



City of Biddeford Planning Board

January 15, 2025 at 6:00 PM
City Hall Council Chambers & Zoom

[Join Zoom Meeting Online](#)

Or call in by phone: +1 312 626 6799

Meeting ID: 949 8353 1202

Passcode: 223739

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
3. Other Business
 - 3.a Election of Vice Chair and Secretary of Planning Board
4. Adjustment(s) to Agenda
5. Planner's Business
6. Consent Agenda
 - 6.a Review for approval Meeting Minutes for December 18, 2024 Planning Board & Conservation Commission Workshop and Planning Board Meeting.
7. Unfinished Business
8. New Business
 - 8.a 2023.33 The Planning Board will review a request for Subdivision Amendment from Beachwood Development, LLC. The subdivision is known as Longboard Ridge Subdivision, located at 781 Pool Street (Tax Map 5, Lot 17-2) in the Coastal Residential and Shoreland Overlay Zones.
 - 8.b 2024.59 The Planning Board will review a Final Subdivision Plan for Acorn Engineering on behalf of 1921 Pepperell, LLC to redevelop buildings 19 & 20 of the Pepperell Mills into 64 residential units with utility infrastructure improvements. The property is located at 6, 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4 & 10-1) in the MSRD-3 & Shoreland Overlay Zone.
 - 8.c 2023.31 The Biddeford Planning Board will hold a Public Meeting and take comments

to review a Preliminary Subdivision Application for Diversacorp Holdings, LLC. The property is located at 20 Clifford Street (Tax Map 39, Lots 303-1 & 304) in the R2 Zone. The applicants propose to construct a building containing 4 residential units.

9. Adjourn

The Board reserves the right to halt official business at 9:30 p.m. Items not heard at tonight's meeting shall be rescheduled to the next meeting of the Board. All materials pertaining to items on the agenda are available for public review at the Biddeford Planning Department, second floor, Biddeford City Hall during normal business hours.



CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board Meeting Meeting Minutes

DRAFT

Date: December 18, 2024
Time: 6:00 PM
Location: Council Chambers & Zoom

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
Quorum Present: Larry Patoine, Chair, Roch Angers, Alexa Plotkin, Steve Beaudette, Matt Dubois
Dubois will be voting in place of Deschambault
Staff Present: Adi Iriqat & Nan Whitten
3. Adjustments to the Agenda-None
4. Planner's Business-None
5. Consent Agenda
5.A. Approval of Meeting Minutes of December 4, 2024
MOTIONS: 6:07 PM
Motion- Plotkin -Motion to approve minutes as presented
Second- Angers
Vote-Motion passed unanimously
6. Unfinished Business- None
7. New Business
7.A. 2024.67 The Planning Board will review a Shoreland Zoning Permit application submitted by James & Kathleen Russell to move to their home at 75 Fortunes Rocks Road closer to the road and further from (Tax Map 64, Lot 47) located in the Coastal Residential & Shoreland Zones.
 - Iriqat introduced the project
 - Jim Russell & Kathy Russell represented the application.
 - No Public Comments
 - Plotkin asked where they got the figure for raising the height. It is recommended by FEMA, and they went a bit higher for safety
 - Patoine asked about the shed, it was moved by the storm, but it will stay TBD where it will be located.MOTION: 6:13 PM
Motion-Plotkin-Motion to approve Case #2024.67 75 Shoreland Zoning / Greatest Practical Extent for 75 Fortunes Rocks Road, (Tax Map 64, Lot 47), in the CR Zoning District with the previously mentioned Conditions of Approval.
Angers-Second
Vote-Unanimous

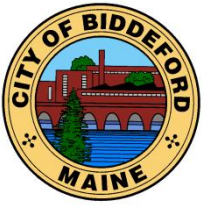
8. Other Business
9. Adjourn 6:14 PM

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.

DRAFT



CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board & Conservation Commission Workshop Meeting Minutes

DRAFT

Date: December 18, 2024
Time: 5:00 PM
Location: Council Chambers

1. In attendance:

Planning Board: Larry Patoine, Roch Angers, Matt Dubois

Conservation Commission: Erik Heumiller, Peter Robbins, Patrick Conlan, Richard Rhames

Staff Present: David Galbraith, Brad Favreau, Adi Iriqat & Nan Whitten

2. Discussion on the development of Solar Ordinance

- Introduction
- Favreau explained how the ordinance was developed
- Favreau explained the layout and definitions solar development of the proposed ordinance
- No clear cutting prior to application
- Environmental review needed
- Regulations do not stop developers from clear cutting.
- Clarification needed for 7A
- Sections 6 D & E need to happen prior to clear cut
- It is appreciated that the committee listened to the BCC
- The Planning Board shall assess not the applicant
- 5B the City selects and hires the impact consultant/Planner wants consultant hired by applicant, Planning Board reviews and hires additional 3rd party if report in question.
- Create a list of qualified and approved environmental consultants
- Does Biddeford want to set a cap on acres?
- How to incentivize developers to put a portion of the land in conservation
- Phased development, how to monitor with skirting thresholds
- Concern about agricultural land, so we create exclusion zones
- We have put exclusionary language in ADU Ordinance
- Farmers are susceptible to being preyed on, these solar farms have been identified as a threat to farmland
- Change the word "shall" to "may"
- Prime farmland or farmland of statewide importance excluded
- Reach out to the state more on these issues
- Contact Tom Gordon at the State for current standards for protection of agricultural lands

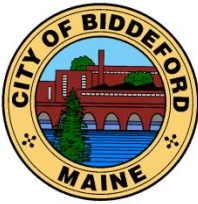
- Language issue 6A “unproductive land” open to interpretation, refers to gravel pit, landfills etc. BCC would like clearer language to prevent farmed land for this purpose.
- Send all comments to Favreau at brad.favreau@biddefordmaine.org
- Need bonding, who is going to clean this up?
- State bonds it that needs to be stipulated in the ordinance.
- Page 7 ii Existing vegetation, invasive species will take over
- Developers need to mitigate invasive species, catalogue of invasive species.
- Page 8, item 10 more explicit, stronger language
- Page 4 H, Page 5A language too loose no enforceability
- Original intent solar installation was a positive good, they appreciate the changes being made
- Favreau will compile proposed changes, it will go to Sustainability Committee, then to Planning Board
- Another workshop requested.

3. Adjourn 6:00 PM

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Deputy Director/City Planner

DATE: January 7, 2025

RE: **2023.33 Site Plan and Subdivision Review Amendment of the Longboard View, a seven (7) lot Single-family residential subdivision by Beachwood Development LLC located at 781 Pool Street (Tax Map 5, Lot 17-2) within the Coastal Residential and partially within the Limited Residential Coastal Overlay District.**

MEETING DATE: January 15, 2025, at 6:00 PM

1. INTRODUCTION

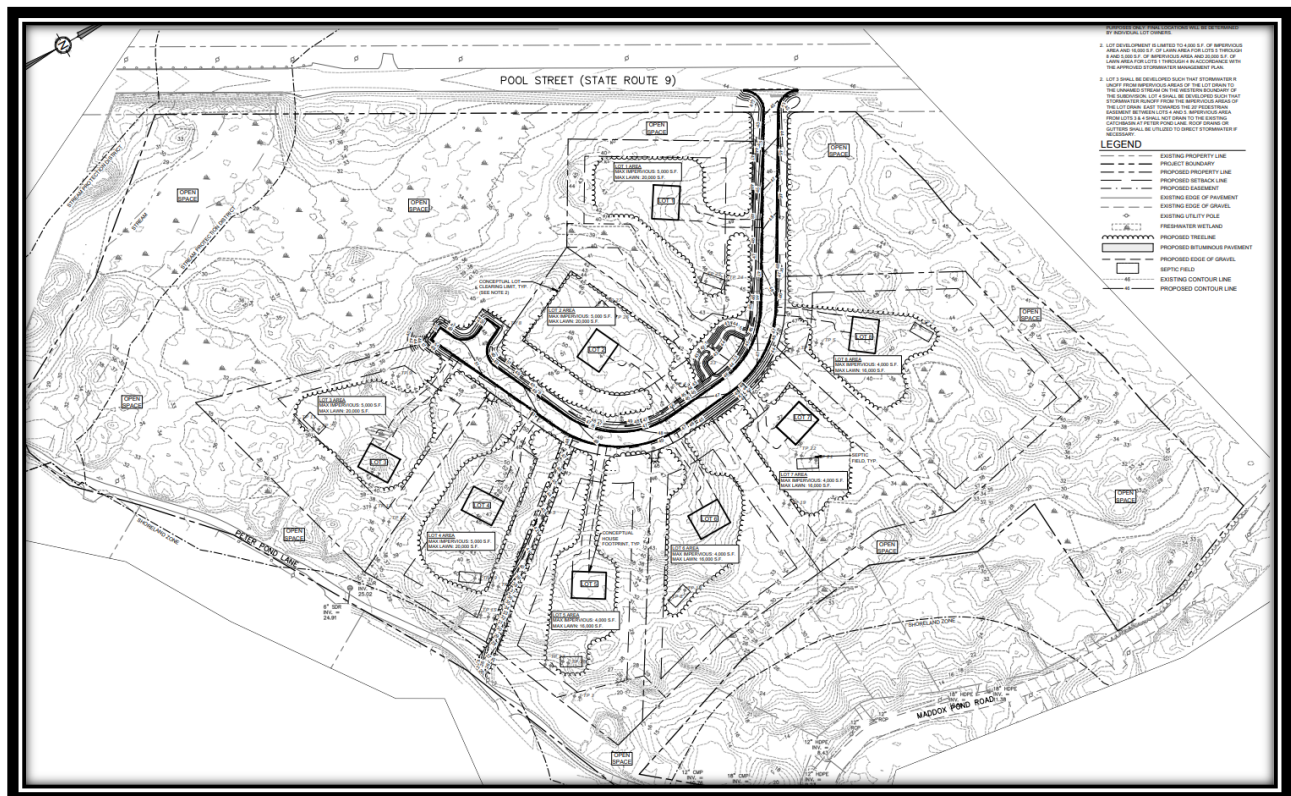
The Applicant, Beachwood Development LLC and their Agent, Michael Tadema-Wielandt, P.E. of Terradyn Consultants, LLC, jointly referred to as "Applicants", are seeking an amendment to



Case 2023.33: Site Plan and Subdivision Review Amendment of the Longboard View, a seven (7) lot single-family residential subdivision by Beachwood Development LLC located at 781 Pool Street (Tax Map 5, Lot 17-2) within the Coastal Residential and partially within the Limited Residential Coastal Overlay District.

Planning Board Hearing date: January 15, 2025.

their approved subdivision and site plan. As the Board may recall, the project was previously before the Board for Sketch Plan review on June 21, 2023; Preliminary Plan approval on September 20th, 2023; and Final Plan approval which was granted on May 1, 2024.



Longboard 8-lot Residential Subdivision – Approved May 1, 2024

As shown above, the Planning Board approved an 8-lot single-family residential subdivision at 781 Pool Street in the vicinity of Maddox Pond Rd. and Peter Pond Ln. This project would include a private street connected to Pool Street. The net residential area of the parcel is 8.93 acres. This application involves proposed development of property at 781 Pool Street (Tax Map 5, Lot 17-2), located within Coastal Residential zone and partially within the Limited Residential Coastal Overlay District. Additionally, this parcel abuts a stream protection overlay although the overlay does not extend to the parcel itself. The development triggers Maine Site Law Review, for which the City of Biddeford has Municipal Capacity Authority. The approved project was originally proposed to be served by a proposed waterline extension down Pool Street to the site, and each lot was designed with individual wastewater / septic systems.

Since the project was approved by the Board, the Applicant's have conducted a more detailed cost analysis of the waterline extension and found it to be too cost prohibitive.

Case 2023.33: Site Plan and Subdivision Review Amendment of the Longboard View, a seven (7) lot single-family residential subdivision by Beachwood Development LLC located at 781 Pool Street (Tax Map 5, Lot 17-2) within the Coastal Residential and partially within the Limited Residential Coastal Overlay District.

Planning Board Hearing date: January 15, 2025.

2. PROJECT DATA/INFORMATION

1.	Applicant:	Beachwood Development LLC 92 York Street
2.	Owner of Property:	Same as Applicant
3.	Agent:	Terradyn Consultants, LLC Michael Tadema-Wielandt, P.E. 565 Congress Street, Suite 201 Portland, ME 04101
4.	Surveyor:	Same as Agent
5.	Project Location:	781 Pool Street
6.	Project Tax Map #/Lot #:	Tax Map 5, Lot 17-2
7.	Lot Size:	25 Acres
8.	Base Zoning:	Coastal Residential
9.	Overlay Zoning:	Limited Residential Coastal Overlay District
10.	Existing Use:	Vacant Land
11.	Proposed Use:	Residential Single-Family Housing
12.	Approvals Required:	
13.	Uses in the Vicinity:	Residential
14.	Waivers Needed:	a. None
18.	Waivers Granted:	a. None
22.	Other Non-City Permits Required:	Maine DEP Stormwater
23.	LDR Attachment A: Fees Paid:	Yes
25.	Planning Board Review History: Sketch Plan Review June 21, 2023; Preliminary Plan approval on September 20th, 2023; and Final Plan approval which was granted on May 1, 2024. Subdivision Amendment: January 15, 2025 - PENDING	

3. REVIEW PROCESS

Per City ordinance, this application is subject to Subdivision review and approval (Code of Ordinances, Chapter 66). Subdivision applications generally follow a three-tier approval process beginning with a Sketch Plan review, and followed by a preliminary plan review and approval and a final plan approval. As outlined above, the original project received Final Plan approval on May 1, 2024. At this time the Applicant is seeking an Amendment to the Final Subdivision approval, with the plan modifications outlined above.

4. STAFF REVIEW

- **APPLICATION COMPLETENESS:** The applicant has submitted a complete application, featuring all required elements for a Site Plan and Subdivision Amendment.
- **ZONING:** The proposed residential single-family subdivision is listed as a permitted use within the Coastal Residential, and the Limited Residential Coastal Overlay District.

Case 2023.33: Site Plan and Subdivision Review Amendment of the Longboard View, a seven (7) lot single-family residential subdivision by Beachwood Development LLC located at 781 Pool Street (Tax Map 5, Lot 17-2) within the Coastal Residential and partially within the Limited Residential Coastal Overlay District.

Planning Board Hearing date: January 15, 2025.

- **REVIEW STANDARDS:**

Staff finds the application to satisfy City subdivision and site plan requirements. The major site details such as roadways, building envelopes, tree clearing areas, parking, landscaping, designs and locations have been finalized so the plan being reviewed the Board is what will be constructed on the face of the earth.

- Maine DEP Stormwater Permit: The project requires a Maine DEP Stormwater Permit, of which the Applicant has provided the City a copy for our records.
- **WAIVERS:** The applicant is not seeking any waivers currently.

6. STAFF RECOMMENDATION

Staff is supportive of the proposed subdivision amendment and recommends the Board approve the proposed Amended Subdivision Plans. Sample motions are provided below:

SAMPLE MOTIONS

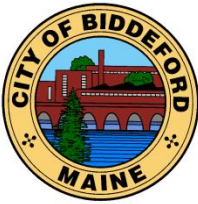
A. Motion to Approve: I motion to APPROVE Case # 2023.33 Site Plan and Subdivision Amendment for a seven (7) lot, single family residential subdivision called Longboard View Subdivision by Beachwood Development LLC to be located at 781 Pool Street (Tax Map 5, Lot 17-2) in the Coastal Residential and partially within the Limited Residential Coastal Overlay District, with the adoption of the attached Findings of Fact (FOF) and recommended Conditions of Approval (COA) as written and amended.

B. Motion to Deny I motion to DENY Case # 2023.33 Site Plan and Subdivision seven (7) lot Amendment for Beachwood Development LLC at 781 Pool Street (Tax Map 5, Lot 17-2) in the Coastal Residential District and partially within the Limited Residential Coastal Overlay District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.

A. Motion to Table: I motion to TABLE Case # 2023.33 Site Plan and Subdivision Amendment for Beachwood Development LLC at 781 Pool Street (Tax Map 5, Lot 17-2) in the Coastal Residential and partially within the Limited Residential Coastal Overlay District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.



CITY OF BIDDEFORD

Planning and Development Department

David Galbraith
City Planner & Deputy Director of Planning &
Development
205 Main Street
P.O. Box 586
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(207) 284-9115
David.galbraith@biddefordmaine.org

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Beachwood Development LLC

Longboard View Subdivision & Site Plan Amendment Approval

781 Pool Street (Tax Map 8, Lot 17-2)

January 15, 2025

RE: 2023.33 Site Plan and Subdivision Review Amendment of the Longboard View, a seven-lot (7) Single-family residential subdivision by Beachwood Development LLC located at 781 Pool Street (Tax Map 5, Lot 17-2) within the Coastal Residential and partially within the Limited Residential Coastal Overlay District.

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning Board makes the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT:

	<i>SUBJECT</i>	<i>DATA/INFORMATION</i>
1.	Applicant:	Beachwood Development LLC 92 York Street geoff@bowleybuilders.com
2.	Owner of Property:	Same as Applicant
3.	Agent:	Michael Tadema-Wielandt, P.E. Terradyn Consultants 565 Congress Street, Suite 201 Portland, ME 04101
4.	Engineer/Surveyor:	Same as Agent
5.	Project Location:	781 Pool Street
6.	Project Tax Map #/Lot #:	Tax Map 8, Lot 17-2
7.	Existing Zoning:	CR-Coastal Residential
8.	Overlay Zoning:	Stream Protection, Limited Residential
9.	Existing Use:	Vacant Land
10.	Proposed Use:	7-Lot Residential Subdivision
11.	Approvals Required:	Subdivision Amendment
12.	Uses in the Vicinity:	Residential
13.	Parcel Size:	25.45 acres
14.	Limits of Disturbance:	4.84 acres
15.	Drainage Watershed:	Etherington Pond
16.	Water Supply:	Kennebunk, Kennebunkport & Wells Water District
17.	Sewerage Disposal:	Individual Subsurface Wastewater

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Beachwood Development LLC
Longboard View Subdivision & Site Plan Amendment Approval
781 Pool Street (Tax Map 8, Lot 17-2)
January 15, 2025

18.	Solid Waste Disposal:	Private Hauler
19.	Fire Protection:	City of Biddeford
20.	Other Non-City Permits Required:	
21.	LDR Attachment A: Fess Paid:	All Fees Paid

CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws.
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards for motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties.
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odors, dust, glare, hours of operation, or other causes.
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan.
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Beachwood Development LLC
Longboard View Subdivision & Site Plan Amendment Approval
781 Pool Street (Tax Map 8, Lot 17-2)
January 15, 2025

13. Adequate provision has been made for the disposal of wastewater or solid waste or for the prevention of ground or surface water contamination.
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

APPROVAL GRANTED:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report and pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has approved the application of Subdivision & Site Plan Amendment, and hereby approves the proposed 7-Lot Residential Subdivision located at 781 Pool Street (Tax Map 5, Lot 17-2) for the Beachwood Development LLC the recommended Findings of Fact (FOF) with the following Conditions of Approval (COA):

1. Standard Conditions of Approval apply.
2. There shall be no tree cutting / removal on any of the lots beyond the maximum tree clearing areas as depicted on the Overall Development Plan, Sheet C-3.3, dated 3/10/2023, most recently revised 01/08/2025. There shall be NO tree clearing within any of the required setbacks, except for a single driveway no wider than 15', to provide access to the proposed private street. Violations to this Condition of Approval shall be required to replace all removed trees at a 3 to 1 ratio in relation to the number of trees removed and / or caliper inches removed, as measured four (4) feet from grade. Monetary fines may also be imposed as determined by the Director of Code Enforcement and the City Planner dependent upon the severity of the violation.
3. A Covenant shall be added to the deeds of each lot saying that if the homeowner decides to add an Accessory Dwelling Unit (ADU), the homeowner will have the stormwater report updated. This report will be submitted to the Planning Department to indicate the extra usage of the stormwater calculations.

