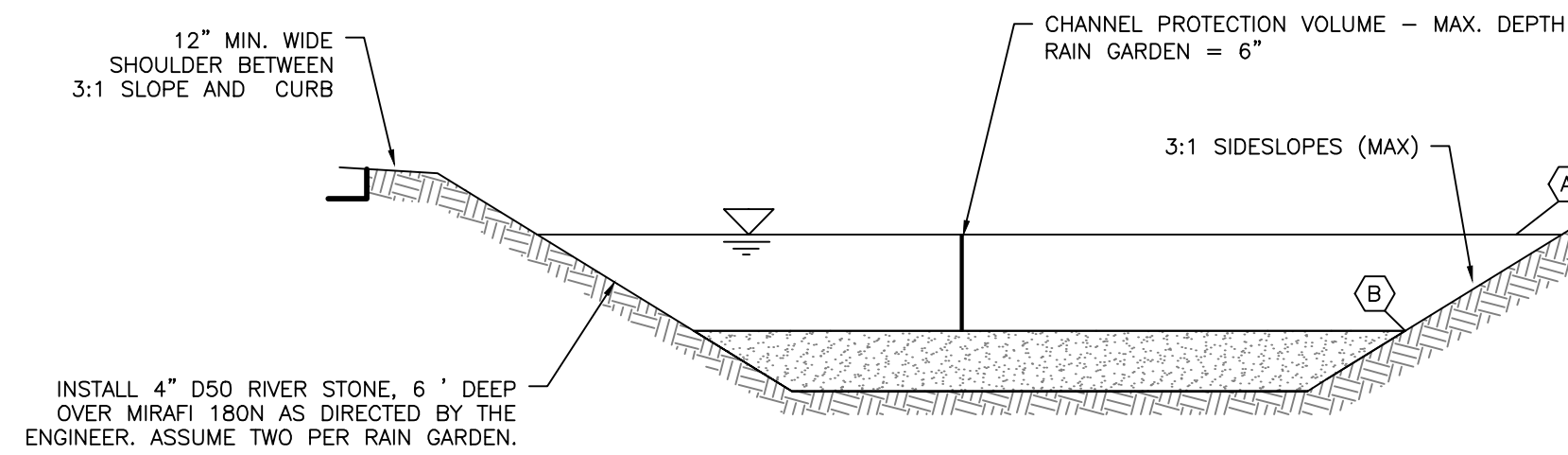


DRAWING NO.
C-41

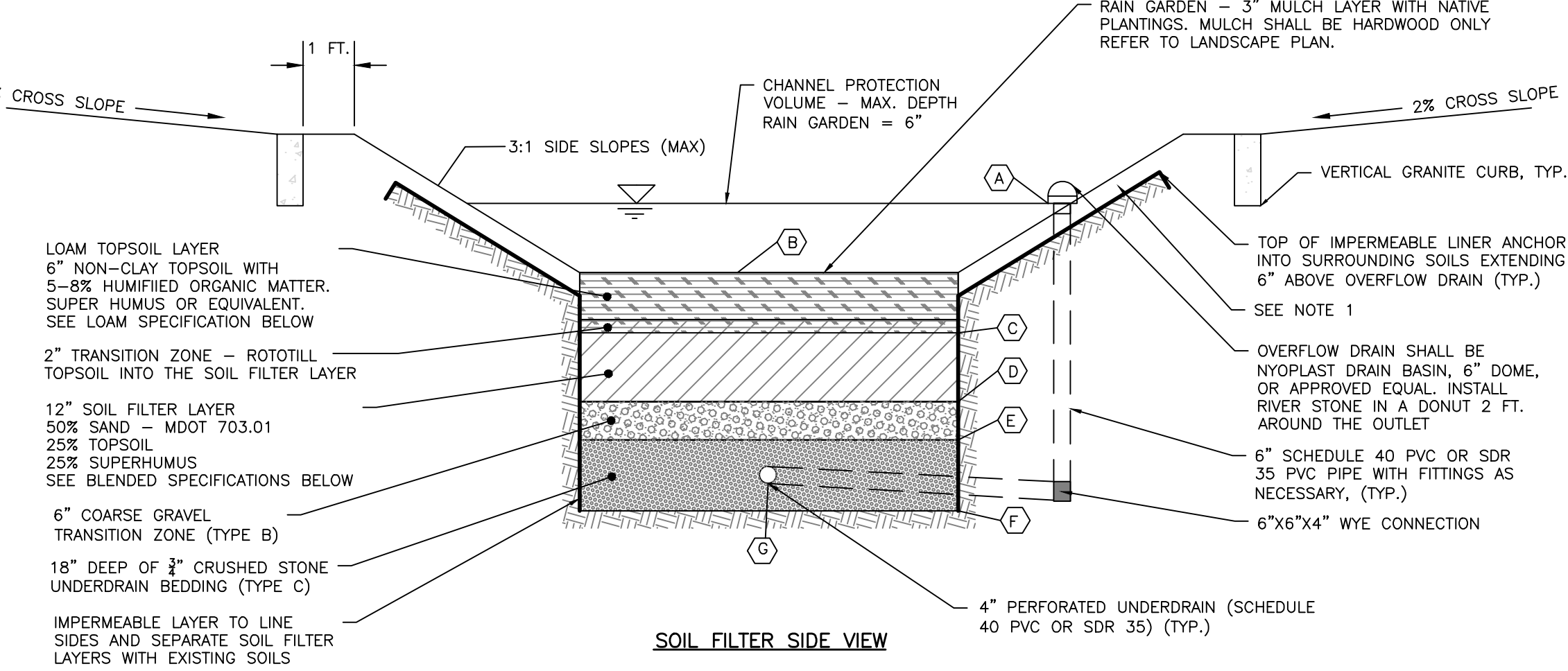
C-42



MASONRY PLUG DETAIL
NOT TO SCALE



SOIL FILTER CROSS SECTION



SOIL FILTER SIDE VIEW

NOTES:

1. WRAP ALL SIDES BETWEEN THE SOIL FILTER MATERIALS, IMPERMEABLE LINER AND EXISTING SOILS WITH MIRAFI 180N OR EQUIVALENT.
2. THE SIDESLOPES SHALL BE STABILIZED WITH A MIN. OF 4" LOAM, EROSION CONTROL BLANKETS SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL AND A CONSERVATION SEED MIX.
3. LIGHT COMPACTION SOIL FILTER AND PIPE BEDDING MATERIAL (90 TO 92% STANDARD PROCTOR). TESTING SHALL BE PERFORMED BY A QUALIFIED MATERIAL TESTING FIRM.
4. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.
5. A SCHEDULE OF APPROPRIATE PLANTS FOR THE RAIN GARDENS AT THE SITE CONDITIONS IS LOCATED IN THE GRADING PLAN. LANDOWNER IS TO FINALIZE THE SCHEDULE.
6. TESTING: SIEVE ANALYSIS INCLUDING HYDROMETER TESTING FOR CLAY CONTENT FOR EACH LAYER SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION. ALL TESTING AND SUBMITTALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE MAINE DEP - TECHNICAL DESIGN MANUAL, SECTION 7.2.5 TESTING AND SUBMITTALS.
7. ACORN ENGINEERING, INC., RECOMMENDS THE SOIL FILTER LAYER BE SUPPLIED BY JONES ASSOCIATES, INC., AUBURN, ME.

6" LOAM TOPSOIL LAYER SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	75 - 95
#10	60 - 90
#40	35 - 85
#200	20 - 70

1. CLAY FRACTION <10% PASSING THE #200 SIEVE, <10% CLAY PASSING THE #200 SIEVE ALLOWED PER EMAIL FROM MARIANNE HUBERT - MDEP TO WILL SAVAGE DATED 9/20/13
2. LOAM SHALL BE LOOSE AND FRIABLE AND SHALL BE FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS OR ROOTS OR RHIZOMES OR "WITCH GRASS" OR OTHER UNDESIRABLE GRASSES.

SOIL FILTER BED -SUPERHUMUS OR EQUIV. SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
#200	0 - 5
MINIMAL CLAY CONTENT, NO MORE THAN 3 - 5% PASSING #200 SIEVE	

SOIL FILTER BED - UNDERDRAIN BEDDING (TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	0 - 75
#4	0 - 25
#10	0 - 5

12" SOIL FILTER BED - BLENDED SAND, LOAM, SUPERHUMUS SIEVE ANALYSIS	
SIEVE SIZE	% PASSING BY WEIGHT
#10	85 - 100
#20	70 - 100
#60	15 - 40
#200	8 - 15

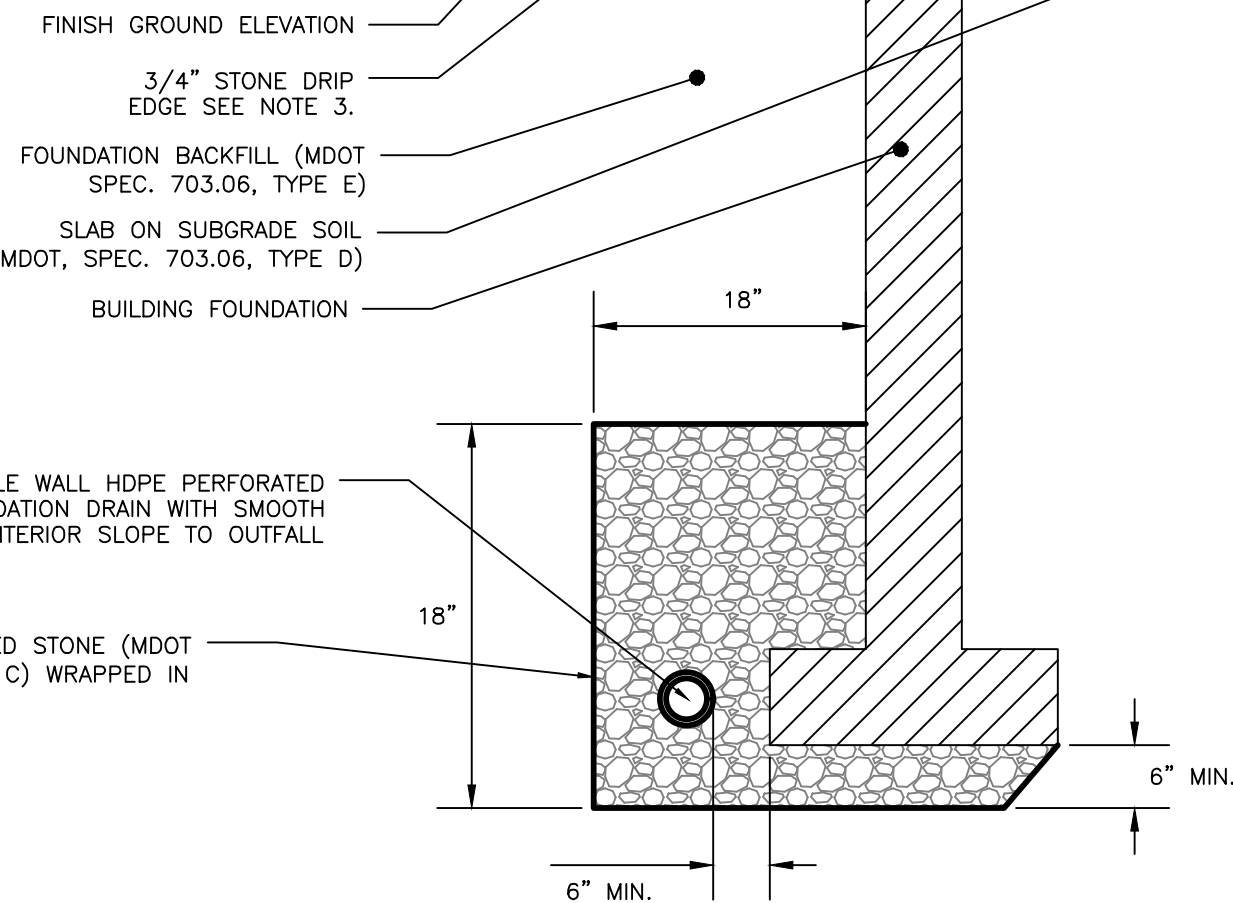
1. CLAY FRACTION <2% PASSING THE #200 SIEVE.
2. SUPERHUMUS OR EQUIV.

CONSTRUCTION OBSERVATION:

- CONSTRUCTION OBSERVATION SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY ACORN ENGINEERING. THE CONTRACTOR OR OWNERS REPRESENTATIVE SHALL NOTIFY ACORN ENGINEERING A MINIMUM 48 HOURS OR 2 BUSINESS DAY WHICH EVER IS GREATER PRIOR TO ANY OF THE PHASES OF CONSTRUCTION LISTED BELOW SO THAT THE FOLLOWING SITE VISITS MAY BE SCHEDULED.
1. ONE SITE VISIT AFTER PRELIMINARY CONSTRUCTION OF THE BIORETENTION CELL GRADES;
 2. ONE SITE VISIT DURING THE INSTALLATION OF THE IMPERVIOUS LINER.
 3. ONE SITE VISIT AFTER THE UNDER DRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
 4. ONE SITE VISIT DURING THE CONSTRUCTION OF THE SOIL FILTER LAYER.
 5. ONE SITE VISIT DURING THE CONSTRUCTION OF THE TOPSOIL LAYER.
 6. ONE SITE VISIT DURING THE FLOODING OF THE BIORETENTION CELL, IF REQUIRED.

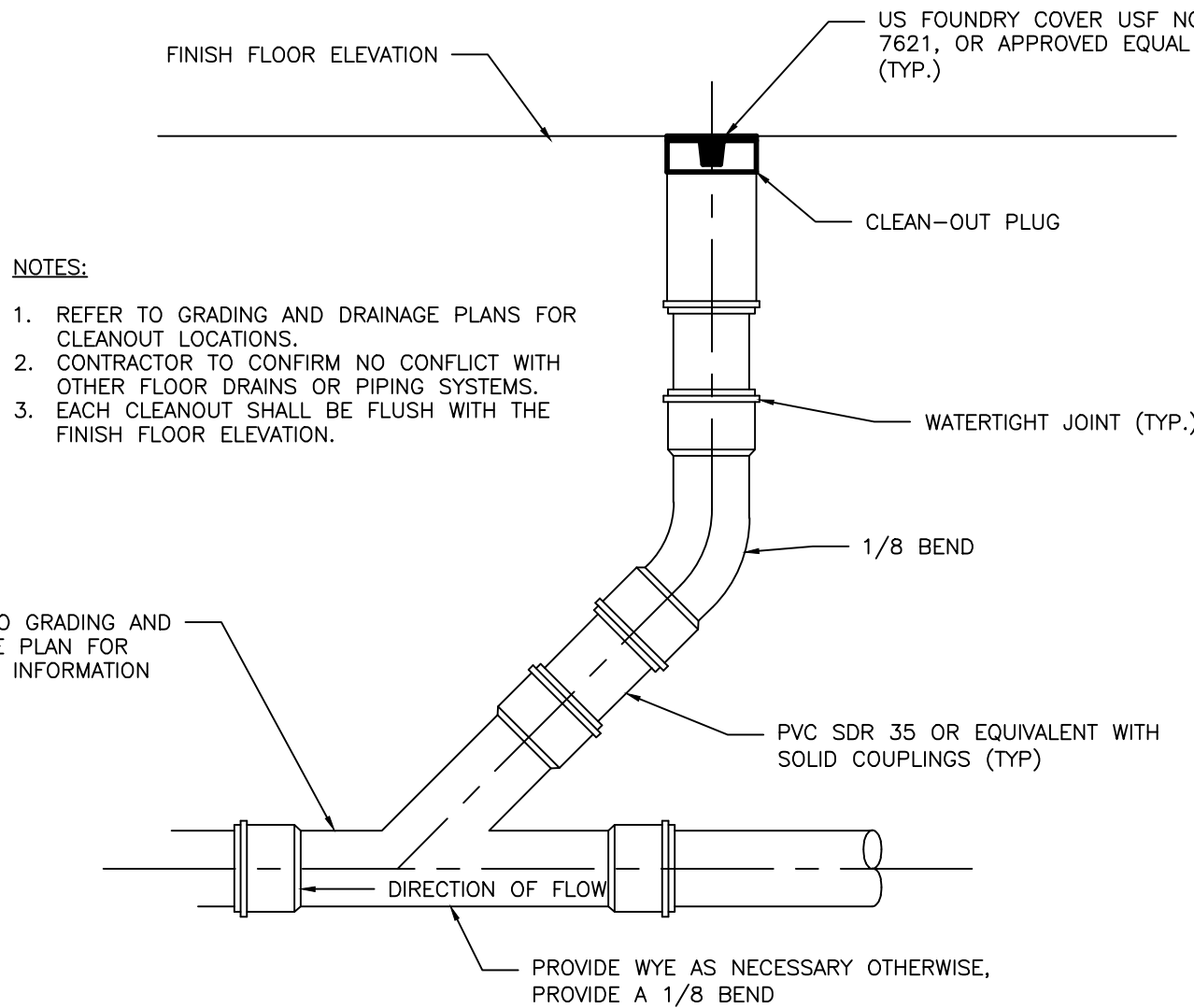
NOTES:

1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. INSTALL STONE DRIP EDGE IN A LOCATIONS SUBJECT TO ROOF RUNOFF. WIDTH SHALL BE A MIN. 12" BEYOND THE PROJECT OF THE ROOF EYE.
4. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.



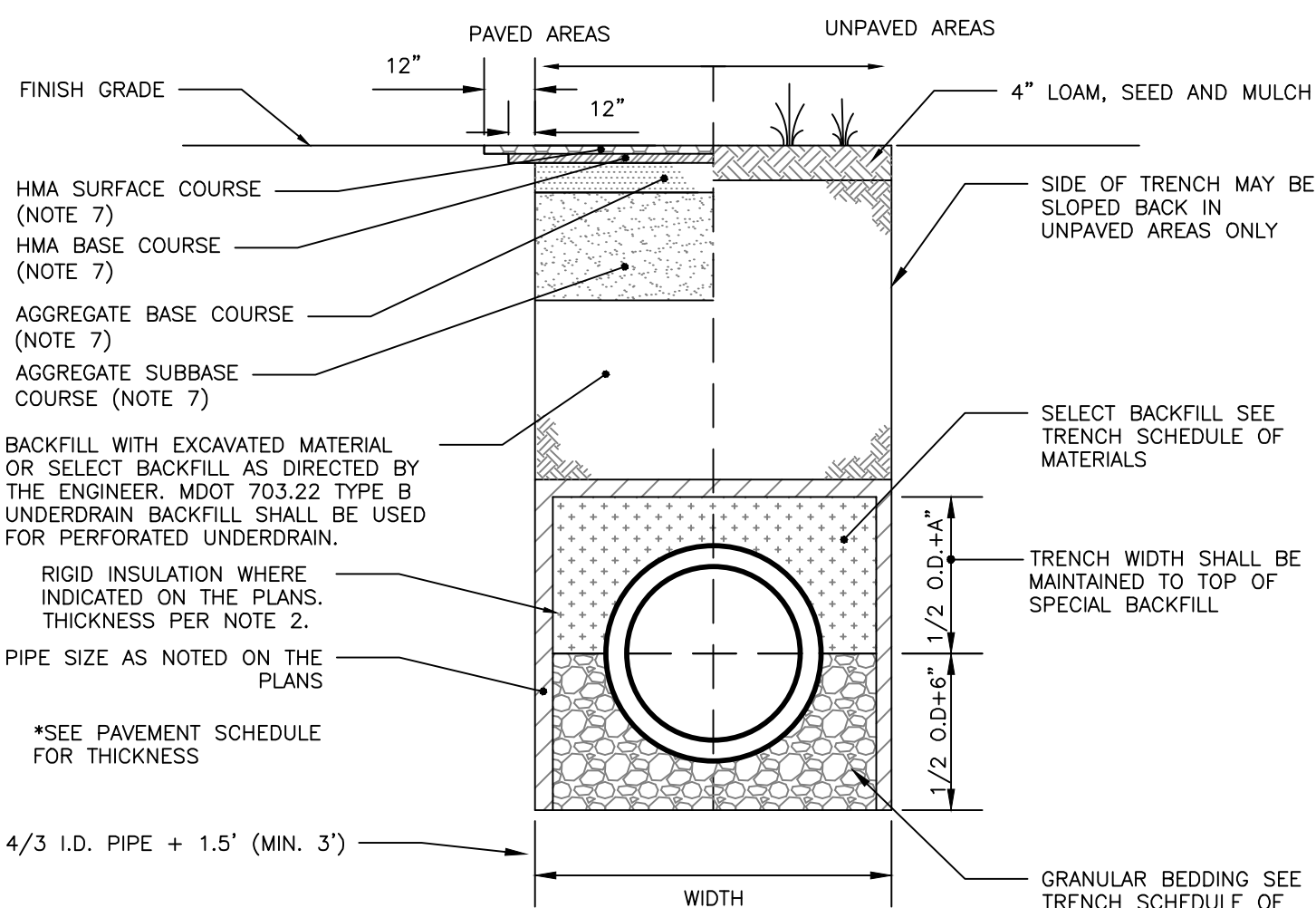
FOUNDATION DRAIN DETAIL

NOT TO SCALE



CLEANOUT DETAIL

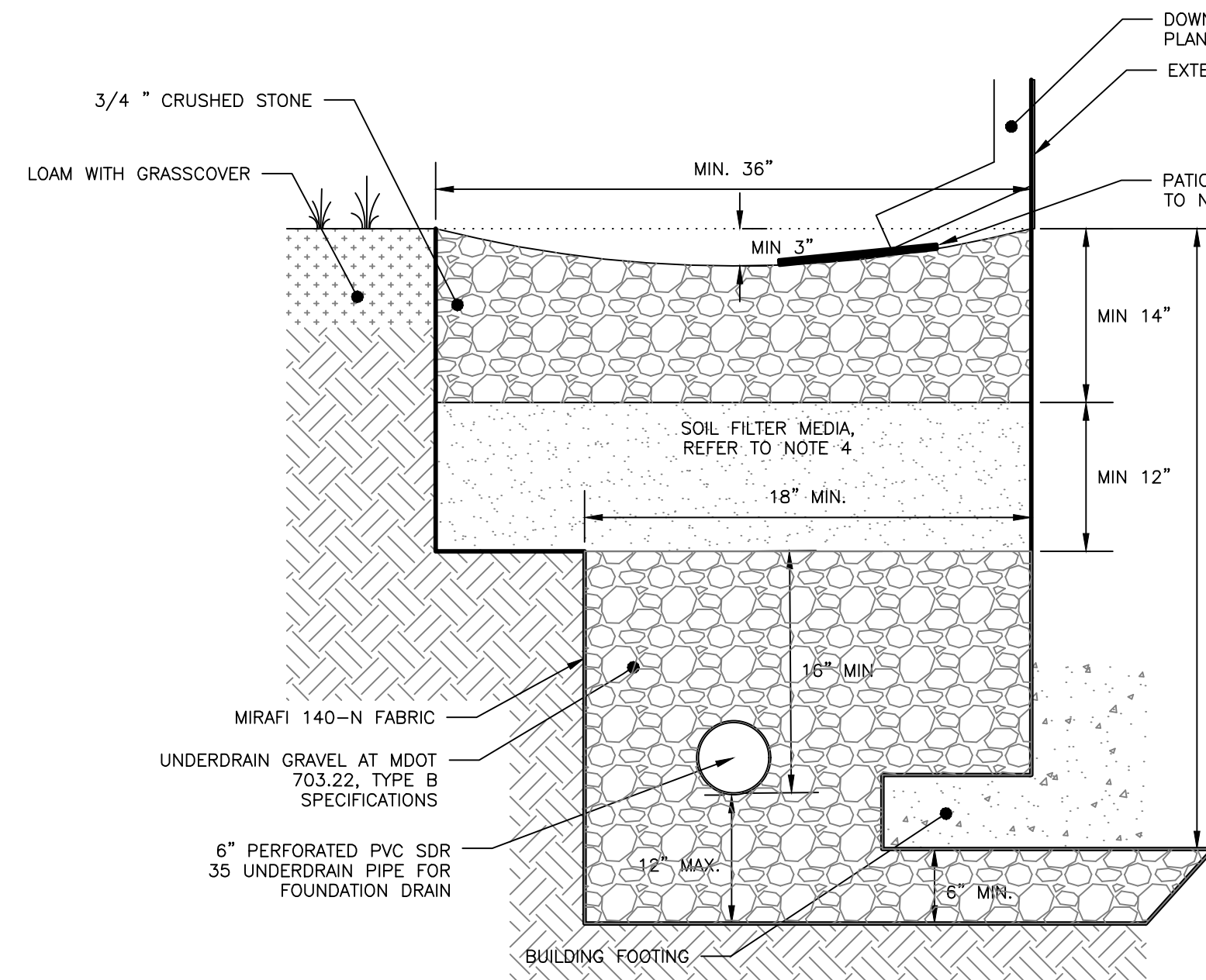
NOT TO SCALE



- ALLOWABLE PIPE MATERIALS:**
- REINFORCED CONCRETE PIPE (RCP) MIN. STRENGTH OF CLASS III
 - PVC RING TYPE SEWER (SDR 35) OR EQUIVALENT, MIN PS-46 RATING
 - PVC RING TYPE SEWER PIPE MEETING ASTM F 789
 - DUCTILE IRON PIPE (DIP)
 - ADS N-12 HP TRIPLE-WALL MIN PS-46 RATING
 - ADS SANITITE HP MIN. PS-46

STORM DRAIN AND SEWER TYPICAL TRENCH SECTION

NOT TO SCALE

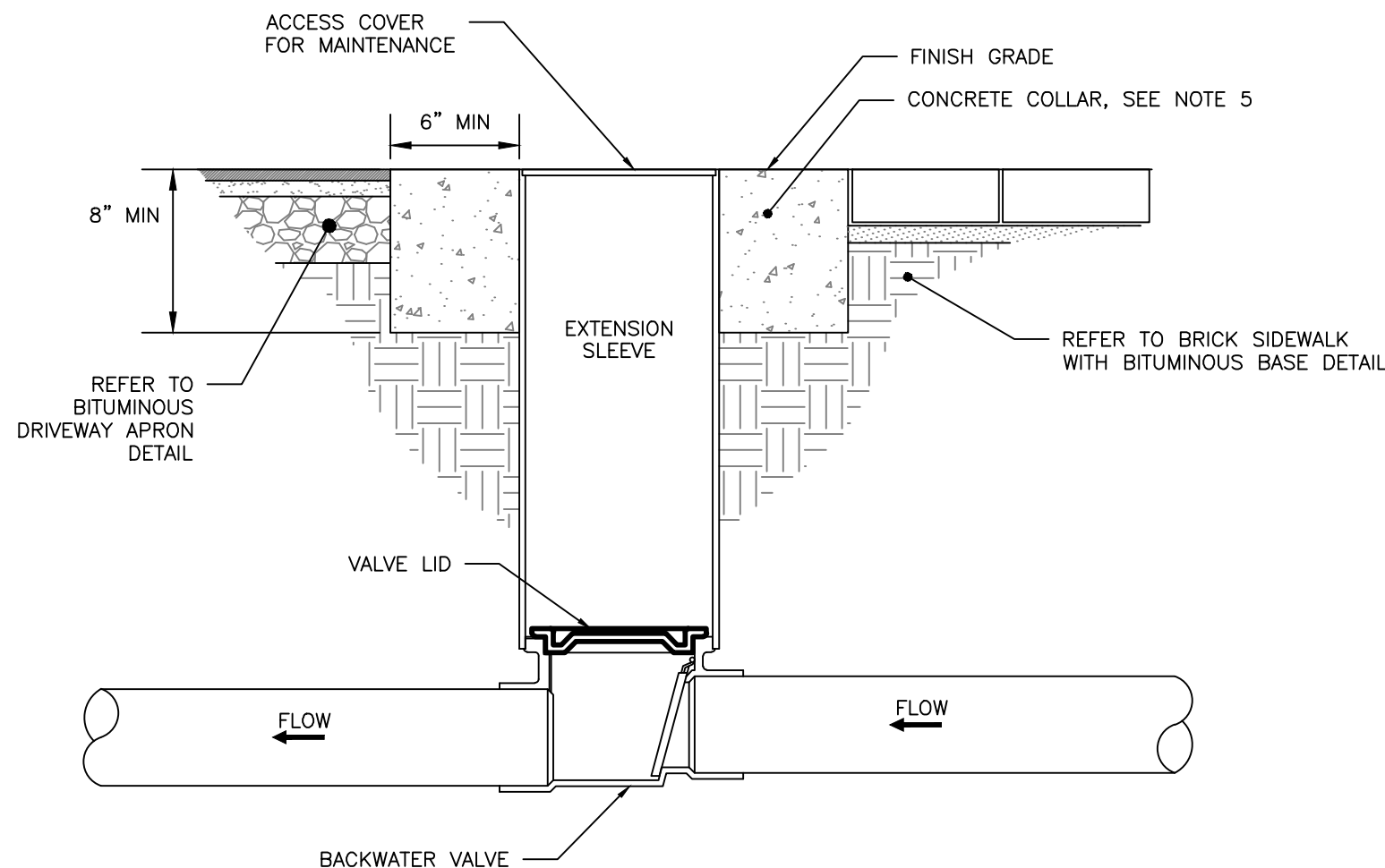


ROOF DRIPLINE FILTRATION DETAIL

NOT TO SCALE

NOTES:

1. FINAL DESIGN MUST COMPLY WITH ALL APPROPRIATE SPECIFICATIONS FROM THE STORMWATER MANAGEMENT FOR MAINE BMP MANUAL, CHAPTER 7.
2. THE CRUSHED STONE RESERVOIR BED MUST CONSIST OF CRUSHED ROCK WITH A POROSITY OF 40%.
3. FOUNDATION BACKFILL MAY BE USED AS SOIL FILTER MEDIA AS LONG AS THE MATERIAL IS A MINERAL SOIL WITH BETWEEN 4-7% FINES (PASSING #200 SIEVE) AND IS 4" THICK AT MINIMUM.
4. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.
5. PATIO STONE TO BE PLACED AS TO REDIRECT CONCENTRATED FLOW FROM DOWNSPOUT. CONTRACTOR TO FINALIZE STONE SIZE.