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Beachwood Development LLC
Longboard View Subdivision & Site Plan Amendment Approval
781 Pool Street (Tax Map 8, Lot 17-2)
January 15, 2025

4. Prior to the scheduling of the required Pre-construction meeting the Applicant shall make all required changes to the project Civil Plans for the review and approval of the Public Works Director.
5. **Bonding and Inspection Fees:** Bonding and inspection fees shall be established **prior to scheduling of the required Pre-construction meeting.**
6. **Modifications to Approved Development Plans:** The project shall be constructed in accordance with the approved development plans. If any changes to the approved development plans are needed, the developer shall submit a letter requesting a “minor modification” to the approved development plans. The narrative shall include plans showing the approved plans and proposed modifications which shall be approved, in writing, prior to the construction of any deviation from the approved development plans. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board.
7. Once stamped As-Built drawings are submitted to the Planning Department (clearly identifying what approved deviations and variances were installed based on the approved permit drawings), the City Engineering Department will conduct an inspection. The “as Built Checklist” shall be submitted for review and approval, for any performance guarantee release.
8. As-Built Drawings and CAD Files need to be submitted to the Planning & Engineering Departments **prior to a ‘Site Punch list Inspection’ and any bond release.**
9. York County Recorded Drawings: Applicant must submit copies of York County Registry of Deed drawings to Planning & Engineering Department **prior to Building Permit Issuance.**
10. **Prior to the scheduling of a pre-construction meeting, the Applicant shall submit Homeowner’s Association (HOA) Documents** for review and approval of the City Planner. Once approved, the documents shall be registered at the York County Registry of Deeds. The HOA documents shall specifically address, to the satisfaction of the City Planner, the following:
 - A. Private Roadway Maintenance, including snow removal and roadway repair.
 - B. Cistern, on-site fire hydrant, and emergency pull-off area annual inspections and maintenance.
 - C. There shall be no tree cutting / removal on any of the lots beyond the maximum tree clearing areas as depicted on the Overall Development Plan, Sheet C-3.3, dated 3/10/2023, most recently revised 01/08/2025. There shall be NO tree clearing within any of the required setbacks, except for a single driveway no wider than 15’, to provide access to the proposed private street. Violations to this Condition of Approval shall be required to replace all removed trees at a 3 to 1 ratio in relation to the number of trees removed and / or caliper inches removed, as measured four (4) feet from grade. Monetary fines may also be imposed as determined by the Director of Code Enforcement and the City Planner dependent upon the severity of the violation.
11. **Required Inspections:**
 - i. Erosion & Sediment Control Inspections

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Beachwood Development LLC
Longboard View Subdivision & Site Plan Amendment Approval
781 Pool Street (Tax Map 8, Lot 17-2)
January 15, 2025

1. Needs to be completed by a City-approved 3rd Party Inspector and paid by the Applicant via the inspection fee escrow being held by the City.
 2. Initial, monthly, and final inspections
 3. The City's Engineering Department, at minimum, shall be notified for an initial E&S inspection prior to breaking ground.
- ii. Copies of all inspection reports need to be submitted to the Engineering Department upon the completion of each inspection.
- iii. Private right-of-way inspections: Private right-of-way / road and utility inspections shall be completed by the design engineer who shall certify that they have been constructed as approved, prior to the full or partial release of established bonding.
- iv. Stormwater BMP Installation Inspections
1. Needs to be completed by the design engineer
 2. Confirming stormwater facilities installed correctly per design
 3. Inspection reports need to be submitted to the Engineering Department
- v. Post-construction BMP Maintenance Annual Inspections
1. Needs to be completed annually by the design engineer or 3rd party inspector
 2. Needs to assess the current condition of each BMP, what repairs are needed, and confirm on-going maintenance has occurred
 3. Annual inspection reports need to be submitted to the Kristie Rabasca & Engineering Department.

Alexa Plotkin, Planning Board Chair

Date



January 08, 2025

Project #23-023

David Galbraith, City Planner; Director of Planning & Development
City of Biddeford
205 Main Street
Biddeford, ME 04005

**SUBJECT: SUBDIVISION AMMENDMENT
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD**

Dear David:

Beachwood Development Fund LP is proposing to amend the recently approved Longboard Ridge Subdivision, located at 781 Pool Street in Biddeford Pool. The subdivision was approved by the Planning Board on May 1, 2024, but construction has not begun. The approved project included a 954 linear-foot dead-end road, eight single-family residential lots, 12.32 acres of open space, a pedestrian trail, and stormwater management infrastructure. A water main owned by the Kennebunk, Kennebunkport & Wells Water District was proposed to be extended by approximately 3,150 linear-feet, from Bridge Road to Longboard Lane, to provide water services and fire protection for the development.

Since the project received approval, the applicant has concluded that the cost of the water main extension is prohibitive, making the project financially infeasible. The applicant is proposing to amend the subdivision approval by eliminating the public water main extension and including individual wells on each lot. The proposed road and stormwater management infrastructure remain unchanged from the approved plan.

Changes proposed as part of the amended subdivision application include the following:

- Reduction in the number of proposed lots from 8 to 7 and increase in minimum lot size to 80,000 square feet. Without a public water supply, the minimum lot size in the Coastal Residential district is 80,000 square feet. The 8 previously approved lots ranged in size from 51,865 square feet to 93,888 square feet. The 7 amended lots range in size from 80,005 square feet to 81,850 square feet.

The 7 amended lots are located largely in the same area as the previously approved 8 lots. The amended plan maintains the buffer between proposed lots and abutting lots on Maddox Pond Road.

Pineland
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

Auburn
95 Main Street, 2nd Floor
Auburn, ME 04210

- Recalculation of Net Residential Area based on comments from City Staff, and a review of Town Ordinances with the increase in minimum lot size to 80,000 square feet.
- The pedestrian trail leading from Longboard Lane to Peter Pond Lane moved northeast by approximately 50' along the proposed road. The path remains located between proposed lots #4 and #5.
- A 10,000 gallon fire cistern and a pull-off area for has been added on the east side of Longboard Lane, approximately 150' into the site from Pool Street. The underground cistern will serve as fire protection for the proposed lots.

The plan amendments described above result in small changes to the stormwater analysis for the site. Overall, the amended plan will create approximately 2,000 square feet less impervious surface and 6,000 square feet less developed area due to the elimination of one lot. The stormwater analysis and report has been updated to reflect these changes, and a copy is attached herein.

We request to be added to the Planning Board's next available meeting agenda to present this information to the Board and seek final approval. If you have any questions or require additional information, please contact me at 207-632-9010 or mtw@terradyconsultants.com.

Sincerely,

TERRADYN CONSULTANTS, LLC



Michael Tadema-Wielandt, P.E.
Vice President

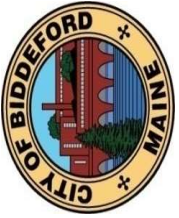
cc. Geoff Bowley, Beachwood Development Fund LP

Attachments:

- 1 – Site Plan Application
- 2 – Site Plan Checklist
- 3 – USGS Map
- 4 – Net Residential Area Figure
- 5 – Stormwater Management Report

Attachment 1

Site Plan Application



City of Biddeford – Planning Department

Planning Board Application

P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Revised: May 17, 2022

Type of Application:

___ Shoreland Zoning Permit ___ Site Plan Review ___ Extraction
___ Conditional Use Permit ☒ Subdivision ___ Private Way
___ Other: _____

Applicant Information:

Name: Beachwood Development LLC
Mailing Address: 92 York Street
Telephone: (207) 985-3646
Email: geoff@bowleybuilders.com

What is your legal interest in the property?

☒ Owner ___ Potential Buyer with Contract ___ Lease/Rental Agreement

Owner's Information:

Name: Beachwood Development LLC
Mailing Address: 92 York Street
Telephone: (207) 985-3646
Email: geoff@bowleybuilders.com

Agent's Information:

Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradyconsultants.com

Engineer/Surveyor's Information:

Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradyconsultants.com

Project Location and Lot Information:

Street Address: 781 Pool Street Drainage Watershed: Etherington Pond

Tax Map: 5 Lot: 17-2

Current Zoning: Coastal Residential Shoreland Zoning: Stream Protection, Limited Residential

Size of Lot: 25.45 ☒ acres () s.f. Lot Frontage: 1,066 ft Pool Street

Existing Use of Property: Undeveloped Woodland

Property currently serviced by:

☒ City Road ___ Public Sewer ___ Public Water ___ Public Trash
___ Private Road ___ Septic System ___ Private Well ___ Private Hauler

Slope Conditions in Area of Construction (if applicable):

___ Flat (0-3% slope) ☒ Rolling (3-8% slope) ___ Hilly (8-15% slope) ___ Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ☒ (Yes) ___ (No) if yes attach information

Is the project within the 100-year floodplain? ___ (Yes) ☒ (No) if yes attach information

Do you plan to bring fill onto the lot? ___ (Yes) ☒ (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:
Undeveloped Woodland

Property to be Serviced by:

☐ City Road ☐ Public Sewer ☐ Public Water ☐ Public Trash
☒ Private Road ☒ Septic System ☒ Private Well ☒ Private Hauler

Limits of Disturbance: 4.84 ☒ acres () s.f.

Net change in impervious cover: 1.47 ☒ acres () s.f.

Is this project part of a larger project? ☐ (Yes) ☒ (No)

Is the project proposing a new Private or Public Road? ☒ (Yes, Private) ☐ (Yes, Public) ☐ (No)

Is this project within the Urbanized Area/MS4 (see [City Drainage Map](#)) ☐ (Yes) ☒ (No)

Is the project proposing any Stormwater facilities/BMPs? ☒ (Yes) ☐ (No)

Will a Traffic Movement Permit (TMP) be required?: ☐ (Yes) ☒ (No)

If in a Shoreland Zone:

Percent of residential lot coverage (Max 20%):

Percent of structure expansion (Max 30%):

☒ **If Subdivision Review, number of lots proposed:** 8

☒ **If a Private Way is proposed, number of lots served:** 8

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure:

Total new square feet paving/parking:

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

- A. Letters of Approval
- ☐ Fire Department – Contact Chief or Deputy Chief – 282-9986
 - ☐ Ability to Serve for Water Service – Maine Water – 282-1543
 - ☐ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
 - ☐ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127
- B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.
- C. Photographs of Site.
- D. Architectural renderings/drawings of proposed buildings, as required.
- E. Engineering Plans, as required.
- F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- \$75 Nonrefundable Administration Fee is required for every application.
- Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda.
- I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: ☒ (Yes) ☐ (No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant:

Date 10/16/2024

Signature of Property Owner:

Date 10/16/2024

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

- A) PDF OF SIGNED APPLICATION
- B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

- A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)
 - *Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_ INDIVIDUAL DRAWING NAME.pdf'*
- B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.
- C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)
 - *All drawings & CAD reference files must be to-scale and within the following coordinate systems:*
 - MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE
- B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

Attachment 2

Site Plan Checklist

CITY OF BIDDEFORD - SITE PLAN APPLICATION DRAWING CHECKLIST

LAST REVISED: 10/15/24

CHECKLIST DIRECTIONS:

1. The following checklist must be **completely** filled out by the applicant for any Site Plan submittal to the Planning Department.
2. Applicant to confirm **all** of the items listed are included within the submittal. **Any** missing items must have **adequate** reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non-acceptable reasoning **will be rejected**.
4. Items in **BLACK** are required for 'Preliminary Site Plan' approval & 'Final Site Plan' approval.
5. Items in **BLUE** are only required for 'Final Site Plan' approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	Longboard Ridge Subdivision
Planning Board # (if available):	2023.33
Applicant Name/Info:	Terradyn Consultants
Submittal #/Type (Prelim/Final):	Final
Submittal Date:	10/16/2024

ITEM NUMBER	SUBMITTAL REQUIREMENT DESCRIPTION	APPLICANT RESPONSE		CITY REVIEW RESPONSE	
		INFORMATION PROVIDED (YES/NO)	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	GENERAL PLAN REQUIREMENTS				
	A Drawing specific legends (linetypes, hatches, etc.)	YES			
	B Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	YES			
	C North arrows, standard engineering scale viewports, dated revision blocks	YES			
	D All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	YES			
	E Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES			
2	COVER SHEET				
	A Project Name & Property Address	YES			
	B Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES			
	C Site Location Map	YES			
	D Sheet Set List of Drawings	YES			
	E Tax Map and Lot ID	YES			
	F Zoning & Shoreland Zone Information	YES			
	G Existing Use Description	YES			
	H Proposed Use Description	YES			
	I Required Waiver/Variations (Yes/No); if yes, plan must clearly list waivers/variances requesting	NO	NO WAIVERS REQUESTED		
	J Name of Drainage Watershed	YES			
	K Within the MS4 Urbanized Area (Yes/No)	NO	NOT IN MS4 URBANIZED AREA		
	L Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES			
	M Within the 100-year Flood Zone (Yes/No)	YES	PROPERTY WITHIN 100-YEAR FLOOD ZONE - PROPOSED PROJECT WILL HAVE NO IMPACT		
	N Public Road Proposed (Yes/No)	NO	NO PROPOSED PUBLIC ROAD		
	O Private Road Proposed (Yes/No)	YES			
	P Public Sewer Connection (Yes/No); if yes, need to include a proposed sewer flow calculation per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	NO	PRIVATE SEPTIC PROPOSED ON SITE		
	Q Public Storm Drain Connection (Yes/No)	NO	NO PROPOSED PUBLIC STROM DRAIN CONNECTION		
	R Limits of Disturbance in acres	YES			
	S Pervious Land Cover square footage, existing and proposed	YES			
	T Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES			
	U Building Roof square footage, existing and proposed	NO	NO EXISTING OR PROPOSED BUILDINGS ON PROJECT SITE		
	V Assigned Planning Board Number	YES			
	W Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	YES			
3	EXISTING CONDITIONS PLAN	NO	ALL INFORMATION BELOW PROVIDED IN SURVEY UNLESS INDICATED OTHERWISE		
	A Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES			
	B Survey Benchmark Locations (with XYZ Coordinates annotated)	YES			
	C Property & Right-of-Way Lines	YES			
	D Boundary line information (bearings, distances, etc.)	YES			
	E Property pin and monumentation locations	YES			
	F Existing easements with proper ownership identified	YES			
	G Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES			
	H Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES			
	I 100-year Flood Zone Limits & Elevation	YES			
	J USDA-NRCS Soil Boundaries and Labels	NO	INFORMATION PROVIDED IN STORMWATER REPORT AND WATERSHED MAP		
	K Existing contours with adequate contour labelling; minimum 1' contour interval	YES			
	L Existing building FFEs annotated	NO	NO EXISTING BUILDINGS ARE LOCATED IN THE PROJECT AREA		
	M Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs	NO	NO EXISTING BUILDINGS, OR CURB ARE LOCATED IN THE PROJECT AREA		
	N Existing buildings & structures	YES			
	O Existing pavement areas & number of parking spaces	NO	NO EXISTING BUILDINGS OR PARKING AREAS ARE LOCATED IN THE PROJECT AREA		
	P Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	NO	NO ADA INFRASTRUCTURE PRESENT		
	Q Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES			
	R Existing signage and striping	YES			
	S Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES			
	T Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES			