BACKFLOW VALVE ASSEMBLY

NOT TO SCALE

NOTES:

1. BACKFLOW VALVE TO BE PROVIDED BY AGRI DRAIN CORPORATION OR AN APPROVED EQUAL.
2. VALVE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS AND COMPLY WITH RULES AND REGULATIONS AS OUTLINED IN SECTION 2 OF THE CITY OF PORTLAND TECHNICAL MANUAL.
3. VALVE SHALL BE INSTALLED WITH A VALVE BOX AND COVER TO PROVIDE EASY ACCESS AND MAINTENANCE; VALVE COVER SHALL STATE "SEWER" ON LID FLUSH TO SURFACE. REFER TO VALVE & BOX COVER DETAIL FOR ADDITIONAL INFORMATION.
4. CONCRETE COLLAR AT A MINIMUM 24-HOUR COMPRESSIVE STRENGTH OF 3,000 PSI.

NOTES:

1. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION, COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION, OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.
3. INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES AT THE TOP OF SUBGRADE.
4. MINIMUM COVER
 - 4.1. 2'-0" - STORM DRAIN
 - 4.2. 5'-0" - SEWER
5. NO TREES SHALL BE PLANTED WITHIN 5' OF A SEWER PIPE OR SERVICE
6. THIS DETAIL SHALL BE APPLIED ONLY TO DRAINAGE PIPE TRENCHES OUTSIDE OF THE CITY OF PORTLAND ROW.
7. THICKNESS AS NOTED BY SURFACE DETAILS

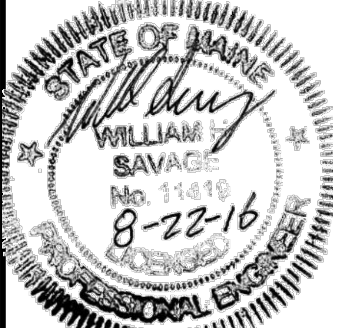
FINAL APPLICATION
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
PRELIMINARY APP	WHS
FINAL APP	WHS
REVISION	REV. DATE

DRAINAGE DETAILS	70 ANDERSON STREET REDEVELOPMENT
PROJECT NAME:	REDFERN PROPERTIES, LLC
CLIENT:	P.O. BOX 8816 PORTLAND, ME 04104

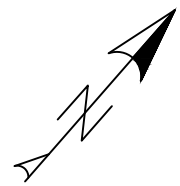
ACORN ENGINEERING, INC.	ENGINEERING INC.
158 DANFORTH ST. PORTLAND, MAINE 04102	(207) 775-2555

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SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	QUD
CHECKED BY:	WHS



DRAWING NO.
C-43

1. CONTRACTOR TO COORDINATE WITH UNTIL TO SHUT DOWN THE EXISTING GAS SERVICE AND ABANDON THE LINE IN ACCORDANCE WITH UNTIL'S REGULATIONS AND PROCEDURES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF OFFSITE CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL LOCAL, STATE, FEDERAL & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REMOVAL AND REMEDIATION PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. CONTRACTOR TO COORDINATE SITE DEMOLITION WITH REDFERN PROPERTIES. REDFERN PROPERTIES MAY BE REQUIRED TO DEMOLISH AND RECONSTRUCT THE EXISTING CURB AND LOCAL REGULATIONS.
6. FOR ADDITIONAL ENVIRONMENTAL INFORMATION, REFER TO THE PHASE I ENVIRONMENTAL SITE ASSESSMENT FOR REDFERN PROPERTIES, LLC. 70 ANDERSON STREET DATED 2/5/16, CONTRACTOR TO REVIEW PHASE I PRIOR TO EXCAVATION. A CORRECTION PLAN MUST BE MADE AND APPROVED BY THE REQUESTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL LOCAL, STATE, FEDERAL & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
8. NINE HOURS PRIOR TO EXCAVATION TO REQUEST EXIST FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LIST AND POTENTIALLY AFFECTED UTILITIES TO THE REQUESTOR.
9. NOTE THAT ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION.
10. SEDIMENT BARRIERS TO BE PLACED DIRECTLY ON THE REAR AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; BARRIERS AND CONSTRUCTION FENCES ARE DISPLAYED OFFSET OF THE PROPERTY LINES AND ONE ANOTHER ON THE PLAN FOR CLARITY PURPOSES.
11. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL LOCAL, STATE, FEDERAL & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
13. DURING CONSTRUCTION TO THE SITE, REFER TO DETAIL "A" AT LOCATIONS OF INGRESS AND EGRESS.

[illegible]

DEMOLITION, EROSION CONTROL, &
CONSTRUCTION MANAGEMENT PLAN

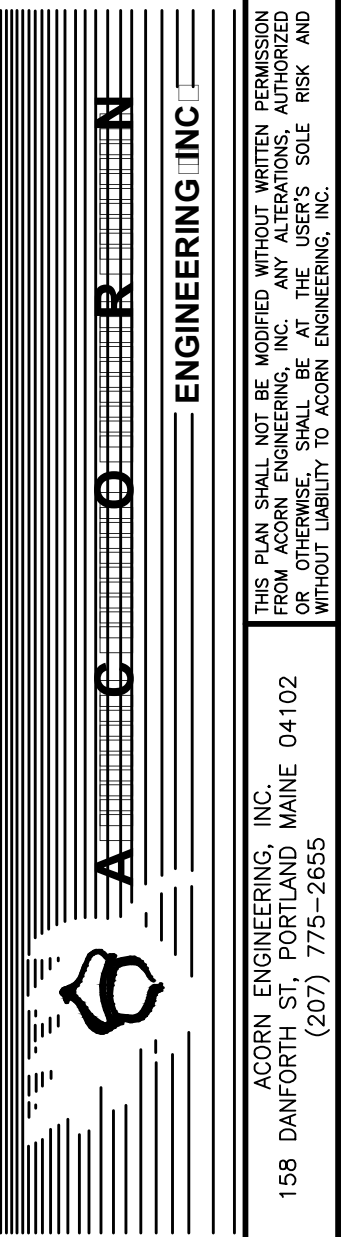
70 ANDERSON ST REDEVELOPMENT

REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

DRAWING NAME:

PROJECT NAME:

CLIENT:

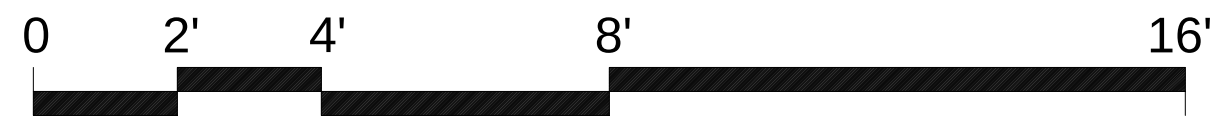
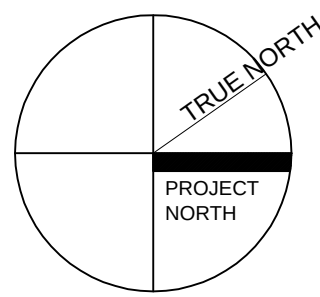


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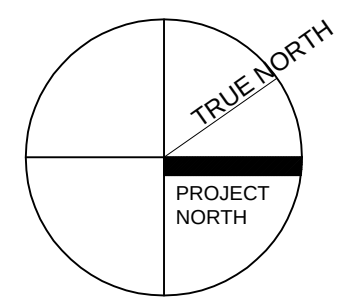
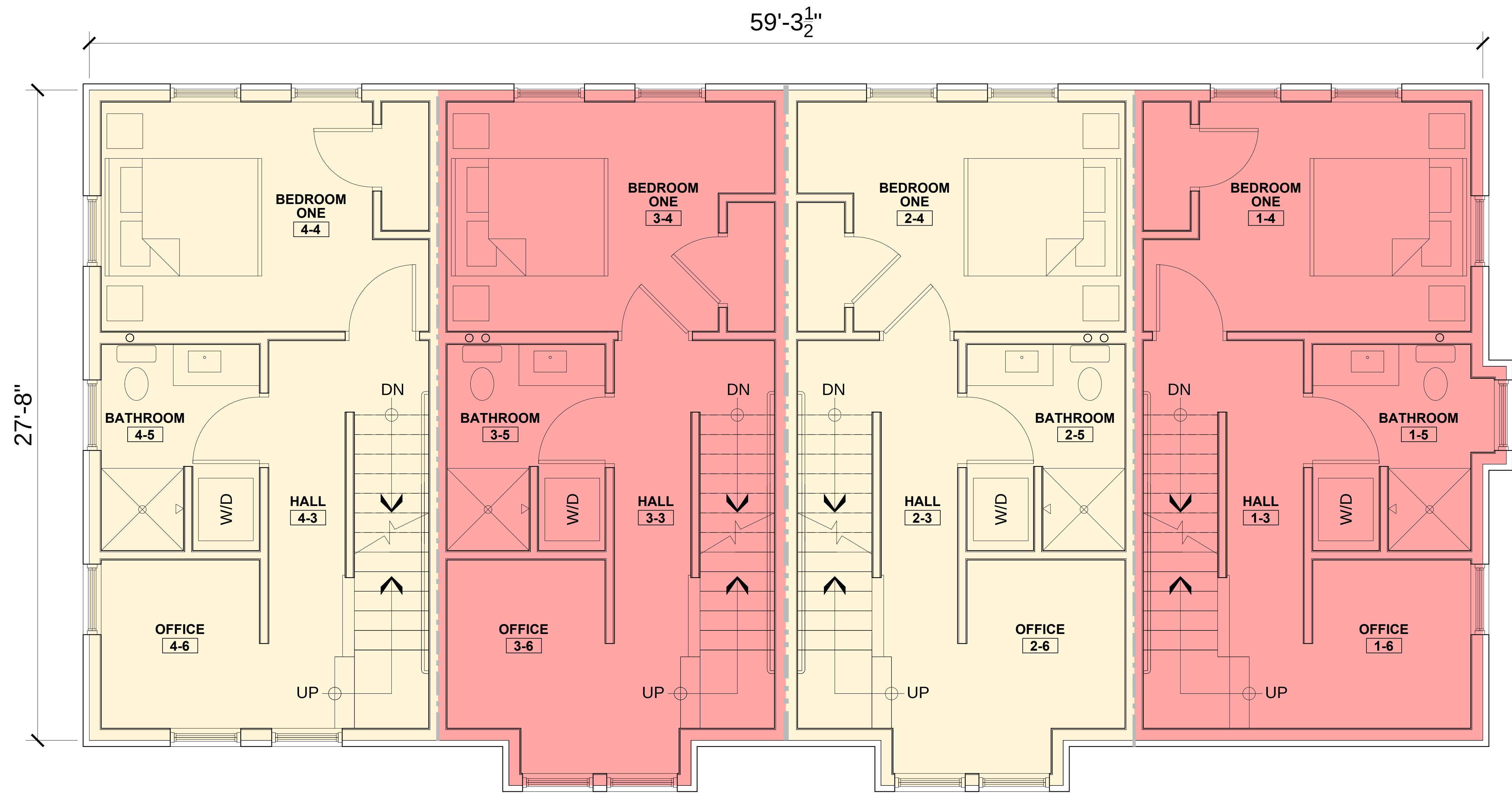


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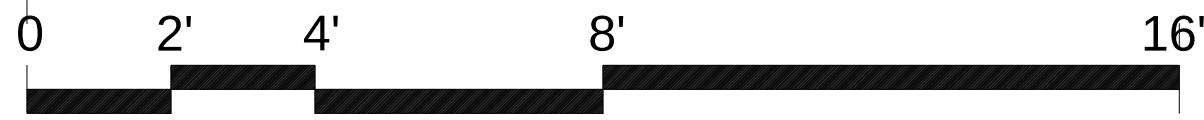
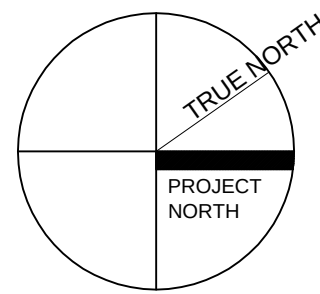
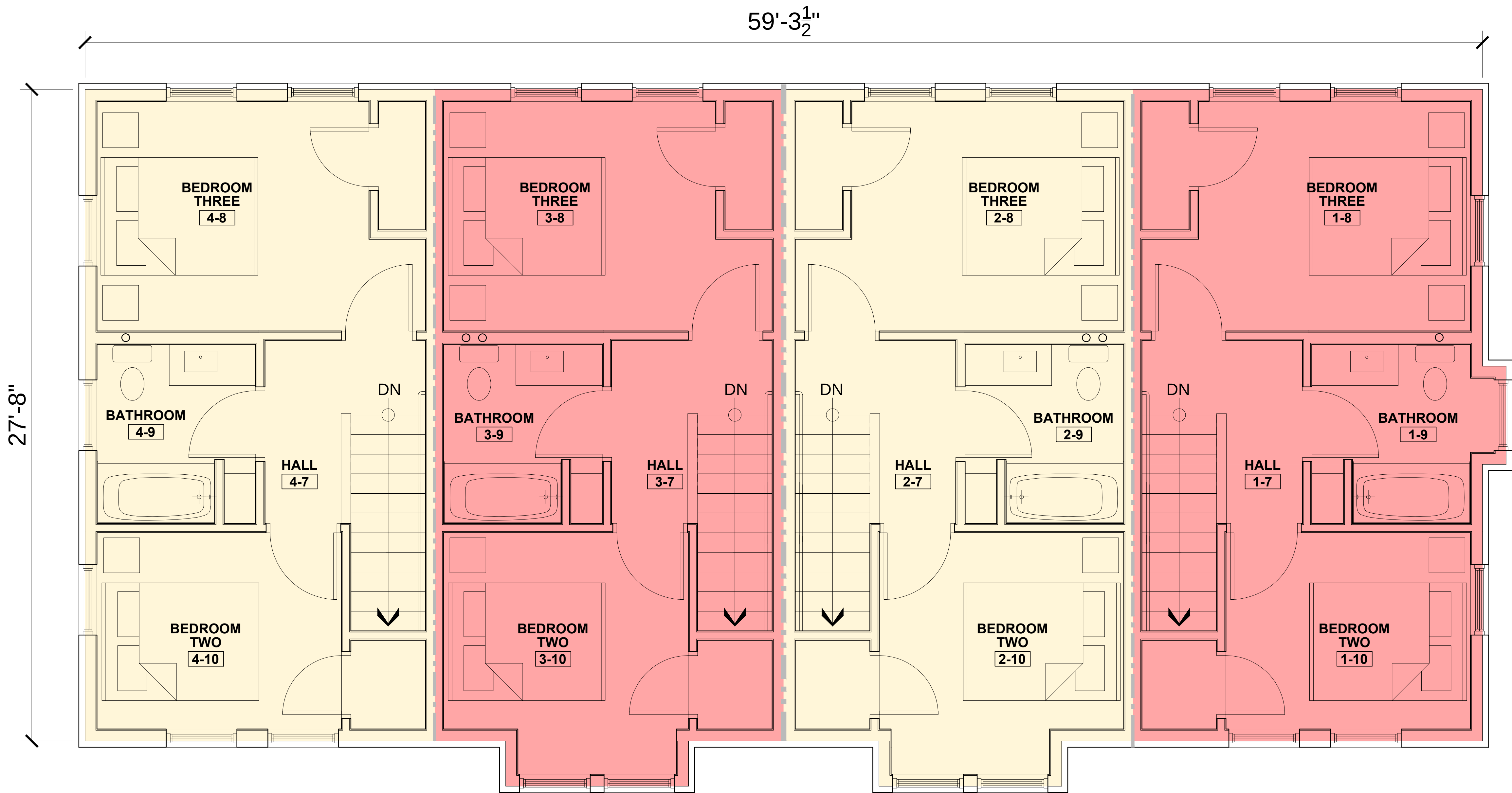
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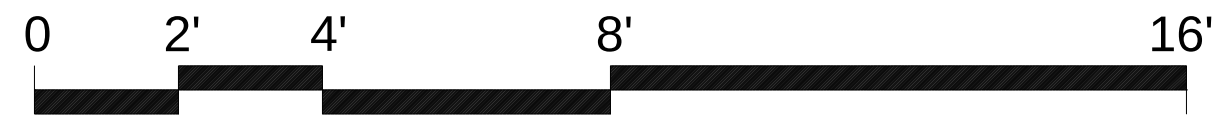
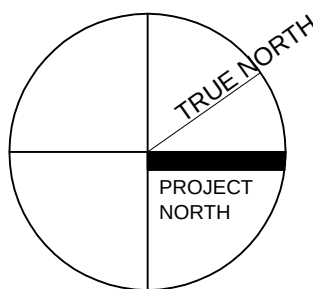
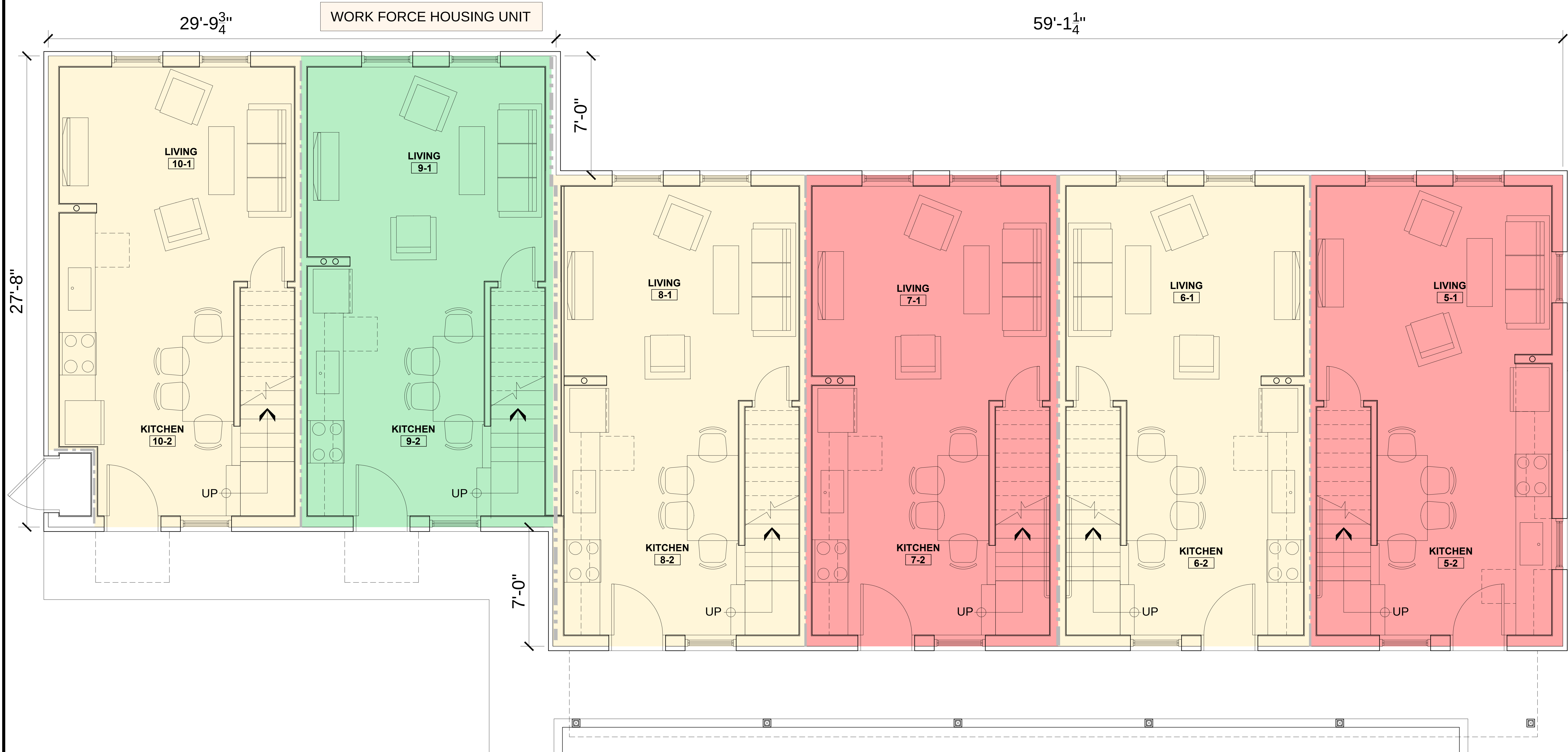
1 BUILDING A - FIRST FLOOR PLAN
3/8" = 1'-0"