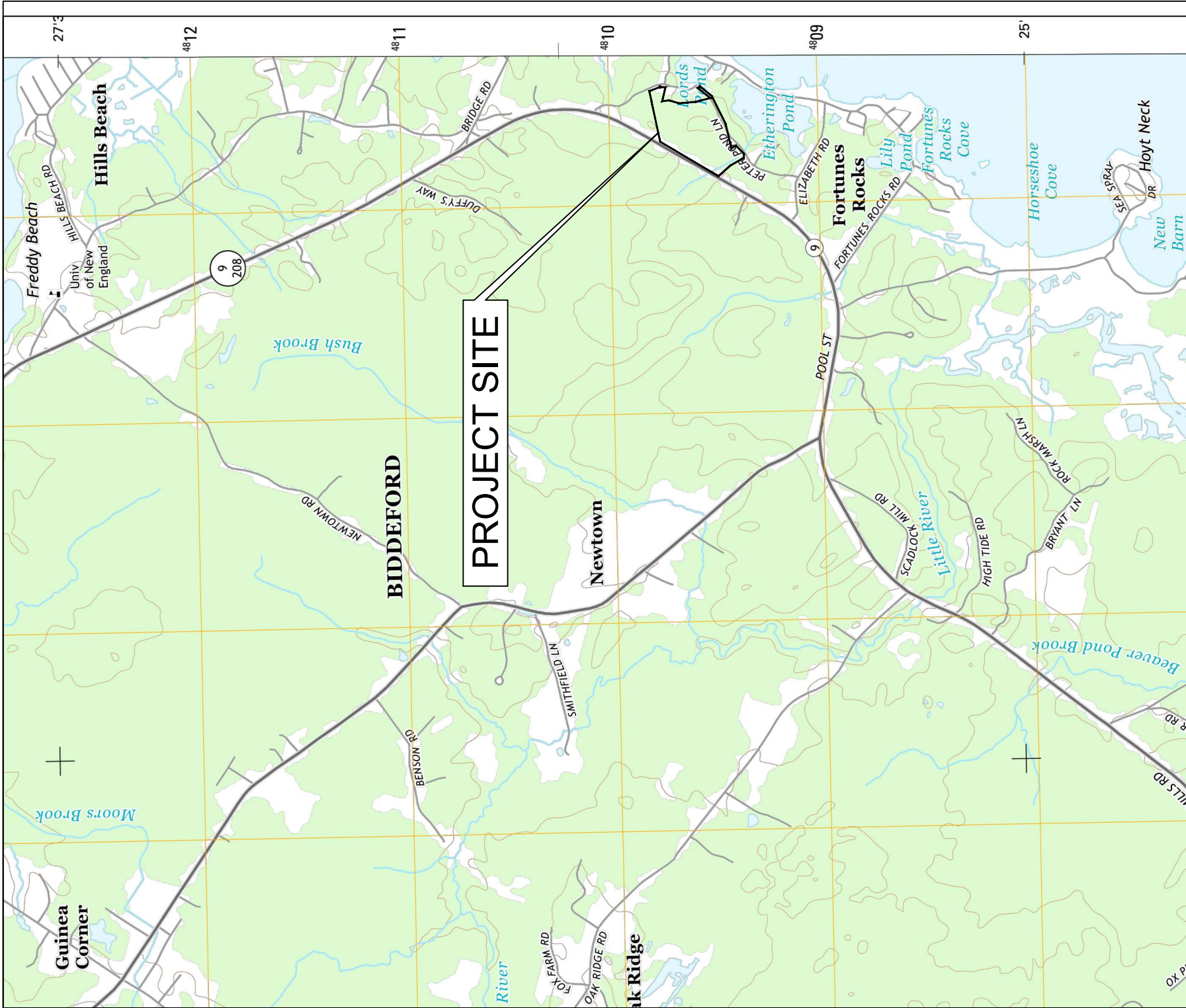
	U Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES			
	V Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	YES			
	W Location of any borings, drinking wells, and monitoring wells	YES			
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN	NO	ALL INFORMATION SHOWN ON PLAN AND PROFILE UNLESS OTHERWISE NOTED		
	A Limits-of-disturbance outlined and acreage annotated	YES			
	B Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	INFORMATION PROVIDED IN SUBDIVISION PLAN		
	C 100-year Flood Zone Limits	YES			
	D Callout existing site features to be demolished/removed/replaced	NO	NO EXISTING SITE FEATURES TO BE DEMOLISHED/REMOVED OR ABANDONED-IN-PLACE		
	E Callout existing utilities to be demolished/removed/abandoned-in-place	NO	NO EXISTING SITE FEATURES TO BE DEMOLISHED/REMOVED OR ABANDONED-IN-PLACE		
	F Hatch existing buildings and pavement to be removed	NO	NO EXISTING BUILDINGS LOCATED WITHIN PROJECT AREA		
	G Construction Entrance location(s)	YES			
	H Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES			
	I Stockpile and staging area(s) identified (with proper perimeter control)	NO	NO STOCKPILE STAGING AREAS REQUIRED		
	J Inlet protection location(s)	YES			
	K Note requiring contractor to implement dust control measures throughout construction	YES	INFORMATION PROVIDED IN DETAILS		
	L Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	YES			
	M If groundwater expected, show dewatering/silt bag location(s); show temporary pumping	NO	NO GROUNDWATER EXPECTED		
	N If large development is proposed with an extensive underground stormwater conveyance network, show sediment trap/basin location(s) needed for constructability/phasing; provide string calculations	NO	NO EXTENSIVE UNDERGROUND STORMWATER CONVEYANCE NETWORK EXPECTED		
5	SITE PLAN/SUBDIVISION PLAN				
	A Partial Site Plans needed for any viewport scale greater than 1"=20'	NO	APPROPRIATE INFORMATION PROVIDED ON PROPOSED SUBDIVISION PLAN		
	B Existing property and right-of-way lines	YES			
	C Proposed subdivision lot lines and labels	YES			
	D Required Zoning Setbacks shown with dimensions and annotation	YES			
	E Bulk requirement summary table (zoning/parking calculations)	YES			
	F Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES			
	G 100-year Flood Zone Limits	YES			
	H Proposed building outlines, door entrances and loading docks	NO	NO NEW BUILDINGS PROPOSED		
	I Proposed building labels	NO	NO NEW BUILDINGS PROPOSED		
	J Proposed road extents; provide clear annotation if roads will be public or private	YES			
	K Proposed parking and accessible parking locations; annotate parking space counts	NO	NO PARKING PROPOSED		
	L Proposed signage, parking striping, and traffic striping	YES			
	M Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	NO	NO ADA INFRASTRUCTURE PROPOSED		
	N Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES			
	O Separate hatching for buildings, sidewalks, pavement, landscaping	YES			
	P Proposed landscaping; detailed landscaping design should be on separate plans	NO	NO LANDSCAPING PROPOSED		
	Q Designated snow storage areas	YES	SNOW STORAGE PROVIDED AT END OF ROAD		
	R Proposed dumpster locations and trash removal access	NO	NO DUMPSTER LOCATION PROPOSED		
	S Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	NO	NO DRIVING AISLES PARKING, SIDEWALKS AND LOADING DOCKS PROPOSED		
	T Radial dimensions for all curbs, landscaped islands, sidewalks	NO	NO CURB, LANDSCAPED AREAS OR SIDEWALKS PROPOSED		
	U Road centerline stationing shown, labelled every 0+50' with curve data	YES			
	V If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	YES			
	W If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	YES			
	X Planning Board signature block for final recording	YES			
6	GRADING PLAN				
	A Partial Grading Plans needed for any viewport greater than 1"=20'	YES	UTILITY AND GRADING DETAIL VIEWPORTS ADDED IN SHEET C-3.2		
	B Limits-of-disturbance outlined and acreage annotated	YES	LIMITS OF DISTURBANCE OUTLINES BY SILT FENCE		
	C Proposed Building Labels with Individual Finished Floor Elevations (FFE's)	NO	NO PROPOSED BUILDINGS		
	D Existing contours with adequate contour labelling, screened; minimum 1' contour interval	YES			
	E Proposed contours with adequate contour labelling; minimum 1' contour interval	YES			
	F Detailed grading for all ditches, swales, outfalls, and riprap	YES			
	G All proposed contours tie into existing contours at limits-of-disturbance outline	YES			
	H Existing spot elevations for all asphalt and curb tie-in locations	YES			
	I Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES			
	J 100-year Flood Zone Limits	YES			
	K Proposed spot elevations for all important roadway geometric points and/or on a 50' maximum interval: low/high points, PC/PT, road centerline, edge-of-asphalt	YES			
	L Proposed spot elevations for all curblines (bottom/top-of-curb) and sidewalks	NO	NO PROPOSED CURB LINE		
	M Proposed spot elevations for all parking and drive aisle geometry points	NO	NO PROPOSED PARKING OR DRIVE AISLES		
	N Proposed spot elevations for all building corners and door-entry locations	NO	NO PROPOSED BUILDINGS		
	O Proposed retaining wall/loading dock elevations (bottom/top of wall)	NO	NOT PROPOSED RETAINING WALL OR LOADING DOCK		
	P Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	NO	NOT PROPOSED ADA INFRASTRUCTURE		
	Q Proposed % slope arrows for all ADA parking spaces and sidewalks	NO	NOT PROPOSED ADA INFRASTRUCTURE		
	R Proposed longitudinal % slope arrows for drainage ditch centerlines	YES			

	S Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	YES			
	T Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	YES			
7	ROAD PROFILES (if public/private road proposed)				
	A Existing surface; dashed and screened	YES			
	B Proposed surface; continuous and bold	YES			
	C Corresponding centerline stationing and curve data annotation	YES			
	D Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)	NO	PROVIDED IN TYPICAL CROSS SECTION DETAIL SHEET		
	E Horizontal and vertical scale bars	YES			
	F Clear annotation if proposed road will be public or private	YES			
	G If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	NO	PROVIDED IN SUBDIVISION PLAN		
	H If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO	PROVIDED IN SUBDIVISION PLAN		
8	UTILITY PLAN	NO	ALL INFORMATION BELOW PROVIDED IN PLAN/PROFILE UNLESS INDICATED OTHERWISE		
	A Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES			
	B Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES			
	C Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES			
	D Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES			
	E Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES			
	F Proposed storm culverts, outfalls, and riprap locations and sizes	YES			
	G Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	NO	NO STORMWATER STRUCTURE INFRASTRUCTURE PROPOSED		
	H Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES			
	I Flow directional arrows for storm & sewer pipes	YES			
	J Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES			
	K All storm drains must be sized to convey the 25-year storm	YES			
	L Sewer force main sizes and invert elevations	NO	PRIVATE SEPTIC PROPOSED ON SITE		
	M Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)	NO	PRIVATE SEPTIC PROPOSED ON SITE		
	N Grease trap & oil-water separator locations, sizes, elevations	NO	NO GREASE TRAP AND & OIL-WATER SEPARATOR PROPOSED		
	O Water, gas, electric, and telecom sizes labelled	YES	CMP TO PROVIDE SIZE OF ELEC DURING CONSTRUCTION PHASE		
9	UTILITY PROFILES				
	A Utility profiles for all gravity storm drains and sewer pipes, including all laterals, catch basins, culverts, and outfalls; profiles preferred to be aligned on the pipe centerline (not superimposed on the road centerline)	YES			
	B Existing surface; dashed and screened	YES			
	C Proposed surface; continuous and bold	YES			
	D Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	NO	NO STRUCTURES PROPOSED		
	E Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	TABLE PROVIDED		
	F Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	YES			
	G Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	YES			
	H Known ledge or groundwater elevations	NO	NOT ENOUGH INFORMATION		
	I For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified	NO	NO STORM DRAINS		
	J For storm outfalls, include riprap sizing and grading extents	YES			
	K Horizontal and vertical scale bars	YES			
10	DETAILS				
	A Road section detail, including pavement & gravel depths	YES			
	B Sidewalk, paver, crosswalk, and any other pavement section details	YES			
	C Pavement sawcut detail	YES			
	D Utility trench/backfill detail	YES			
	E All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES			
	F Signage, striping, and ADA details	YES			
	G E&S notes and details; only show applicable/proposed measures	YES			
	H Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES			
	I Storm outfall & riprap details	YES			
	J Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	YES			
	K Pump station, grease trap, and oil-water separator details	NO	NO GREASE TRAP AND & OIL-WATER SEPARATOR PROPOSED		
	L Conduit section details	YES			
	M Miscellaneous details (as needed)	YES			
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS				

	A As required by ordinance; at a minimum: locations, counts, and species/models must be identified	NO	NO LIGHTING OR LANDSCAPING PROPOSED		
	B Landscaping & lighting details	NO	NO LIGHTING OR LANDSCAPING PROPOSED		
12	DOCUMENTS/REPORTS/CALCULATIONS				
	A On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction	YES			
	B Site Checklist (As Built Inspections post construction) Predevelopment & Post-development Drainage Area Maps, including: i. Subdrainage areas delineated and labeled ii. Points of Interest/Analysis shown and labeled iii. Hatching for different land cover areas (impervious, pervious, gravel) iv. Time of concentration (Tc) paths & durations	YES			
	C An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	YES			
	D A Performance Guarantee Cost Estimate utilizing Planning's template	YES			
	E For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	NO	NO SLODA SUBMITTAL REQUIRED		
	F 25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches) via the rational method; starting tailwater conditions/documentation must be clearly identified	YES			
	G If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies	YES			
	H Sizing calculations for any SWM water quality BMP or detention facility	YES			
	I A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: i. Annual maintenance requirements ii. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed iii. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	YES			
	J Salt Management Plan	YES			
	K Sewer pump station sizing calculations	NO	NO SEWER PUMP STATION PROPOSED		
	L Sewer pump station maintenance plan	NO	NO SEWER PUMP STATION PROPOSED		
	M Grease trap sizing calculations	NO	NO GREASE TRAP PROPOSED		
	N Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	YES			
	O Summary list & copy of any required DOT/DEP/USACE permits & approvals	YES			

Attachment 3

USGS Map



USGS BIDDEFORD QUADRANGLE MAP

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043



**TERRADYN
CONSULTANTS, LLC**

Civil Engineering | Land Planning | Geomatics
Stormwater Design | Land Surveying | Environmental Permitting

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

PHONE:
(207) 926-5111

WEB SITE:
www.terradyndesign.com

PROJECT NO.
22-023

DATE
5/16/2023

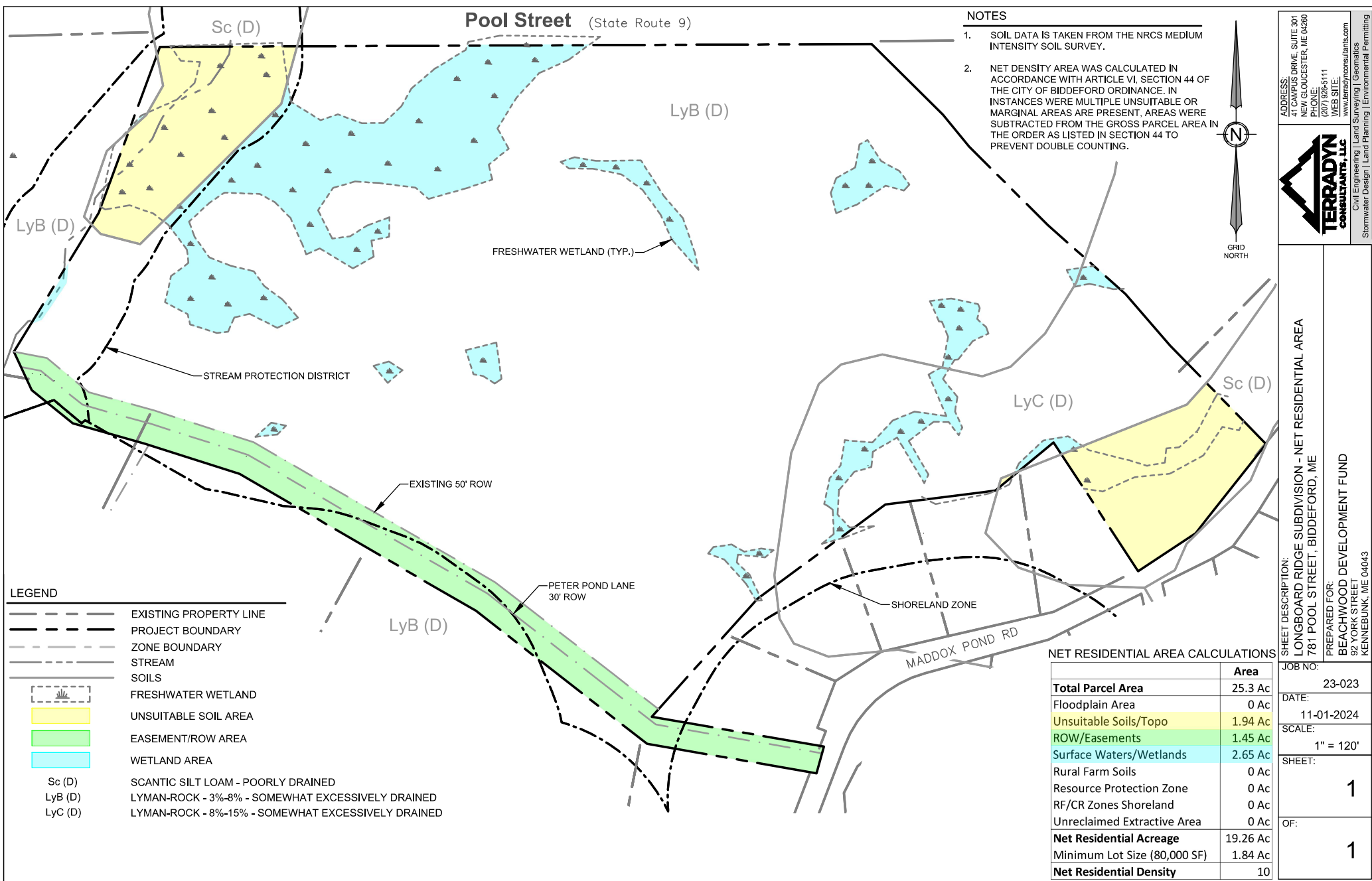
SCALE
1" = 2,000'

SHEET
1

OF
5

Attachment 4

Net Residential Area Figure



Attachment 5

Stormwater Report



207.926.5111
info@terradyconsultants.com
www.terradyconsultants.com

LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, MAINE

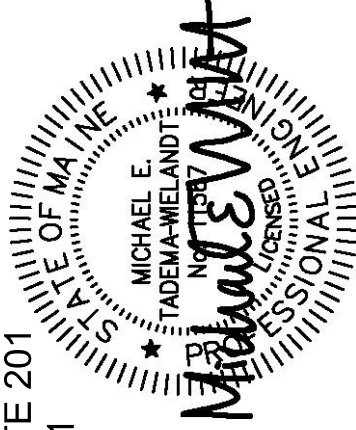
STORMWATER MANAGEMENT REPORT

PREPARED FOR:

BEACHWOOD DEVELOPMENT FUND, LLC
92 YORK STREET
KENNEBUNK, MAINE 04043

PREPARED BY:

TERRADYN CONSULTANTS LLC
565 CONGRESS STREET, SUITE 201
PORTLAND, MAINE 04101



OCTOBER 2024

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Introduction

The following Stormwater Management Plan has been prepared for Longboard Ridge Subdivision to evaluate stormwater runoff and erosion control for the proposed 7-lot subdivision.

Site Calculations

Below is a summary of existing and proposed impervious and developed areas on the project site.

Total Site Area		25.45 Ac (+/-)
Existing Impervious Area		0.44 Ac
Existing Developed Area		0.44 Ac
Proposed New Impervious Area (Road Only)		0.57 Ac
Proposed New Developed Area (Road Only)		1.57 Ac
Proposed New Developed Area (Path Only)		0.26 Ac
Proposed New Total Developed Area		1.83 Ac
Proposed Lot Impervious Area		0.78 Ac
Proposed Lot Developed Area		3.90 Ac
Total Impervious Area		1.79 Ac
Total Developed Area		6.17 Ac
Net Change in Impervious Area		+1.35 Ac
Net Change in Developed Area		+5.63 Ac

Existing Conditions

The project site is approximately 25.45 acres in size and is identified as Lot 17-2 on Biddeford Tax Map 5. The site is located in the Coastal Residential District with small areas in the Stream Protection and Limited Residential Overlay Zones.

The parcel is undeveloped woodland with pockets of freshwater wetlands. An unnamed stream flows along the site's southwestern boundary from northwest to southeast, ultimately reaching Etherington Pond.

A wetland and vernal pool study was conducted on the site by Longview Partners in the spring of 2022. There are approximately 3.8 acres of forested freshwater wetlands on the site.

Seven potential vernal pools were identified on the site and studied in accordance with Maine DEP guidance. The pools were found to not have a high habitat value and are regulated as typical forested wetlands by the Maine Department of Environmental Protection under the Natural Resources Protection Act.

According to the soil survey, the site is comprised of the following soil types:

Name	HSG
Scantic Silt Loam	D
Lyman-Rock	D

The project site is not located within a mapped significant sand and gravel aquifer or in an area of flood hazard, according to the Federal Insurance Rate Map FM2301450011B.

Proposed Project

The applicant is proposing to develop an eight-lot subdivision, including a 954 linear-foot road and underground utilities. The Applicant will sell the undeveloped lots.

The proposed lots and infrastructure are located in the eastern part of the site, away from forested wetlands and the onsite stream. Proposed lots range in size from 1.84 acres to 1.88 acres, and 11.00 acres will be preserved as open space. Lots will be served by individual subsurface wastewater disposal fields and private wells. Electric and telecommunications services will be installed underground.

Stormwater runoff from the roadway will be managed with open ditches. The project was designed to meet the stormwater performance standards of the City of Biddeford Subdivision Regulations. The roadway will be superelevated to treat 14,793 of Impervious Stormwater runoff as well as 13,722 square feet of developed area from the roadway and adjacent lots in an underdrain soil filter. The rest of the roadway stormwater runoff will be collected in the vegetated swales before being discharged to the wetland system on the site. The system will also attenuate peak flow rates from the developed areas so peak discharge rates from the site will be limited to pre-development levels.

In addition to subdivision approval, a Stormwater Permit by Rule was submitted to the Maine Department of Environmental Protection (MDEP) on October 26, 2023. We intend to submit the application for this permit in the coming weeks.

Applicable Design Standards

The Town of Biddeford Subdivision Ordinance Article IV Section 61 A: Stormwater Management

1. *All new construction and development, whether or not served by a stormwater collection and transportation system, shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff.*
2. *If runoff, after development, would exceed predevelopment runoff conditions, the offsite impact must be evaluated in terms of potential soil erosion and sedimentation, drainage capacity, and the land use/land cover characteristics. Appropriate methods of reducing off-site impact shall be employed.*
3. *Stormwater management evaluations and designs shall be based on a twenty-four-hour, twenty-five-year occurrence interval storm.*
4. *The Planning Board may, when it deems it appropriate, require calculations that are based on a fifty-year storm.*

Stormwater Quantity Control

Stormwater Quantity control is required as part of town requirements for this project; the proposed development has been designed to minimize stormwater runoff from the site in excess of the natural pre-development conditions. A hydrologic analysis of pre-development and post-development conditions was conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55). For York County, Maine a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts, per Maine DEP Chapter 500:

Storm Event	24-Hour Rainfall
2-Year Storm	3.3 inches
10-Year Storm	4.9 inches
25-Year Storm	6.2 inches

Runoff curve numbers, time of concentration, and travel time data were established based on methods outlined in the USDA TR-55 manual.