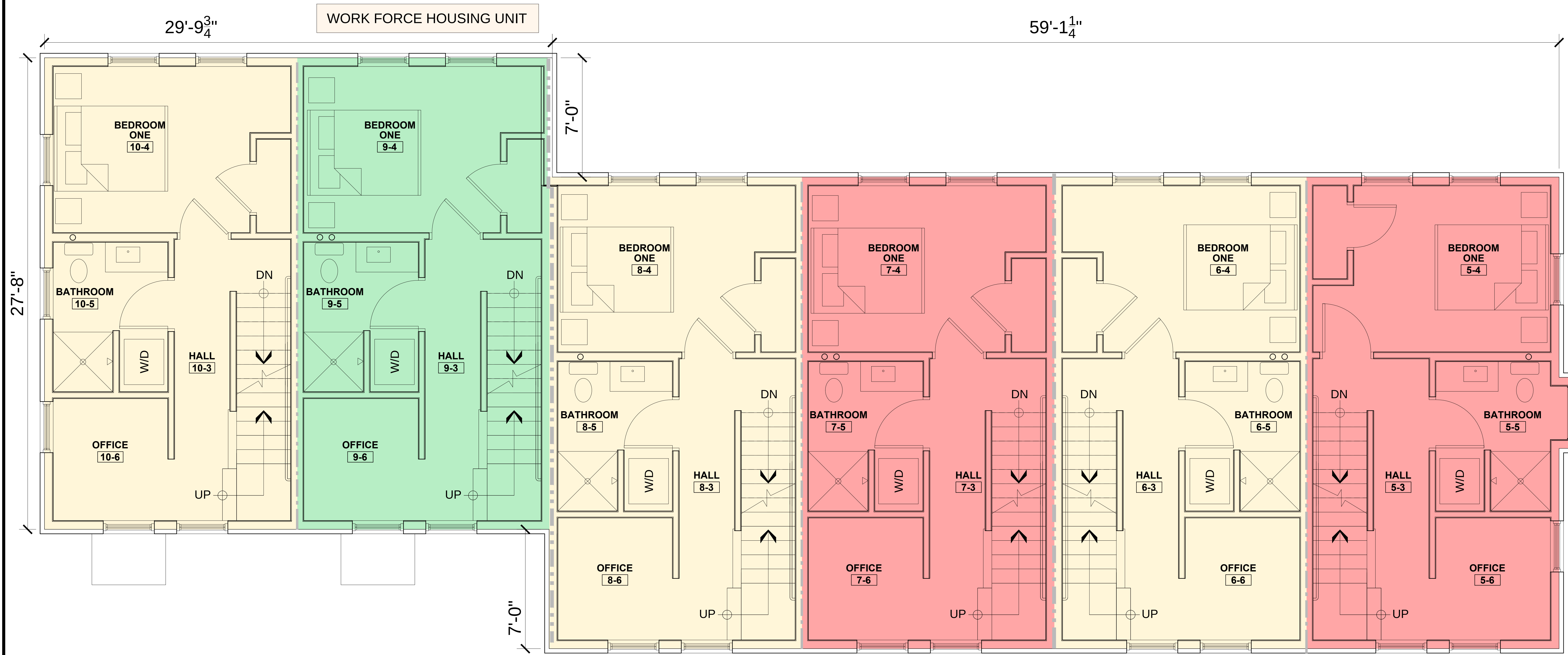


1 BUILDING A - SECOND FLOOR PLAN
3/8" = 1'-0"

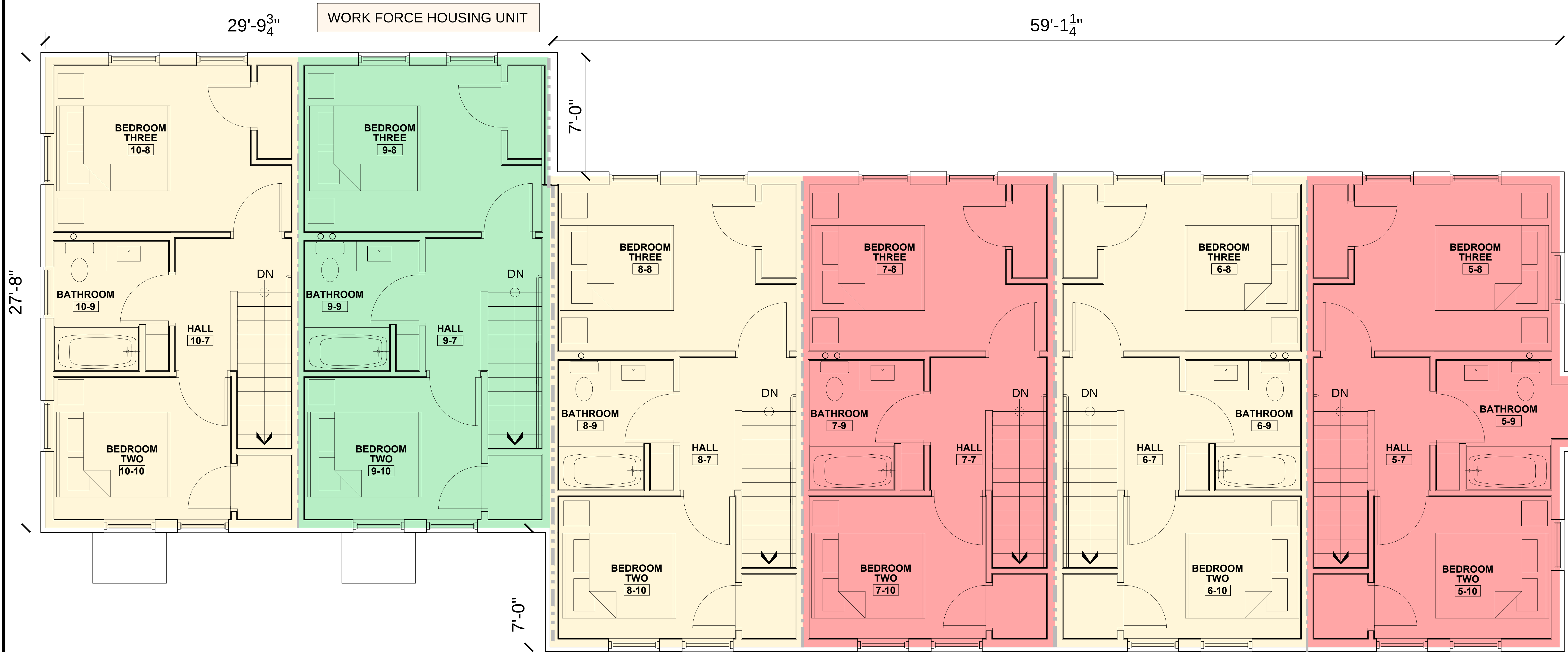


1 BUILDING A - THIRD FLOOR PLAN
3/8" = 1'-0"





1 BUILDING B - SECOND FLOOR PLAN
3/8" = 1'-0"



1 BUILDING B - THIRD FLOOR PLAN
3/8" = 1'-0"



NORTH WEST ELEVATION VIEW - BUILDING A



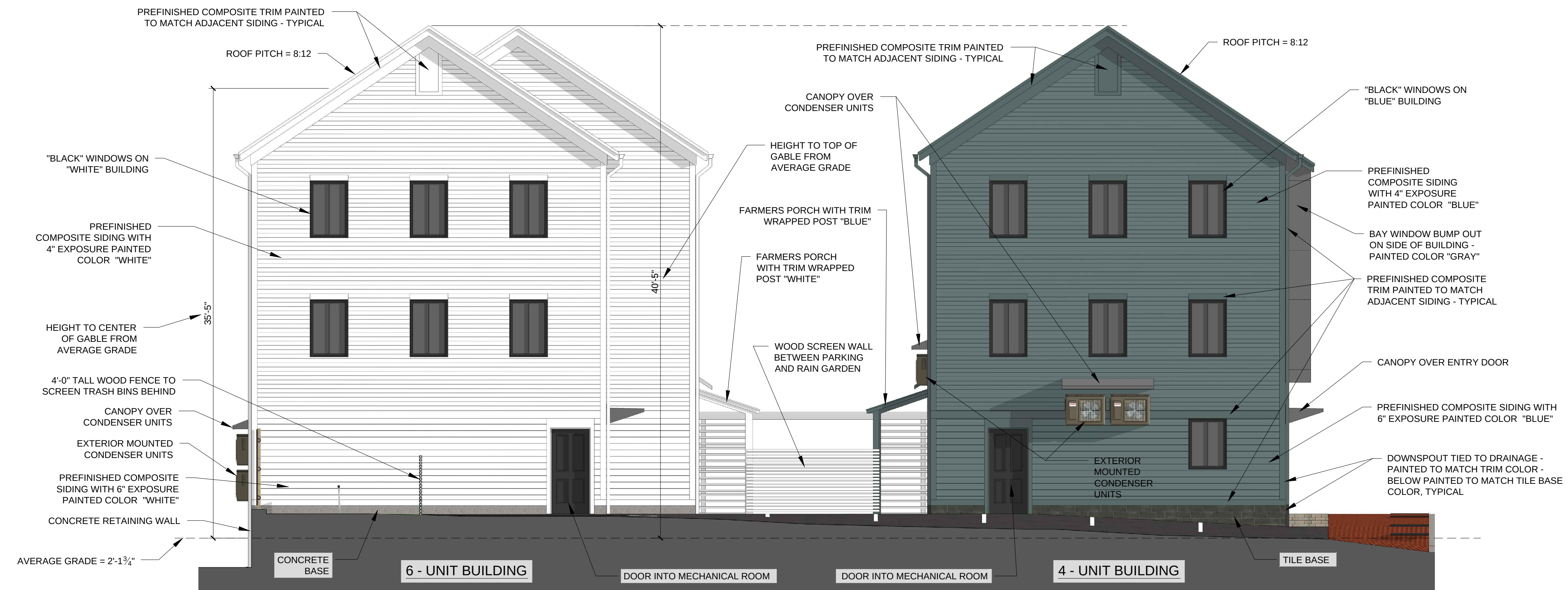
SOUTH EAST ELEVATION VIEW - BUILDING A



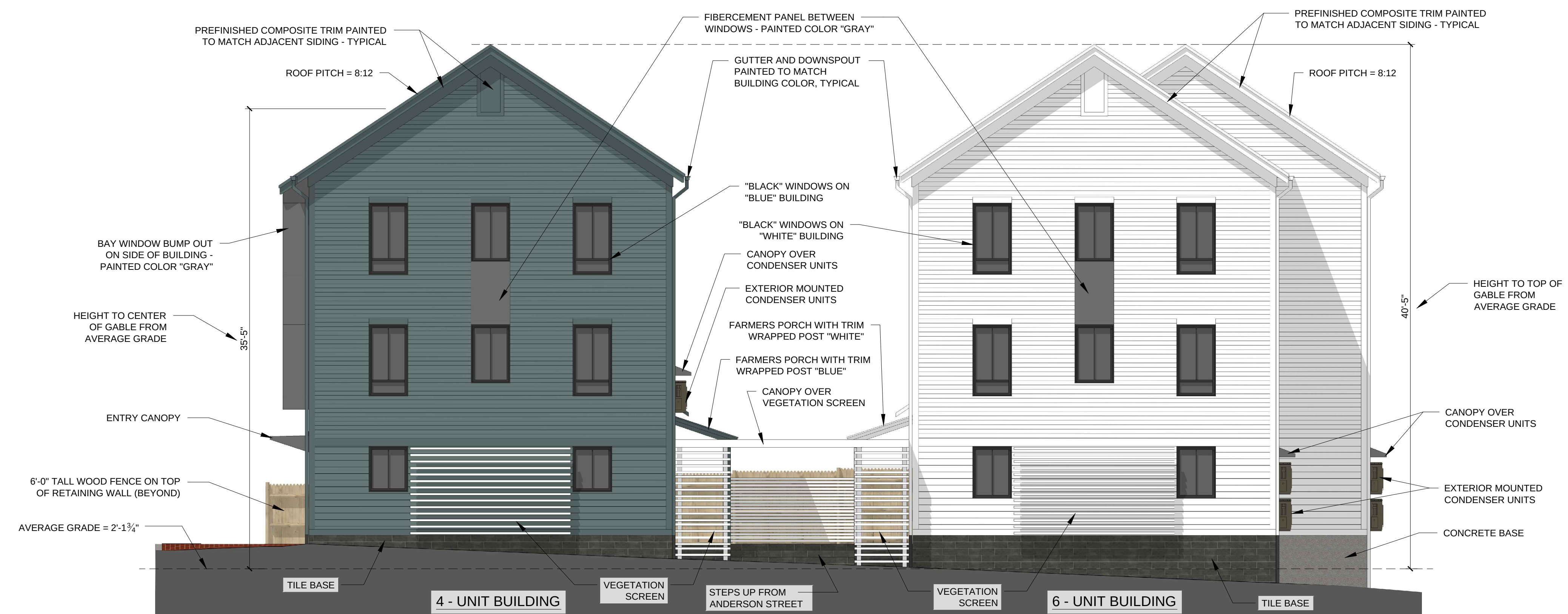
NORTH WEST ELEVATION VIEW - BUILDING B



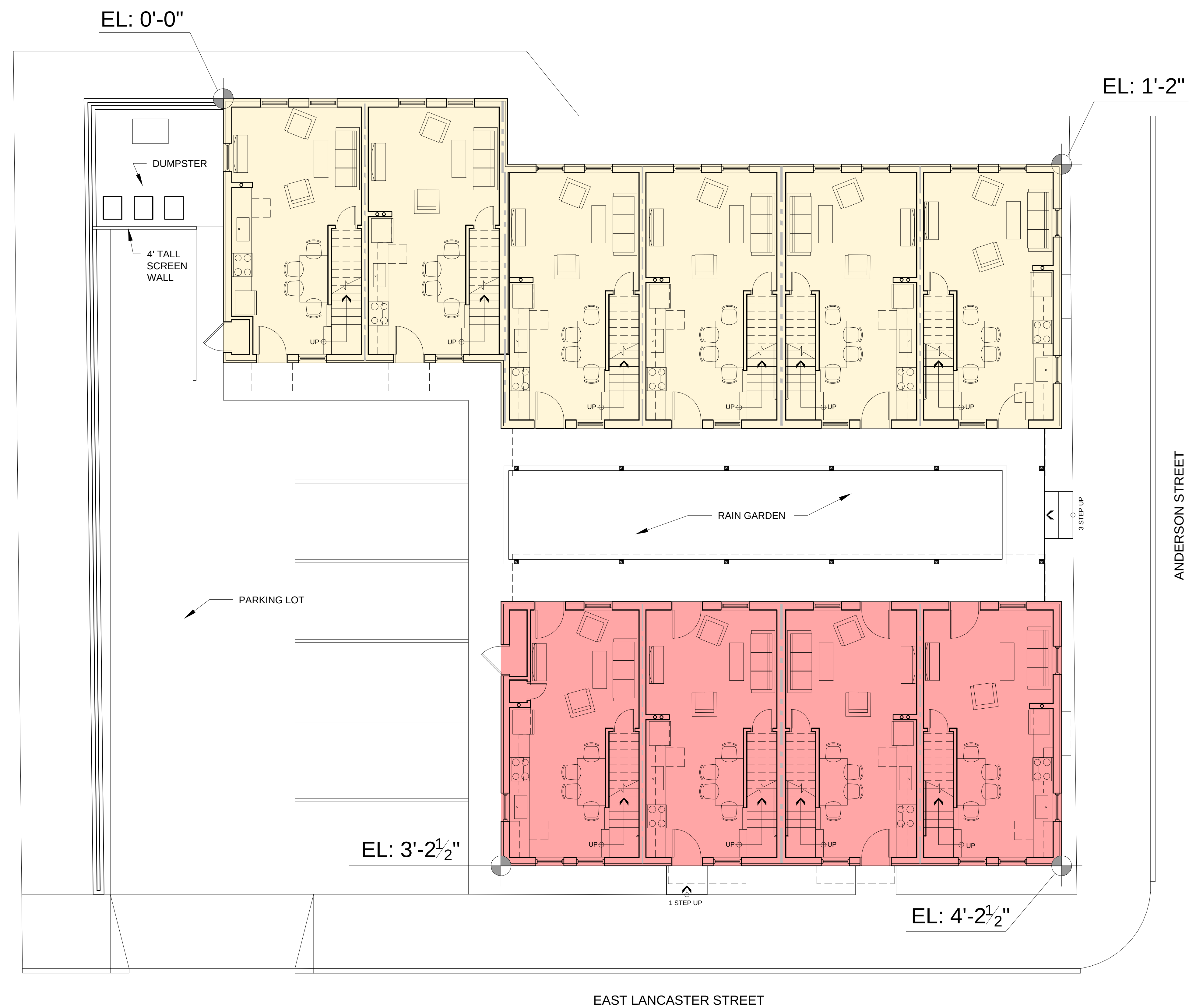
SOUTH EAST ELEVATION VIEW - BUILDING B



SOUTH WEST ELEVATION VIEW - BUILDING B



NORTH EAST ELEVATION VIEW - BUILDING B



AVERAGE GRADE CALCULATIONS

- 1.) $0'-0''$
- 2.) $1'-2''$
- 3.) $3'-2\frac{1}{2}''$
- 4.) $4'-2\frac{1}{2}''$

$$\begin{array}{r} = 8'-7'' \\ / 4 \\ \hline = 2'-1\frac{3}{4}'' \end{array}$$

1 SITE PLAN
NTS



VIEW LOOKING EAST ON ANDERSON STREET



VIEW LOOKING WEST ON ANDERSON STREET



VIEW LOOKING SOUTH ON MADISON STREET



VIEW LOOKING NORTH ON EAST LANCASTER STREET









Madison St



1. FOR INFORMATION REGARDING PROPOSED UTILITY CHANGES, REFER TO UTILITY PLAN, SHEET C-20, MOST RECENT VERSION.
2. FOR INFORMATION REGARDING PROPOSED GRADING CHANGES, REFER TO GRADING & DRAINAGE PLAN, SHEET C-30, MOST RECENT VERSION.
3. UNIT TABULATION PROVIDED BY RYAN SENATOR ARCHITECTURE; REFER TO ARCHITECTURE PLANS FOR FLOOR PLANS AND BUILDING HEIGHTS.
4. THE SITE IS LOCATED ON A 100-FOOT ACRES (9065 S.F.). R.O.W. WIDTHS FOR ANDERSON STREET AND EAST LANCASTER STREET ARE 50-FOET PER EXISTING CONDITIONS PLAN. REFER TO EXISTING CONDITIONS PLAN, COMPLETED BY TITCOMB ASSOCIATES DATED 1/14/16 AND REVISED 5/2/16.
5. PER REVIEW OF THE CITY OF PORTLAND HISTORICAL DISTRICTS ON 5/3/16, THE PROPOSED REDEVELOPMENT SITE IS NOT WITHIN ANY IDENTIFIED HISTORICAL DISTRICT.
6. SITE BOUNDARIES PER EXISTING CONDITIONS PLAN AND PROPERTY PINS TO BE SET BY TITCOMB ASSOCIATES.
7. AS OF 5/3/2016, SITE IS BOUNDED BY THE R-8 ZONE ON ALL ABUTTING SIDES BY CITY OF PORTLAND GIS DATA.
8. LOCUS PARCEL IS SHOWN ON THE CITY OF PORTLAND ASSESSOR'S MAP 23, BLOCK 8, LOT 21.
9. LOCUS PARCEL DOES NOT SCALE IN A SPECIAL FLOOD HAZARD AREA PER FEMA FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 230051 00138, BOUNDARY DATED 7/17/1986.
10. BUILDING CONSTRUCTION SHALL BE WITHIN EXISTING PROPERTY LINES AS PER CORNERBOARDS AND NOT BUILDING FOUNDATION, UNLESS OTHERWISE NOTED.
11. THIS SHEET IS THE SUBDIVISION PLAN FOR THE CREATION OF UP TO TEN (10) SUBDIVISION UNITS ON THE EXISTING SUBJECT PROPERTY. APPROVAL OF THIS PLAN DOES NOT CREATE ANY SUBDIVISION OF THE LAND ON THE SUBJECT PROPERTY.
12. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SIDEWALKS, STORMWATER DEVICES, SITE LIGHTING, TRASH REMOVAL, RETAINING WALLS, AND SNOW REMOVAL.
13. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF THE STORMWATER MANAGEMENT INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT, WHICH SPECIFIES ANNUAL INSPECTIONS AND REPORTING REQUIREMENTS AT A MINIMUM. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF THE SUBMITTED STORMWATER MANAGEMENT PLAN AND THE STORMWATER MANAGEMENT APPROVAL PLAN AND THE STORMWATER MANAGEMENT DEVELOPMENT AGREEMENT.
14. THE POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT AS APPROVED BY THE CITY IS RECORDED AT:

16. PER CITY REQUIREMENT, THE PROPERTY IS SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE WORKFORCE RENTAL HOUSING AGREEMENT AND DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS. THE WORKFORCE RENTAL HOUSING AGREEMENT AS APPROVED BY THE CITY IS RECORDED AT:

TBD

ALL PROPOSED EASEMENTS TO BE REVIEWED BY TITCOMB ASSOCIATES AND RECORDED IN CCRD. ALL EXISTING EASEMENTS WILL BE RELEASED PRIOR TO PROJECT START. THERE ARE NO PROPOSED EASEMENTS.

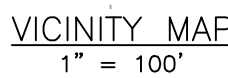
1. LOCUS PARCEL SUBJECT TO CONVENTS AND RESTRICTIONS AS SET FORTH IN A DEED FROM PORTLAND RENEWAL AUTHORITY RECORDED IN BOOK 3129, PAGE 374; AS AFFECTED BY QUITCLAIM DEED FROM PORTLAND RENEWAL AUTHORITY TO CECILIA M. BICKFORD RECORDED IN BOOK 32559, PAGE 280.
2. RIGHTS TO ANDERSON LANE EXIST AS DESCRIBED IN A DEED BETWEEN MOSES GOULD AND THOMAS McEWAN RECORDED IN BOOK 293, PAGE 128.

1. BOOK AND PAGE REFERENCES ARE TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE COORDINATE INFORMATION BASED ON CITY OF PORTLAND EXISTING CONDITIONS SURVEY FOR ANDERSON STREET FOR CITY STREET AND GOULD STREET DATED APRIL 15, 2014 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.
3. ELEVATIONS ARE BASED CITY OF PORTLAND DATUM DERIVED FROM A BENCHMARK BY LOCATED AT THE INTERSECTION OF STREET & ANDERSON STREET, ELEVATION DATA PROVIDED BY CITY OF PORTLAND ENGINEERING DEPARTMENT.
4. UTILITY INFORMATION ON THE PLAN IS APPROXIMATE, BASED ON THE LOCATION OF VISIBLE FEATURES, DISSEMINATED AND/OR APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
5. THE PROPERTY LIES WITHIN ZONE C BASED ON THE HEIRS OF MOSES GOULD AS DESCRIBED IN A DEED RECORDED IN BOOK 290, PAGE 310.
6. PROPERTY LIES WITHIN ZONE C BASED ON FIRM COMMUNITY #2300511 PANEL #0013-B, DATED JULY 17TH 1986. IT DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA.
7. PORTION OF AREA WAS COVERED BY SNOW AND AT THE TIME OF THE SURVEY AND SOME AREAS MAY HAVE BEEN OBSCURED AND NOT SHOWN ON THIS PLAN.

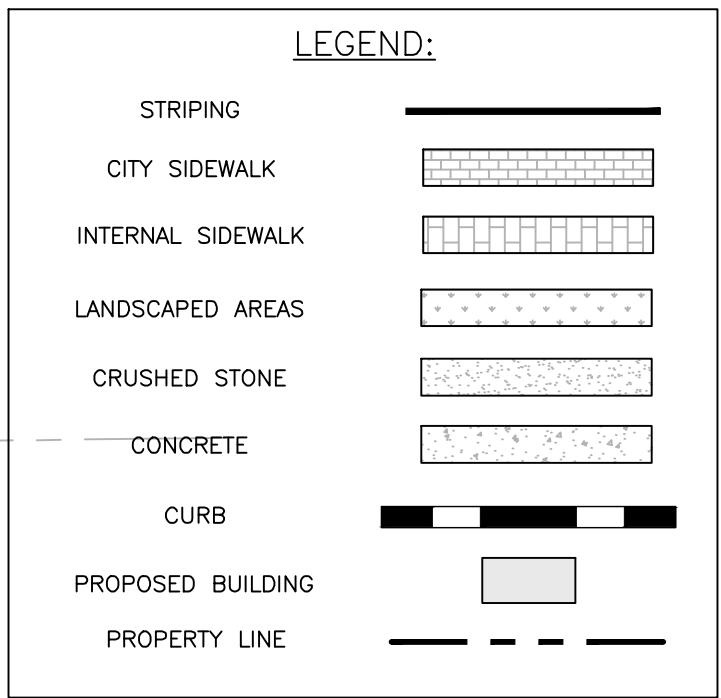
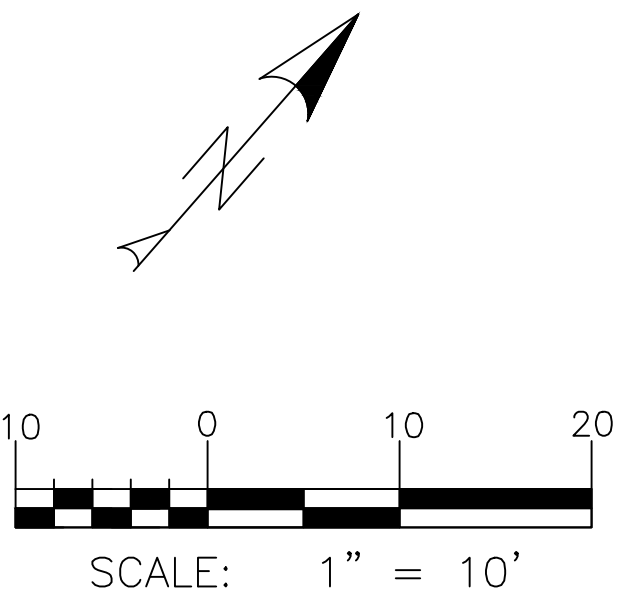
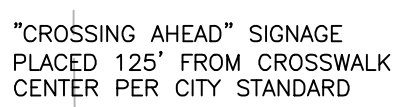
1. PLAN OF PROPERTY MADE FOR BAYSIDE PARK URBAN RENEWAL PROJECT ME R-1 (CONDEMNATION AREA IV) BY H.J. & C.C. JORDAN DATED MARCH 26, 1964, RECORDED IN PLAN BOOK 67, PAGE 65.
2. PLAN OF ANDERSON STREET RECONSTRUCTION BY CITY OF PORTLAND, MAINE PARKS AND PUBLIC WORKS DEPARTMENT DATED OCTOBER 13, 1994, SHEETS 2 AND 3 OF 30. ON FILE AT THE CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS.
3. PLAN OF MADISON STREET & GREENLOAF STREET RECONSTRUCTION BY GORRILL-PALMER DATED MAY 2009, O. & C. JORDAN DATED SEPTEMBER 13, 1962, RECORDED IN PLAN BOOK 61, PAGE 65.
4. STREET RIGHT OF WAY LOCATIONS OBTAINED FROM THE CITY OF PORTLAND ENGINEERING DEPARTMENT.
5. PLAN OF ANDERSON STREET RECONSTRUCTION BY CITY OF PORTLAND, MAINE PARKS AND PUBLIC WORKS DEPARTMENT DATED OCTOBER 13, 1994, SHEETS 2 AND 3 OF 30. ON FILE AT THE CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS.
6. PLAN OF MADISON STREET & GREENLOAF STREET RECONSTRUCTION BY GORRILL-PALMER DATED MAY 2009, O. & C. JORDAN DATED SEPTEMBER 13, 1962, RECORDED IN PLAN BOOK 61, PAGE 65.
7. SEWER CONNECTION CARD FOR #70 ANDERSON STREET, BY PORTLAND SEWER DIVISION DATED JANUARY 4, 1962.

TITCOMB ASSOCIATES
FALMOUTH, MAINE
CONTACT: NICK ELLISTON, P.L.S.

DATE:



APPROXIMATE LOCATION
EXISTING STOP SIGN



UNIT TABULATION	
UNIT NUMBER	SIZE (SF)*
1, 5	1236
2, 3	1256
4	1210
6-9	1230
10	1218

*UNIT AREA MEASURED FROM OUTSIDE OF EXTERIOR WALLS TO THE CENTER OF SHARED WALLS

SPACE AND BULK STANDARDS		
ZONE: R6	REQUIRED	PROVIDED
MINIMUM LOT SIZE	2,000 SF	9,065 SF
MINIMUM STREET FRONTAGE	20'	188'
FRONT YARD (AVG. SETBACK)	5'-3"	1'-1"
SIDE YARD	5'	5'
REAR YARD	10'	14'
STRUCTURE STEPPBACKS (REAR YARD ABOVE 35')	15'	N/A
MAXIMUM LOT COVERAGE	60%	45%
MINIMUM LOT WIDTH	20'	83'
MINIMUM BUILDING HEIGHT	45'	<45'*
LANDSCAPED OPEN AREA	20%	20%
MAXIMUM NUMBER OF DWELLING UNITS**	725 SF/UNIT X 1.25 = 15 UNITS	10 UNITS
RESIDENTIAL PARKING	1 SPACE/UNIT = 7 SPACES	7 SPACES
MIN. SECURE RESIDENT BIKE STORAGE SPACES	2 SPACES/5 D.U. = 4	10 SPACES
MAX. GARAGE OPENING	20'	N/A

*REFER TO BUILDING ELEVATION PLANS AS DEVELOPED BY RYAN SENATORE ARCHITECTURE

**PER SECTION 14-487 OF THE TECHNICAL MANUAL, ALL DEVELOPMENTS MEETING THE WORKING HOUSING UNIT REQUIREMENT ARE SUBJECT TO A 25% DENSITY BONUS

PARKING SUMMARY	
PARKING DIMENSION	# PARKING SPACES
COMPACT (8.25'x18')	6
STANDARD (9'x18')	1
TOTAL	7

RECORDING INFORMATION STATE OF MAINE, CUMBERLAND COUNTY REGISTRY OF DEEDS	
RECEIVED:	_____
RECORDED IN	_____
ATTEST:	_____
	REGISTRAR

SUBDIVISION PLAT

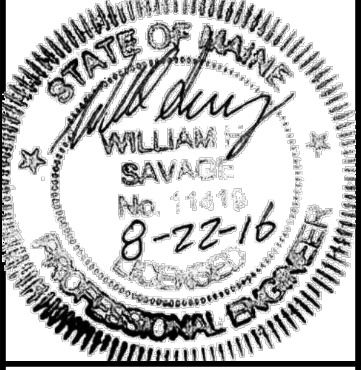
70 ANDERSON ST REDEVELOPMENT

REDFERN PROPERTIES, LLC

P.O. BOX 8818 PORTLAND, ME 04104

	4ACORN ENGINEERING, INC. 58 DANFORTH ST. PORTLAND MAINE 04102 (207) 775-2855	THIS PLAN SHALL NOT BE MOVED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY ACORN ENGINEERING, INC. SHALL BE MADE BY THE SALE AGENT, WITHOUT LIABILITY TO ACORN ENGINEERING, INC.	CLIENT:
	PROJECT NAME:		
DRAWING NAME:			

FILE:	1067_CIVIL
JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS



DRAWING NO.
PLAT



PLANNING BOARD REPORT PORTLAND, MAINE

SUBDIVISION AND CHANGE OF USE/ RENOVATION OF BUILDING TO CO-WORKING OFFICES AND FOUR APARTMENTS AMENDMENT TO JULY 2016 APPROVAL

415 Cumberland Avenue (proposed residential addressed 62 Forest Avenue)

Level III Subdivision Plan and Site Plan (Amendment)

Project ID #2016-196 CBL 036 G033001

Andrew Kraus, M&A Lowcountry Investments, LLC, Applicant

Submitted to: Portland Planning Board Public Hearing Date: September 27, 2016	Prepared by: Jean Fraser, Planner Date: September 23, 2016
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I. INTRODUCTION

The applicant is requesting an amendment to the approved Level III application for conversion of the existing 3-4 story building at 415 Cumberland Avenue into residential units and a “co-working” shared business office unit. The proposal was approved with three residential units on July 26, 2016 (Approval letter in [Attachment 1](#)) and the amendment comprises reconfiguration of the residential part to create four units.

The previously approved project also included window replacements /reopenings, roof decks, recladding of part of the Forest Avenue façade, replacement garage doors, and modifications to the “alley” between the building and the abutting YMCA.

The property is located at the corner of Cumberland and Forest Avenues in the B3c zone. The building is of historic importance although not considered eligible for any specific historic designation. The Congress Street historic district is located diagonally across the Cumberland/Forest intersection.

A total of 198 notices of this Hearing were sent to residents within 500 feet and interested citizens. A notice also appeared in the September 19th and 20th, 2016 editions of the *Portland Press Herald*.

The previous proposal did not require a Neighborhood Meeting as it was being subdivided into fewer than 5 units. The amendment to create a fourth dwelling unit triggers the need for a Neighborhood Meeting, which was held on September 15, 2016 and the notes and details are included in [Attachment I](#).



II. REQUIRED REVIEWS {NO REQUESTED WAIVERS}

Review	Applicable Standards
Site Plan	Section 14-526 for the proposed redevelopment
Subdivision of overall site	Section 14-497 for the division into 1 business office unit and 4 residential units.