One underdrain soil filter will provide quantity control of stormwater runoff from the proposed roadway between 2+41 to 8+97. The soil filter outlets to the on-site wetlands and into the stream located along the southwestern parcel boundary.

Individual lot development will be carried out by lot owners, not the applicant. For the post-development model, the following impervious and landscaped areas were assumed based on lot size and configuration. Lots 1 through 6 were assumed to have 5,000 S.F. of impervious area and 20,000 S.F. of landscaped area. Lot 7 was assumed to have 4,000 S.F. of impervious area and 16,000 S.F. of landscaped area. A minimum time of concentration of 5 minutes and a maximum sheet flow distance of 150 linear feet was used in the models.

Pre-Development Conditions

The pre-development HydroCAD model includes four (4) subcatchments and four (4) study points. Stormwater runoff from the site flows primarily through the system of freshwater wetlands to the study points described below.

Study Point SP1 – Located at the southern site boundary, where an unnamed stream flows from Pool Street under Peter Pond Lane in a 40" diameter culvert.

Study Point SP2 – Located at the southern site boundary, runoff flows in a southeast direction along the eastern boundary.

Study Point SP3 – Located in the middle of the site, runoff flows southeast to Peter Pond Lane at the eastern border of the site.

Study Point SP4 – Located in the southern portion of the site, runoff flows southeast to a catch basin next to Peter Pond Lane. A 6" storm drain directs runoff from SP-4 to the south side of Peter Pond Lane.

A Pre-Development Watershed Map, showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 2. The Pre-development HydroCAD model is attached in Appendix 4.

Existing condition peak rates of runoff at the Study Points are as follows:

Pre-Development Peak Rates of Runoff (cfs)			
	2-Year	10-Year	25-Year
SP1	11.36	22.61	32.33
SP2	5.31	10.77	15.52
SP3	5.90	11.98	17.28
SP4	1.85	3.68	5.26

The pre-development peak rates of runoff are a baseline used for comparison to the post-development condition.

Post-Development Conditions

The proposed post-development HydroCAD model includes eight (8) subcatchments and four (4) study points. The study points remain the same as the pre-development model. A Underdrained Soil Filter is proposed to help reduce runoff rates from the proposed road and a portion of Lot 2. A Post-development Watershed Map showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 2. The Post-development HydroCAD model is attached in Appendix 5.

Post-development peak rates of runoff at the Study Points are as follows:

Post-Development Peak Rates of Runoff (cfs)			
	2-Year	10-Year	25-Year
SP1	11.01	21.63	30.78
SP2	5.30	10.75	15.50
SP3	5.87	11.28	16.31
SP4	1.83	3.65	5.21

Peak Flow Analysis

The results of the pre-development and post-development models were compared at the defined Study Points described above. The direct comparison of the pre-development and post-development conditions at the Study Points are as follows:

Peak Runoff Flow Rates Comparison		
Storm Event	Pre-Development (cfs)	Post-Development (cfs)
	Study Point SP1	
2-Year	11.36	11.01
10-Year	22.61	21.63
25-Year	32.33	30.78
	Study Point SP2	
2-Year	5.31	5.30
10-Year	10.77	10.75
25-Year	15.52	15.50
	Study Point SP3	
2-Year	5.90	5.87
10-Year	11.98	11.28
25-Year	17.28	16.31
	Study Point SP4	
2-Year	1.85	1.83
10-Year	3.68	3.65
25-Year	5.26	5.21

The hydrologic models predict that peak rates of runoff at study points 1, 2, 3 and 4 will decrease in the 2, 10 & 25-year design storm events. The reduction in peak flow rates is due to the change in predevelopment sub catchment areas due to the 7-lot development. Runoff from the new road and part of Lot 2 is collected in open ditches and sent to an Underdrained Soil Filter for peak flow control and then discharged into the subsequent wetland network to the unnamed stream.

Overall, all sub catchments 1 through 4 from the pre-development model have an overall reduction in area, which helps offset the effects of the increased developed and impervious area.

The reduction in peak flow rates in subcatchment 2 and 3 is believed to be the result of modified timing of the peak rates of runoff from different tributary areas resulting from the proposed development. The relatively small amount of impervious area to be constructed, and the associated increase in runoff volume and peak runoff rates from these areas of the site, is expected to be offset by the modified timing of peak runoff rates.

Stormwater Quality Control

The Chapter 500 General Standard does not apply to this development which requires one acre of more of impervious area, or 5 acres or more of developed area.

Summary

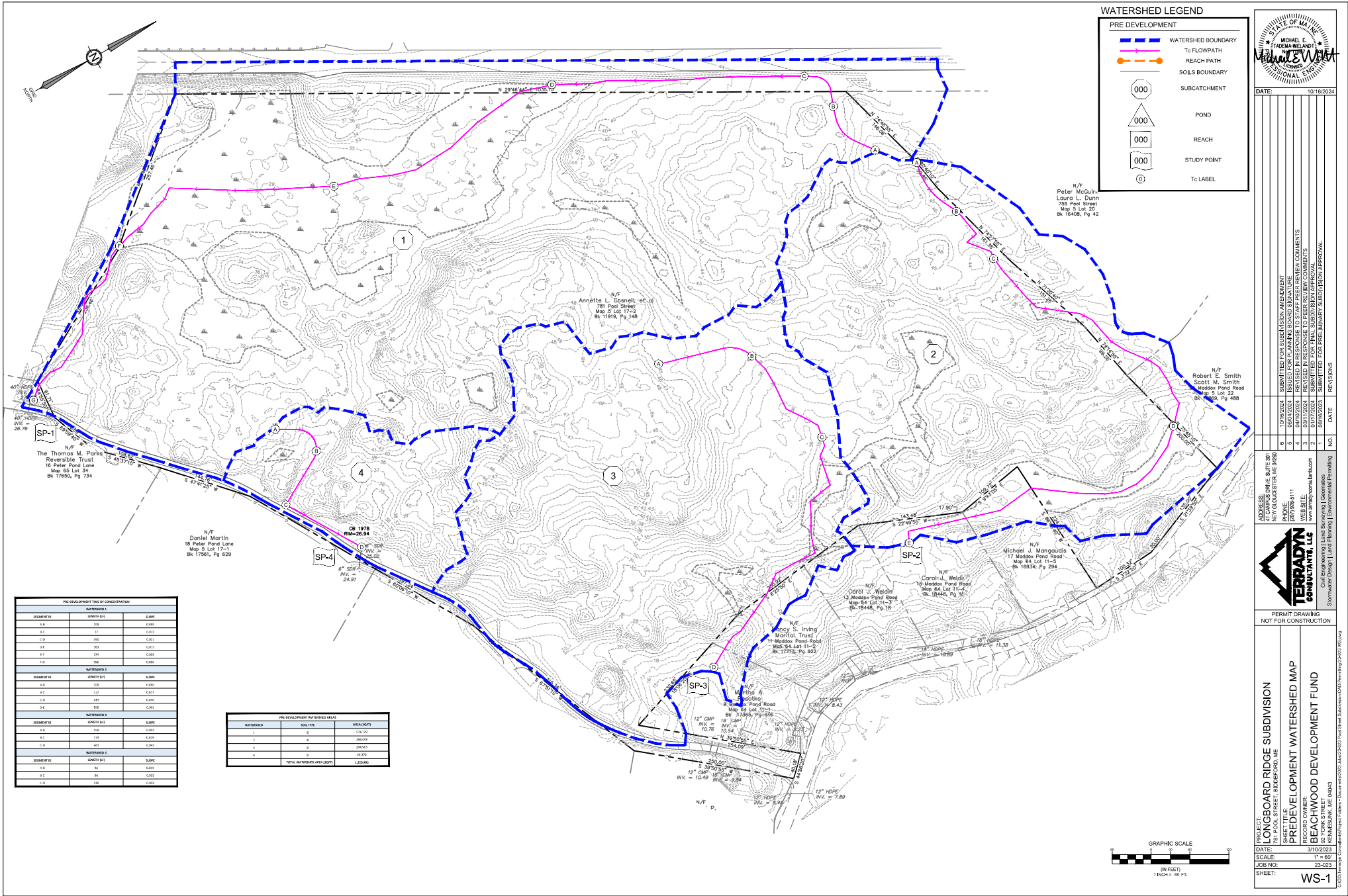
The proposed seven (7) lot subdivision includes construction of a 954' long roadway. Runoff from the road will be collected and discharged into an Underdrained Soil Filter to control runoff and discharge into wetlands onsite and eventually the unnamed stream. Pre and post-development hydrologic models were developed to determine the effect of the proposed development on peak runoff rates at the site boundary. Based upon the results of this evaluation, the proposed project meets the applicable performance standards and is not expected to cause flooding, erosion, or other significant adverse effects downstream of the site.

Attachments

- 1 – Watershed Maps
- 2 – Pre-Development HydroCAD Model
- 3 – Post-Development HydroCAD Model
- 4 – Stormwater BMP Calculations
- 5 – Inspection & Maintenance Manual
- 5 – Biddeford Standardized Stormwater Tables

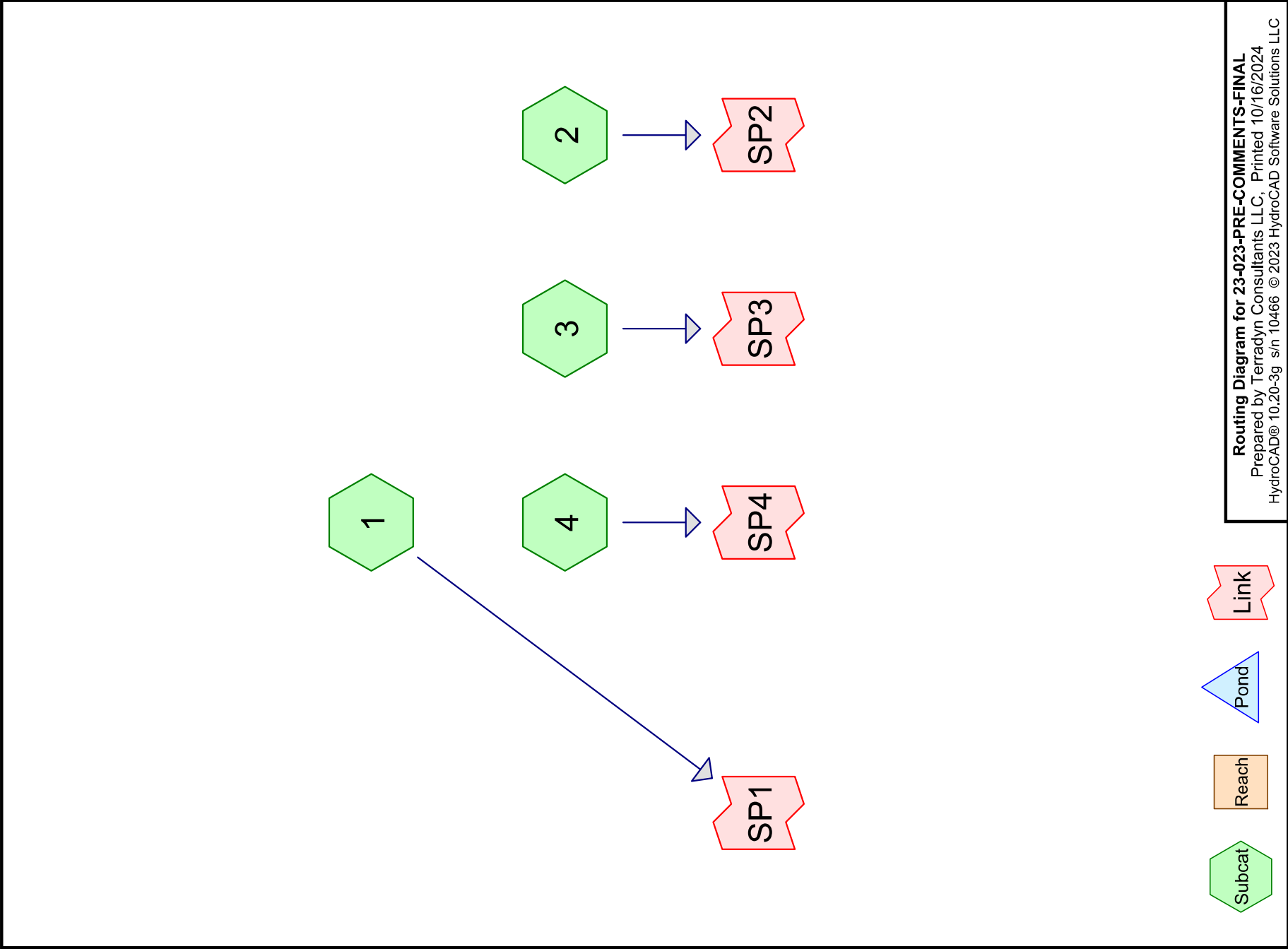
Attachment 1

Watershed Maps



Attachment 2

Pre-Development HydroCAD Model



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.169	98	Peter Pond Ln (1, 3, 4)
0.465	98	Pool Street (1)
27.384	77	Woods, Good, HSG D (1, 2, 3, 4)

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Longboard Ridge Stormwater Analysis
Type III 24-hr 2-yr Rainfall=3.30"
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Summary for Subcatchment 1:

Runoff = 11.36 cfs @ 12.45 hrs, Volume= 1.481 af, Depth= 1.35"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
552,352	77	Woods, Good, HSG D
* 20,252	98	Pool Street
* 2,125	98	Peter Pond Ln
574,729	78	Weighted Average
552,352		96.11% Pervious Area
22,377		3.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.3	77	0.0130	0.57		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.4	390	0.0205	2.75	10.30	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, C-D Bot.W=25.00' D=0.50' Z= 50.0 '/' Top.W=75.00' n= 0.040
6.2	374	0.0027	1.00	37.64	Trap/Vee/Rect Channel Flow, D-E Bot.W=50.00' D=0.50' Z= 50.0 '/' Top.W=100.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, E-F Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
30.9	1,608	Total			

Summary for Subcatchment 2:

Runoff = 5.31 cfs @ 12.46 hrs, Volume= 0.699 af, Depth= 1.28"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
284,493	77	Woods, Good, HSG D
284,493		100.00% Pervious Area

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Type III 24-hr 2-yr Rainfall=3.30"
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

Summary for Subcatchment 3:

Runoff = 5.90 cfs @ 12.39 hrs, Volume= 0.724 af, Depth= 1.28"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
291,989	77	Woods, Good, HSG D
2,914	98	Peter Pond Ln
294,903	77	Weighted Average
291,989		99.01% Pervious Area
2,914		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	173	0.0289	3.59	53.80	Trap/Vee/Rect Channel Flow, B-C Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040
1.9	442	0.0452	3.79	18.94	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
26.6	765	Total			

Summary for Subcatchment 4:

Runoff = 1.85 cfs @ 12.20 hrs, Volume= 0.171 af, Depth= 1.35"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

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Area (sf)		CN	Description		
*	2,339	98	Peter Pond Ln		
	64,031	77	Woods, Good, HSG D		
	66,370	78	Weighted Average		
	64,031		96.48% Pervious Area		
	2,339		3.52% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Link SP1:

Inflow Area = 13.194 ac, 3.89% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 11.36 cfs @ 12.45 hrs, Volume= 1.481 af
Primary = 11.36 cfs @ 12.45 hrs, Volume= 1.481 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.531 ac, 0.00% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 5.31 cfs @ 12.46 hrs, Volume= 0.699 af
Primary = 5.31 cfs @ 12.46 hrs, Volume= 0.699 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.770 ac, 0.99% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 5.90 cfs @ 12.39 hrs, Volume= 0.724 af
Primary = 5.90 cfs @ 12.39 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Longboard Ridge Stormwater Analysis
Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Link SP4:

Inflow Area = 1.524 ac, 3.52% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 1.85 cfs @ 12.20 hrs, Volume= 0.171 af
Primary = 1.85 cfs @ 12.20 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"

Summary for Subcatchment 1:

Runoff = 22.61 cfs @ 12.43 hrs, Volume= 2.888 af, Depth= 2.63"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
552,352	77	Woods, Good, HSG D
* 20,252	98	Pool Street
* 2,125	98	Peter Pond Ln
574,729	78	Weighted Average
552,352		96.11% Pervious Area
22,377		3.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.3	77	0.0130	0.57		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.4	390	0.0205	2.75	10.30	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, C-D Bot.W=25.00' D=0.50' Z= 50.0 '/' Top.W=75.00' n= 0.040
6.2	374	0.0027	1.00	37.64	Trap/Vee/Rect Channel Flow, D-E Bot.W=50.00' D=0.50' Z= 50.0 '/' Top.W=100.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, E-F Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
30.9	1,608	Total			

Summary for Subcatchment 2:

Runoff = 10.77 cfs @ 12.44 hrs, Volume= 1.382 af, Depth= 2.54"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
284,493	77	Woods, Good, HSG D
284,493		100.00% Pervious Area

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

Summary for Subcatchment 3:

Runoff = 11.98 cfs @ 12.38 hrs, Volume= 1.433 af, Depth= 2.54"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
291,989	77	Woods, Good, HSG D
2,914	98	Peter Pond Ln
294,903	77	Weighted Average
291,989		99.01% Pervious Area
2,914		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	173	0.0289	3.59	53.80	Trap/Vee/Rect Channel Flow, B-C Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040
1.9	442	0.0452	3.79	18.94	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
26.6	765	Total			

Summary for Subcatchment 4:

Runoff = 3.68 cfs @ 12.19 hrs, Volume= 0.334 af, Depth= 2.63"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"
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Area (sf)		CN	Description		
*	2,339	98	Peter Pond Ln		
	64,031	77	Woods, Good, HSG D		
	66,370	78	Weighted Average		
	64,031		96.48% Pervious Area		
	2,339		3.52% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Link SP1:

Inflow Area = 13.194 ac, 3.89% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 22.61 cfs @ 12.43 hrs, Volume= 2.888 af
Primary = 22.61 cfs @ 12.43 hrs, Volume= 2.888 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.531 ac, 0.00% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 10.77 cfs @ 12.44 hrs, Volume= 1.382 af
Primary = 10.77 cfs @ 12.44 hrs, Volume= 1.382 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.770 ac, 0.99% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 11.98 cfs @ 12.38 hrs, Volume= 1.433 af
Primary = 11.98 cfs @ 12.38 hrs, Volume= 1.433 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4:

Inflow Area = 1.524 ac, 3.52% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 3.68 cfs @ 12.19 hrs, Volume= 0.334 af
Primary = 3.68 cfs @ 12.19 hrs, Volume= 0.334 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Longboard Ridge Stormwater Analysis
Type III 24-hr 25-yr Rainfall=6.20"

Summary for Subcatchment 1:

Runoff = 32.33 cfs @ 12.43 hrs, Volume= 4.130 af, Depth= 3.76"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
552,352	77	Woods, Good, HSG D
* 20,252	98	Pool Street
* 2,125	98	Peter Pond Ln
574,729	78	Weighted Average
552,352		96.11% Pervious Area
22,377		3.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.3	77	0.0130	0.57		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.4	390	0.0205	2.75	10.30	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, C-D Bot.W=25.00' D=0.50' Z= 50.0 '/' Top.W=75.00' n= 0.040
6.2	374	0.0027	1.00	37.64	Trap/Vee/Rect Channel Flow, D-E Bot.W=50.00' D=0.50' Z= 50.0 '/' Top.W=100.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, E-F Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
30.9	1,608	Total			

Summary for Subcatchment 2:

Runoff = 15.52 cfs @ 12.43 hrs, Volume= 1.989 af, Depth= 3.65"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
284,493	77	Woods, Good, HSG D
284,493		100.00% Pervious Area

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Longboard Ridge Stormwater Analysis
Type III 24-hr 25-yr Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

Summary for Subcatchment 3:

Runoff = 17.28 cfs @ 12.37 hrs, Volume= 2.062 af, Depth= 3.65"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
291,989	77	Woods, Good, HSG D
2,914	98	Peter Pond Ln
294,903	77	Weighted Average
291,989		99.01% Pervious Area
2,914		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	173	0.0289	3.59	53.80	Trap/Vee/Rect Channel Flow, B-C Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040
1.9	442	0.0452	3.79	18.94	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
26.6	765	Total			

Summary for Subcatchment 4:

Runoff = 5.26 cfs @ 12.19 hrs, Volume= 0.477 af, Depth= 3.76"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

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Longboard Ridge Stormwater Analysis
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Area (sf)		CN	Description		
*	2,339	98	Peter Pond Ln		
	64,031	77	Woods, Good, HSG D		
	66,370	78	Weighted Average		
	64,031		96.48% Pervious Area		
	2,339		3.52% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Link SP1:

Inflow Area = 13.194 ac, 3.89% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 32.33 cfs @ 12.43 hrs, Volume= 4.130 af
Primary = 32.33 cfs @ 12.43 hrs, Volume= 4.130 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.531 ac, 0.00% Impervious, Inflow Depth = 3.65" for 25-yr event
Inflow = 15.52 cfs @ 12.43 hrs, Volume= 1.989 af
Primary = 15.52 cfs @ 12.43 hrs, Volume= 1.989 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.770 ac, 0.99% Impervious, Inflow Depth = 3.65" for 25-yr event
Inflow = 17.28 cfs @ 12.37 hrs, Volume= 2.062 af
Primary = 17.28 cfs @ 12.37 hrs, Volume= 2.062 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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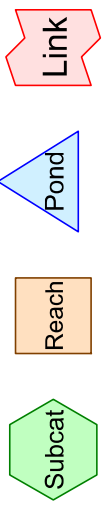
Summary for Link SP4:

Inflow Area = 1.524 ac, 3.52% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 5.26 cfs @ 12.19 hrs, Volume= 0.477 af
Primary = 5.26 cfs @ 12.19 hrs, Volume= 0.477 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Attachment 3

Post-Development HydroCAD Model



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.895	98	Lot Impervious (10, 20, 30, 31, 32, 50)
3.006	80	Lot Lawn (10, 20, 30, 31, 32, 40, 50)
0.062	98	Path (30)
0.042	80	Path Developed (31)
0.169	98	Peter Pond Ln (10, 30, 31, 40)
0.465	98	Pool Street (10, 11)
0.555	98	Proposed Road Impervious (10, 11, 32, 50)
0.369	80	Road + Path Developed (30, 32)
0.808	80	Road Developed (10, 11, 50)
21.646	77	Woods, Good, HSG D (10, 11, 20, 30, 31, 32, 40, 50)

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Summary for Subcatchment 10:

Runoff = 11.00 cfs @ 12.42 hrs, Volume= 1.379 af, Depth= 1.41"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
411,615	77	Woods, Good, HSG D
* 15,895	98	Pool Street
* 2,125	98	Peter Pond Ln
* 42,500	80	Lot Lawn
* 15,462	80	Road Developed
* 15,000	98	Lot Impervious
* 7,973	98	Proposed Road Impervious
510,570	79	Weighted Average
469,577		91.97% Pervious Area
40,993		8.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.5	97	0.0481	1.10		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.1	166	0.0181	2.58	9.68	Trap/Vee/Rect Channel Flow, D-E Bot.W=5.00' D=0.50' Z= 5.0 'f' Top.W=10.00' n= 0.040
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, E-F Bot.W=25.00' D=0.50' Z= 50.0 'f' Top.W=75.00' n= 0.040 Earth, cobble bottom, clean sides
6.2	374	0.0027	1.00	75.29	Trap/Vee/Rect Channel Flow, F-G Bot.W=100.00' D=0.50' Z= 100.0 'f' Top.W=200.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, G-H Bot.W=5.00' D=0.50' Z= 5.0 'f' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
28.8	1,404	Total			

Summary for Subcatchment 11:

Runoff = 1.36 cfs @ 12.22 hrs, Volume= 0.132 af, Depth= 1.48"
Routed to Pond C11 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

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	Area (sf)	CN	Description
*	4,356	98	Pool Street
	35,514	77	Woods, Good, HSG D
*	880	98	Proposed Road Impervious
*	5,880	80	Road Developed
	46,630	80	Weighted Average
	41,394		88.77% Pervious Area
	5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 20:

Runoff = 5.30 cfs @ 12.46 hrs, Volume= 0.698 af, Depth= 1.28"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	264,199	77	Woods, Good, HSG D
	16,000	80	Lot Lawn
*	4,000	98	Lot Impervious
	284,199	77	Weighted Average
	280,199		98.59% Pervious Area
	4,000		1.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

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Longboard Ridge Stormwater Analysis
Type III 24-hr 2-yr Rainfall=3.30"

Summary for Subcatchment 30:

Runoff = 4.11 cfs @ 12.37 hrs, Volume= 0.489 af, Depth= 1.41"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
115,352	77	Woods, Good, HSG D
* 1,180	98	Peter Pond Ln
* 11,704	80	Road + Path Developed
* 10,000	98	Lot Impervious
* 40,000	80	Lot Lawn
* 2,690	98	Path

180,926 Weighted Average
167,056 92.33% Pervious Area
13,870 7.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	366	0.0500	3.82	23.88	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 15.0 '/' Top.W=20.00' n= 0.040
25.5	516	Total			

Summary for Subcatchment 31:

Runoff = 1.88 cfs @ 12.10 hrs, Volume= 0.137 af, Depth= 1.48"
Routed to Pond C31 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
* 12,000	80	Lot Lawn
* 3,000	98	Lot Impervious
* 1,734	98	Peter Pond Ln
* 30,021	77	Woods, Good, HSG D
* 1,825	80	Path Developed

48,580 Weighted Average
43,846 90.26% Pervious Area
4,734 9.74% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af, Depth= 1.48"
Routed to Pond C32 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description
* 8,000	80	Lot Lawn
* 2,000	98	Lot Impervious
17,197	77	Woods, Good, HSG D
* 4,376	80	Road + Path Developed
* 300	98	Proposed Road Impervious
31,873	80	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Subcatchment 40:

Runoff = 1.83 cfs @ 12.20 hrs, Volume= 0.169 af, Depth= 1.35"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

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Type III 24-hr 2-yr Rainfall=3.30"
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Area (sf)		CN	Description		
*	2,339	98	Peter Pond Ln		
	61,271	77	Woods, Good, HSG D		
*	2,140	80	Lot Lawn		
65,750		78	Weighted Average		
63,411			96.44% Pervious Area		
2,339			3.56% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Subcatchment 50:

Runoff = 2.12 cfs @ 12.18 hrs, Volume= 0.191 af, Depth= 1.92"
Routed to Pond P50 : UDSF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

Area (sf)	CN	Description		
* 15,038	98	Proposed Road Impervious		
* 13,860	80	Road Developed		
7,743	77	Woods, Good, HSG D		
* 5,000	98	Lot Impervious		
* 10,315	80	Lot Lawn		
51,956	86	Weighted Average		
31,918		61.43% Pervious Area		
20,038		38.57% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description		
11.4	75	0.0530 0.11	Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"	
1.7	252	0.0179 2.42 4.23	Trap/Vee/Rect Channel Flow, B-C Bot.W=2.00' D=0.50' Z= 3.0 '/' Top.W=5.00' n= 0.040	
13.1	327	Total		

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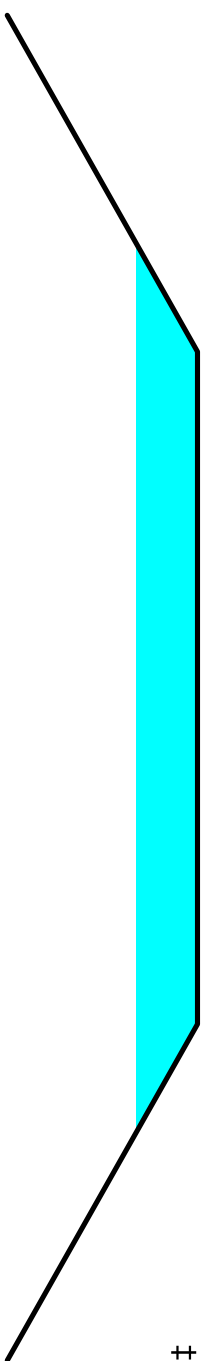
Summary for Reach R11:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.35 cfs @ 12.24 hrs, Volume= 0.132 af
Outflow = 1.30 cfs @ 12.35 hrs, Volume= 0.132 af, Atten= 4%, Lag= 6.2 min
Routed to Reach R12 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.39 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 12.1 min

Peak Storage= 273 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.16' , Surface Width= 6.62'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.91 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 290.0' Slope= 0.0190 '/'
Inlet Invert= 40.50' , Outlet Invert= 35.00'



Summary for Reach R12:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.30 cfs @ 12.35 hrs, Volume= 0.132 af
Outflow = 1.10 cfs @ 12.63 hrs, Volume= 0.132 af, Atten= 15%, Lag= 17.3 min
Routed to Reach R13 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.63 fps, Min. Travel Time= 10.1 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 32.9 min

Peak Storage= 674 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 31.28'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 51.14 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 381.0' Slope= 0.0131 '/'
Inlet Invert= 35.00' , Outlet Invert= 30.00'

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Longboard Ridge Stormwater Analysis
Type III 24-hr 2-yr Rainfall=3.30"

‡

Summary for Reach R13:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 1.71" for 2-yr event
Inflow = 1.14 cfs @ 12.64 hrs, Volume= 0.323 af
Outflow = 0.80 cfs @ 13.79 hrs, Volume= 0.321 af, Atten= 30%, Lag= 69.5 min
Routed to Reach R14 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.21 fps, Min. Travel Time= 29.9 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 75.3 min

Peak Storage= 1,434 cf @ 13.30 hrs
Average Depth at Peak Storage= 0.04' , Surface Width= 107.39'
Bank-Full Depth= 0.50' Flow Area= 75.0 sf, Capacity= 74.92 cfs

100.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 100.0 '/' Top Width= 200.00'
Length= 374.0' Slope= 0.0027 '/'
Inlet Invert= 30.00', Outlet Invert= 29.00'

‡

Summary for Reach R14:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 1.70" for 2-yr event
Inflow = 0.80 cfs @ 13.79 hrs, Volume= 0.321 af
Outflow = 0.80 cfs @ 13.95 hrs, Volume= 0.321 af, Atten= 0%, Lag= 9.6 min
Routed to Link SP1 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.79 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 15.1 min

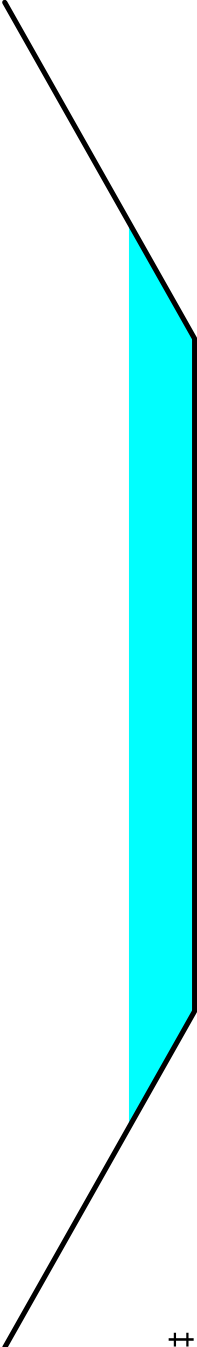
Peak Storage= 289 cf @ 13.85 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 6.73'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 5.42 cfs

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5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 286.0' Slope= 0.0057 '/'
Inlet Invert= 29.00', Outlet Invert= 27.38'



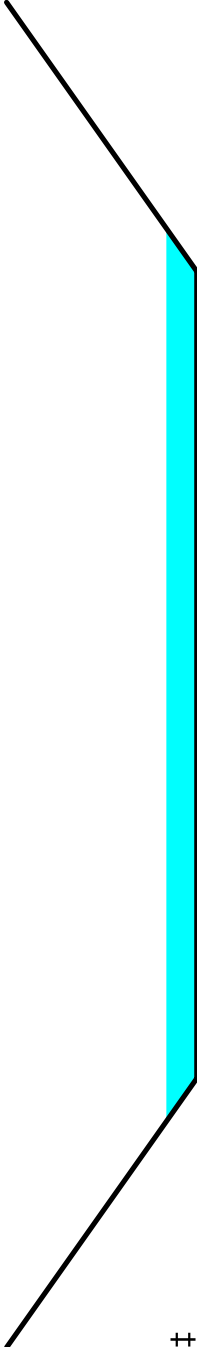
Summary for Reach R31:

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.84 cfs @ 12.10 hrs, Volume= 0.137 af
Outflow = 1.74 cfs @ 12.15 hrs, Volume= 0.137 af, Atten= 6%, Lag= 2.8 min
Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.43 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.41 fps, Avg. Travel Time= 5.3 min

Peak Storage= 161 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 16.59'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.61 cfs

15.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 128.0' Slope= 0.0469 '/'
Inlet Invert= 20.00', Outlet Invert= 14.00'



Summary for Reach R32:

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.06 cfs @ 12.17 hrs, Volume= 0.090 af
Outflow = 1.02 cfs @ 12.24 hrs, Volume= 0.090 af, Atten= 4%, Lag= 4.6 min
Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.54 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 8.3 min

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Peak Storage= 154 cf @ 12.20 hrs

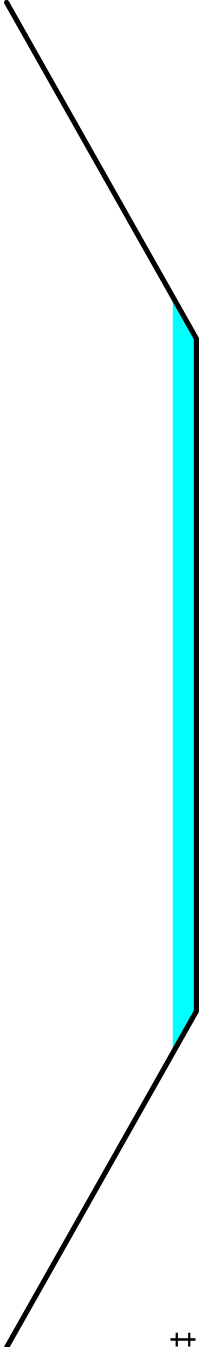
Average Depth at Peak Storage= 0.06' , Surface Width= 11.26'

Bank-Full Depth= 0.50' Flow Area= 7.5 sf, Capacity= 39.33 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 20.00'

Length= 230.0' Slope= 0.0739 '/'

Inlet Invert= 31.00', Outlet Invert= 14.00'



Summary for Reach R50:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 1.92" for 2-yr event
Inflow = 0.57 cfs @ 12.65 hrs, Volume= 0.191 af
Outflow = 0.53 cfs @ 12.92 hrs, Volume= 0.191 af, Atten= 7%, Lag= 16.5 min
Routed to Reach R51 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.36 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 22.3 min

Peak Storage= 278 cf @ 12.78 hrs

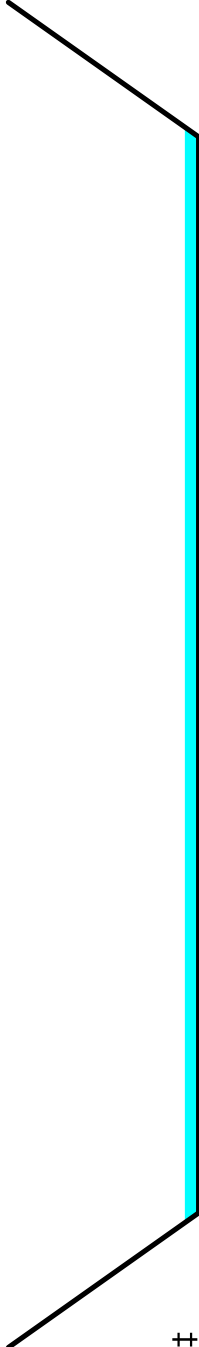
Average Depth at Peak Storage= 0.04' , Surface Width= 40.73'

Bank-Full Depth= 0.50' Flow Area= 22.5 sf, Capacity= 43.58 cfs

40.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 50.00'

Length= 190.0' Slope= 0.0079 '/'

Inlet Invert= 40.50', Outlet Invert= 39.00'



Summary for Reach R51:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth > 1.92" for 2-yr event
Inflow = 0.53 cfs @ 12.92 hrs, Volume= 0.191 af
Outflow = 0.47 cfs @ 13.33 hrs, Volume= 0.191 af, Atten= 11%, Lag= 24.6 min
Routed to Reach R13 :

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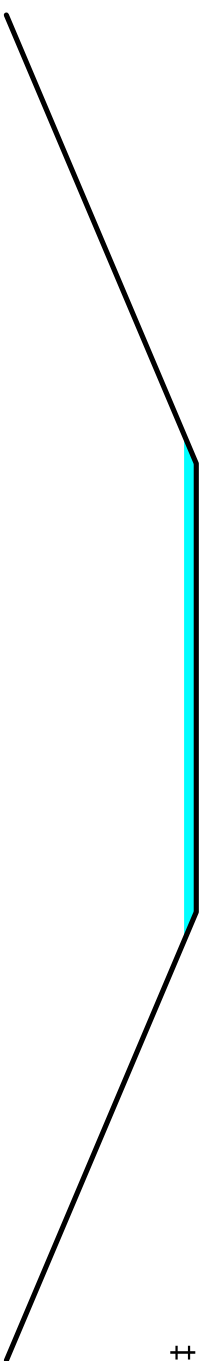
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Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.54 fps, Min. Travel Time= 12.8 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 29.9 min

Peak Storage= 359 cf @ 13.12 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 28.26'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 65.91 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 413.0' Slope= 0.0218 '/'
Inlet Invert= 39.00', Outlet Invert= 30.00'



Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.36 cfs @ 12.22 hrs, Volume= 0.132 af
Outflow = 1.35 cfs @ 12.24 hrs, Volume= 0.132 af, Atten= 1%, Lag= 1.2 min
Primary = 1.35 cfs @ 12.24 hrs, Volume= 0.132 af
Routed to Reach R11 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.60' @ 12.24 hrs Surf.Area= 223 sf Storage= 116 cf

Plug-Flow detention time= 3.6 min calculated for 0.132 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (853.8 - 850.2)

Volume		Invert	Avail.Storage	Storage Description	
#1		41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
41.00	165	0	0		
42.00	262	214	214		
43.00	395	329	542		
44.00	5,000	2,698	3,240		
Device	Routing	Invert	Outlet Devices		

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

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Primary OutFlow Max=1.34 cfs @ 12.24 hrs HW=41.60' (Free Discharge)
1=Culvert (Inlet Controls 1.34 cfs @ 2.32 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.88 cfs @ 12.10 hrs, Volume= 0.137 af
Outflow = 1.84 cfs @ 12.10 hrs, Volume= 0.137 af, Atten= 2%, Lag= 0.2 min
Primary = 1.84 cfs @ 12.10 hrs, Volume= 0.137 af
Routed to Reach R31 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 21.72' @ 12.10 hrs Surf.Area= 93 sf Storage= 51 cf