III. PROJECT SUMMARY

Existing Zoning:	B3c Business Zone
Proposed Use:	Commercial Co-Working and four (4) Residential Units
Parcel Size:	6098 sq ft
Total Disturbed Area:	None- all interior improvements
Existing Building footprint:	4,929 sq ft
Proposed Building footprint:	4,929 sq ft
Existing Building floorspace:	15,745 sq ft over 4 stories
Proposed Building floorspace:	15,745 sq ft over 4 stories excluding decks
Existing use:	Commercial space (most recently Hurley Travel)
Proposed uses:	5,549 sq ft residential including units, deck & parking 12,405 sq ft “co-working” offices, incl. basement, common area and deck
Residential Data:	
Existing Res. Units:	None
Proposed Res. Units:	4 units totaling 3,137 sq ft
Bedroom Mix:	2 No 1-bedroom unit 2 No 2- bedroom unit
Parking Spaces:	
Existing:	6 (within garage as part of building)
Proposed:	6 (within garage as part of building shown for residential use) (includes one handicapped space)
Required:	In this zone no parking provision is required for a change of use
Bicycle Parking Spaces:	
Existing:	None
Proposed:	14 (6 outside; 4 in garage for residential units; 4 in common area for business use)
Required:	Requirement is 2 spaces for residential; 2 for spaces for the business unit
Estimated Cost of Project:	\$950,000

IV. PROJECT DESCRIPTION

The existing 3-4-story building is part of a group of 4-5 story buildings that include the YMCA at the corner of Forest and Cumberland Avenues. The front part facing Cumberland Avenue dates from the 1860's and the rear section is recent.

There are three small areas of open site: the landscaped area at the front; a paved sliver along the west side which is currently the location of a fire escape; and an open but fenced area at the north side which has an access easement over it for the YMCA. (see submitted photos in [Plan P6](#))



The proposals are illustrated in [Plans P2 to P7](#) and remain as previously approved except that the former 3 bedroom unit (first floor) has been divided into a 2 bedroom unit and a 1 bedroom unit and the elevations have been amended to show revising cladding and trash enclosure proposals. The previously approved proposals also include:

- Creation of a “co-working” business office unit that includes a number of common amenities such as fitness center; kitchen/lounge; conference room
- Installation of 15 new windows on three facades (not on the Cumberland Avenue elevation), most being a replacement of existing or a re-opening of original;
- Retention of historic exterior and interior features (eg ballroom)
- Addition of two roof top decks;
- Elevator to serve the co-working office unit including the penthouse and roof deck;
- Planting of two street trees in front landscaped area;
- Provision of 6 bicycle parking spaces in the vicinity of the fire escape on the west elevation and 8 inside;
- Use and improvement of part of the rear (north) open easement area for trash storage in 7 bins;
- Repair or replacement of the ADA ramp in the ROW at the corner of Forest and Cumberland Avenues.

V. RIGHT, TITLE AND INTEREST AND FINANCIAL CAPACITY

a. The owner of the property is M&A Lowcountry Investments, LLC and the deed in Attachment C, demonstrates their right, title and interest in the property. The YMCA has an access easement over a small area to the north of the property that provides ADA access to a side door. The project maintains access to this door.

b. The estimated cost of the development is \$950,000 (see Attachment B data sheet) and the applicant has confirmed that funds have been secured (Attachment D).

VI. ZONING ASSESSMENT

The building is located primarily in the B3c zone, with the northern edge and abutting small yard located within the R6 zone. The previous use of the building was retail, workshop and offices (Hurley Travel; commercial under site plan definitions) and the proposed uses are a change of use to residential and general and business offices. The proposed uses are permitted in the B3c zone, and the residential part is within the R6 zone.

The site is not within the PAD Overlay Zone but the Downtown Urban Design Standards apply (see below). The project is exempt from providing any additional dedicated parking for the project under the zoning ordinance as a change of use in the B3c Downtown Business Zone. The proposal does not include any alterations to the existing footprint of the building nor its height. The staff finds the application to be in conformance with the B-3c zone, and notes that the trash storage is regulated in the *External effects* section 14-221.1.

VII. DEVELOPMENT REVIEW

A. SUBDIVISION and SITE PLAN SUBMISSION REQUIREMENTS (Section 14-497 & Section 14-527)

All requirements have been met. The subdivision plat (Plan P2.) clarifies the subdivision units and is comprehensive. The final version including any additional Planning Board subdivision conditions will need to be reviewed by the Legal Department and DPS Surveyor prior to signature by the Planning Board, as recommended in the condition of approval.

It is understood that the apartments are being created for market-rate rental so there are no Condominium Documents submitted. A suggested subdivision condition of approval requires the submission of such documents if the nature of the units is changed in the future.

B. SUBDIVISION REVIEW

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland’s Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) I), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)
Staff finds the proposed project is in conformance with this standard.
2. Sufficient Water Available (Section 14-497 (a) 2 and 3)
The applicant has submitted the capacity letter from the Portland Water District (Attachment H.)

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)
Please see paragraph C1 below. The staff finds the proposal will not cause unreasonable traffic congestion.
4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)
The wastewater capacity letter is included in Attachment H. It relates to the previous proposal but the number of bedrooms has not changed. There are no stormwater issues as the applicant has addressed the previous conditions relating to roof drains and the Construction Management Plan.
5. Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)
The proposed project will not have an adverse effect on the scenic or natural beauty of the area, thus the proposed project is in conformance with this standard.
6. Comprehensive Plan (Section 14-497 (a) 9)
The following statement is housing policy that is relevant to this proposal and the staff finds the proposed project is in conformance with this standard.

The first policy of Housing: Sustaining Portland's Future is to ensure an adequate and diverse supply of housing for all. Objectives under that policy include the following:

- Ensure the construction of a diverse mix of housing types that offers a continuum of options across all income levels, which are both renter and owner-occupied. The list of potential housing options under this objective include:
 - ii. Housing units for decreasing household sizes, such as young professionals, empty nesters, single parent households and senior citizens.
 - v. Higher density housing, such as row houses, small lots, reuse of non-residential buildings, and mixed use buildings.
- Encourage higher density housing for both rental and home ownership opportunities, particularly located near services, such as schools, businesses, institutions, employers and public transportation.
- Evaluate and update current zoning, as needed, to encourage higher density multi-family developments and mixed use projects that incorporate housing, particularly along major public transportation routes, near services areas, and in redevelopment or infill areas, where appropriate.
- Encourage housing within and adjacent to the downtown. Evaluate and update current zoning and building codes, as needed, to facilitate new housing and redevelopment opportunities....

The proposals also address Comprehensive Plan policies regarding economic development that derive from the Portland Industry and Commerce Plan – 1994:

- Strengthen and Diversify the Economic Base
 - create a variety of job opportunities for the full spectrum of the labor pool which:
 - are appropriate to our current and potential skills
 - provide good pay and benefits - a living wage
 - are rewarding/satisfying
 - strengthen and diversify the tax base

7. Financial Capability (Section 14-497 (a) 10) Please see above under Section IV.

C. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

- a. Impact on Surrounding Street Systems
- b. Access and Circulation
- c. Public Transit Access
- d. Parking
- e. Transportation Demand Management (TDM)

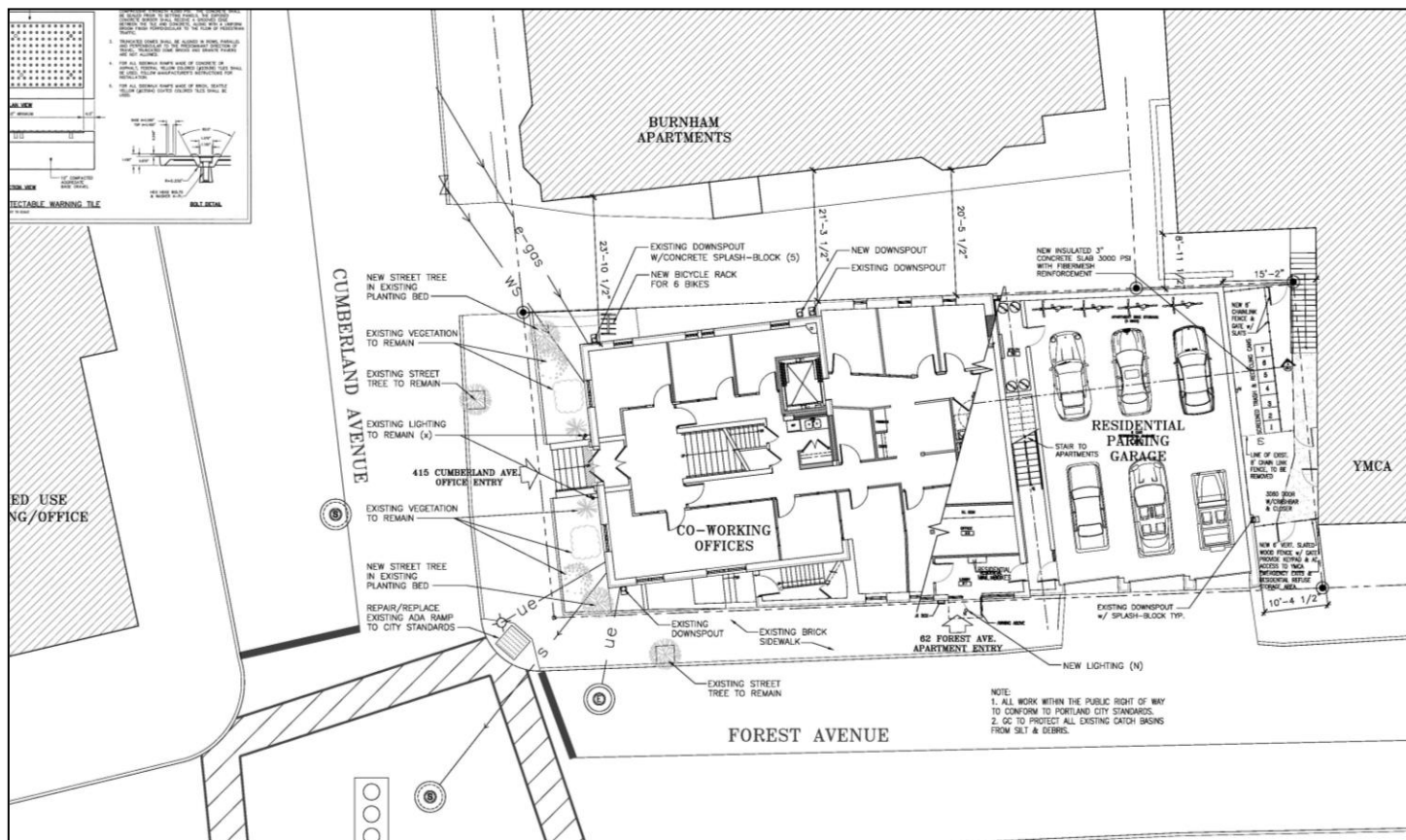
STAFF COMMENT: The proposed project is not anticipated to have any significant adverse effect on regional traffic, and the parking needs have been addressed by the retention of the 6 existing parking spaces (shown on Plan P3 as “Residential”) in the garage which have an existing curb cut that is satisfactory. The Traffic Engineering reviewer Tom Errico has confirmed in Attachment 3 that the previous comments still apply; they were:

I have reviewed the project application materials and I find conditions to be acceptable. I would suggest a condition of approval that notes the parking tandem parking spaces be designated for the residential units only (or for low turnover use). Backing maneuvers onto Forest Avenue should be minimized given vehicle and pedestrian traffic levels.

A suggested condition of approval reflects these comments.

Bicycle parking totaling spaces for 14 bikes has been provided for both occupants and visitors (see Plan P3) and exceeds the ordinance requirement of 4 spaces. However, access to the 6 spaces outside is over property outside the site, so a suggested condition of approval requests that the bike parking be accessible over the applicant’s property.

A recent aspect of the review of pedestrian access relates to compliance with current ADA requirements and the applicant has submitted a letter confirming compliance as the creation of the fourth unit raised a question on this point (Attachment F). The City’s Associate Corporation Counsel Victoria Morales has confirmed agreement with the submitted analysis (Attachment 4). The Public Transit and TDM standards do not apply to this project.



Proposed Site Plan

2. **Environmental Quality Standards**

- a. Preservation of Significant Natural Features
- b. Landscaping and Landscape Preservation
- c. Water Quality, Storm Water Management and Erosion Control

STAFF COMMENT: The applicant has added two street trees to the front (existing) landscaped area and, together with the existing two street trees, provide 4 street trees. With the creation of the fifth unit the street tree requirement is 5 street trees. The City Arborist has not advised on how best to meet this requirement and staff will make a recommendation at the Hearing.

The trash storage (7 totes) is provided within the “alley” between the building and the YMCA and the proposals include upgrading of the fenced enclosure and provision of a gated wood slat fence at the back of the Forest Avenue sidewalk (see Plans P3 and P5 for details).

The reuse of the building and surrounding impervious surfaces do not require any upgrading to meet current stormwater requirements. During the previous review there were comments regarding the erosion control during construction and the roof drains, which have been addressed in the submitted plans.

3. **Public Infrastructure and Community Safety Standards**

- a. Consistency with Master Plans
- b. Public Safety and Fire Prevention
- c. Availability and Adequate Capacity of Public Utilities

STAFF COMMENT: The previous review requested noted that the sidewalks along the frontage are in good condition and requested replacement or repair of the ramp panel within the tipdown at the corner crosswalk. The applicant has been in discussion with staff regarding the ramp as it does not lend itself to a “standard” detail, and it is anticipated a final detail for this ramp will be available at the Hearing. The condition requiring the ramp has been retained in the motion for the Board to consider, and can be struck if this detail is resolved.

The Fire Department has reviewed the three iterations of the building conversion and confirmed the comments remain applicable to the current proposal (same externally as the amended proposal). The 911 and street addressing is a particular concern because the entrances to the building are on two streets, and this has been highlighted in a suggested condition of approval. The current proposal gives these two different addresses which will also require further review in the context of emergency service concerns.

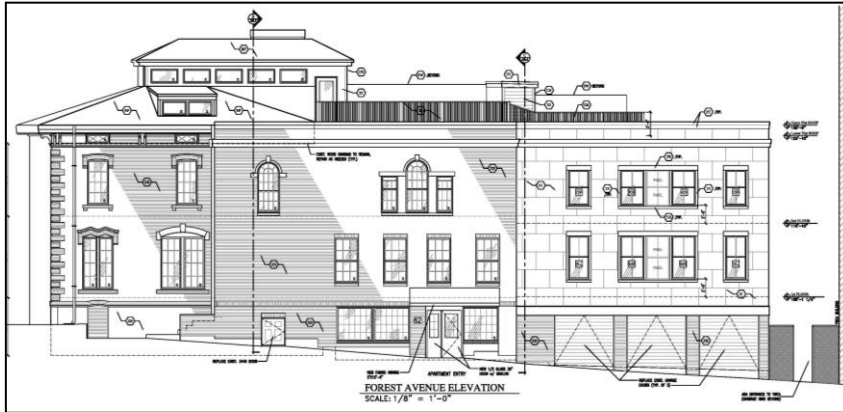
The capacity letters for water and wastewater have been received (Attachment H). These relate to the original proposal in July, but are still valid as the bedroom and bathroom numbers have not changed.

4. **Site Design Standards**

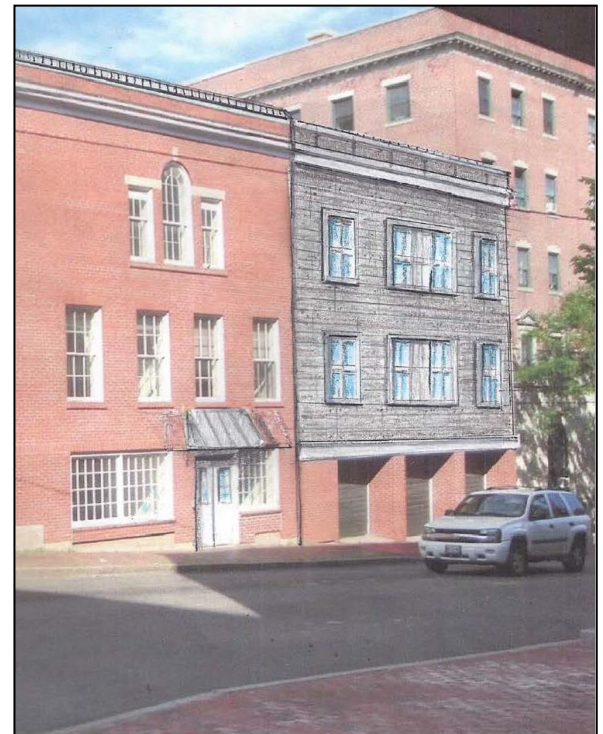
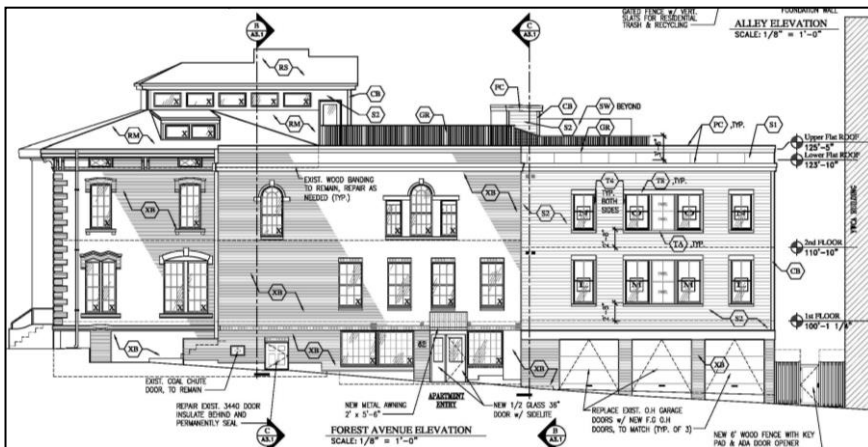
- a. Massing, Ventilation and Wind Impact; Shadows; Snow and Ice Loading; View Corridors: The alterations to the existing building are minor and would not alter these impacts.
- b. Historic Resources: The proposal is 100ft +/- from the Congress Street Historic District and the landmark NE Telephone building. The proposals include recladding and new windows in part of the Forest Avenue elevation that faces the historic district and staff considered that this elevation should be reviewed under the Site Plan standard that requires compatibility with the historic context. The proposal also adds an elevator overrun in the roof area facing west (away from Forest Avenue) and this small structure has been well integrated into the roof design.

The applicant has revised the cladding since the July approval and discussed the amendment with the Historic Preservation Program Manager, Deb Andrews. A comparison between the approved and amended cladding is set out below:

The previously approved cladding was 48" X32" "Hardie" reveal panel system with aluminum trim over "Tyvar" building wrap, with aluminum fry reglets:



The current amended proposals (below) were revised to because of the high cost of the original specification. The proposed cladding is now 6" TTW "Hardie Plank" lap siding over "Tyvar" building wrap (color TBD) and illustrated below:



The Historic Preservation Program Manager, Deb Andrews, welcomes the removal of the brown wood cladding and has reviewed the amended proposals. She has confirmed that the final proposals are generally compatible with the historic structure/district ([Attachment 5](#)).

The applicant will clarify regarding the proposed color (and circulate a sample of the material) at the Hearing.

- c. Exterior Lighting
- d. Noise and Vibration
- e. Signage and Wayfinding

STAFF COMMENT: The application does not clarify the proposed lighting, so the submission of details has been included in a suggested condition of approval. The application shows ([Plan P4.](#), top left) a number of HVAC units, and further information showing that they comply with the B3c sound level maximums is requested in a suggested condition of approval. As noted by the Fire Department in relation to addressing, the fact that the same building is proposed to have two different addresses needs to be considered further in light of the 911 requirements and the need for clear associated signage.

f. Zoning Related Design Standards

STAFF COMMENT: The B3 Downtown Urban Design Standards technically apply to his property but generally focus on issues related to new build. These Standards require enclosure of rooftop appurtenances and compatible materials and entrance designs. The proposals do not clarify whether the rooftop mechanicals are visible from the public realm and the condition of approval seeks further information on this question.

The proposals include a multi-family development and therefore must meet the following standards:

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;
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 external alterations address the standards.

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: There is little opportunity for additional planting, and the proposal to upgrade the front planted area generally addresses this standard.

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 within an enclosed building and the vehicles are screened.

VIII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the amended proposals for the subdivision and site plan for four residential units and one co-working business offices unit within the existing building at 415 Cumberland Avenue.

IX. PROPOSED MOTIONS FOR THE BOARD TO CONSIDER

A. SUBDIVISION 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 September 27, 2016 for application #2016-196 (415 Cumberland Avenue) relevant to the Subdivision regulations, and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan **(is/is not)** in conformance with the subdivision standards of the land use code subject to the following condition of approval:

- i. That the Subdivision Plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel, and Department of Public Works, prior to submission for Planning Board signature; and
- ii. That in the event the property is converted to a condominium, that the recorded condominium documents shall be copied to the Planning Authority.

C. SITE PLAN 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 September 27, 2016 for application #2016-196 (415 Cumberland Avenue) relevant to the site plan regulations; and the testimony presented at the planning board hearing, the planning board finds that the plan **(is/is not)** in conformance with the site plan standards of the land use code, subject to the following conditions of approval:

- i. That the applicant shall submit detailed plans/revised site plan to confirm the proposals for the following, all for review and approval by the Planning Authority (including the Transportation Division) and Department of Public Works prior to the issuance of a building permit:
 - a. The repair/replacement of the ADA ramp panel in the ROW at the corner of Forest Avenue and Cumberland Avenue;
 - b. The provision of an additional (fifth) street tree;
 - c. The route to the outside bike racks located within the applicant's property; and
 - d. Details/specifications of the new fence along the back of the sidewalk near the trash storage area.
- ii. That the tandem parking spaces be designated for the residential units only (or for low turnover use) to ensure that backing maneuvers onto Forest Avenue are minimized given vehicle and pedestrian traffic levels; and
- iii. That any exterior lighting shall meet the City's Site Lighting Standards in Section 12 of the Technical Manual; the HVAC sound levels shall meet the B3c *External Effects* standards; and the HVAC placement/screening shall meet the ordinance requirements of Section 14-526 (d)(7). Documentation of these to be submitted for review and approval by the Planning Authority prior to the issuance of a building permit; and
- iv. That the applicant shall address the comments of the Fire Department dated 10.7.15 regarding the development of street addresses and their marking on the structure/signage prior to the issuance of a certificate of occupancy; and
- v. That a separate "change of use" permit shall be obtained from the Permitting and Inspections Division, and that any signage would require separate permits from the Permitting and Inspections Division.

Attachments:

Planning Board Report Attachments

1. Previous approval letter (for 3 res units)
2. Fire Department comments 2015 (confirmed still apply)
3. Traffic Engineering Review comments 9.22.16 and 7.22.2016
4. Legal Department comments 9.12.2016
5. Historic Preservation Program Manager final comments 9.22.2016

Public comments (none received)

Applicant's Submittal

- A. Cover e-mail
- B. Amendment application
- C. Evidence of RTI (Deed)
- D. Financial Capacity Information
- E. Construction Management Plan
- F. ADA, FHA, MHRC Analysis
- G. Code Certification
- H. Water and Sewer Capacity
- I. Neighborhood Meeting Certificate & Notes

Plans

- Plan P1 Boundary Survey
Plan P2 Draft Subdivision Plat
Plan P3 Site Plan
Plan P4 Floor Plans (revised for 4 residential units)
Plan P5 Elevations (revised re cladding and trash enclosure)
Plan P6 Photos of existing building
Plan P7 Rendering from corner Forest/Cumberland Ave

CITY OF PORTLAND, MAINE

PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Carol Morrisette
David Eaton
Kristien Nichols
Lisa Whited
Maggie Stanley

July 29, 2016

Andrew Kraus
M & A Lowcountry Investments, LLC
110 Marginal Way #154
Portland, ME 04101

Project Name: “Station 415” Subdivision and Change of Use: Co-Working Office Unit
and three (3) Apartments

Project ID: #2016-152

Address: 415 Cumberland Avenue CBL: 036 G033001

Applicant: Andrew Kraus, M & A Lowcountry Investments, LLC

Planner: Jean Fraser

Dear Mr Kraus:

On July 26, 2016, the Planning Board considered a Level III application for “Station 415”, the conversion of the existing 3-4 story building at 415 Cumberland Avenue into 3 residential units (rear part of building) and one “co-working” shared business office unit (front part of building). The project includes renovations comprising partial recladding, window replacements / re-openings and roof decks.

The Planning Board reviewed the proposal for conformance with the standards of the Subdivision Ordinance and Site Plan Ordinance and voted 7-0 to approve the application with the following conditions as presented below:

A. SUBDIVISION 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 July 26, 2016 for application #2016-152 (415 Cumberland Avenue) relevant to the Subdivision regulations, and the testimony presented at the Planning Board hearing, the Planning Board voted 7-0 that the plan is in conformance with the Subdivision Standards of the Land Use Code, subject to the following conditions of approval:

- i. That the Subdivision Plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel, and Department of Public Works, and include clarification of easement and other information along with relevant notes and conditions prior to submission for Planning Board signature; and
- ii. That in the event the property is converted to a condominium, that the recorded condominium documents shall be copied to the Planning Authority.

B. SITE PLAN 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 July 26, 2016 for application #2016-152 (415 Cumberland Avenue) relevant to the site plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board voted 7-0 that the plan is in conformance with the Site Plan standards of the Land Use Code, subject to the following conditions of approval:

- i. That the applicant shall submit detailed plans/revised site plan to show the proposals for the following, all for review and approval by the Planning Authority (including the Transportation Division for item C) and Department of Public Works prior to the issuance of a building permit:
 - A) The locations of roof drains and their discharge locations, with surface erosion protection noted as necessary (roof drains shall not discharge into the sewer);
 - B) All work in the Right of Way, including but not limited to pavement for trench patching, utility installations, sidewalk repair and handicap ramp construction, to be in conformance with all City of Portland Technical Standards;
 - C) The repair/replacement of the ADA ramp panel in the ROW at the corner of Forest Avenue and Cumberland Avenue (to meet the City's Technical Standards for any work in the ROW);
 - D) The route to the outside bike racks located within the applicant's property; and
 - E) Improved screening of the trash storage area.
- ii. That the applicant address the comments of the Historic Preservation Manager dated 7.21.2016 in respect of the tone of proposed new cladding on the Forest Avenue elevation, prior to the issuance of a building permit; and
- iii. That the tandem parking spaces be designated for the residential units only (or for low turnover use) to ensure that backing maneuvers onto Forest Avenue are minimized given vehicle and pedestrian traffic levels; and
- iv. That the Construction Management Plan shall be revised to note that existing catch basins near any disturbed areas shall be protected, and cleaned following construction as necessary, and that if the site disturbance results in the tracking of any sediment onto the surrounding streets, they will be swept as required; and
- v. That the applicant shall submit the capacity letters in respect of water supply and wastewater capacity prior to the issuance of a building permit; and
- vi. That any exterior lighting shall meet the City's Site Lighting Standards in Section 12 of the Technical Manual; the trash storage area and HVAC sound levels shall meet the B3c *External Effects* standards; - documentation of these to be submitted for review and approval by the Planning Authority prior to the issuance of a building permit; and
- vii. That the applicant shall address the comments of the Fire Department dated 10.7.15 regarding the development of street addresses and their marking on the structure/signage prior to the issuance of a certificate of occupancy; and
- viii. That a separate "change of use" permit shall be obtained from the Permitting and Inspections Division, and that any signage would require separate permits from the Permitting and Inspections Division.

The approval is based on the submitted plans and the findings related to site plan and subdivision review standards as contained in Planning Report for application #2016-152 which is attached.

STANDARD CONDITIONS OF APPROVAL

Please note the following standard conditions of approval and requirements for all approved site plans:

1. **Subdivision Recording Plat** A revised recording plat listing all conditions of subdivision approval must be submitted for review and signature prior to the issuance of a performance guarantee. The performance guarantee must be issued prior to the release of the recording plat for recording at the Cumberland County Registry of Deeds.
2. **Subdivision Waivers** Pursuant to 30-A MRSA section 4406(B)(1), any waiver must be specified on the subdivision plan or outlined in a notice and the plan or notice must be recorded in the Cumberland County Registry of Deeds within 90 days of the final subdivision approval).
3. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or the Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.
4. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.
5. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the one (1) year expiration date.
6. **Subdivision Plan Expiration** The subdivision approval is valid for up to three years from the date of Planning Board approval.
7. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and five (5) final sets of plans must be submitted to and approved by the Planning Division and Public Works Department prior to the release of a subdivision plat for recording at the Cumberland County of Deeds, and prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.
8. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.
9. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.

10. **Department of Public Works Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)
11. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*.dwg), release AutoCAD 2005 or greater.
12. **Mylar Copies** Mylar copies of the as-built drawings for the public streets and other public infrastructure in the subdivision must be submitted to the Public Works Dept. prior to the issuance of a certificate of occupancy.