Plug-Flow detention time= 1.2 min calculated for 0.137 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (842.4 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.84 cfs @ 12.10 hrs HW=21.71' (Free Discharge)
1=Culvert (Inlet Controls 1.84 cfs @ 2.54 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af
Outflow = 1.06 cfs @ 12.17 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.5 min
Primary = 1.06 cfs @ 12.17 hrs, Volume= 0.090 af
Routed to Reach R32 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 32.52' @ 12.17 hrs Surf.Area= 102 sf Storage= 40 cf

Plug-Flow detention time= 1.4 min calculated for 0.090 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (847.1 - 845.6)

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Longboard Ridge Stormwater Analysis
Type III 24-hr 2-yr Rainfall=3.30"
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Volume	Invert	Avail.Storage	Storage Description	
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
32.00	50	0	0	
33.00	150	100	100	
34.00	1,225	688	788	
35.00	2,325	1,775	2,563	

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.04 cfs @ 12.17 hrs HW=32.52' (Free Discharge)
1=Culvert (Inlet Controls 1.04 cfs @ 2.16 fps)

Summary for Pond P50: UDSF

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 1.92" for 2-yr event
Inflow = 2.12 cfs @ 12.18 hrs, Volume= 0.191 af
Outflow = 0.57 cfs @ 12.65 hrs, Volume= 0.191 af, Atten= 73%, Lag= 27.9 min
Primary = 0.05 cfs @ 12.65 hrs, Volume= 0.124 af
Routed to Reach R50 :
Secondary = 0.52 cfs @ 12.65 hrs, Volume= 0.067 af
Routed to Reach R50 :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R50 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 44.29' @ 12.65 hrs Surf.Area= 2,192 sf Storage= 3,823 cf

Plug-Flow detention time= 469.7 min calculated for 0.191 af (100% of inflow)
Center-of-Mass det. time= 470.5 min (1,298.3 - 827.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	40.50'	8,583 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.50	1,476	0.0	0	0
40.51	1,476	20.0	3	3
41.00	1,476	20.0	145	148
42.49	1,476	20.0	440	587
42.50	1,476	100.0	15	602
44.00	1,997	100.0	2,605	3,207
45.00	2,661	100.0	2,329	5,536
46.00	3,434	100.0	3,048	8,583

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Type III 24-hr 2-yr Rainfall=3.30"
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Device	Routing	Invert	Outlet Devices
#1	Secondary	43.91'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 43.91' / 40.25' S= 0.1220 '/' Cc= 0.900 n= 0.040 Earth, cobble bottom, clean sides, Flow Area= 0.79 sf
#2	Tertiary	44.86'	7.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.67 2.65 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	40.25'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.65 hrs HW=44.29' (Free Discharge)
└─3=Orifice/Grate (Orifice Controls 0.05 cfs @ 9.63 fps)

Secondary OutFlow Max=0.52 cfs @ 12.65 hrs HW=44.29' (Free Discharge)
└─1=Culvert (Inlet Controls 0.52 cfs @ 1.86 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=40.50' (Free Discharge)
└─2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link SP1:

Inflow Area = 13.984 ac, 10.88% Impervious, Inflow Depth > 1.46" for 2-yr event
Inflow = 11.01 cfs @ 12.42 hrs, Volume= 1.700 af
Primary = 11.01 cfs @ 12.42 hrs, Volume= 1.700 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.524 ac, 1.41% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 5.30 cfs @ 12.46 hrs, Volume= 0.698 af
Primary = 5.30 cfs @ 12.46 hrs, Volume= 0.698 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.000 ac, 8.00% Impervious, Inflow Depth = 1.43" for 2-yr event
Inflow = 5.87 cfs @ 12.30 hrs, Volume= 0.716 af
Primary = 5.87 cfs @ 12.30 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Link SP4:

Inflow Area = 1.509 ac, 3.56% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 1.83 cfs @ 12.20 hrs, Volume= 0.169 af
Primary = 1.83 cfs @ 12.20 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"
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Summary for Subcatchment 10:

Runoff = 21.47 cfs @ 12.40 hrs, Volume= 2.653 af, Depth= 2.72"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
411,615	77	Woods, Good, HSG D
* 15,895	98	Pool Street
* 2,125	98	Peter Pond Ln
* 42,500	80	Lot Lawn
* 15,462	80	Road Developed
* 15,000	98	Lot Impervious
* 7,973	98	Proposed Road Impervious
510,570	79	Weighted Average
469,577		91.97% Pervious Area
40,993		8.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.5	97	0.0481	1.10		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.1	166	0.0181	2.58	9.68	Trap/Vee/Rect Channel Flow, D-E Bot.W=5.00' D=0.50' Z= 5.0 'f' Top.W=10.00' n= 0.040
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, E-F Bot.W=25.00' D=0.50' Z= 50.0 'f' Top.W=75.00' n= 0.040 Earth, cobble bottom, clean sides
6.2	374	0.0027	1.00	75.29	Trap/Vee/Rect Channel Flow, F-G Bot.W=100.00' D=0.50' Z= 100.0 'f' Top.W=200.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, G-H Bot.W=5.00' D=0.50' Z= 5.0 'f' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
28.8	1,404	Total			

Summary for Subcatchment 11:

Runoff = 2.61 cfs @ 12.22 hrs, Volume= 0.250 af, Depth= 2.81"
Routed to Pond C11 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

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	Area (sf)	CN	Description
*	4,356	98	Pool Street
	35,514	77	Woods, Good, HSG D
*	880	98	Proposed Road Impervious
*	5,880	80	Road Developed
	46,630	80	Weighted Average
	41,394		88.77% Pervious Area
	5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 20:

Runoff = 10.75 cfs @ 12.44 hrs, Volume= 1.381 af, Depth= 2.54"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	264,199	77	Woods, Good, HSG D
	16,000	80	Lot Lawn
*	4,000	98	Lot Impervious
	284,199	77	Weighted Average
	280,199		98.59% Pervious Area
	4,000		1.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"

Summary for Subcatchment 30:

Runoff = 8.02 cfs @ 12.36 hrs, Volume= 0.940 af, Depth= 2.72"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description			
115,352	77	Woods, Good, HSG D			
* 1,180	98	Peter Pond Ln			
* 11,704	80	Road + Path Developed			
* 10,000	98	Lot Impervious			
* 40,000	80	Lot Lawn			
* 2,690	98	Path			
180,926	79	Weighted Average			
167,056		92.33% Pervious Area			
13,870		7.67% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	366	0.0500	3.82	23.88	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 15.0 '/' Top.W=20.00' n= 0.040
25.5	516	Total			

Summary for Subcatchment 31:

Runoff = 3.59 cfs @ 12.09 hrs, Volume= 0.261 af, Depth= 2.81"
Routed to Pond C31 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
* 12,000	80	Lot Lawn
* 3,000	98	Lot Impervious
* 1,734	98	Peter Pond Ln
* 30,021	77	Woods, Good, HSG D
1,825	80	Path Developed
48,580	80	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 2.03 cfs @ 12.15 hrs, Volume= 0.171 af, Depth= 2.81"
Routed to Pond C32 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
* 8,000	80	Lot Lawn
* 2,000	98	Lot Impervious
17,197	77	Woods, Good, HSG D
* 4,376	80	Road + Path Developed
* 300	98	Proposed Road Impervious
31,873	80	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Subcatchment 40:

Runoff = 3.65 cfs @ 12.19 hrs, Volume= 0.330 af, Depth= 2.63"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"
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Area (sf)	CN	Description			
* 2,339	98	Peter Pond Ln			
61,271	77	Woods, Good, HSG D			
* 2,140	80	Lot Lawn			
65,750	78	Weighted Average			
63,411		96.44% Pervious Area			
2,339		3.56% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Subcatchment 50:

Runoff = 3.68 cfs @ 12.18 hrs, Volume= 0.335 af, Depth= 3.37"
Routed to Pond P50 : UDSF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description		
* 15,038	98	Proposed Road Impervious		
* 13,860	80	Road Developed		
7,743	77	Woods, Good, HSG D		
* 5,000	98	Lot Impervious		
* 10,315	80	Lot Lawn		
51,956	86	Weighted Average		
31,918		61.43% Pervious Area		
20,038		38.57% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description		
11.4	75	0.0530 0.11	Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"	
1.7	252	0.0179 2.42	4.23	Trap/Vee/Rect Channel Flow, B-C Bot.W=2.00' D=0.50' Z= 3.0 '/' Top.W=5.00' n= 0.040
13.1	327	Total		

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Type III 24-hr 10-yr Rainfall=4.90"

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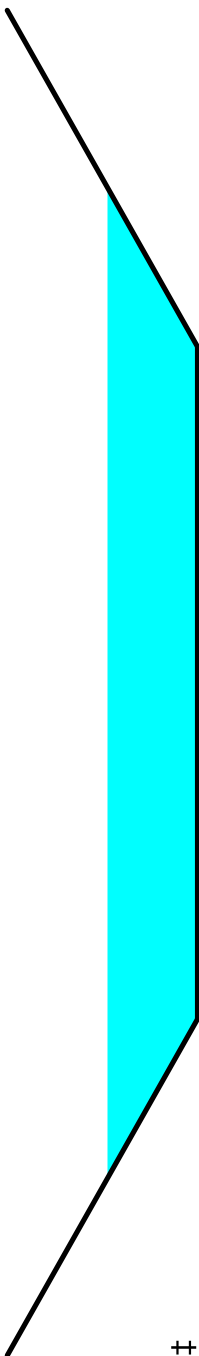
Summary for Reach R11:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.59 cfs @ 12.23 hrs, Volume= 0.250 af
Outflow = 2.53 cfs @ 12.32 hrs, Volume= 0.250 af, Atten= 2%, Lag= 4.9 min
Routed to Reach R12 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 10.1 min

Peak Storage= 425 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 7.37'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.91 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 290.0' Slope= 0.0190 '/'
Inlet Invert= 40.50', Outlet Invert= 35.00'



Summary for Reach R12:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.53 cfs @ 12.32 hrs, Volume= 0.250 af
Outflow = 2.24 cfs @ 12.54 hrs, Volume= 0.250 af, Atten= 12%, Lag= 13.6 min
Routed to Reach R13 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.80 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 28.2 min

Peak Storage= 1,072 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 34.47'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 51.14 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 381.0' Slope= 0.0131 '/'
Inlet Invert= 35.00', Outlet Invert= 30.00'

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Longboard Ridge Stormwater Analysis
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‡

Summary for Reach R13:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 3.10" for 10-yr event
Inflow = 3.70 cfs @ 12.69 hrs, Volume= 0.585 af
Outflow = 3.04 cfs @ 13.20 hrs, Volume= 0.583 af, Atten= 18%, Lag= 30.3 min
Routed to Reach R14 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 18.1 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 67.7 min

Peak Storage= 3,303 cf @ 12.90 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 116.33'
Bank-Full Depth= 0.50' Flow Area= 75.0 sf, Capacity= 74.92 cfs

100.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 100.0 '/' Top Width= 200.00'
Length= 374.0' Slope= 0.0027 '/'
Inlet Invert= 30.00', Outlet Invert= 29.00'

‡

Summary for Reach R14:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 3.04 cfs @ 13.20 hrs, Volume= 0.583 af
Outflow = 3.01 cfs @ 13.31 hrs, Volume= 0.582 af, Atten= 1%, Lag= 7.0 min
Routed to Link SP1 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.21 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 13.6 min

Peak Storage= 711 cf @ 13.25 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 8.64'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 5.42 cfs

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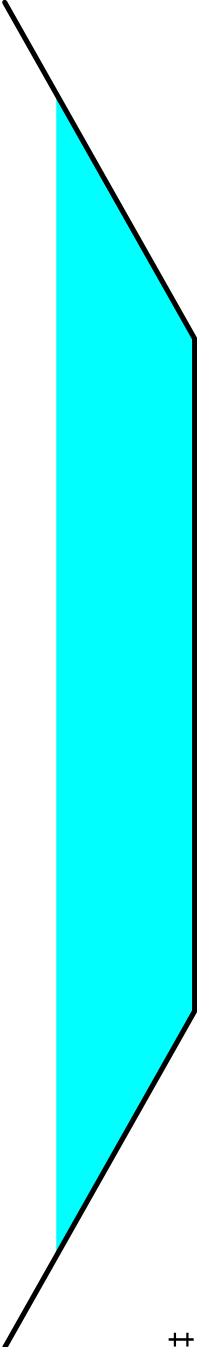
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5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'

Length= 286.0' Slope= 0.0057 '/'

Inlet Invert= 29.00', Outlet Invert= 27.38'



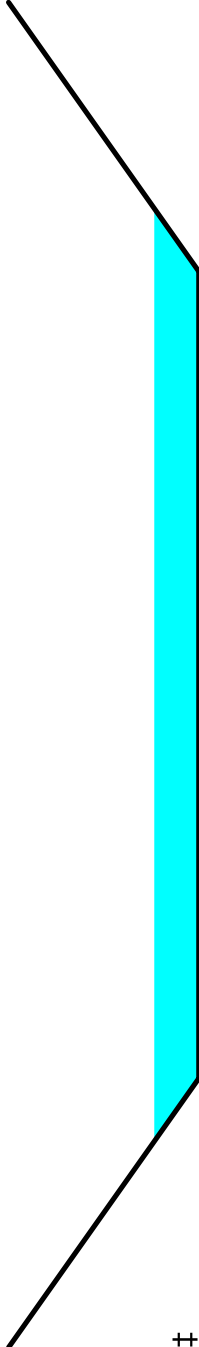
Summary for Reach R31:

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 3.45 cfs @ 12.10 hrs, Volume= 0.261 af
Outflow = 3.32 cfs @ 12.14 hrs, Volume= 0.261 af, Atten= 4%, Lag= 2.1 min
Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 4.4 min

Peak Storage= 241 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 17.33'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.61 cfs

15.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 128.0' Slope= 0.0469 '/'
Inlet Invert= 20.00', Outlet Invert= 14.00'



Summary for Reach R32:

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.03 cfs @ 12.16 hrs, Volume= 0.171 af
Outflow = 1.96 cfs @ 12.22 hrs, Volume= 0.171 af, Atten= 4%, Lag= 3.5 min
Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.96 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 6.9 min

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Type III 24-hr 10-yr Rainfall=4.90"

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Peak Storage= 233 cf @ 12.19 hrs

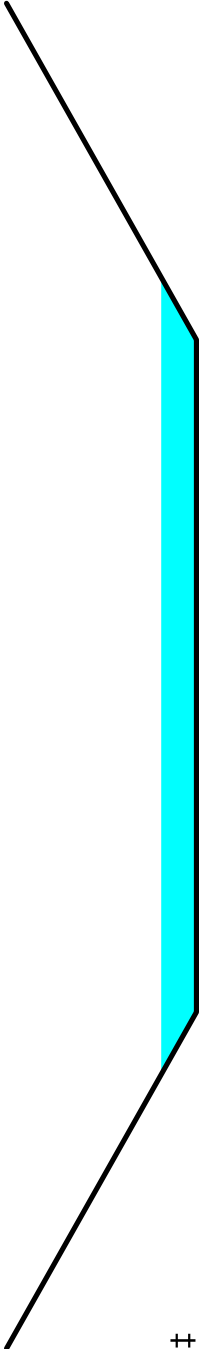
Average Depth at Peak Storage= 0.09' , Surface Width= 11.85'

Bank-Full Depth= 0.50' Flow Area= 7.5 sf, Capacity= 39.33 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 20.00'

Length= 230.0' Slope= 0.0739 '/'

Inlet Invert= 31.00', Outlet Invert= 14.00'



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Summary for Reach R50:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 3.37" for 10-yr event
Inflow = 2.20 cfs @ 12.38 hrs, Volume= 0.335 af
Outflow = 2.14 cfs @ 12.54 hrs, Volume= 0.335 af, Atten= 3%, Lag= 9.6 min
Routed to Reach R51 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.62 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 20.3 min

Peak Storage= 652 cf @ 12.46 hrs

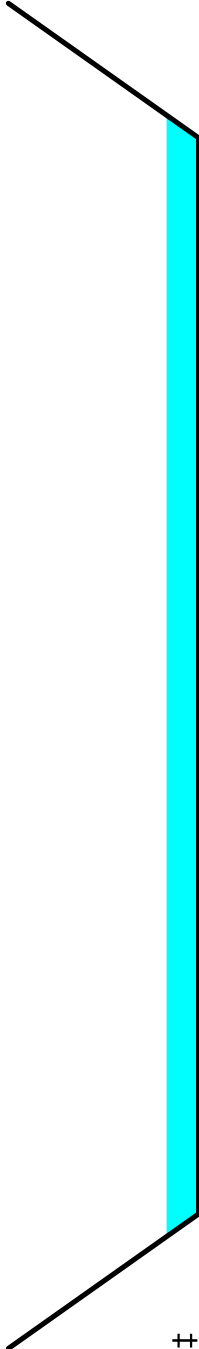
Average Depth at Peak Storage= 0.08' , Surface Width= 41.68'

Bank-Full Depth= 0.50' Flow Area= 22.5 sf, Capacity= 43.58 cfs

40.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 10.0 '/' Top Width= 50.00'

Length= 190.0' Slope= 0.0079 '/'

Inlet Invert= 40.50', Outlet Invert= 39.00'



±

Summary for Reach R51:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth > 3.37" for 10-yr event
Inflow = 2.14 cfs @ 12.54 hrs, Volume= 0.335 af
Outflow = 1.98 cfs @ 12.79 hrs, Volume= 0.335 af, Atten= 7%, Lag= 14.6 min
Routed to Reach R13 :

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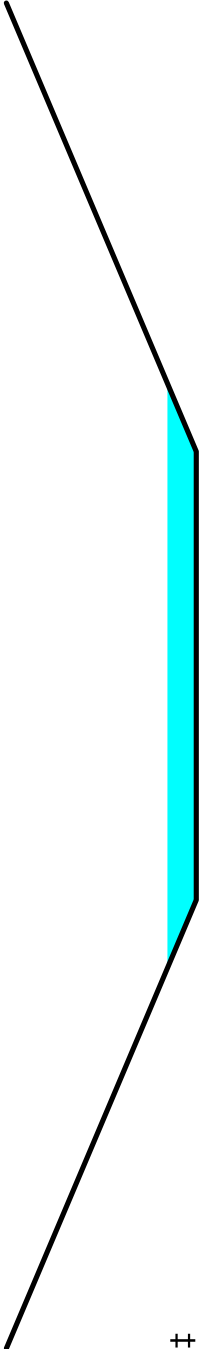
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Longboard Ridge Stormwater Analysis
Type III 24-hr 10-yr Rainfall=4.90"

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.91 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 27.3 min

Peak Storage= 906 cf @ 12.66 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 32.62'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 65.91 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 413.0' Slope= 0.0218 '/'
Inlet Invert= 39.00', Outlet Invert= 30.00'



Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.61 cfs @ 12.22 hrs, Volume= 0.250 af
Outflow = 2.59 cfs @ 12.23 hrs, Volume= 0.250 af, Atten= 1%, Lag= 1.0 min
Primary = 2.59 cfs @ 12.23 hrs, Volume= 0.250 af
Routed to Reach R11 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.88' @ 12.23 hrs Surf.Area= 250 sf Storage= 183 cf

Plug-Flow detention time= 2.8 min calculated for 0.250 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (834.5 - 831.7)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert L= 68.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