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Jean Fraser at 874-8728.

Sincerely,

Elizabeth Boepple, Chair
Portland Planning Board

Attachments:

1. Historic Preservation Program Manager comments 7.21.2016
2. Fire Department comments 10.7.2015
3. Planning Board Report
4. Performance Guarantee Packet

Electronic Distribution:

cc. Project Architect: Mark Sengelmann, ALPHAarchitects, 17 Chestnut Street, Portland ME 04101

CC:

Jeff Levine, AICP, Director of Planning and Urban Development
Barbara Barhydt, Development Review Works Manager
Jean Fraser, Planner
Philip DiPierro, Development Review Coordinator, Planning
Deb Andrews, Historic Preservation Program Manager
Mike Russell, Director of Permitting and Inspections
Ann Machado, Zoning Administrator, Inspections Division
Jonathan Rioux, Inspections Division Deputy Director
Jeanie Bourke, Plan Reviewer/CEO, Inspections Division
Chris Branch, Director of Public Works
Katherine Earley, Engineering Works Manager, Public Works
Bill Clark, Project Engineer, Public Works
Doug Roncarati, Stormwater Coordinator, Public Works

Greg Vining, Associate Engineer, Public Works
Michelle Sweeney, Associate Engineer, Public Works
John Low, Associate Engineer, Public Works
Rhonda Zazzara, Field Inspection Coordinator, Public Works
Jeff Tarling, City Arborist, Public Works
Jeremiah Bartlett, Public Works
Keith Gautreau, Fire Department
Danielle West-Chuhta, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
Lauren Swett, P.E., Woodard and Curran
Rick Blackburn, Assessor's Department
Approval Letter File



Jean Fraser <jf@portlandmaine.gov>

415 Cumberland Avenue - Review of Final Design Proposal

1 message

Deb Andrews <dga@portlandmaine.gov>

Thu, Jul 21, 2016 at 5:40 PM

To: Jean Fraser <jf@portlandmaine.gov>

Thank you for the opportunity to review ALPHA Architect's final design proposal (dated July 20) for the renovation of 415 Cumberland. The following comments are pursuant to Sec. 14-526 (b) of the site plan ordinance which requires historic preservation staff or Board to provide comments to the Planning Board regarding the relative compatibility of the project on the abutting historic resource or district. In this particular instance, the subject building itself, while located outside the designated historic district, is an architecturally notable structure, warranting careful rehabilitation and sympathetic additions.

The 7/20 design appears to be responsive to most of the previous review comments provided by this office, as well as comments of the Planning Board and staff. The one outstanding issue that might warrant further consideration is the replacement exterior cladding proposed for the rear addition facing Forest Avenue. Although the material itself is acceptable and its running bond pattern relates to the running bond brick of the abutting historic structure, staff suggests that the scale of the individual cement panels be reduced somewhat. A reduction in scale of individual modules would likely result in a more subtle and intentional relationship between the finer grain brick of the historic structure and the contemporary exterior of the addition. Also, staff suggests that the tone of the addition be darker than what is presented to provide a more recessive appearance.

--

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

MEMORANDUM

To: FILE
From: Jean Fraser
Subject: Application ID: 2015-162
Date: 10/22/2015

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

Life Safety requirements for the change of use will be addressed in the Building Permit process.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

Premises Identification

The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.

Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer.

If the building entry faces a different street, both the street name and number should be large enough to read from the street.

Address numbers must be a minimum of 4 inches high.

The number should be in Arabic numerals rather than spelled out (for example, "130" instead of "One Hundred and Thirty").

Color: Addresses should be in a color that contrasts with the background.

Whenever possible, should be illuminated.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

There are two hydrants within 200' from the propose site which is more than adequate.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

Access to the site is good at it sits on the corner of Forest Ave. & Cumberland Ave.

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415 Cumberland Avenue - Final Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <jf@portlandmaine.gov>

Thu, Sep 22, 2016 at 9:14 AM

Jean – My prior Final Traffic Comments apply to the revised project. If you have any questions, please contact me.

Thanks

Thomas A. Errico, PE

Senior Associate

Traffic Engineering Director

TYLIN INTERNATIONAL

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

thomas.errico@tylin.com

Visit us online at www.tylin.com

[Twitter](#) | [Facebook](#) | [LinkedIn](#) | [YouTube](#)

"One Vision, One Company"

415 Cumberland Avenue - Final Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com>
To: Jean Fraser <jf@portlandmaine.gov>

Fri, Jul 22, 2016 at 7:04 AM

Hi Jean – I have reviewed the project application materials and I find conditions to be acceptable. I would suggest a condition of approval that notes the parking tandem parking spaces be designated for the residential units only (or for low turnover use). Backing maneuvers onto Forest Avenue should be minimized given vehicle and pedestrian traffic levels.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TYLIN INTERNATIONAL T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

[207.781.4721](tel:207.781.4721) (main)

[207.347.4354](tel:207.347.4354) (direct)

[207.400.0719](tel:207.400.0719) (mobile)

[207.781.4753](tel:207.781.4753) (fax)

thomas.errico@tylin.com

Visit us online at www.tylin.com

Twitter | Facebook | LinkedIn | YouTube

Re: FHA question

1 message

Victoria Morales <vmorales@portlandmaine.gov>

Mon, Sep 12, 2016 at 2:22 PM

To: Jean Fraser <jf@portlandmaine.gov>

Hi Jean,

For the FHA to kick in the building must either be 1) new construction/addition of 4 or more dwelling units, or 2) a covered multi-dwelling building built for first occupancy after 1991. The situation you have described is not # 2) above.

Typically, conversions of older commercial buildings to residential does not trigger the FHA.

My question is whether the portion of the building dedicated to dwelling units is going to be gutted structurally in order to construct the units? If so, will the outside walls remain the same?

According to the FHA, a renovation is new construction if it keeps the facade in place and guts the remaining structural portion of the building. In my mind, the facade the front facing outside wall of a building. Is that your understanding?

If all outside walls remain in place, however, and the building from the inside is gutted and converted to dwelling units, it is my opinion that the conversion does not trigger the FHA.

I hope this is helpful.

Best,

Victoria

On Mon, Sep 12, 2016 at 12:30 PM, Jean Fraser <jf@portlandmaine.gov> wrote:

Victoria

Here is more info:

1. This is a large existing building that has been used as commercial/business (eg Hurley Travel) for many years and certainly before 1991.
2. On July 26, 2016 the Board approved an internal subdivision into 3 res. units at the rear and a "co-working" shared business office unit that was the rest of the building and accessed by an elevator (the res units were accessed by stairs). I attach the submitted floor plan.
3. Shortly after this approval (which they are moving forward with because they want to start the internal demo) they found that per ADA they could have a 4th residential unit. Prior to that the view was that ADA requirements (Maine Housing Act) would kick in if they added a 4th unit so they kept it to 3. We advised them to amend the July approval if they wanted the 4th unit.
4. They have recently submitted the amendment to the July approval which divides a previously 3BR unit on the first floor into a 2Br unit and a 1 br unit (see second set of floor plans) so that its a total of 5 units (4 res and the co-work space). I asked them to provide a clear statement that this met ADA and the attached note was submitted.



So my question to you is whether the creation of 4 new residential units on the first and second floors results in any ADA requirements and do you agree with their note that concludes that no ADA requirements apply.

Sorry not to get this to you earlier...

thanks
Jean

(PS I am sending a separate e-mail regarding the ADA question for 75 Chestnut- all new build and going to PB Workshop tomorrow.)

On Fri, Sep 9, 2016 at 12:51 PM, Victoria Morales <vmorales@portlandmaine.gov> wrote:

OK. That changes things a bit. I will wait to hear from you. I am packed next week but available Monday afternoon after 3.

Thanks,

Victoria

On Fri, Sep 9, 2016 at 11:03 AM, Jean Fraser <jf@portlandmaine.gov> wrote:
Victoria

Thanks for picking this up and apologies for not sending you the background- I am caught up in finishing the PB reports going out today and will get back to you on Monday.

The 3 unit does not exist- it was approved in June 2016. Now they want to amend to make it 4 units and its within a large existing building. Let me send you all of the info, including the ADA assessment they submitted, and we can follow up Monday.

Thanks
Jean

On Fri, Sep 9, 2016 at 8:30 AM, Victoria Morales <vmorales@portlandmaine.gov> wrote:

Hi Jean,

You asked me to look into whether a 3 unit that is seeking to add an additional dwelling unit must comply with the FHA regulations regarding accessibility. I assume the 3 unit was in existence prior to March 13, 1991,

The answer to the question is no. The FHA only applies to covered buildings as of March 13, 1991. If the building were a 4 unit as of that date, it would be covered.

Examples of renovations that would have to comply with FHA are:

1) significant renovations of an older building, for example a complete gutting of the interior structure creating 4 or more dwelling units while leaving only the facade in place,

2) a new addition/extension of 4 or more units to an older building.

I hope this was helpful.

--

Victoria Morales
Associate Corporation Counsel
City of Portland
389 Congress Street, Rm 211
Portland, ME 04101
[207-874-8480](tel:207-874-8480)

--

Jean Fraser, Planner
City of Portland
874 8728

--

Victoria Morales
Associate Corporation Counsel
City of Portland
389 Congress Street, Rm 211
Portland, ME 04101
[207-874-8480](tel:207-874-8480)

--

Jean Fraser, Planner
City of Portland
874 8728

--

Victoria Morales
Associate Corporation Counsel
City of Portland
389 Congress Street, Rm 211
Portland, ME 04101

207-874-8480

Final material specification for rear addition at 415 Cumberland

1 message

Deb Andrews <dga@portlandmaine.gov>

Thu, Sep 22, 2016 at 3:21 PM

To: Jean Fraser <jf@portlandmaine.gov>

This is to confirm that I have reviewed Mr. Senglemann's latest proposal for the renovation of 415 Cumberland Avenue, including the material and paint scheme proposed for the rear portion of the building. In my view, the exterior treatment proposed for the rear addition is generally compatible with the historic structure.

--

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

August 25, 2016

Barbara Barhydt
Development Review Services Coordinator
City of Portland
389 Congress Street
Portland ME 04101



Architect's Memo
Level III Site Plan Amendment

RE: **Station 415**
415 Cumberland Avenue
Portland ME 04101

Dear Jean and members of the Planning Board,

Please find attached an amended Level III Site Plan Application.
The only significant alteration is the project now has 4 apartment units + Co-working Commercial Office space. Previously there were only 3 apartments.

We have conducted extensive research into the 2009 ADA/ MHRC & FHA Codes and have determined that this project does not require ADA access to the 4 apartments. The Co-working Office space is fully accessible.

We would like to have a neighborhood meeting as soon as possible. Can the City help us with the mailings if we provide the narrative?

I will look forward to your reply,

Sincerely,
ALPHAarchitects



Mark Sengelmann NCARB
Maine Licensed Architect

Encl: Station 415 Level III Site Plan Application Amendment 8-25-16, 2009 ADA/ MHRC & FHA Code Review, NFPA and IBC Code Certification 8-25-16.pdf, Boundary Survey, Subdivision Plat & A1.0 Revised, AS1.1 Revised

Cc. Valerie and Andrew Kraus

PROJECT NAME: Station 415

AMENDMENT
8/25/16

PROPOSED DEVELOPMENT ADDRESS:

415 Cumberland Ave Portland, ME 04101 + 62 Forest Ave Portland, ME 04101

PROJECT DESCRIPTION:

Redevelopment of 415 Cumberland Ave to Commercial Co-working
Redevelopment of 62 Forest Ave to 4 residential units

CHART/BLOCK/LOT: 036 G033001

PRELIMINARY PLAN _____ (date)

FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: <u>Andrew Kraus</u> Business Name, if applicable: <u>Mt A Lowcountry Investments, LLC</u> Address: <u>110 Marginal Way #154</u> City/State: <u>Portland, ME</u> Zip Code: <u>04101</u>	Applicant Contact Information Work # <u>610-888-9929</u> Home# Cell # Fax# e-mail: <u>ajkraus09@gmail.com</u>
Owner – (if different from Applicant) Name: Address: City/State: Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Address: City/State: Zip Code:	Agent/Representative Contact Information Work # Cell # e-mail:
Billing Information Name: <u>ANDREW KRAUS</u> Address: <u>110 MARGINAL WAY #154</u> City/State: <u>PORTLAND ME</u> Zip Code: <u>04101</u>	Billing Information Work # <u>610-888-9929</u> Cell # Fax# e-mail: <u>AJKRAUS09@GMAIL.COM</u>

Engineer Name: BENNETT ENGINEERING Address: PO BOX 297 City/State: FREEPORT ME Zip Code: 04032	Engineer Contact Information Work # 865-9475 Cell # _____ Fax# _____ e-mail: WILL@BENNETTENGINEERING.COM
Surveyor Name: ELWOOD ELLIS Address: PO BOX 6234 City/State: CHINA VILLAGE Zip Code: 04026	Surveyor Contact Information Work # 592-2735 Cell # _____ Fax# _____ e-mail: BLUESBRO@ROADRUNNER.COM
Architect Name: Mark Sengelmann dba ALPHA architects Address: 17 CHESTNUT ST City/State: PORTLAND ME Zip Code: 04101	Architect Contact Information Work # 761-9500 Cell # 671-4110 Fax# 761-9595 e-mail: Mark@ALPHAarchitects.com
Attorney Name: _____ Address: _____ City/State: _____ Zip Code: _____	Attorney Contact Information Work # _____ Cell # _____ Fax# _____ e-mail: _____

PLANNING BOARD AMENDMENT

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Credit Card, 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 300,000 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 (\$50.00 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 (\$1,500) ☐ Stormwater Quality (\$250) ☒ Subdivisions (\$500 + \$25/lot) # of Lots <u>1</u> x \$25/lot = <u>\$25.-</u> ☐ Site Location (\$3,500, 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 <u>TOTAL \$525.-</u>
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APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at <http://me-portland.civicplus.com/764/Electronic-Plan-and-Documents-Submittal>
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 Building Inspections 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:

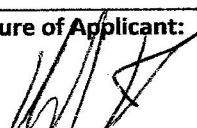
1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence 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.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

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

Signature of Applicant: 	Date: 6/15/16
--	------------------

AMENDED

8/25/16

PROJECT DATA

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

Total Area of Site	6098	sq. ft.
Proposed Total Disturbed Area of the Site	0	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)	0	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	4929	sq. ft.
Building Footprint (Total Proposed)	4929	sq. ft.
Building Floor Area (Total Existing)		sq. ft.
Building Floor Area (Total Proposed)		sq. ft.
Zoning		
Existing	B3c	
Proposed, if applicable	n/a	
Land Use		
Existing	Commercial	
Proposed	Commercial and Residential	
Residential, If applicable		
# of Residential Units (Total Existing)	0	
# of Residential Units (Total Proposed)	4	
# of Lots (Total Proposed)	0	
# of Affordable Housing Units (Total Proposed)	0	
Proposed Bedroom Mix		
# of Efficiency Units (Total Proposed)		
# of One-Bedroom Units (Total Proposed)	2	
# of Two-Bedroom Units (Total Proposed)	2	
# of Three-Bedroom Units (Total Proposed)		
Parking Spaces		
# of Parking Spaces (Total Existing)	6	
# of Parking Spaces (Total Proposed)	6	
# of Handicapped Spaces (Total Proposed)	0	
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	0	
# of Bicycle Spaces (Total Proposed)	14	
Estimated Cost of Project	\$950,000	

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

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

- Continued on next page -

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

QUITCLAIM DEED WITH COVENANT

KNOW ALL BY THESE PRESENTS, that 415 Cumberland, LLC, a Maine limited liability company, in consideration of one dollar (\$1.00) and other good and valuable consideration paid by M&A Lowcountry Investments, LLC, a Maine limited liability company whose mailing address is 110 Marginal Way, Portland, Maine, 04101, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, and forever quitclaim unto the said M&A Lowcountry Investments, LLC, its successors and assigns forever, the land and buildings located in Portland, Cumberland County, Maine, and more particularly described in the attached

Exhibit A.

Meaning and intending to release the premises described in the deed from Pamela A. Hurley Moser to 415 Cumberland, LLC herein dated March 5, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30443, Page 133.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said M&A Lowcountry Investments, LLC, its successors and assigns to its and their use and behoof forever.

And 415 Cumberland, LLC does covenant with the said Grantee, its successors and assigns, that it will warrant and defend the premises to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

IN WITNESS WHEREOF, 415 Cumberland, LLC has caused this instrument to be executed by Justin H. Schair, its Manager thereunto duly authorized, this 2nd day of

March, 2016.

MAINE REAL ESTATE TAX PAID

415 Cumberland, LLC

M. E. Mistretta
WITNESS

By: J. H. Schair
Name: JUSTIN SCHAIR
Title: MANAGER

STATE OF MAINE
COUNTY OF CUMBERLAND/ ss

March 2, 2016

On March 2, 2016, personally appeared the above-named Justin H. Schair, Manager of 415 Cumberland, LLC, and acknowledged the foregoing instrument to be his free act and deed in said capacity, and the free act and deed of said limited liability company.

Before me, M. E. Mistretta
Notary Public/Attorney-at-Law

Printed Name: M. E. Mistretta

EXHIBIT A

The Land referred to herein below is situated in the County of Cumberland , State of Maine
and is described as follows:

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

Beginning at the intersection of the southwesterly sideline of Forest Avenue with the northwesterly sideline of Cumberland Avenue; thence northwesterly by said Forest Avenue one hundred twenty-two (122) feet to the land conveyed by Albert S. Rines to the Young Men's Christian Association of the City of Portland by deed dated November 2, 1923 and recorded in the Cumberland County Registry of Deeds in Book 1153, Page 136; thence southwesterly by said land conveyed to the Young Men's Christian Association as aforesaid fifty (50) feet, more or less, to an angle in said land of the Young Men's Christian Association; thence southeasterly by said land of the Young Men's Christian Association, twenty-two (22) feet, more or less, to land now or formerly of Enoch C. Richards; thence southeasterly by said Richard's land one hundred (100) feet, more or less, to said Cumberland Avenue; thence northeasterly by said Cumberland Avenue fifty (50) feet, more or less, to the corner and point of beginning.

Received
Recorded Register of Deeds
Mar 02, 2016 02:03:28P
Cumberland County
Nancy A. Lane

WARRANTY DEED

PAMELA A. HURLEY MOSER, f/k/a Pamela A. Hurley

of Portland, County of Cumberland and State of Maine

for consideration paid, grants to

415 CUMBERLAND, LLC

A Maine limited liability company with an office and place of business located in Portland, County of Cumberland and State of Maine, with WARRANTY COVENANTS, the following described real property in Portland, County of Cumberland and State of Maine:

See Exhibit A attached hereto and made a part hereof

Also hereby conveying all rights, easements, privileges, and appurtenances, belonging to the premises hereinabove described.

WITNESS my hand and seal this 5 day of March, 2013.

WITNESS

TS Campbell
Witness

Pamela A. Hurley Moser
Pamela A. Hurley Moser

State of Maine
Cumberland, ss.

March 5th, 2013

Personally appeared before me Pamela A. Hurley Moser and acknowledged the foregoing instrument to be her free act and deed.

Before me,

TS Campbell
Notary Public/Attorney-at-Law

G:\CLIENTS\H\HURLEY\415Cumberland.Sale\Deed.doc

Alexandra E. Caulfield
Attorney at Law

MAINE REAL ESTATE TAX PAID

EXHIBIT A

A certain lot or parcel of land with the buildings thereon situated on the westerly corner of Cumberland Avenue and Forest Avenue in Portland, and bounded and described as follows:

Beginning at the intersection of the southwesterly sideline of Forest Avenue with the northwesterly side of Cumberland Avenue; thence northwesterly by said Forest Avenue one hundred twenty-two (122) feet to the land conveyed by Albert S. Rines to the Young Men's Christian Association of the City of Portland by deed dated November 2, 1923 and recorded in the Cumberland County Registry of Deeds in Book 1153, Page 136; thence southwesterly by said land conveyed to the Young Men's Christian Association as aforesaid fifty (50) feet more or less to an angle in said land of the Young Men's Christian Association; thence southeasterly by said land of the Young Men's Christian Association twenty-two (22) feet, more or less, to land now or formerly of Enoch C. Richards; thence southeasterly by said Richard's land one hundred (100) feet, more or less, to Cumberland Avenue; thence northeasterly by said Cumberland Avenue fifty (50) feet, more or less, to the corner and the point of beginning.

Including herein and hereby conveying the right of way and other easements described in deed by the Young Men's Christian Association of Portland to R. Hight Rines, dated September 16, 1925 and recorded in said Registry of Deeds in Book 1212, Page 217.

The above described premises are conveyed subject to the right of way and other easements described in deed of R. Hight Rines to the Young Men's Christian Association of Portland, dated September 16, 1925 and recorded in said Registry of Deeds in Book 1212, Page 215.

For title reference see Deed given by Thomas F. Moser and Mary W. Moser to Pamela A. Hurley, dated August 1995 and recorded in the Cumberland County Registry of Deeds in Book 12089, Page 243.

G:\CLIENTS\HHHURLEY\415Cumberland.Sale\Deed.doc

Received
Recorded Register of Deeds
Mar 05, 2013 02:14:53P
Cumberland County
Pamela E. Lovley

M&A LOWCOUNTRY INVESTMENTS, LLC

*200 Cobblestone Drive
Ardmore, Pennsylvania 19003
(610) 971-0878*

To whom it may concern,

This letter is provided in support of the Level III Site Plan application for the redevelopment of 415 Cumberland Ave in Portland, Maine. The owner and developer of the property, M&A Lowcountry Investments, LLC, and its principals, have secured funding and have the financial capacity to complete the proposed redevelopment.

If you have any questions or are seeking clarification, please do not hesitate to contact me by phone at 610-888-9929 or by email at ajkraus09@gmail.com.

Respectfully,

For: M&A Lowcountry Investments, LLC

A handwritten signature in dark ink, appearing to read 'Andrew Kraus', is written over a horizontal line.

By: Andrew Kraus
Its: Manager

Ducas Construction Inc.

**CONSTRUCTION MANAGEMENT PLAN
415 Cumberland Ave – Station 415
PREPARED FOR CITY OF PORTLAND, MAINE
May 31st, 2016**

Purpose:

This construction management plan has been developed to provide sufficient information to the City Of Portland on how the project will interface with the surrounding neighborhood.

Project Synopsis:

The renovation of the existing building to be re-purposed as a modern day co-working office space, and (4) residential apartments.

Construction Administration:

1. Contractor Information

Ducas Construction Inc
500 Congress Street – Suite 2
Portland, ME 04101

Phone: 207-536-0838

Project Executive: Patrick Ducas

2. Ducas Construction shall maintain the following hours.

- Job site hours are to begin at 7:00 AM – 7:00 PM, Monday – Friday.
- Saturday 8:00 AM – 5:00 PM.
- Off Hours by Work Permit Only.
- No Sunday and Holiday Work.

Neighborhood Interface:

Overview

- This project is confined to the limits of the existing site. The work will include new utility services but should otherwise have very little impact on the surrounding public infrastructure.

Demolition

- The building will be gutted from the inside, but the exterior envelope will remain structurally intact with very few changes. A few cosmetic updates will be made to the siding to improve the building aesthetic.
- Debris will be direct loaded onto trucks and removed from the site.

Site Work

- Utility connections will be coordinated with the city, and Ducas Construction will supervise and enforce flagging, street and sidewalk closures and pedestrian re-routing as required for the safe and timely execution of the work.
- All trucks entering and exiting the site will be accompanied by flagmen, and trucking will be limited to neighborhood friendly hours.

Waste Water Handling

- Ducas Construction will disconnect the existing roof drain that currently is run into the sewer system as part of the initial demolition phase. This rain leader will be intercepted and the water re-directed out of the building in the direction of the nearest downhill storm drain so that it is managed according to the city request.

Exterior Improvements

- Scaffolding may be required for the masonry restoration and installation of new siding materials. Sidewalk permits will be obtained, and Ducas Construction will provide the required signage to divert traffic to the other side of the street where there is also a sidewalk.

Site Access

- All Deliveries will be scheduled for none “rush hour” times Monday – Friday, and after 8:00 AM on Saturdays.
- No idling or start-up of equipment before 7:00 AM Monday-Friday, and before 8:00 AM on Saturdays.

Storage/Parking/Ancillary Services

- Ducas Construction shall take appropriate steps to eliminate dust generation. These steps shall include but are not limited to: wetting down material, placing stone mats where necessary, and requiring all equipment transporting materials that create dust, to be covered.
- Ducas Construction will provide adequate sanitary facilities within the construction fence.
- Temporary drinking water will be provided.
- Dumpsters on site will be located within the construction fence. Removal and replacement will take place during construction hours.
- Ducas Construction will post appropriate signage including but not limited to the following: Parking Restrictions Construction Entrance, Staging Area, Site Phone Number, and Contact Information.
- A Pre-Construction meeting will be held with the Owner, Architect, Ducas Construction, and Subcontractors. It will outline, Ducas Construction Policies, and all necessary rules and procedures.

We feel this plan represents practical and safety conscious solutions that will ensure this project fits in to the neighborhood while creating minimal disturbance to others in the vicinity of the site.

Respectfully

Patrick Ducas

August 25, 2016

Barbara Barhydt
Development Review Services Coordinator
City of Portland, Planning Department
389 Congress Street
Portland ME 04101



Re: 2009 ADA/ MHRC & FHA Code Review
Station 415
415 Cumberland Avenue
Portland ME 04101

The information in this document has been obtained through discussions with Barbara Archer Hirsch, Commission Counsel, Maine Human rights commission and Jill Johanning, Architect, Access Design/Alpha One. Both Barbara Archer Hirsch and Jill Johanning have verified our understanding of the following information. Jill Johanning requested that anyone with questions contact her at accessdesignme.org or 207.619.9281.

The building at 415 Cumberland Avenue (Station 415) will be renovated to include offices (majority of space) and 4 apartments. The apartments will be limited to a rear 1984 addition to the building. This 1984 addition area has been used as offices previously.

We have received three replacement cost quotes for the building, the lowest of which is 2.2 million dollars. The renovation costs will not exceed 75% of the 2.2 million replacement cost. No public funds of any sort will be used for this project.

An elevator will be added to the commercial part of the building, but that elevator will not service the apartments. The commercial part of the building, the public accommodation, will comply with ADA standards.

MHRA - This building project is not covered under the special multi-family housing requirements of the MHRA. This project does not meet the definition of "new construction" and therefore the MHRA's section for privately funded multi-family housing does not apply.

FHA

The Fair Housing Act only applies to buildings with first occupancy after March 13, 1991 and therefore does not apply to this project.

ADA

ADA standards do not apply to privately owned and privately funded multi-family housing.

PARKING

The office part of the project will comply with ADA as a public accommodation; however, no parking for anyone using the public accommodation will be provided, therefore the provision of accessible parking space is not required. The ADA standards do not apply to the residences.

ALPHAarchitects

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

2009 IEBC 2nd Edition

According to the 2009 IEBC the only trigger that would require providing accessible parking would be section 912.8.2 Complete Change of Occupancy which states that if we changed the entire use/occupancy of the existing structure, we would have to provide accessible parking and loading spaces on site. We are proposing a change of occupancy only in the existing rear addition of the building with a change from B-Business to R-2 Residential (4 units), the front portion of the building will remain unchanged (B-Business) thus, no accessible parking spaces will be required.

Respectfully submitted,
ALPHAarchitects

A handwritten signature in black ink, appearing to read "Mark Sengelmann", with a long horizontal flourish extending to the right.

Mark Sengelmann, NCARB
Maine Licensed Architect

ALPHAarchitects

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

August 25, 2016



Michael White
Portland Fire Department
City of Portland
380 Congress Street
Portland ME 04101

RE: **Station 415**
415 Cumberland Avenue
Portland, ME 04102

Mr. White,

The applicant is Andrew Kraus, Station 415, 415 Cumberland Avenue, Portland ME 04102, telephone 610-888-9929. The Project Architect is Mark Sengelmann of ALPHAarchitects, 17 Chestnut Street, Portland ME 04101, telephone 207-761-9500.