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Type III 24-hr 10-yr Rainfall=4.90"
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Primary OutFlow Max=2.56 cfs @ 12.23 hrs HW=41.87' (Free Discharge)
1=Culvert (Barrel Controls 2.56 cfs @ 3.93 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.261 af
Outflow = 3.45 cfs @ 12.10 hrs, Volume= 0.261 af, Atten= 4%, Lag= 0.4 min
Primary = 3.45 cfs @ 12.10 hrs, Volume= 0.261 af
Routed to Reach R31 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 22.07' @ 12.10 hrs Surf.Area= 332 sf Storage= 94 cf

Plug-Flow detention time= 0.6 min calculated for 0.261 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (823.6 - 822.8)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc.)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.45 cfs @ 12.10 hrs HW=22.06' (Free Discharge)
1=Culvert (Inlet Controls 3.45 cfs @ 3.10 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.03 cfs @ 12.15 hrs, Volume= 0.171 af
Outflow = 2.03 cfs @ 12.16 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.5 min
Primary = 2.03 cfs @ 12.16 hrs, Volume= 0.171 af
Routed to Reach R32 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 32.76' @ 12.16 hrs Surf.Area= 126 sf Storage= 67 cf

Plug-Flow detention time= 1.2 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (828.2 - 827.1)

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Type III 24-hr 10-yr Rainfall=4.90"
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Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.00 cfs @ 12.16 hrs HW=32.75' (Free Discharge)
1=Culvert (Inlet Controls 2.00 cfs @ 2.60 fps)

Summary for Pond P50: UDSF

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 3.37" for 10-yr event
Inflow = 3.68 cfs @ 12.18 hrs, Volume= 0.335 af
Outflow = 2.20 cfs @ 12.38 hrs, Volume= 0.335 af, Atten= 40%, Lag= 12.4 min
Primary = 0.06 cfs @ 12.38 hrs, Volume= 0.134 af
Routed to Reach R50 :
Secondary = 2.14 cfs @ 12.38 hrs, Volume= 0.201 af
Routed to Reach R50 :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R50 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 44.82' @ 12.38 hrs Surf.Area= 2,540 sf Storage= 5,061 cf

Plug-Flow detention time= 299.6 min calculated for 0.335 af (100% of inflow)
Center-of-Mass det. time= 299.6 min (1,111.4 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	8,583 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.50	1,476	0.0	0	0
40.51	1,476	20.0	3	3
41.00	1,476	20.0	145	148
42.49	1,476	20.0	440	587
42.50	1,476	100.0	15	602
44.00	1,997	100.0	2,605	3,207
45.00	2,661	100.0	2,329	5,536
46.00	3,434	100.0	3,048	8,583

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Device	Routing	Invert	Outlet Devices
#1	Secondary	43.91'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 43.91' / 40.25' S= 0.1220 '/' Cc= 0.900 n= 0.040 Earth, cobble bottom, clean sides, Flow Area= 0.79 sf
#2	Tertiary	44.86'	7.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.67 2.65 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	40.25'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.38 hrs HW=44.82' (Free Discharge)
└─3=Orifice/Grate (Orifice Controls 0.06 cfs @ 10.24 fps)

Secondary OutFlow Max=2.14 cfs @ 12.38 hrs HW=44.82' (Free Discharge)
└─1=Culvert (Inlet Controls 2.14 cfs @ 2.86 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=40.50' (Free Discharge)
└─2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link SP1:

Inflow Area = 13.984 ac, 10.88% Impervious, Inflow Depth > 2.78" for 10-yr event
Inflow = 21.63 cfs @ 12.40 hrs, Volume= 3.235 af
Primary = 21.63 cfs @ 12.40 hrs, Volume= 3.235 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.524 ac, 1.41% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 10.75 cfs @ 12.44 hrs, Volume= 1.381 af
Primary = 10.75 cfs @ 12.44 hrs, Volume= 1.381 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.000 ac, 8.00% Impervious, Inflow Depth = 2.74" for 10-yr event
Inflow = 11.29 cfs @ 12.28 hrs, Volume= 1.372 af
Primary = 11.29 cfs @ 12.28 hrs, Volume= 1.372 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Link SP4:

Inflow Area = 1.509 ac, 3.56% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 3.65 cfs @ 12.19 hrs, Volume= 0.330 af
Primary = 3.65 cfs @ 12.19 hrs, Volume= 0.330 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Longboard Ridge Stormwater Analysis
Type III 24-hr 25-yr Rainfall=6.20"

Summary for Subcatchment 10:

Runoff = 30.46 cfs @ 12.40 hrs, Volume= 3.769 af, Depth= 3.86"
Routed to Link SP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
411,615	77	Woods, Good, HSG D
* 15,895	98	Pool Street
* 2,125	98	Peter Pond Ln
* 42,500	80	Lot Lawn
* 15,462	80	Road Developed
* 15,000	98	Lot Impervious
* 7,973	98	Proposed Road Impervious
510,570	79	Weighted Average
469,577		91.97% Pervious Area
40,993		8.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.5	97	0.0481	1.10		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.1	166	0.0181	2.58	9.68	Trap/Vee/Rect Channel Flow, D-E Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040
3.1	381	0.0131	2.04	51.10	Trap/Vee/Rect Channel Flow, E-F Bot.W=25.00' D=0.50' Z= 50.0 '/' Top.W=75.00' n= 0.040 Earth, cobble bottom, clean sides
6.2	374	0.0027	1.00	75.29	Trap/Vee/Rect Channel Flow, F-G Bot.W=100.00' D=0.50' Z= 100.0 '/' Top.W=200.00' n= 0.040
3.3	286	0.0057	1.45	5.43	Trap/Vee/Rect Channel Flow, G-H Bot.W=5.00' D=0.50' Z= 5.0 '/' Top.W=10.00' n= 0.040 Earth, cobble bottom, clean sides
28.8	1,404	Total			

Summary for Subcatchment 11:

Runoff = 3.67 cfs @ 12.21 hrs, Volume= 0.353 af, Depth= 3.96"
Routed to Pond C11 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

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	Area (sf)	CN	Description
*	4,356	98	Pool Street
	35,514	77	Woods, Good, HSG D
*	880	98	Proposed Road Impervious
*	5,880	80	Road Developed
	46,630	80	Weighted Average
	41,394		88.77% Pervious Area
	5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 20:

Runoff = 15.50 cfs @ 12.43 hrs, Volume= 1.987 af, Depth= 3.65"
Routed to Link SP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	264,199	77	Woods, Good, HSG D
	16,000	80	Lot Lawn
*	4,000	98	Lot Impervious
	284,199	77	Weighted Average
	280,199		98.59% Pervious Area
	4,000		1.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
3.0	117	0.0168	0.65		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
2.1	419	0.0358	3.37	16.86	Trap/Vee/Rect Channel Flow, C-D Bot.W=5.00' D=0.50' Z= 10.0 '/' Top.W=15.00' n= 0.040
12.5	500	0.0010	0.67	10.01	Trap/Vee/Rect Channel Flow, D-E Bot.W=25.00' D=0.50' Z= 10.0 '/' Top.W=35.00' n= 0.040 Earth, cobble bottom, clean sides
31.2	1,136	Total			

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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 30:

Runoff = 11.38 cfs @ 12.35 hrs, Volume= 1.336 af, Depth= 3.86"
Routed to Link SP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description			
115,352	77	Woods, Good, HSG D			
* 1,180	98	Peter Pond Ln			
* 11,704	80	Road + Path Developed			
* 10,000	98	Lot Impervious			
* 40,000	80	Lot Lawn			
* 2,690	98	Path			
180,926	79	Weighted Average			
167,056		92.33% Pervious Area			
13,870		7.67% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	366	0.0500	3.82	23.88	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 15.0 '/' Top.W=20.00' n= 0.040
25.5	516	Total			

Summary for Subcatchment 31:

Runoff = 5.03 cfs @ 12.09 hrs, Volume= 0.368 af, Depth= 3.96"
Routed to Pond C31 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
* 12,000	80	Lot Lawn
* 3,000	98	Lot Impervious
* 1,734	98	Peter Pond Ln
* 30,021	77	Woods, Good, HSG D
1,825	80	Path Developed
48,580	80	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 2.86 cfs @ 12.15 hrs, Volume= 0.242 af, Depth= 3.96"
Routed to Pond C32 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
* 8,000	80	Lot Lawn
* 2,000	98	Lot Impervious
17,197	77	Woods, Good, HSG D
* 4,376	80	Road + Path Developed
* 300	98	Proposed Road Impervious
31,873	80	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Subcatchment 40:

Runoff = 5.21 cfs @ 12.19 hrs, Volume= 0.472 af, Depth= 3.76"
Routed to Link SP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

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Area (sf)		CN	Description		
*	2,339	98	Peter Pond Ln		
	61,271	77	Woods, Good, HSG D		
*	2,140	80	Lot Lawn		
	65,750	78	Weighted Average		
	63,411		96.44% Pervious Area		
	2,339		3.56% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	85	0.0588	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	96	0.0330	3.70	11.57	Trap/Vee/Rect Channel Flow, B-C Bot.W=5.00' D=0.50' Z= 2.5 '/' Top.W=7.50' n= 0.040
0.8	134	0.0228	2.84	5.33	Trap/Vee/Rect Channel Flow, C-D Bot.W=2.50' D=0.50' Z= 2.5 '/' Top.W=5.00' n= 0.040

Summary for Subcatchment 50:

Runoff = 4.96 cfs @ 12.18 hrs, Volume= 0.457 af, Depth= 4.60"
Routed to Pond P50 : UDSF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description			
* 15,038	98	Proposed Road Impervious			
* 13,860	80	Road Developed			
7,743	77	Woods, Good, HSG D			
* 5,000	98	Lot Impervious			
* 10,315	80	Lot Lawn			
51,956	86	Weighted Average			
31,918		61.43% Pervious Area			
20,038		38.57% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	75	0.0530	0.11		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.7	252	0.0179	2.42	4.23	Trap/Vee/Rect Channel Flow, B-C Bot.W=2.00' D=0.50' Z= 3.0 '/' Top.W=5.00' n= 0.040
13.1	327	Total			

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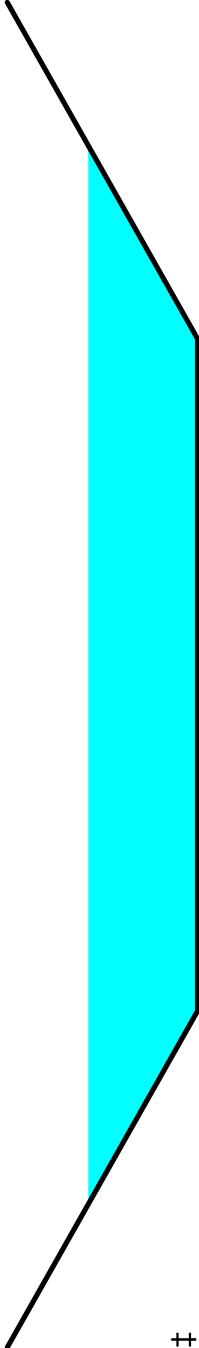
Summary for Reach R11:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 3.64 cfs @ 12.23 hrs, Volume= 0.353 af
Outflow = 3.56 cfs @ 12.31 hrs, Volume= 0.353 af, Atten= 2%, Lag= 4.4 min
Routed to Reach R12 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.94 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 9.1 min

Peak Storage= 536 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 7.87'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.91 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 290.0' Slope= 0.0190 '/'
Inlet Invert= 40.50', Outlet Invert= 35.00'



Summary for Reach R12:

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 3.56 cfs @ 12.31 hrs, Volume= 0.353 af
Outflow = 3.21 cfs @ 12.51 hrs, Volume= 0.353 af, Atten= 10%, Lag= 12.0 min
Routed to Reach R13 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 7.0 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 25.8 min

Peak Storage= 1,363 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 36.62'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 51.14 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 381.0' Slope= 0.0131 '/'
Inlet Invert= 35.00', Outlet Invert= 30.00'

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‡

Summary for Reach R13:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 4.30" for 25-yr event
Inflow = 6.58 cfs @ 12.56 hrs, Volume= 0.810 af
Outflow = 5.22 cfs @ 12.98 hrs, Volume= 0.808 af, Atten= 21%, Lag= 25.3 min
Routed to Reach R14 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.42 fps, Min. Travel Time= 14.9 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 63.5 min

Peak Storage= 4,660 cf @ 12.73 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 122.41'
Bank-Full Depth= 0.50' Flow Area= 75.0 sf, Capacity= 74.92 cfs

100.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 100.0 '/' Top Width= 200.00'
Length= 374.0' Slope= 0.0027 '/'
Inlet Invert= 30.00' , Outlet Invert= 29.00'

‡

Summary for Reach R14:

Inflow Area = 2.263 ac, 25.64% Impervious, Inflow Depth > 4.28" for 25-yr event
Inflow = 5.22 cfs @ 12.98 hrs, Volume= 0.808 af
Outflow = 5.15 cfs @ 13.08 hrs, Volume= 0.807 af, Atten= 1%, Lag= 6.1 min
Routed to Link SP1 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.42 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 12.8 min

Peak Storage= 1,036 cf @ 13.03 hrs
Average Depth at Peak Storage= 0.49' , Surface Width= 9.87'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 5.42 cfs

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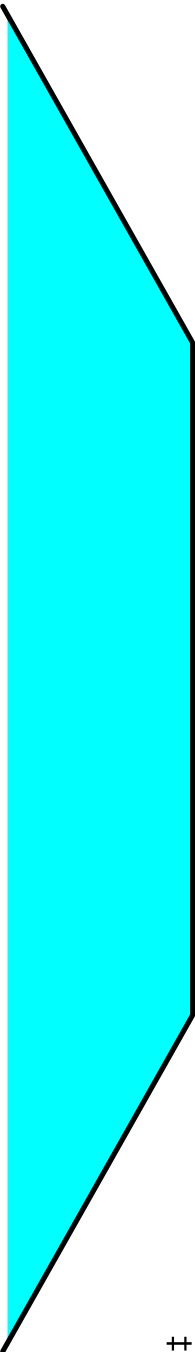
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5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides

Side Slope Z-value= 5.0 '/' Top Width= 10.00'

Length= 286.0' Slope= 0.0057 '/'

Inlet Invert= 29.00', Outlet Invert= 27.38'



Summary for Reach R31:

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 4.39 cfs @ 12.14 hrs, Volume= 0.368 af
Outflow = 4.33 cfs @ 12.16 hrs, Volume= 0.368 af, Atten= 1%, Lag= 1.7 min

Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.00 fps, Min. Travel Time= 1.1 min

Avg. Velocity = 0.54 fps, Avg. Travel Time= 4.0 min

Peak Storage= 280 cf @ 12.14 hrs

Average Depth at Peak Storage= 0.13' , Surface Width= 17.68'

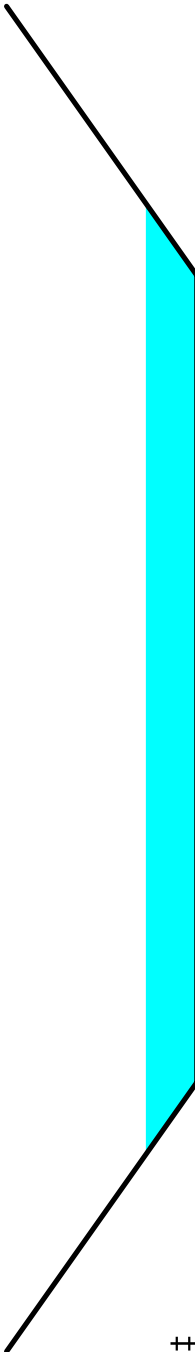
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.61 cfs

15.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides

Side Slope Z-value= 10.0 '/' Top Width= 25.00'

Length= 128.0' Slope= 0.0469 '/'

Inlet Invert= 20.00', Outlet Invert= 14.00'



Summary for Reach R32:

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 2.85 cfs @ 12.16 hrs, Volume= 0.242 af
Outflow = 2.75 cfs @ 12.21 hrs, Volume= 0.242 af, Atten= 4%, Lag= 3.1 min

Routed to Link SP3 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.21 fps, Min. Travel Time= 1.7 min

Avg. Velocity = 0.61 fps, Avg. Travel Time= 6.3 min

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Peak Storage= 290 cf @ 12.18 hrs

Average Depth at Peak Storage= 0.11' , Surface Width= 12.27'

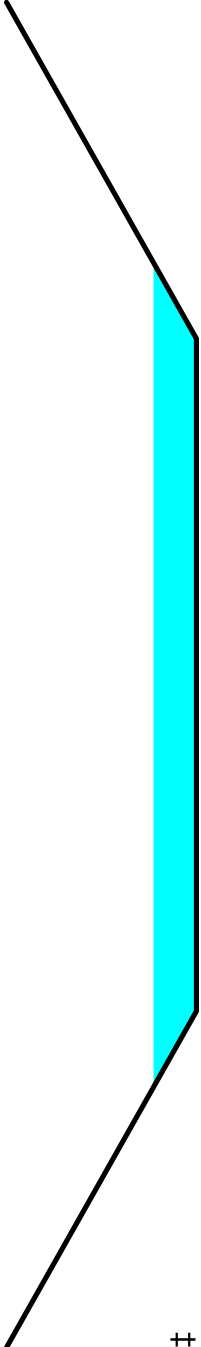
Bank-Full Depth= 0.50' Flow Area= 7.5 sf, Capacity= 39.33 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides

Side Slope Z-value= 10.0 '/' Top Width= 20.00'

Length= 230.0' Slope= 0.0739 '/'

Inlet Invert= 31.00', Outlet Invert= 14.00'



Summary for Reach R50:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 4.60" for 25-yr event
Inflow = 4.19 cfs @ 12.27 hrs, Volume= 0.457 af
Outflow = 3.89 cfs @ 12.40 hrs, Volume= 0.457 af, Atten= 7%, Lag= 7.6 min
Routed to Reach R51 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.79 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 19.2 min

Peak Storage= 950 cf @ 12.32 hrs

Average Depth at Peak Storage= 0.12' , Surface Width= 42.43'

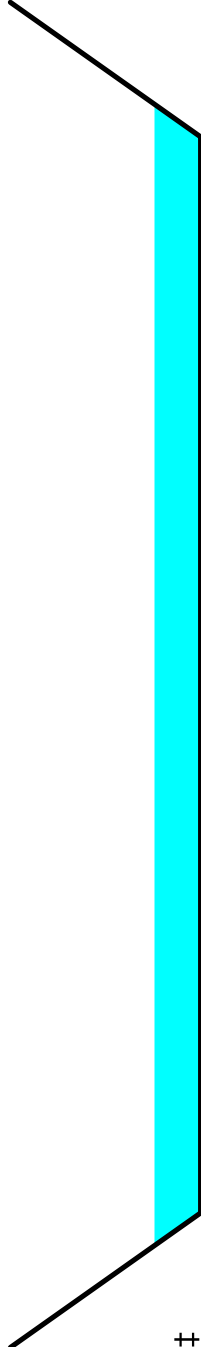
Bank-Full Depth= 0.50' Flow Area= 22.5 sf, Capacity= 43.58 cfs

40.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides

Side Slope Z-value= 10.0 '/' Top Width= 50.00'

Length= 190.0' Slope= 0.0079 '/'

Inlet Invert= 40.50', Outlet Invert= 39.00'



Summary for Reach R51:

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth > 4.60" for 25-yr event
Inflow = 3.89 cfs @ 12.40 hrs, Volume= 0.457 af
Outflow = 3.51 cfs @ 12.59 hrs, Volume= 0.457 af, Atten= 10%, Lag= 11.4 min
Routed to Reach R13 :