For purposes of this review the project will be evaluated as two separate buildings: 415 Cumberland Ave (M-Mercantile) and 62 Forest Ave (R-2, residential) 415 will be a traditional 2 exit building and 62 will be a single exit building. The building will be sprinkled. The building will have a supervised alarm system and smoke detectors.

2009 IBC/ NFPA 101 CODE REVIEW

<u>Occupancy:</u>	B-Business & R-2- Residential
<u>Height:</u>	3 Stories
<u>Construction Type:</u>	III(B) & V(B)
<u>Exit Width</u>	32" min. clear
<u>Exit Travel</u>	250' max R-2, 300' max B & 400' max Storage

This letter certifies that the adaptive reuse at 415 Cumberland Avenue in Portland, Maine has been designed to be compliant with the 2009 IBC and NFPA 101 codes.

Sincerely,
ALPHAarchitects

Mark Sengelmann, NCARB
Maine Licensed Architect

Encl: 2009 IBC and 2009 NFPA 101 Code Review

ALPHAarchitects

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



Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

August 16, 2016

M & A Lowcountry Investments LLC
110 Marginal Way #154
Portland, ME 04101

Attn: Mr. Andrew Kraus
Re: 415 Cumberland Avenue
Revised Ability to Serve with PWD Water

Dear Mr. Kraus:

The Portland Water District has received your request for a revised Ability to Serve Determination for the noted site submitted on July 15, 2016. 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.

Conditions of Service

The following conditions of service apply:

- It is the District's understanding that the existing commercial office will now be converted into 3 or 4 residential apartment units and 1 commercial space. The existing building is currently served with a $\frac{3}{4}$ -inch domestic water service; the size of this service is undersized for the proposed use. This service must be terminated by shutting the corporation valve, cutting the pipe from the water main and removing the service box and rod.
- New 6" fire and 1.5" domestic services may be installed from the water main in either Cumberland Avenue or Forest Avenue. The services should enter through the properties frontage at least 10-feet from side property lines. Please note that only one meter and one bill will be associated to each domestic service line. This one master meter must be located in a common space that all tenants could gain access to if necessary.
- A fixture count must be submitted to the District prior to service application so that we can determine peak flow and properly size the meter.
- The Portland Water District does not own the sewer collection system in the City of Portland. Please contact the City in regards to the proposed sewer service.
- The District must review and approve water infrastructure plans prior to service application and construction. As your project progresses, we advise that you submit any preliminary design plans to



MEANS for review of the water main and water service line configuration. We will work with you to ensure that the design meets our current standards.

Existing Site Service

According to District records, the project site does currently have existing water service. A 3/4-inch diameter copper 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 an 12-inch diameter cast iron water main on the southeast side of Cumberland Avenue, 35 feet of 12-inch cast iron and 80 feet of 12-inch ductile iron water main on the north east side of Forest Avenue and a public fire hydrant located 170 feet from the site. Recent flow data is not available in this area. The most recent static pressure reading was 80 psi on 9/15/2015.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

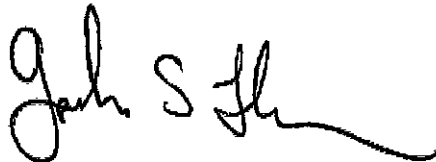
The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing 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 MEANS to request a hydrant flow test and we will work with you to get more complete data.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

A handwritten signature in black ink, appearing to read "Gordon S. Johnson", with a long, sweeping horizontal line extending to the right.

Gordon S. Johnson
Engineering Services Manager

DISTRICT Portland	
No. 40	415 Cumberland Ave.
SERVICE RECORD ALL Maine Trading Co RENEWAL RECORDS	
KIND OF PIPE Youngs Fur. & S. S. W.	KIND OF PIPE BRASS
SIZE OF PIPE 3/4"	SIZE OF PIPE 3/4"
MAIN TO STOP	MAIN TO STOP
STOP TO ST. LINE	STOP TO ST. LINE
ST. LINE TO BUILDING	ST. LINE TO BUILDING 0'
TOTAL LENGTH	TOTAL LENGTH 39'
DATE	DATE 11/16/21
REMARKS	REMARKS From Forest Ave.
S.W. 9' from S.W. in sidewalk toward main	S.W. 9' from S.W. in sidewalk toward main
SERVICE SHUT AT CORP.	

CLEAN OUT AND REPAIR RECORD

DATE	REMARKS
5-10-81	CHANGED FROM 115V TO 120V
5-16-81	NEW BOX & VULS 101099490
4-9-92	RENEWED MAIN TO STOP

415

13
100-196

from FOREST AVE,

CABLE TV

TEL

PORTLAND WATER DISTRICT



July 22, 2016

Re: Wastewater Capacity Authorization

Address: **415 Cumberland Ave**

Applicant: M&A Lowcountry

Planner: Jean Fraser

Anticipated Wastewater Flows:

Employees at place of employment with showers	50 Employees @ 20 GPD/Employee	1000 GPD
Multiple Family Dwelling Units 1 Bedroom	120 GPD Per Dwelling Unit	120 GPD
Multiple Family Dwelling Units 2 Bedroom	90 GPD Per Dwelling Unit	180 GPD
Multiple Family Dwelling Units 3 Bedroom	90 GPD Per Dwelling Unit	270 GPD
Total Anticipated Wastewater Flows		1570 GPD

Comments:

The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

You are reminded that the sewers you are proposing to connect into convey both sanitary and stormwater (Combined Sewer) and therefore a backflow preventer is suggested. Any addition of stormwater flows in this drainage area will have an impact on CSO discharge volumes therefore no roof, sump pump or site drainage may be discharged to the sanitary sewer. It is noted in your email of 2016-07-20 of the intent to remove all roof drains from entering the sewer system based upon previous City comments.

Your email also indicated the potential of increasing the building occupancy by one bedroom based on DHHS interpretation of regulations. Agreeably this will not make a noted impact on the authorization of the wastewater capacity.

Information available in the City's archives indicate the building is served by a 4" vitrified clay pipe installed in 1931 connecting into Cumberland Avenue. This differs from the information you have provided with your application and I would suggest it be investigated/confirmed.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov

Sincerely,
CITY OF PORTLAND

A handwritten signature in dark ink, reading "Bradley A. Roland", is displayed on a light gray rectangular background.

Bradley A. Roland, P.E.
Senior Project Engineer

CC:

Jeffrey Levine, Director, Department of Planning and Urban Development, City of Portland

Stuart O'Brien, Planning Director, Department of Planning and Urban Development, City of Portland

Barbara Barhydt, Development Review Services Mgr., Dep't. of Planning and Urban Development, City of Portland

Kathi Earley, City Engineer/Engineering Manager, Portland Department of Public Works

Nancy Gallinaro, Water Resources Manager, Portland Department of Public Works

Rachel Smith, Industrial Pretreatment Coordinator, Portland Department of Public Works

John Emerson, Wastewater Coordinator, Portland Department of Public Works

Lauren Swett, Woodard & Curran, DPW Development Review

Scott Firmin, Director of Wastewater, Portland Water District

M&A Lowcountry Investments, LLC
110 Marginal Way #154, Portland, ME 04101

September 2, 2016

Re: Neighborhood Meeting Notice

Dear Neighbor,

Please join us for a neighborhood meeting to discuss our plans for the mixed commercial and residential redevelopment of the property at 415 Cumberland Ave, Portland, ME 04101.

Meeting Location: Portland Public Library, Meeting Room 3 (5 Monument Sq, Portland, ME 04101)

Meeting Date: September 15, 2016

Meeting Time: 5:30-6:30pm

This notice is being sent in accordance with the City code, which requires that property owners within 500 feet of the proposed development and residents on an "interested parties list" be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the City's Planning Board.

If you have any questions, please call me at 610-888-9929.

Sincerely,



Andrew Kraus, Manager
M&A Lowcountry Investments, LLC

M&A Lowcountry Investments, LLC
110 Marginal Way #154, Portland, ME 04101

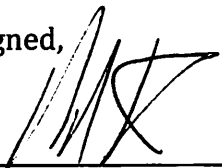
Neighborhood Meeting Certification

I, Andrew Kraus, duly authorized Manager of M&A Lowcountry Investments, LLC, do hereby certify that a neighborhood meeting was held on September 15, 2016 at the Portland Public Library at 5:30pm.

I also certify that on September 2, 2016, invitations were mailed to the following:

1. All address on the mailing list provided by the Planning Division, which includes property owners within 500 feet of the proposed development.
2. Residents on the "interested parties" list
3. A digital copy of the notice was also emailed to the planning division, c/o Jean Fraser at jf@portlandmaine.gov.

Signed,


_____ 9/15/16

Attached hereto are:

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

M&A Lowcountry Investments, LLC
110 Marginal Way #154, Portland, ME 04101

September 15, 2016

Attendance Sheet for Neighborhood Meeting

Welcome to the Neighborhood Meeting, hosted by M&A Lowcountry Investments, LLC, regarding our proposed redevelopment and five-unit subdivision of 415 Cumberland Ave, Portland, ME 04101. Please sign in below. This sign-in sheet will be delivered to the Planning Division at City Hall, along with a copy of the meeting minutes.

Pat O'Donnell
Susan McCloskey
Deborah VanHoewyk
dvhoewyk@umich.edu
Gwynne Williams

25 Paris St 04101
21 Chestnut St. 04101

25263 Portland Me 04101

M&A Lowcountry Investments, LLC
110 Marginal Way #154, Portland, ME 04101

September 15, 2016

Meeting Minutes

Re: Neighborhood Meeting for 415 Cumberland Ave, Portland, ME 04101

Andrew Kraus, manager of M&A Lowcountry Investments, LLC, welcomed those in attendance and called the meeting to order. Kraus then delivered an overview of the proposed redevelopment of the building and showed boards of interior and exterior plans, and explained the historical significance of the building in its role as Portland's primary post office and then host to the first Women's Professional Club in Maine. Kraus then explained the proposed redevelopment of the building to include creating 4 residential apartments and a commercial office space. The redevelopment will also add an elevator to the commercial side of the building and a rooftop deck.

The meeting was then opened to Q&A. Those in attendance asked the following questions and Kraus provided answers.

Question: What type of commercial businesses will occupy the space?

Answer: It is likely to be a mix of professional service providers and people/businesses looking for a shared workspace environment.

Question: What materials will be used on the exterior of the building? Any changes?

Answer: The brick portion of the building will remain the same. The portion of the building that is currently sided in wood will be altered. The wood siding will be replaced by a muted color Hardi Plank clapboard siding.

Question: What will happen to the cupola?

Answer: That will remain largely the same. There will be a visible addition of an elevator cap next to the cupola.

Question: Will any residential units be affordable housing?

Answer: No. All 4 will go for market rate.

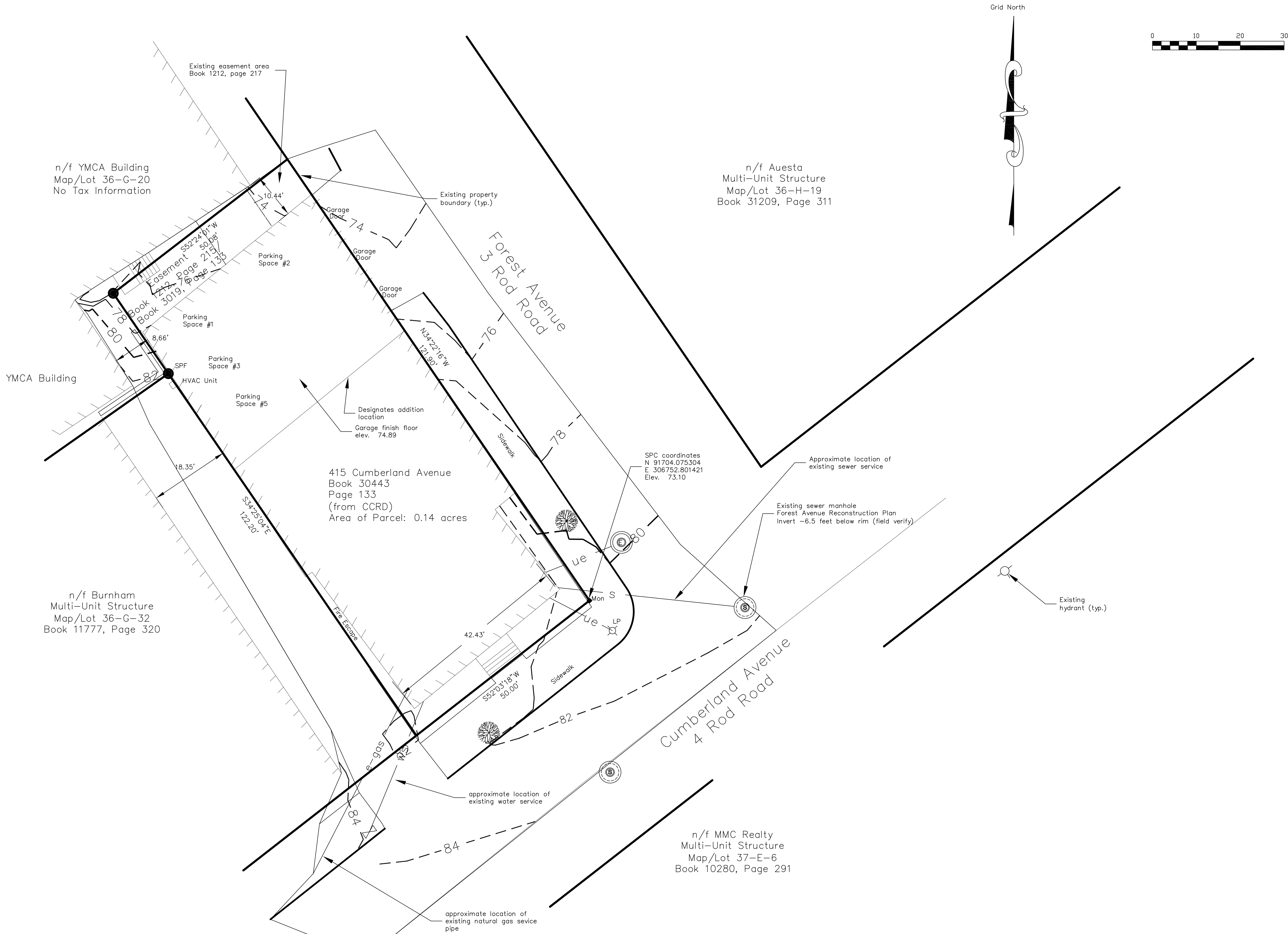
Question: Will residential folks be able to access commercial space and vice-a-versa?

Answer: Only for emergency egress purposes (unless a resident is also a tenant in the commercial space or vice-a-versa).

Question: Will there be rooftop gardens?

Answer: This hasn't been determined but it's a great suggestion.

With the Q&A over, those in attendance expressed excitement for the revitalization of the building. Kraus thanked everyone for their support and for attending the meeting. Kraus then called the meeting to a close.



Grid North



	PROJECT:		OWNER:		1		Plan	revisions	10/22/15	
	M & A Lowcountry Investments, LLC Subdivision Plat		M&A Lowcountry Investments LLC 415 Cumberland Avenue Portland, Maine 04101		2		Plan	revisions	07/14/16	
					3		Plan	revisions	07/21/16	
	ADDRESS:		415 Cumberland Avenue							
	CITY:		Portland		COUNTY:		Cumberland	STATE:		Maine
			DATE: 06/18/16		SCALE: 1" = 10'		NO.		REVISIONS	DATE

APPROXIMATE STEEL PIN SE
PC COORDINATES
299982.438151
2926697.872998
ELEV. 76.74
REPLACES DISTURBED
(AT THIS LOCATION)

STEEL PIN LOCATED
BUT NOT HELD

TOWNTOWN BUSINESS, R-6 & DOWNTOWN OVERLAY DISTRICT.
 LAYOUT ON FILE AT CITY OF PORTLAND PLANNING OFFICE.
 ENCROACH ON LOT INDICATED AS MAP/LOT 36-G-32 BY
 INCHES.
 SYSTEM IS STATE PLANE COORDINATES, WEST ZONE. NAD 83.
 UM IS USGS 1929. CUSTOM'S HOUSE STEPS 29 NGD.
 HAZARD AREA AT SITE.
 OWN AS EXISTING.
 CHANGES PLANNED FOR BUILDING EXCEPT FOR COVERING
 NORTH, EAST, AND WESTERN ENDS, NEW GARAGE DOORS, WINDOW
 S, AN ELEVATOR BULKHEAD ADDITION AND PROVIDING REQUIRED
 ENDS.
 S AS NOTED ARE FOR THE YMCA (1212-215) TO USE PART
 EL TO BUILD AND MAINTAIN A CONCRETE EXTERIOR EGRESS
 TO FOREST AVENUE.
 PAGE 217 THE YMCA GRANTS THIS PARCEL USE OF THE
 EGRESS TO THE YMCA BETWEEN THE STRUCTURES SUBJECT TO
 AND EGRESS TO FOREST AVENUE.
 PE DOES NOT ENCROACH ON THE BURNHAM LOT. THE HVAC
 RECORDED EASEMENT FROM THE BURNHAM PARCEL.
 FOR RE-USE SPACE IS TO REMAIN AS COMMERCIAL USE.
 RECORD: M&A LOWCOUNTRY INVESTMENTS, LLC
 FROM CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK
 133
 FEET TREES TO BE ADDED IN EXISTING PLANT BEDS BETWEEN
 CUMBERLAND AVE.
 RAMP AT INTERSECTION OF FOREST AVE & CUMBERLAND AVE.
 ED OR REPLACED
 OSSES TO LOCATE OUTDOOR STORAGE FOR FOUR (4) BICYCLES.

COMMERCIAL

Figure 1 is a plan view diagram of a bridge deck. It shows a rectangular area representing the deck, with a diagonal line indicating a fire escape. The fire escape is labeled 'WEST. FIRE ESCAPE'. A circular feature is labeled '82'. A rectangular feature is labeled 'EYNOTE #17'. A line points to a specific location on the deck, labeled 'REFERENCE'.

<u>BUILDING FLOOR AREA SCHEDULE</u>			
<u>APT. #</u>	<u>FLOOR</u>	<u>BR</u>	<u>FLOOR AREA (SF)</u>
A (LOT #2)	1st	2	1,122
B (LOT #3)	1st	1	490
C (LOT #4)	2nd	1	525
D (LOT #5)	2nd	2	1,000
RESIDENTIAL TOTAL:			3,137
COMMERCIAL	0,1,2,3		7,097
GARAGE	0		1,830
BASEMENT	0		1,569
COMMON AREA	0,1,2,3		1,946
COMMERCIAL TOTAL:			12,442

Date Approved: _____

PARTIAL FIRST FLOOR PLAN - LOT 2 & 3
SCALE: 1" = 10'

Cumberland Avenue
4 Rod Road

n/f MMC Realty
Multi-Unit Structure
Map/Lot 37-E-6
Book 10280, Page 291

SUBDIVISION REVIEW CONDITIONS OF APPROVAL:

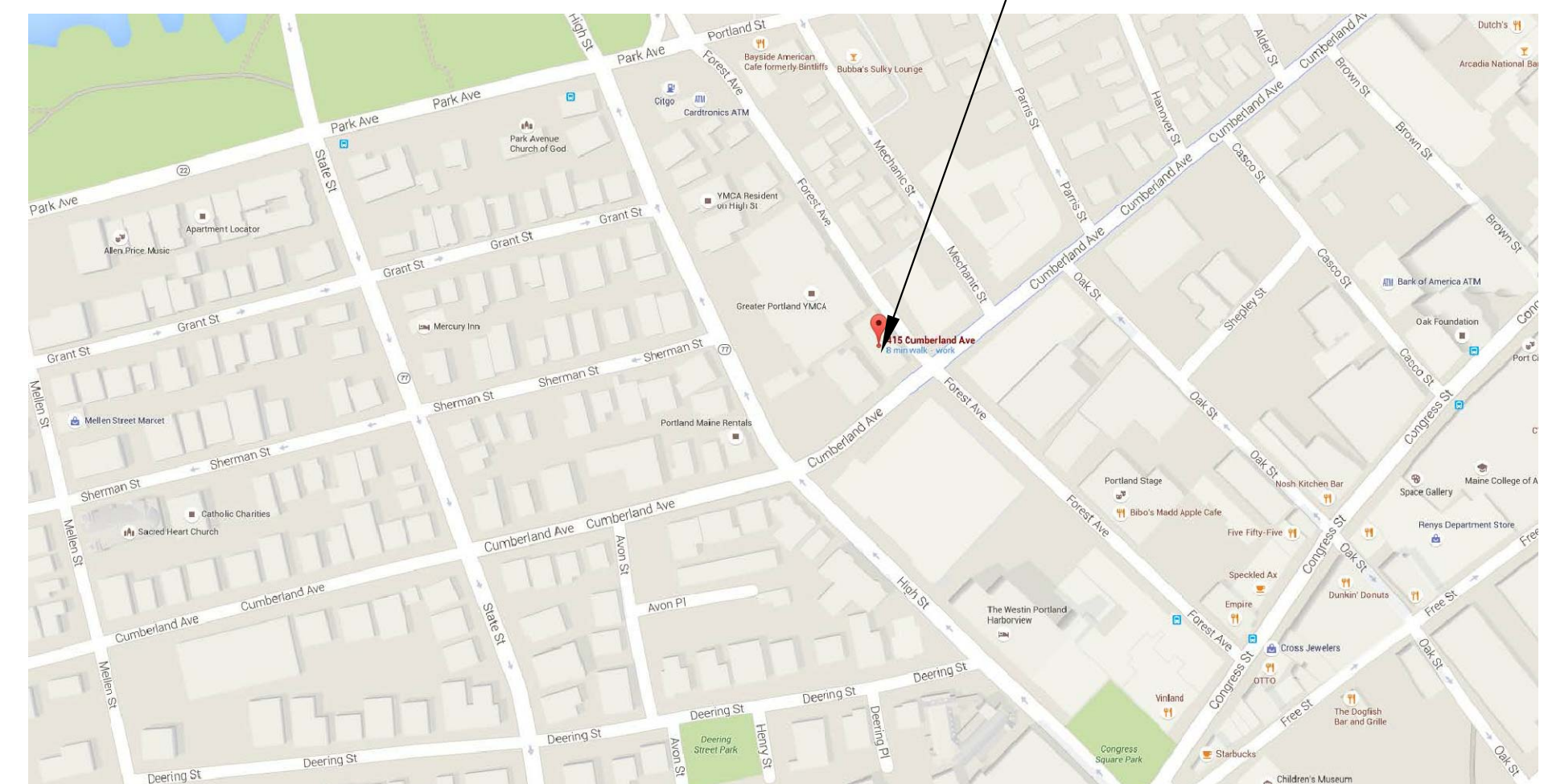
- ii. That in the event the property is converted to a condominium, that the recorded condominium documents shall be copied to the Planning Authority.
- iii. That the tandem parking spaces be designated for the residential units only (or for low turnover use) to insure that backing maneuvers onto Forest Ave. are minimized given vehicle and pedestrian levels.
- iv. That the Construction Management Plan shall be revised to note that existing catch basins near any disturbed areas shall be protected, and cleaned following construction as necessary, and that if the site disturbance results in the tracking of any sediment onto the surrounding streets, they will be swept as required.

PARTIAL FIRST FLOOR PLAN - LOT 2 & 3
SCALE: 1" = 10'

PARTIAL SECOND FLOOR PLAN - LOTS 4 & 5
SCALE: 1" = 10'

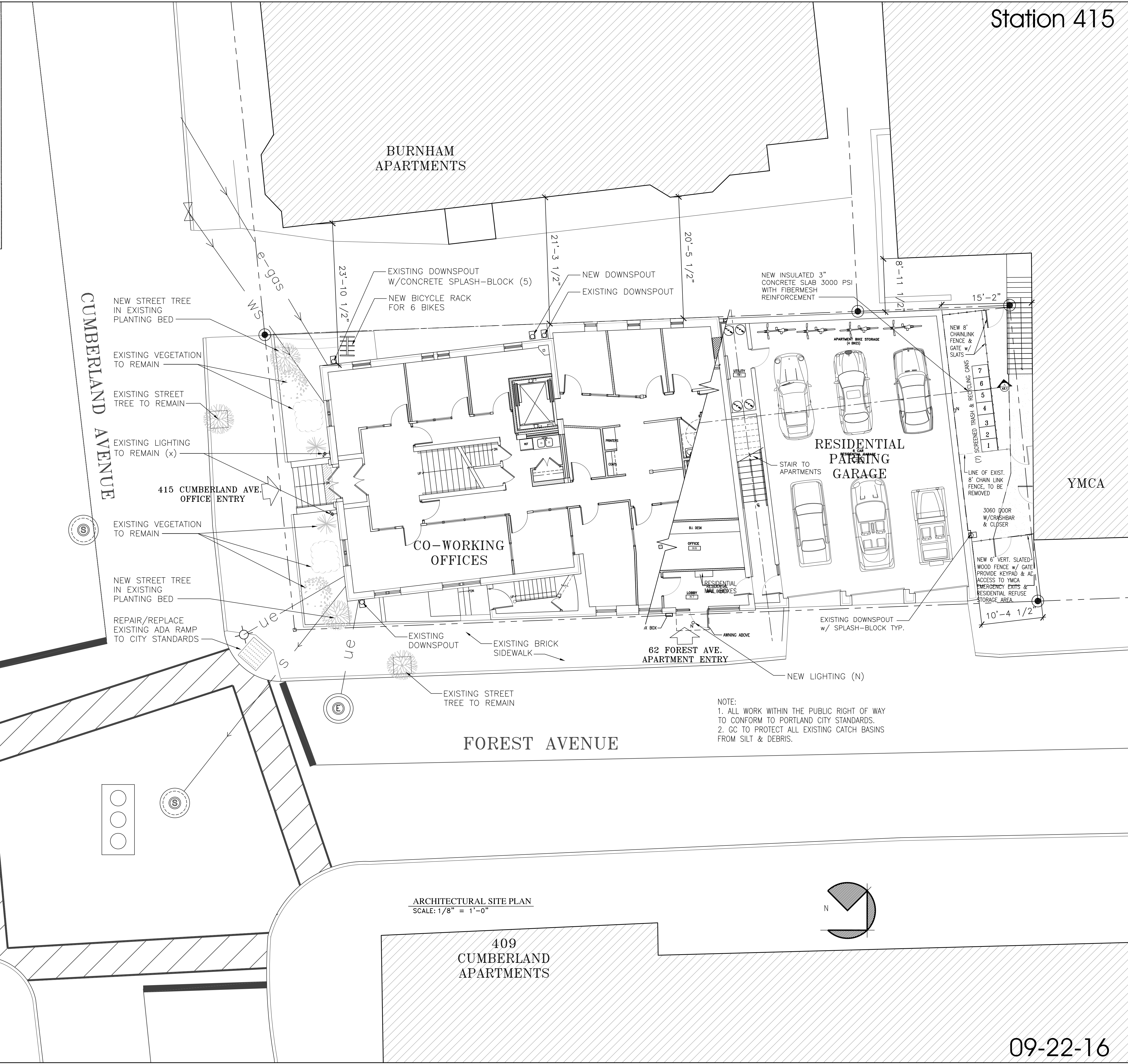
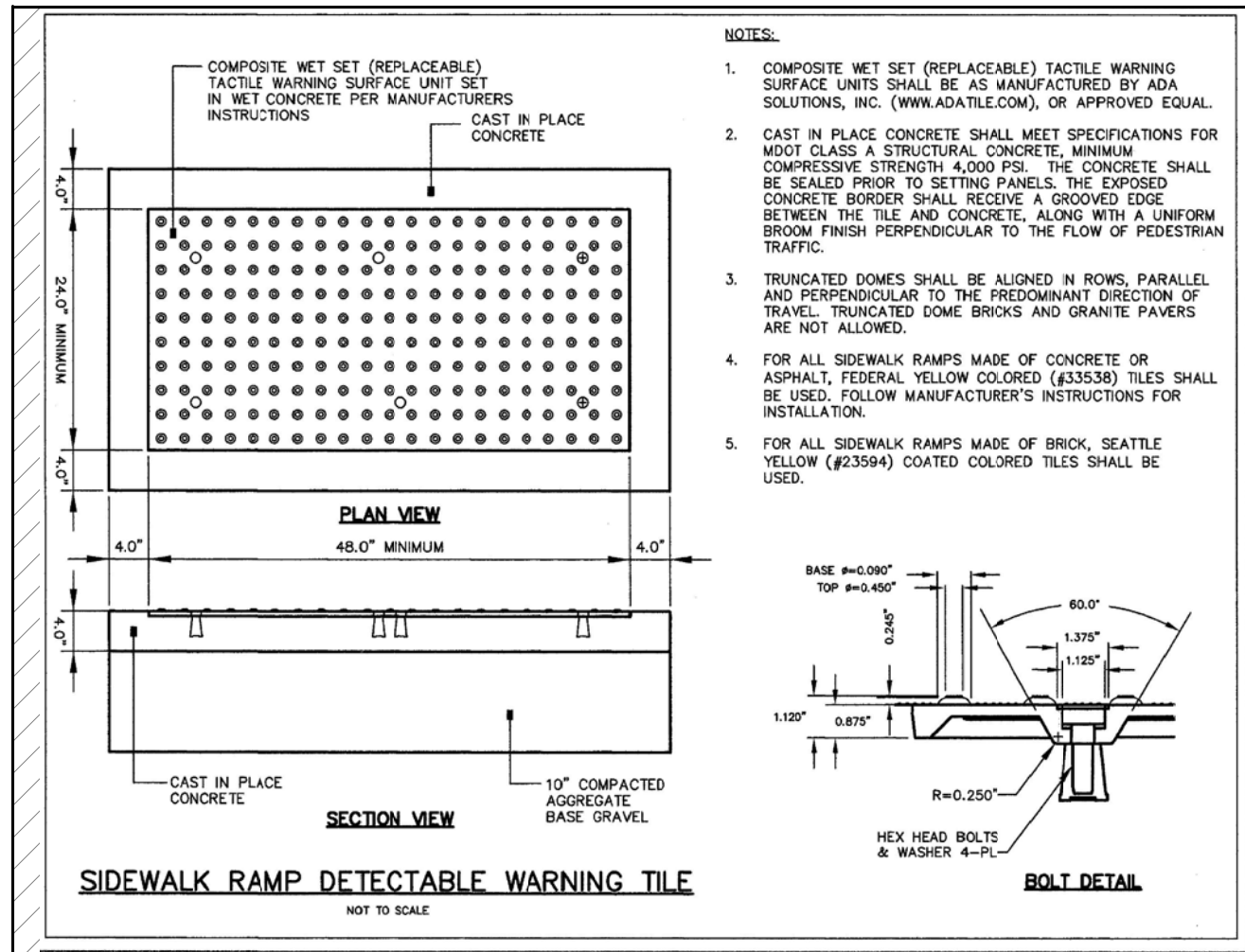
EXISTING
HYDRANT (TYP.)

— PROJECT SITE



LOCUS Map

 D. S. D. DOWNEAST SURVEYING & DEVELOPMENT 16000 ELLIS P.L.S. # 1176 P.O. BOX 6234 CHINA VILLAGE, MINNE 04926 (207) 568-2507 FAX: 568-2508 E-MAIL: dsd@dsd.com	PROJECT: M & A Lowcountry Investments, LLC 5 Unit Subdivision Plat		OWNER: M&A Lowcountry Investments LLC 415 Cumberland Avenue Portland, Maine 04101		3 Plan revisions 07/27/16
	ADDRESS: 415 Cumberland Avenue				4 Plan revisions 07/28/16
	CITY: Portland		SCALE: 1" = 10'		5 Plan revisions 07/28/16
	COUNTY: Cumberland		DATE: 06/18/16		6 Plan revisions 08/18/16
	STATE: Maine				7 Plan revisions 08/24/16
					8 Plan revisions 09/14/16
					9 Plan revisions 09/27/16
					10 Plan revisions 10/27/16
					11 Plan revisions 11/07/16



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design@alphaarchitects.com

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PRELIMINARY:
NOT FOR
CONSTRUCTION:

Station 415
415 Cumberland Avenue
Portland, ME. 04101

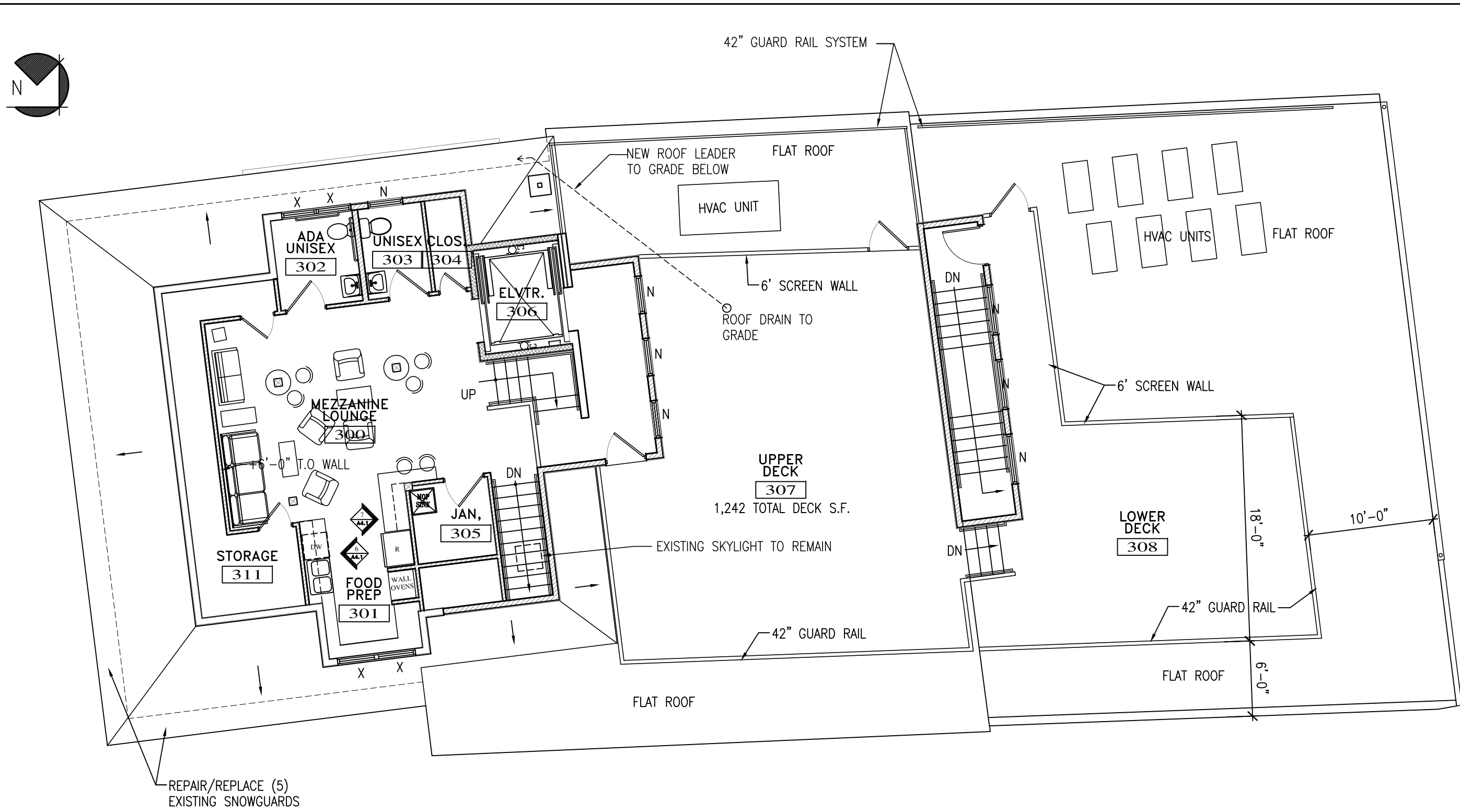
JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	09-22-16

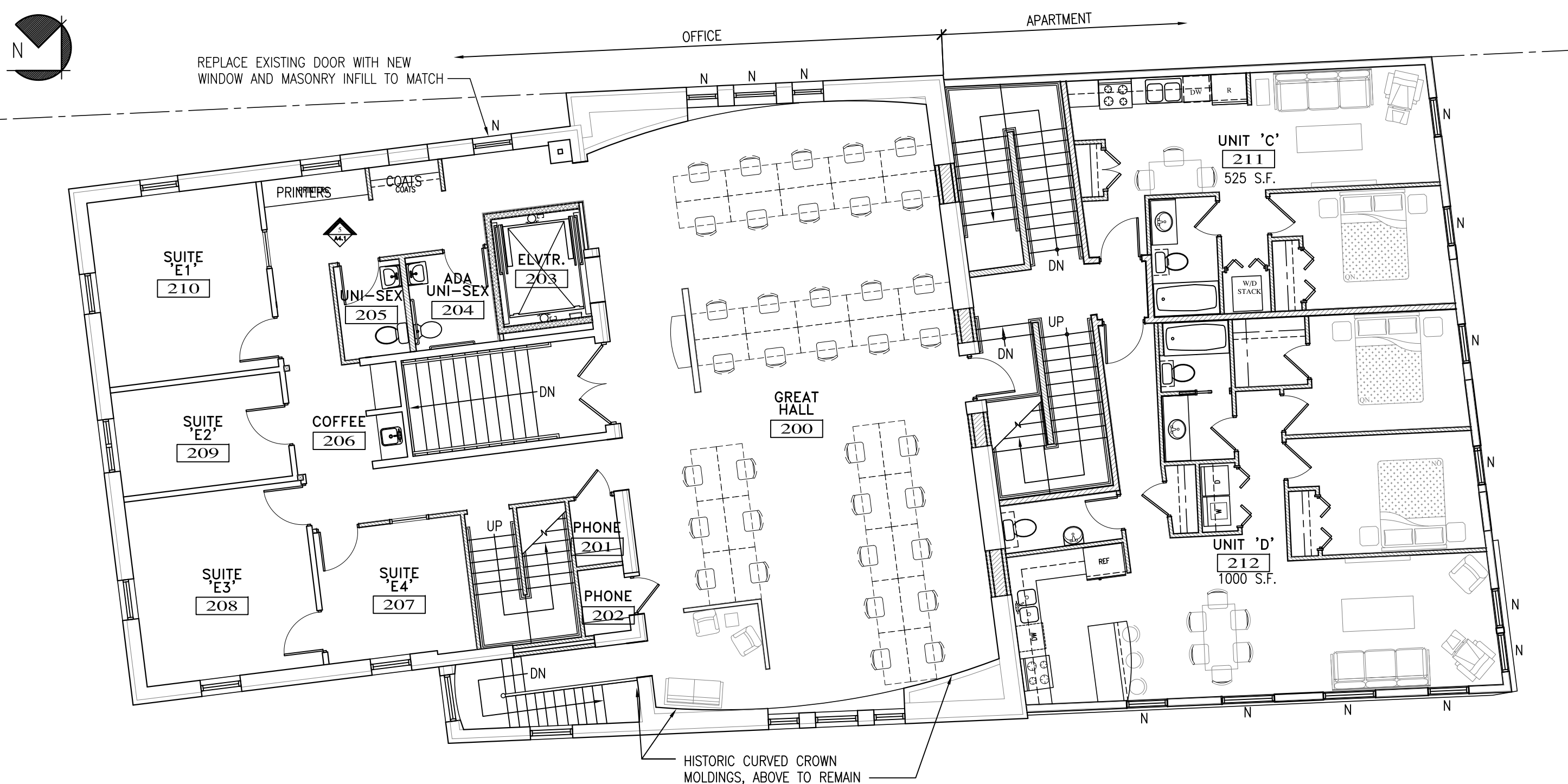
ARCHITECTURAL
SITE
PLAN

AS1.1

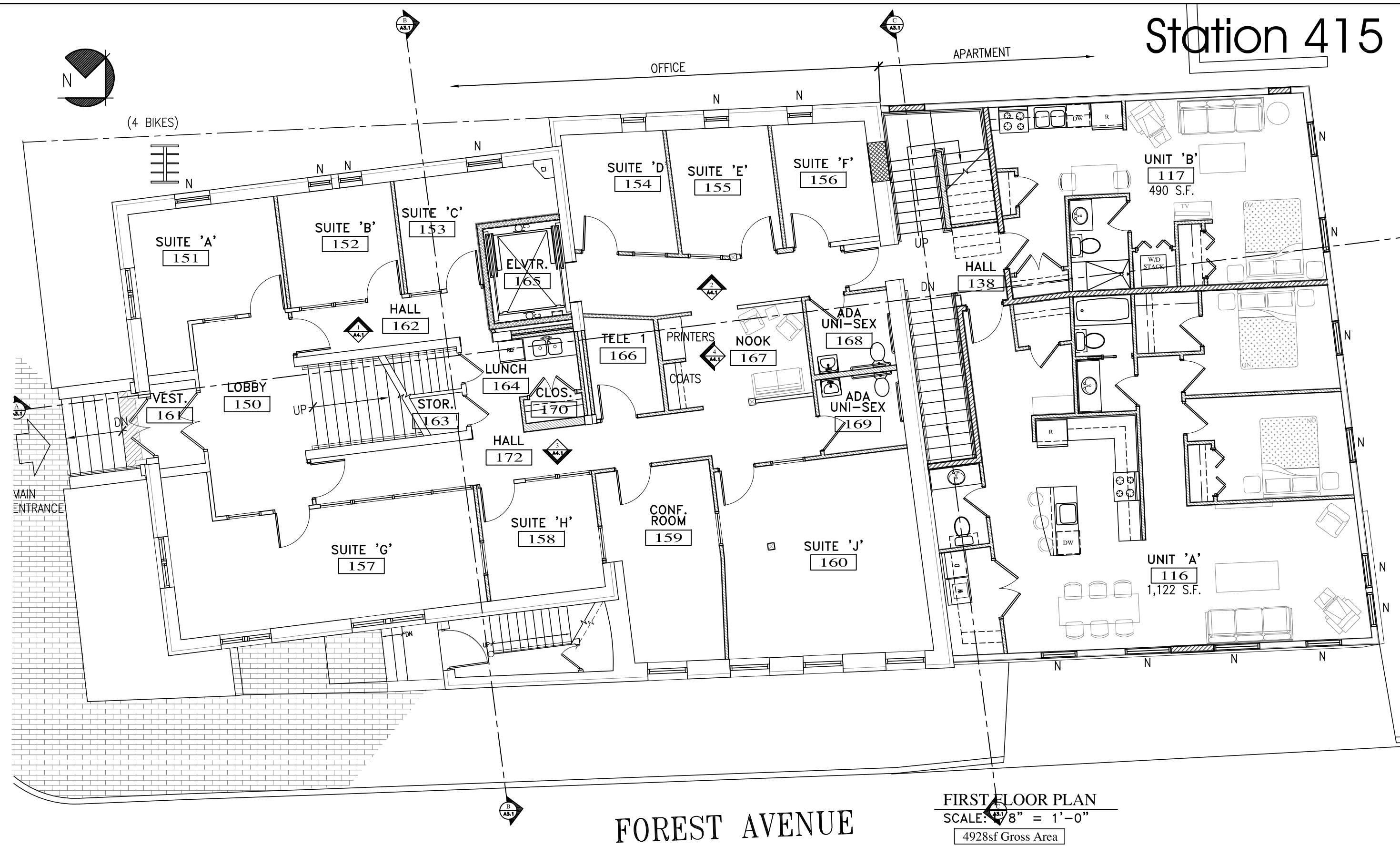
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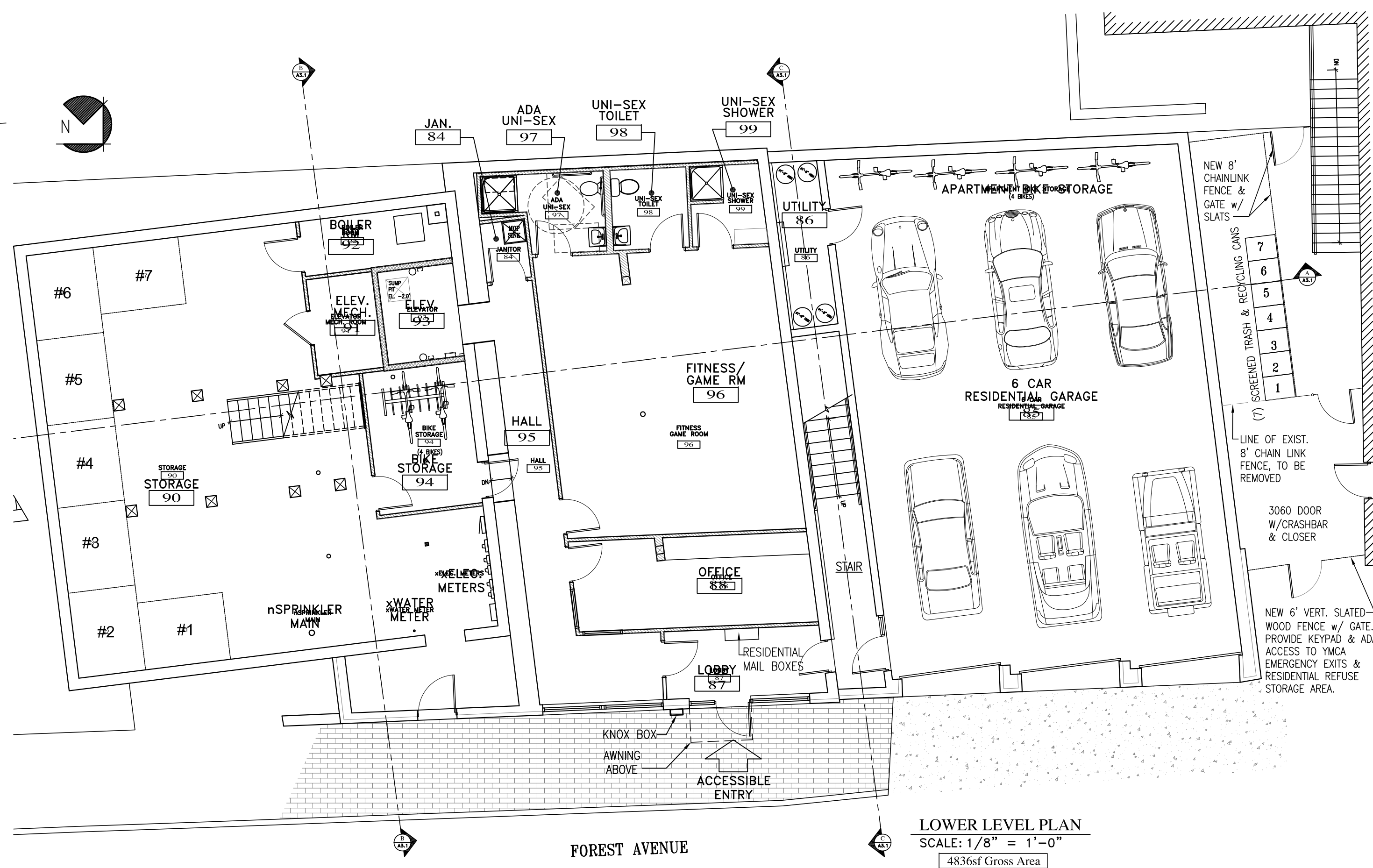
MEZZANINE PLAN
SCALE: 1/8" = 1'-0"
901sf Gross Area



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"
4928sf Gross Area



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"
4928sf Gross Area



LOWER LEVEL PLAN
SCALE: 1/8" = 1'-0"
4836sf Gross Area

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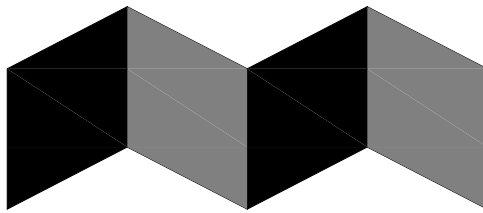
JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	09-22-16

BASEMENT, 1st FL., 2nd FL.
& PENTHOUSE PLANS

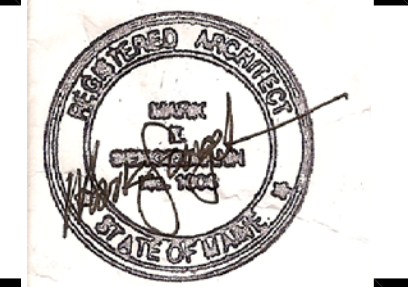
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09-22-16



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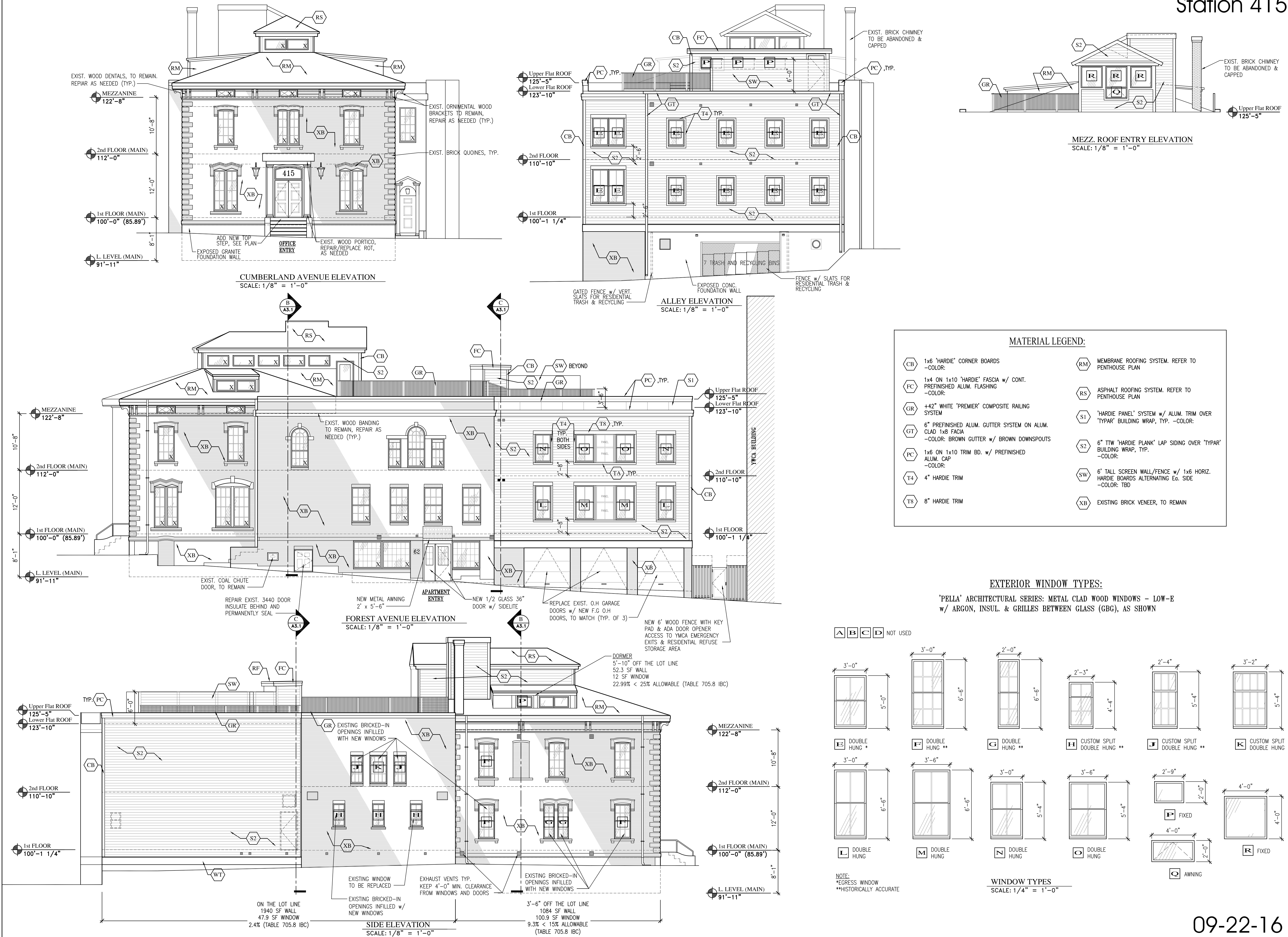
JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	09-22-16

EXTERIOR
ELEVATIONS

A2.1

09-22-16



ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	07-15-16



CUMBERLAND AVE. ELEVATION
SCALE: N.T.S



CORNER OF CUMBERLAND & FOREST AVE.'S
SCALE: N.T.S



FOREST AVE. ELEVATION
SCALE: N.T.S



FOREST AVE. ELEVATION
SCALE: 1/4" = 1'-0"



FOREST AVE. ELEVATION
SCALE: N.T.S



ALLEY @ YMCA
SCALE: N.T.S



DRIVEWAY SIDE ELEVATION
SCALE: N.T.S

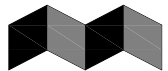


DRIVEWAY SIDE ELEVATION
SCALE: N.T.S



FOREST AVE. ELEVATION
SCALE: N.T.S.

Station 415



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JOB: 16110

ISSUE DATE	
P. BOARD	-
REV 1	-
CD's	-
PRINT	09-22-16

REVISED
FOREST AVE
ELEVATION

SK-14

09-22-16



PLANNING BOARD REPORT PORTLAND, MAINE

New Ordinance Division 2: Solar Energy Generation
Text Amendments to the Land Use Code Article X

City of Portland, Applicant

Portland Planning Board Public Hearing Date: September 27, 2016	Prepared by: Jean Fraser, Planner Date: September 23, 2016
--	---

I. INTRODUCTION

Staff presented a Memorandum to the Planning Board on August 9, 2016 which included a draft Solar Energy Ordinance and outlined some of the key issues. This Report presents a final Solar Energy Ordinance ([Attachment 1](#)) that has been slightly revised to address the Planning Board comments at the Workshop and other technical and staff comments. It recommends that the Board approve this ordinance and recommend it to the City Council for adoption.

II. BACKGROUND

Solar energy is an important option for residents and businesses interested in distributed generation in Portland. Portland has a good solar resource with an average of 4.71 hours per day of sunlight, with 7 months having an average between 5 and 6 hours a day- which is better or similar to most of the USA except the very southwest. At present installation of solar energy systems is mostly small roof-mounted systems that meet existing zoning requirements. However, interest in installing solar energy systems is expected to grow as the economic and technological environment becomes more supportive, and there is a need to adapt the Land Use Ordinance to facilitate and regulate solar energy installations.

The Land Use Ordinance currently includes Article X. *Alternative Energy*, and the Wind Energy Generation Ordinance adopted in 2012 is the first division. It was anticipated at the time that a similar ordinance would be developed for Solar Energy. The impetus to move forward now with the Solar Energy ordinance has come from a number of sources:

- *Environment Maine's* 2014 Report "*Shining Cities: At the Forefront of America's Solar Energy Revolution*" which compiled data on solar installations nationwide, and found Portland to be 44th out of the 57 major cities studied in terms of PV solar capacity installed;
- The City Council and Mayor have identified reduction of energy as a priority, and are also moving towards approving the installation of a large solar PV array at the former Ocean Avenue landfill;
- The Sierra Club and other non-profits and community groups are moving forward with proposals for community solar farms within Portland;
- Federal government initiatives to support solar eg US Dept. of Energy *Sun Shot* and *SolSmart*.

III. OBJECTIVES OF A SOLAR ENERGY ORDINANCE

Best practice across the country suggests that the most user-friendly approach is to adopt a single ordinance that clearly sets out where and under what circumstances solar energy systems are permitted. The current Land Use Ordinance is not as supportive of solar as it could be because it does not allow solar energy generation as a use and is vague or silent in sections that might apply, such as:

- definition of utility substation – could be helpful for small systems, but refers to public utilities;
- exemptions from zoning height limits for rooftop appurtenances do not mention solar.

The proposed text amendment creates a new separate solar energy ordinance (text in [Attachment 1](#)) to provide clarity and predictability for the installation of solar systems by removing any omissions or vagueness in the ordinance, and to be as permissive as possible while limiting any potential foreseeable negative impacts and land use conflicts.

The challenge is to broadly allow solar energy systems almost anywhere in Portland but ensure any potential adverse impacts are minimized. As drafted, the ordinance intends that solar energy generation may be a principle use on sites in most zones. This would allow for community solar farms (usually ground mounted solar arrays up to about a quarter of an acre but may be larger in the future) which are an increasingly effective way for urban dwellers to invest in/benefit from solar energy.

It is also intended to incorporate text that addresses some of the “myths” about PV solar energy, such as that PV panels are the source of significant glare, and that the structures/panels are not able to withstand the Maine climate.

IV. PROCESS FOR DEVELOPMENT OF THE PROPOSED SOLAR ENERGY ORDINANCE

The development of the ordinance has been informed by:

- Ongoing discussions on the Portland Comprehensive Plan and its climate change and energy efficiency policies;
- Reference to national and regional generic guides and specific ordinances in other comparable USA cities and European examples; ([Attachment 2](#))
- Reference to several Maine solar ordinances particularly South Portland; ([Attachment 2](#))
- Comments from the Energy and Sustainability Committee and Planning Board Workshop; and
- Internal and external consultations.

Unlike the Wind Energy ordinance, there is considerable variation in the solar energy ordinances elsewhere in the country where they have been integrated into a land use/zoning ordinance context. Several European standards have been referenced, but they similarly are associated with different land use development control frameworks and different patterns of development. Therefore the proposed ordinance has been “customized” to relate to local Portland issues and priorities.

While the ordinance is relatively “permissive” compared to similar ordinances in other USA cities/towns, it consciously intends to be a first phase ordinance to provide some immediate framework based on a wide base of support. However, it is anticipated that the ordinance would need some adjustment in the near future as we have more discussions about key questions, such as about solar energy systems in Historic Districts/Cemeteries and how to manage solar access.

V. PUBLIC COMMENTS

The Planning Board asked a number of questions regarding the practical impact of the ordinance on solar installations and the associated technology. *ReVision Energy* kindly provided comments on these points and made other technical observations which have been taken into account in the final revision of the text. Key points from *ReVision Energy* include and have been taken account of in the text:

- That power generation may not be correlated with physical system size as the technology changes, so may be preferable to use physical size only, rather than energy generation, in the definitions of “small”, “medium” etc;
- That the timing of the grid interconnection application/approval may be after the site plan review, so some flexibility may be appropriate regarding that requirement; and
- That a more realistic set of criteria is suggested for taking action if a system is not operating or has any safety issues.

The legal ad for this hearing appeared in the *Portland Press Herald* on September 19th and 20th, 2016. To date the Planning office has not received any public comments.

VI. PLANNING BOARD WORKSHOP DISCUSSION

The Planning Board considered the draft Solar Energy Ordinance on August 9, 2016 and raised the following key concerns:

- Roof mounted solar energy systems: The Board identified a concern that the ordinance did not include any limit on the height of a roof mounted system on a flat roof. The final version introduces limits and setbacks from the edge of the roof, and the limits are understood to be realistic in the context of solar energy installation technology.
- Abandonment: The Board were concerned that an abandoned solar energy system may remain in place and blight the site, and that the cadmium in some PV panels (understood to be the older and less expensive PV panels) would deter removal because of the toxic nature of the materials. Staff suggest that Technical Standards should be prepared to support the new ordinance, particularly in relation to safety and technical issues, and that this question could be amplified in the Technical Standards based on further research. As discussed at the PB workshop, staff do not feel that the introduction of a Performance Guarantee for the larger installations (which is included in the South Portland ordinance) is constructive, as that would discourage investment in solar energy.
- Submittal requirements: The Board were concerned that some of the draft requirements were not necessary in relation to some of the smaller systems. Staff have clarified that the Submittal Standards (in the separate section) apply only to proposals that require site plan review and have edited the text to focus on those related to solar energy systems. The requirement for a PE stamp was raised with *ReVision Energy* who indicated that a PE stamp was important in relation to the structural elements.

VII. CONSISTENCY WITH COMPREHNSIVE PLAN

The current Comprehensive Plan (from 2005) does not explicitly address climate change and associated issues such as energy use reduction and alternative energy generation. The objective is addressed indirectly by a number of goals and policies under the State Goal F:

“To protect the Stat’s other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas”.

The proposed text amendments generally are consistent with the Comprehensive Plan and it is noted that the City is currently undertaking the creation of a new comprehensive Plan which is expected to be more specific regarding the role of solar energy in achieving community goals.

VIII. PROPOSED TEXT AMENDMENTS (See Attachment 1 for the text)

Permitting

The review framework for the Wind Energy Ordinance was the Zoning Administrator and Zoning Board of Appeals. The proposed Solar Energy ordinance allows small solar energy systems with a Zoning Administrator review and a building permit, but the larger scale systems would be reviewed by Planning staff and the Planning Board within the site plan framework. This reflects the greater land area occupied by solar energy systems and the associated local impacts that are akin to those addressed under the site plan ordinance.

One key feature is that Solar Energy is proposed to be permitted as principle land use in most zones. The draft ordinance would allow any solar energy system in any zone where allowed under this new ordinance to be a principle use or an accessory use. The thinking behind these provisions is that there are many sites where limited access and ground conditions make development unrealistic and that these sites would potentially be appropriate for solar energy generation.

In residential areas it is unlikely that solar energy generation would be viable as a principle use as only small systems are allowed in the residential zones. Staff were concerned that along arterials and in the more dense urban parts of the City the larger solar energy systems should be integrated or alongside other uses that form part of the streetscene and the community, so the Performance Standards have introduced some limitations.

The large systems in business and industrial zones are proposed to be limited to areas that are already paved or built upon or difficult to develop. The objective of this provision is to retain land for employment generating uses and encourage the solar energy systems to utilize brownfield or undevelopable areas.

The following table and legend is included in the proposed ordinance to clarify the basis of permitting:

Sec. 14-779 Permitting

- (a) Solar systems are allowed in most zones subject to permits/approvals as set out in the table below and subject to compliance with the associated standards in Section 14-780. The level of review relates to the scale of the proposed system, whether they comply with zoning, and the zoning context.

P = allowed as a **permitted** use if the system complies with zone requirements and section 14-780 of this Division, and are located to rear and side of the site wherever possible; would require a building permit (and historic preservation review if a landmark or in an historic district*).

S = allowed subject to **site plan** review as indicated, to meeting performance standards in section 14-780, and to meeting the submittal requirements in 14-782 and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

C = allowed as a **conditional** use reviewed by the Planning Board and subject to meeting performance standards in section 14-780, the submittal requirements in 14-782, and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

Zone	Roof Mounted and Building Integrated	Small Scale Ground Mounted	"Dual Use" systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (based on airspace area over ground)	N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
Residential; RP; Business zones except B4; waterfront zones	P	P	S (Level II)	S (Level II)	Not allowed
Industrial zones and B4 zone	P	P	S (Level II)	S (Level II)	C (Planning Board)
ROS, Shoreland	P	S (Level II)	S (Level II)	C (Planning Board)	C (Planning Board)
Historic Landscapes	P	S (Level II) & HP	S (Level II) & HP	S (Level II) & HP	Not allowed
Cemeteries	P	Not allowed	Not allowed	Not allowed	Not allowed
Stream Protection zones	Not allowed (Unless on legally non-conforming structure)	Not allowed	Not allowed	Not allowed	Not allowed

**Historic Resource:* Where any part of the proposed solar energy system (including associated facilities) is within an historic district, such development shall be reviewed and approved by the planning authority (historic preservation) in accordance with article IX historic preservation prior to a review under this ordinance. Where any part of the proposed solar energy system (including support structures and associated facilities) is within one hundred (100) feet of any designated landmark, historic district or historic landscape district, such development shall meet the site plan Sections 14-526 (d) 5 regarding compatibility with the landmark or historic district.

Performance Standards - Requirements for all systems:

In discussion with the Zoning Administrator it was concluded that all solar energy generation systems, however small, would need to be reviewed against more specific criteria than currently apply under the dimensional requirements of the zones. Therefore section 14-780 (1) seeks to guide the review of all solar energy systems by specifying or referencing the following:

- ***Application requirements:*** Included for clarification. There is a concern that the installation of a large number of small solar energy systems in the front yards of small-lot residential areas would be detrimental to Portland's character. The wording in the proposed text for permitted solar energy systems is that they be "located to the rear and side of the site wherever possible". Staff suggest that the submissions should include documentation justifying the location of the solar energy system when proposed for the front part of the site.
- ***Height limits:*** This has been included here because where a solar energy system is the principle use it potentially could be as high as the height for a principle structure. So the maximum of 20 feet is specified but does not override the zone dimensional standards for permitted systems where they are stated to be lower (ie 18 feet for most accessory structures)
- ***Technical and Safety:*** It is proposed to follow the format of the site plan ordinance in placing the technical, safety and maintenance standards in the Technical Manual. Further detail in relation to toxic materials and abandonment could also be included. The reference to cadmium was in response to the PB workshop discussion but may be too specific for inclusion here
- ***Impact of Construction:*** It is expected that there will be impacts since underground conduits and electrical connections are necessary. The provision requests applicant to try and minimize these impacts.
- ***Conditions; Glare; Solar Access:*** Included to bring these to the attention of applicants.

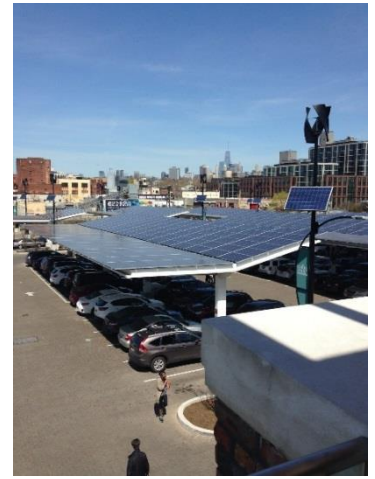
Performance Standards - Specific standards depending on scale/zone

The standards have been developed to address potential impacts of the proposed solar energy system and most are based on provisions recommended in guidance documents or included in other municipal ordinances (see Summary of key provisions in [Attachment 2](#)).

The following discussion of the standards is organized around the potential impact that the standards are trying to address:

- Where the solar energy generation use is a principle use and potentially covers most or all of the lot, the standards focus on ensuring integration with the surrounding uses and built fabric. The proposed setbacks relate to the more sensitive zones and allow for more buffer landscaping. The standard requiring co-location with other land uses aims to maintain the street definition and street liveliness in the non-industrial zones.
- Many potentially "good" locations for solar energy systems happen to be located within ROS and Shoreland zones, often because the areas around them are ROS/Shoreland. The ordinance seeks to allow solar energy systems in such locations and the standards are intended to ensure that they do not overwhelm the limited parkland resource.
- While it is generally agreed that industrial and B4 zones are the preferred location for the large solar energy systems, staff are concerned that this could result in the loss of excessive land available for employment generating uses in these zones. Therefore the large systems in these zones are specified to be located on areas already paved or built upon, or where other development is documented to be unlikely due to local conditions.
- Dual use systems: The ordinance text introduces this category of system because of the increasing installation of solar PV panels on posts over parking spaces, on a large scale

(see photo right). Other variations on this idea are anticipated to evolve and the potential impacts are somewhat unknown while the cumulative scale could be very large. It is proposed that this category be subject to site plan review (rather than “permitted” with a building permit) to allow these more innovative solar energy systems to go forward but with some review of impacts.



Submittal Requirements

The Performance Standard that applies to all systems (14-780 (1) includes a general provision that allows the Permitting and Inspections Department to develop some specific requirements as necessary. The separate section regarding submittal requirements for site plan reviews of solar energy systems (14-782) has been revised to reference and avoid repetition with the Site Plan Submittal requirements and to add some detailed requirements specific to solar energy.

Abandonment - See discussion above under Section VI of this Report.

Appeals - These are standard provisions similar to those for the Wind Energy Generation ordinance.

IX. STAFF RECOMMENDATION

The text amendment has been revised to address the Planning Board Workshop discussion and technical comments since the Workshop. Staff recommend that the Planning Board find the proposed text amendments for a new Division 2 *Solar Energy Generation* under Article X to be generally consistent with the Comprehensive Plan and to recommend to the City Council adoption of the proposed text amendment.

Staff note that the proposed text amendment subject of this Report will be augmented as follows:

- The Legal Department may advise, when preparing the City Council Order, that the numbering be amended and that amendments to other parts of the existing ordinance may be required to ensure consistency;
- The Planning Division, in association with other City Departments, will prepare a new section for the Technical Standards that provides technical and safety standards in relation to the development of Solar Energy Generation Systems.

X. PROPOSED MOTION

On the basis of the material provided in this report, public testimony, a review of current operation and applicable policies, Portland’s Comprehensive Plan, the information provided at the Planning Board meetings:

- i. That the Planning Board finds that the proposed text amendments to create a new Division 2 *Solar Energy Generation* under Article X *Alternative Energy* in the Land Use Code, as presented in this Report and Attachment 1 to this Report, **[are or are not]** consistent with the Comprehensive Plan for the City of Portland; and
- ii. Therefore, the Planning Board **[recommends or does not recommend]** to the City Council approval of the zoning text amendments to create a new Division 2 *Solar Energy Generation* under Article X *Alternative Energy* in the Land Use Code.

Attachments:

1. Proposed text amendments for adoption: *Solar Energy Generation Ordinance*
2. Summary of relevant provisions in other USA and European solar energy ordinances (to follow)

FINAL FOR PLANNING BOARD HEARING 9.27.2016**TEXT AMENDMENT: DIVISION 2. SOLAR ENERGY GENERATION***Small**Dual Use**Community***Division 2. Solar Energy Generation****Sec. 14-775. Purpose.**

The purpose of this division is to allow for the construction and operation of public or private solar energy generation systems to produce energy for use on site or off site, by establishing appropriate standards to ensure safe, effective and efficient use of solar energy systems compatible with surrounding uses.

Sec. 14-776. Applicability.

- (a) The installation of all solar energy systems or devices, expansion of any existing solar energy system, or installation of any associated facilities, shall be approved under this ordinance and obtain a building permit and any other necessary state or city approvals prior to its installation. Solar energy generation systems determined to be permitted uses shall be reviewed and approved by the Permitting and Inspections Department; solar energy systems determined to require site plan approval shall be reviewed and approved by the Planning Authority or Planning Board as outlined in section 14-779 and obtain a building permit through the Permitting and Inspections Department.
- (b) Any physical modification to an existing and permitted solar energy system which alters the total rated capacity, the size, type or location of the system or its associated equipment shall require approval under this ordinance. Like-kind replacements or non-structural maintenance and repair shall not require approval under this ordinance but shall require a building permit.
- (c) Solar energy systems are permitted as an accessory or principle use in all zones where allowed subject to 14-779 and subject to the performance standards in Section 14-780.

Sec. 14-777. Definitions

For the purposes of this division, the following words and phrases shall have the following meanings:

Abandonment: The date at which a solar energy system has been out of service for a continuous period of 12 months.

Building integrated solar energy system: a solar energy system that is an integral part of a principal or accessory building and include, but are not limited to, photovoltaic or hot water systems that are contained within roofing materials, windows, walls, skylights and awnings.

“Dual-Use Systems”: solar energy systems where photo-voltaic panels are introduced in conjunction with a primary use eg photo-voltaic panels on structures cantilevered over parked cars in a parking lot. These tend to include “emerging technologies” and multiple systems with potential impacts, and would require site plan review.

Ground mounted solar energy system (also known as free-standing solar energy systems): A solar energy system that is structurally mounted to the ground. The panels may be stationary or revolving and of any size.

Operations and Maintenance Plan: A plan outlining the operation and maintenance of a solar energy system, to include safety measures and procedures for maintenance.

Physical size of solar energy system: For the purposes of this Division the size of the system will be based on the physical size based on total airspace projected over the ground. It should be noted that the physical size as defined here is different from the area that would be the basis for calculating the impervious surface associated with the system.

Public industrial, utility or highway facility: A facility operated by a public entity that contains industrial or utility operations or is an unused part of such a facility.

Roof- mounted solar system: A solar energy system in which solar panels are mounted on top of the structure of a roof either as a flush-mounted system or as modules fixed to frames which can be tilted toward the south at an optimal angle.

Small, Medium and Large solar energy systems: For the purposes of this Division these have been defined by physical size as defined herein. Based on current technology the small systems are about 20 kW or less; medium systems are between about 20kW and 250kW, and large systems are over 250kW.

Solar Access: Space open to the sun and clear of overhangs or shade, including orientation of buildings and lots to the sun, so as to permit the use of active and/or passive solar energy systems on individual properties.

Solar Energy System: A complete assembly consisting of one or more solar collectors and associated mounting hardware or equipment, intended to provide for the collection, storage and distribution of solar energy for heating or cooling, electricity generation, or solar/thermal hot water systems.

Total height of solar energy system: The total vertical distance as measured from the average elevation of the finished grade adjacent to the fixed base of the support structure, to the highest part of the system.

Total rated capacity: The maximum rated output of electrical power production of the photovoltaic system in watts of Direct Current (DC)

Sec. 14-779 Permitting

- (a) Solar systems are allowed in most zones subject to permits/approvals as set out in the table below and subject to compliance with the associated standards in Section 14-780. The level of review relates to the scale of the proposed system, whether they comply with zoning, and the zoning context.

P = allowed as a **permitted** use if the system complies with zone requirements and section 14-780 of this Division, and are located to rear and side of the site wherever possible; would require a building permit (and historic preservation review if a landmark or in an historic district*).

S = allowed subject to **site plan** review as indicated, to meeting performance standards in section 14-780, and to meeting the submittal requirements in 14-782 and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

C = allowed as a **conditional** use reviewed by the Planning Board and subject to meeting performance standards in section 14-780, the submittal requirements in 14-782, and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

Zone	Roof Mounted and Building Integrated	Small Scale Ground Mounted	"Dual Use" systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (see Definitions)	N/A	≤ 1000 sq ft	Any size	1001 to 9,999 sq ft	10,000 sq ft or greater
Residential; RP; Business zones except B4; waterfront zones	P	P	S (Level II)	S (Level II)	Not allowed
Industrial zones and B4 zone	P	P	S (Level II)	S (Level II)	C (Planning Board)
ROS, Shoreland	P	S (Level II)	S (Level II)	C (Planning Board)	C (Planning Board)
Historic Landscapes	P	S (Level II) & HP	S (Level II) & HP	S (Level II) & HP	Not allowed
Cemeteries	P	Not allowed	Not allowed	Not allowed	Not allowed
Stream Protection zones	Not allowed (Unless on legally non-conforming structure)	Not allowed	Not allowed	Not allowed	Not allowed

**Historic Resource:* Where any part of the proposed solar energy system (including associated facilities) is within an historic district, such development shall be reviewed and approved by the planning authority (historic preservation) in accordance with article IX historic preservation prior to a review under this ordinance. Where any part of the proposed solar energy system (including support structures and associated facilities) is within one hundred (100) feet of any designated landmark, historic district or historic landscape district, such development shall meet the site plan Sections 14-526 (d) 5 regarding compatibility with the landmark or historic district.

Sec. 14-780. Performance Standards

All solar energy systems shall meet the following performance standards as indicated (section numbers are included to allow for reference):

	Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (See Definitions)	N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
14-780 (1) Standards applicable to all solar energy systems, whether permitted, site plan or conditional use	i. <i>Application requirements for permitted solar energy systems:</i> All applications for permitted solar energy systems shall meet the submittal requirements as specified by the Permitting and inspections Department. Where systems are proposed in the front part of the site, the application shall include technical documentation as to why it is not possible to locate the system to the rear or side of the site. ii. <i>Application requirements for site plan and conditional use review of solar energy systems:</i> submissions for approval under this ordinance shall address the submittal requirements set out in section 14-782 <i>Submittal Requirements</i>. iii. <i>Height:</i> The maximum height for all solar energy systems shall be (where not specified in zone dimensional requirements or in 14-430): a. Ground mounted: 20 feet b. Roof mounted - on flat roofs and angled on pitched roofs: ○ For all residential and RP zones: 5 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height. ○ For all zones except residential, RP, B4 and Industrial zones: 8 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height. ○ For B4 and Industrial zones: no limit. iv. <i>Technical and Safety:</i> All solar energy systems shall meet the technical, safety and maintenance standards as set out in the City of Portland Technical Manual. These standards may include the prohibition of panels containing cadmium to minimize the potential for hazardous waste. v. <i>Impact of construction and connection to the grid:</i> The applicant shall minimize impacts resulting from construction and maintenance of the solar energy system, including lighting, security measures, traffic, and grid connections. vi. <i>Conditions:</i> The reviewing authority may impose conditions to ensure compliance with the standards and purposes set out in this ordinance, including but not limited to post-construction certification of compliance by a licensed professional engineer or authorized factory representative. vii. <i>Glare:</i> Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system. viii. <i>Solar Access:</i> all applicants are encouraged to ensure the maximum solar energy generation from their system by obtaining solar access easements. Solar access easements may be filed consistent with Maine State law. Any property owner may purchase an easement across nearby properties to protect access to sunlight. The easement would be purchased or granted by owners of nearby properties and can apply to buildings, trees, or other structures that would diminish solar access.				

	Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (See Definitions)	N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
14-780 (2) <i>Additional performance standards for particular systems subject to site plan or Conditional Use (PB) review</i>	N/A	a) Meet 14-780 (1) above	a) Meet 14-780 (1) above b) Demonstrate that the energy generation is not the principal use of the site; c) Demonstrate that scale of the installation does not create adverse impacts.	a) Meet 14-780 (1) above b) Designed to avoid safety impacts; c) Located in side or rear yards, wherever possible; d) Set back 50 feet from residential, RP, B1 and B2 zones e) Located away and screened from public ways and nearby residential /institutional uses to extent possible; f) Co-locate with other land uses on lots in residential, B1, B2, B3, B7 & waterfront zones	a) Meet 14-780 (1) above b) Designed to avoid safety impacts; c) Located in side or rear yards, wherever possible; d) Set back 75 feet from residential, RP, B1 and B2 zones e) Located away and screened from public ways and nearby residential /institutional uses to extent possible;
14-780 (3) <i>Additional performance standards for solar energy systems located in ROS & Shore- land Zones</i>				a) Meet 14-780 (1 and (2) above b) If over 10,000 sq ft, locate on landfills or co-terminus with public industrial, utility or highway facilities c) Be supported by Land Bank Commission and Parks Commission where applicable d) Layout and fencing to be integrated with the landscape to the extent possible e) Screen from abutters and minimize impact on significant scenic views to the extent possible f) Not required to meet the conditional use requirements of the zone; for ROS see 14-156 g) Prohibited within the 75 ft setback from High Water mark in Shoreland Zones and meeting other Shoreland Zone requirements	
14-780 (4) <i>Additional performance standards for solar energy systems in Business and Industrial Zones</i>					a) Meet 14-780 (1) (2) above b) Be located on areas already paved or built upon, or where other development is documented to be unlikely due to local conditions.

Sec. 14-781. Reserved

Sec. 14-782 Submittal requirements for site plan and conditional use review of solar energy systems.

- (a) The following information shall be submitted with a site plan application for a review of a solar energy system and associated facilities under this ordinance (S or C in 14-779) in addition to the submittal requirements set out in section 14-527 (a), (c),(d) and (e) of the Site Plan ordinance:
1. A narrative describing the proposed solar energy system, including an overview of the project; the project location; the generating capacity of the solar energy system; dimensions of all components and respective manufacturers; and a description of associated facilities and how the system and associated facilities comply with the standards of this ordinance (including a plan or other graphics that demonstrate compliance). Where systems are proposed in the front part of the site, the application shall include technical documentation as to why it is not possible to locate the system to the side or rear of the site.
 2. An accurate scaled site plan of the subject property showing the planned location of the proposed solar energy system and all associated facilities; property lines, adjoining streets and access; topographic contour lines; existing and proposed buildings; fencing; structures; potential shade from nearby trees and structures; vegetation; driveways, parking, and curb cuts on the subject property; and specifications for all proposed electrical cabling/transmission lines, accessory equipment, and landscaping.
 3. A scaled elevation drawing showing the proposed solar energy system and all proposed structures, foundations, supports, fencing, vegetation and landscaping, indicating the size, color and materials of the system. Drawings of structures and foundations shall be stamped by a licensed Professional Engineer.
 4. Information on any proposed connections to the grid including any proposed off-site modifications to provide grid connections, access the installation, or to maintain the proposed solar energy system and grid connections.
 5. In the case of medium and large ground mounted solar energy systems, the applicant shall provide an Operations and Maintenance Plan prepared and stamped by a licensed Professional Engineer or other licensed professional as appropriate.

Sec. 14-783 Abandonment and Removal of Medium and Large Scale Ground Mounted Solar Energy Systems

- (a) In the case of medium and large ground mounted solar energy systems, the submitted Operations and Maintenance Plan shall include an estimate of the life of the project and outline the anticipated options/action when it has reached the end of its estimated useful life.
- (b) The Owner and Operator shall, at their expense, complete the removal of the solar energy system within 6 months of the end of the useful life of the solar energy system or within 6 months of the date of abandonment. "Removal" includes restoration of the site to its approximate original condition, unless a valid approved site plan is intended to be pursued in which case a performance guarantee for the restoration would be required until the approved redevelopment has received a certificate of occupancy.

- (c) The City shall revoke any approvals and/or pursue removal of the solar energy system at the Owner and Operator's expense in the following circumstances:
1. The solar energy system is not complete and operating within 24 months from the date of approval under this ordinance; or
 2. The solar energy system is determined by the City to be in an unsafe condition in respect to federal, state and local safety standards and timeframes; or
 3. The solar energy system has not been brought back to a safe condition/operation or removed from the site within the required timeframe; or
 4. The solar energy system is defective or abandoned and has not been removed from the site within the required timeframe.

14-784. Appeals.

- (a) Any aggrieved party may appeal a decision by the Permitting and Inspections Department or Planning Authority under the provisions of this ordinance by requesting in writing that it be referred to the Zoning Board of Appeals or Planning Board as appropriate within 30 days of the decision being rendered. The date of the decision shall be the date of the letter from the Permitting and Inspections Department or Planning Authority documenting the decision.
- (b) Any aggrieved party may appeal a decision of the Planning Authority determination under provision 14-761 (b) 2 of this ordinance (compatibility if within 100 feet of a designated landmark, Historic District or Historic Landscape District) by requesting in writing that it be referred to the Historic Preservation Board within 30 days of the determination. The date of the determination shall be the date of the letter from the Planning Authority documenting the decision. Appeals shall be considered by the Historic Preservation Board as a de-novo review of the determination of compatibility.
- (c) Any aggrieved party may appeal the final decision of the Planning Board or the Historic Preservation Board to the superior court in accordance with Rule 80B of the Maine Rules of Civil Procedure. The date of the final decision shall be the date of the Board Hearing or other Board meeting at which a final decision was taken.

Associated amendment to 14-430 (SEE PROPOSED UNDERLINED TEXT)

Sec. 14-430. Height limits.

(a) *Roof structure.* Roof structures for the housing of elevators, stairways, tanks, fans, or other building operating equipment not intended for human occupancy, skylights, steeples, roof signs, flag poles, chimneys, smokestacks, radio or television masts, water tanks, or silos may be erected above the height limitation herein prescribed for buildings. Roof-mounted wind and solar energy systems shall not be considered to be roof structures for the purposes of Article X, Alternative Energy.

(b) *Public art.* Except in residential zones, public art that has been individually accepted by the city council for inclusion within the public art collection, pursuant to Article XI, Public Art Program of the Land Use Code, (Section 14-852(c)), shall not be subject to the height limitations for buildings within the underlying zone.

(c) *Temporary wind anemometer towers.* Temporary wind anemometer towers may be erected above the height limitation for buildings within the underlying zone, subject to receiving Board of Appeals approval and FAA approval, if necessary.

(d) *Wind energy systems.* Wind energy systems may be erected above the height limitation for principal buildings within the underlying zone, pursuant to Article X, Alternative Energy.

(e) *Roof mounted solar energy systems:* Photovoltaic panels and thermal water heating panels may be erected above the height limitation for principal or accessory buildings, subject to historic preservation approval, as follows:

1. For all residential zones: 1 foot above highest part of a pitched roof on principle and accessory structures. In the case of flat roofs, 5 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height.
2. For all zones except residential, B4 and Industrial zones: 2 feet above highest part of a pitched roof on principle structures; and 1 foot above the highest part of a pitched roof for accessory structures. In the case of a flat roof, 8 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height.
3. For B4 and Industrial zones: 4 ft above the highest part of a pitched roof on principle structures; 2 ft above the highest part of a pitched roof for accessory structures; and no limit in the case of a flat roof.