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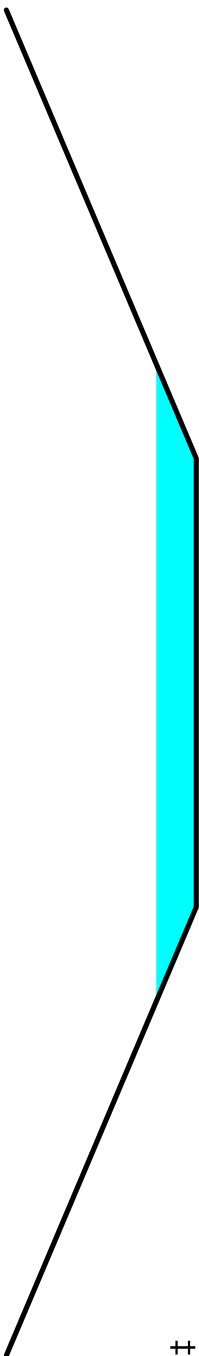
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Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.10 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.26 fps, Avg. Travel Time= 26.0 min

Peak Storage= 1,319 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 35.55'
Bank-Full Depth= 0.50' Flow Area= 25.0 sf, Capacity= 65.91 cfs

25.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 75.00'
Length= 413.0' Slope= 0.0218 '/'
Inlet Invert= 39.00', Outlet Invert= 30.00'



Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 3.67 cfs @ 12.21 hrs, Volume= 0.353 af
Outflow = 3.64 cfs @ 12.23 hrs, Volume= 0.353 af, Atten= 1%, Lag= 1.1 min
Primary = 3.64 cfs @ 12.23 hrs, Volume= 0.353 af
Routed to Reach R11 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.11' @ 12.23 hrs Surf.Area= 276 sf Storage= 242 cf

Plug-Flow detention time= 2.4 min calculated for 0.353 af (100% of inflow)
Center-of-Mass det. time= 2.5 min (824.3 - 821.8)

Volume		Invert	Avail.Storage	Storage Description	
#1	41.00'		3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
41.00	165	0	0		
42.00	262	214	214		
43.00	395	329	542		
44.00	5,000	2,698	3,240		
Device	Routing	Invert	Outlet Devices		

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

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Primary OutFlow Max=3.60 cfs @ 12.23 hrs HW=42.10' (Free Discharge)
1=Culvert (Inlet Controls 3.60 cfs @ 3.15 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 5.03 cfs @ 12.09 hrs, Volume= 0.368 af
Outflow = 4.39 cfs @ 12.14 hrs, Volume= 0.368 af, Atten= 13%, Lag= 2.6 min
Primary = 4.39 cfs @ 12.14 hrs, Volume= 0.368 af
Routed to Reach R31 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 22.33' @ 12.13 hrs Surf.Area= 1,245 sf Storage= 307 cf

Plug-Flow detention time= 2.2 min calculated for 0.368 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (813.9 - 812.9)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.35 cfs @ 12.14 hrs HW=22.32' (Free Discharge)
1=Culvert (Inlet Controls 4.35 cfs @ 3.54 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 2.86 cfs @ 12.15 hrs, Volume= 0.242 af
Outflow = 2.85 cfs @ 12.16 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.5 min
Primary = 2.85 cfs @ 12.16 hrs, Volume= 0.242 af
Routed to Reach R32 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 32.93' @ 12.16 hrs Surf.Area= 143 sf Storage= 90 cf

Plug-Flow detention time= 1.0 min calculated for 0.241 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (818.3 - 817.3)

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Longboard Ridge Stormwater Analysis
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Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.81 cfs @ 12.16 hrs HW=32.92' (Free Discharge)
1=Culvert (Inlet Controls 2.81 cfs @ 2.89 fps)

Summary for Pond P50: UDSF

Inflow Area = 1.193 ac, 38.57% Impervious, Inflow Depth = 4.60" for 25-yr event
Inflow = 4.96 cfs @ 12.18 hrs, Volume= 0.457 af
Outflow = 4.19 cfs @ 12.27 hrs, Volume= 0.457 af, Atten= 16%, Lag= 5.7 min
Primary = 0.06 cfs @ 12.27 hrs, Volume= 0.140 af
Routed to Reach R50 :
Secondary = 2.68 cfs @ 12.27 hrs, Volume= 0.293 af
Routed to Reach R50 :
Tertiary = 1.45 cfs @ 12.27 hrs, Volume= 0.025 af
Routed to Reach R50 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 45.06' @ 12.27 hrs Surf.Area= 2,705 sf Storage= 5,687 cf

Plug-Flow detention time= 231.4 min calculated for 0.457 af (100% of inflow)
Center-of-Mass det. time= 232.5 min (1,035.6 - 803.1)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	8,583 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.50	1,476	0.0	0	0
40.51	1,476	20.0	3	3
41.00	1,476	20.0	145	148
42.49	1,476	20.0	440	587
42.50	1,476	100.0	15	602
44.00	1,997	100.0	2,605	3,207
45.00	2,661	100.0	2,329	5,536
46.00	3,434	100.0	3,048	8,583

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Device	Routing	Invert	Outlet Devices
#1	Secondary	43.91'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 43.91' / 40.25' S= 0.1220 '/' Cc= 0.900 n= 0.040 Earth, cobble bottom, clean sides, Flow Area= 0.79 sf
#2	Tertiary	44.86'	7.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.67 2.65 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	40.25'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.27 hrs HW=45.05' (Free Discharge)
3=Orifice/Grate (Orifice Controls 0.06 cfs @ 10.50 fps)

Secondary OutFlow Max=2.67 cfs @ 12.27 hrs HW=45.05' (Free Discharge)
1=Culvert (Inlet Controls 2.67 cfs @ 3.40 fps)

Tertiary OutFlow Max=1.36 cfs @ 12.27 hrs HW=45.05' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 1.36 cfs @ 1.03 fps)

Summary for Link SP1:

Inflow Area = 13.984 ac, 10.88% Impervious, Inflow Depth > 3.93" for 25-yr event
Inflow = 30.78 cfs @ 12.40 hrs, Volume= 4.576 af
Primary = 30.78 cfs @ 12.40 hrs, Volume= 4.576 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 6.524 ac, 1.41% Impervious, Inflow Depth = 3.65" for 25-yr event
Inflow = 15.50 cfs @ 12.43 hrs, Volume= 1.987 af
Primary = 15.50 cfs @ 12.43 hrs, Volume= 1.987 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3:

Inflow Area = 6.000 ac, 8.00% Impervious, Inflow Depth = 3.89" for 25-yr event
Inflow = 16.31 cfs @ 12.25 hrs, Volume= 1.945 af
Primary = 16.31 cfs @ 12.25 hrs, Volume= 1.945 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Type III 24-hr 25-yr Rainfall=6.20"

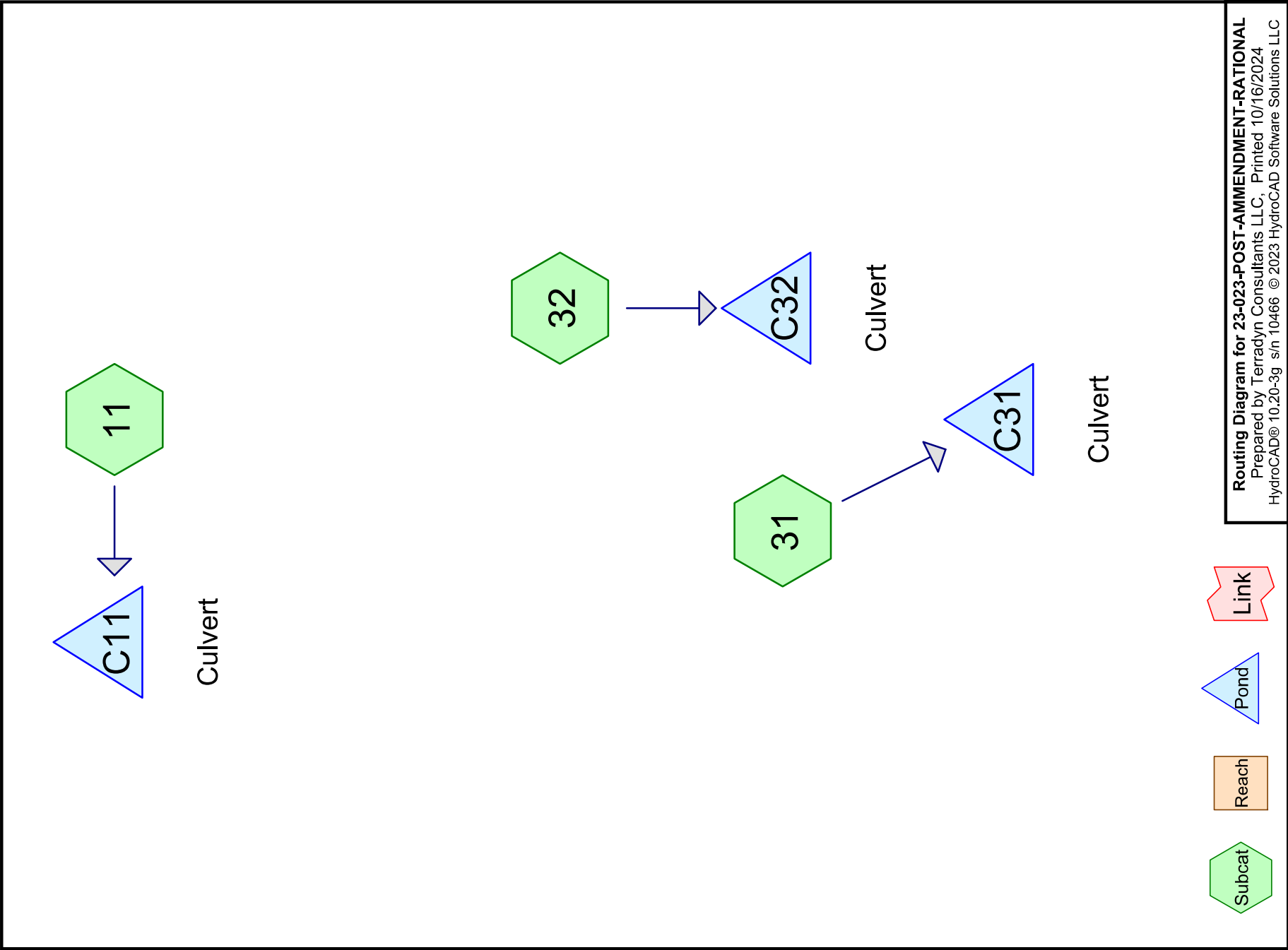
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Summary for Link SP4:

Inflow Area = 1.509 ac, 3.56% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 5.21 cfs @ 12.19 hrs, Volume= 0.472 af
Primary = 5.21 cfs @ 12.19 hrs, Volume= 0.472 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs



23-023-POST-AMMENDMENT-RATIONAL

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Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
0.069	0.95	Lot Impervious (31)
0.046	0.95	Lot Impervious (32)
0.459	0.22	Lot Lawn (31, 32)
0.042	0.22	Path Developed (31)
0.040	0.95	Peter Pond Ln (31)
0.100	0.95	Pool Street (11)
0.020	0.95	Proposed Road Impervious (11)
0.007	0.95	Proposed Road Impervious (32)
0.100	0.22	Road + Path Developed (32)
0.135	0.22	Road Developed (11)
1.899	0.15	Woods, Good, HSG D (11, 31, 32)

Summary for Subcatchment 11:

Runoff = 0.22 cfs @ 0.27 hrs, Volume= 0.018 af, Depth= 0.20"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 1-yr Duration=60 min, Inten=0.80 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed

46,630 0.25 Weighted Average
 41,394 88.77% Pervious Area
 5,236 11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 31:

Runoff = 0.22 cfs @ 0.11 hrs, Volume= 0.019 af, Depth= 0.20"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 1-yr Duration=60 min, Inten=0.80 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.14 cfs @ 0.18 hrs, Volume= 0.011 af, Depth= 0.18"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 1-yr Duration=60 min, Inten=0.80 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.20" for 1-yr event
 Inflow = 0.22 cfs @ 0.27 hrs, Volume= 0.018 af
 Outflow = 0.22 cfs @ 1.00 hrs, Volume= 0.018 af, Atten= 0%, Lag= 43.8 min
 Primary = 0.22 cfs @ 1.00 hrs, Volume= 0.018 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.23' @ 1.00 hrs Surf.Area= 187 sf Storage= 40 cf

Plug-Flow detention time= 3.6 min calculated for 0.018 af (100% of inflow)
 Center-of-Mass det. time= 3.5 min (41.4 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.22 cfs @ 1.00 hrs HW=41.23' (Free Discharge)
1=Culvert (Inlet Controls 0.22 cfs @ 1.43 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.20" for 1-yr event
 Inflow = 0.22 cfs @ 0.11 hrs, Volume= 0.019 af
 Outflow = 0.22 cfs @ 0.43 hrs, Volume= 0.019 af, Atten= 0%, Lag= 19.2 min
 Primary = 0.22 cfs @ 0.43 hrs, Volume= 0.019 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.23' @ 0.38 hrs Surf.Area= 64 sf Storage= 13 cf

Plug-Flow detention time= 1.2 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 1.0 min (34.1 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.22 cfs @ 0.43 hrs HW=21.23' (Free Discharge)
1=Culvert (Inlet Controls 0.22 cfs @ 1.44 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.18" for 1-yr event
Inflow = 0.14 cfs @ 0.18 hrs, Volume= 0.011 af
Outflow = 0.14 cfs @ 0.61 hrs, Volume= 0.011 af, Atten= 0%, Lag= 25.8 min
Primary = 0.14 cfs @ 0.61 hrs, Volume= 0.011 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.18' @ 0.54 hrs Surf.Area= 68 sf Storage= 10 cf

Plug-Flow detention time= 1.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (36.8 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.14 cfs @ 0.61 hrs HW=32.18' (Free Discharge)
1=Culvert (Inlet Controls 0.14 cfs @ 1.27 fps)

Summary for Subcatchment 11:

Runoff = 0.28 cfs @ 0.27 hrs, Volume= 0.023 af, Depth= 0.26"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 2-yr Duration=60 min, Inten=1.02 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 31:

Runoff = 0.29 cfs @ 0.11 hrs, Volume= 0.024 af, Depth= 0.26"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 2-yr Duration=60 min, Inten=1.02 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.17 cfs @ 0.18 hrs, Volume= 0.014 af, Depth= 0.23"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 2-yr Duration=60 min, Inten=1.02 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.26" for 2-yr event
 Inflow = 0.28 cfs @ 0.27 hrs, Volume= 0.023 af
 Outflow = 0.28 cfs @ 1.00 hrs, Volume= 0.023 af, Atten= 0%, Lag= 43.8 min
 Primary = 0.28 cfs @ 1.00 hrs, Volume= 0.023 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.26' @ 0.99 hrs Surf.Area= 190 sf Storage= 45 cf

Plug-Flow detention time= 3.2 min calculated for 0.023 af (100% of inflow)

Center-of-Mass det. time= 3.1 min (41.0 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.27 cfs @ 1.00 hrs HW=41.26' (Free Discharge)
1=Culvert (Inlet Controls 0.27 cfs @ 1.52 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.26" for 2-yr event
 Inflow = 0.29 cfs @ 0.11 hrs, Volume= 0.024 af
 Outflow = 0.29 cfs @ 0.39 hrs, Volume= 0.024 af, Atten= 0%, Lag= 16.8 min
 Primary = 0.29 cfs @ 0.39 hrs, Volume= 0.024 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.26' @ 0.36 hrs Surf.Area= 66 sf Storage= 15 cf

Plug-Flow detention time= 0.9 min calculated for 0.024 af (100% of inflow)
 Center-of-Mass det. time= 0.9 min (34.0 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.29 cfs @ 0.39 hrs HW=21.26' (Free Discharge)
1=Culvert (Inlet Controls 0.29 cfs @ 1.54 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.23" for 2-yr event
 Inflow = 0.17 cfs @ 0.18 hrs, Volume= 0.014 af
 Outflow = 0.17 cfs @ 0.57 hrs, Volume= 0.014 af, Atten= 0%, Lag= 23.4 min
 Primary = 0.17 cfs @ 0.57 hrs, Volume= 0.014 af
 Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 32.20' @ 0.50 hrs Surf.Area= 70 sf Storage= 12 cf
 Plug-Flow detention time= 1.2 min calculated for 0.014 af (100% of inflow)
 Center-of-Mass det. time= 1.2 min (36.6 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.17 cfs @ 0.57 hrs HW=32.20' (Free Discharge)
1=Culvert (Inlet Controls 0.17 cfs @ 1.35 fps)

Summary for Subcatchment 11:

Runoff = 0.34 cfs @ 0.27 hrs, Volume= 0.028 af, Depth= 0.32"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 5-yr Duration=60 min, Inten=1.27 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 0.36 cfs @ 0.11 hrs, Volume= 0.030 af, Depth= 0.32"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 5-yr Duration=60 min, Inten=1.27 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.22 cfs @ 0.18 hrs, Volume= 0.018 af, Depth= 0.29"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 5-yr Duration=60 min, Inten=1.27 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.32" for 5-yr event
 Inflow = 0.34 cfs @ 0.27 hrs, Volume= 0.028 af
 Outflow = 0.34 cfs @ 1.00 hrs, Volume= 0.028 af, Atten= 0%, Lag= 43.8 min
 Primary = 0.34 cfs @ 1.00 hrs, Volume= 0.028 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.29' @ 0.99 hrs Surf.Area= 193 sf Storage= 51 cf

Plug-Flow detention time= 2.9 min calculated for 0.028 af (100% of inflow)
 Center-of-Mass det. time= 2.8 min (40.7 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.34 cfs @ 1.00 hrs HW=41.29' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.61 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.32" for 5-yr event
 Inflow = 0.36 cfs @ 0.11 hrs, Volume= 0.030 af
 Outflow = 0.36 cfs @ 0.37 hrs, Volume= 0.030 af, Atten= 0%, Lag= 15.6 min
 Primary = 0.36 cfs @ 0.37 hrs, Volume= 0.030 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.29' @ 0.34 hrs Surf.Area= 68 sf Storage= 17 cf

Plug-Flow detention time= 0.8 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 0.8 min (33.9 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.36 cfs @ 0.37 hrs HW=21.29' (Free Discharge)
1=Culvert (Inlet Controls 0.36 cfs @ 1.63 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.29" for 5-yr event
Inflow = 0.22 cfs @ 0.18 hrs, Volume= 0.018 af
Outflow = 0.22 cfs @ 0.52 hrs, Volume= 0.018 af, Atten= 0%, Lag= 20.4 min
Primary = 0.22 cfs @ 0.52 hrs, Volume= 0.018 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.23' @ 0.47 hrs Surf.Area= 73 sf Storage= 14 cf

Plug-Flow detention time= 1.3 min calculated for 0.018 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (36.5 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.21 cfs @ 0.52 hrs HW=32.23' (Free Discharge)
1=Culvert (Inlet Controls 0.21 cfs @ 1.43 fps)

Summary for Subcatchment 11:

Runoff = 0.40 cfs @ 0.27 hrs, Volume= 0.033 af, Depth= 0.38"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 10-yr Duration=60 min, Inten=1.50 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 0.42 cfs @ 0.11 hrs, Volume= 0.035 af, Depth= 0.38"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 10-yr Duration=60 min, Inten=1.50 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.25 cfs @ 0.18 hrs, Volume= 0.021 af, Depth= 0.35"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 10-yr Duration=60 min, Inten=1.50 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.38" for 10-yr event
 Inflow = 0.40 cfs @ 0.27 hrs, Volume= 0.033 af
 Outflow = 0.40 cfs @ 0.98 hrs, Volume= 0.033 af, Atten= 0%, Lag= 42.6 min
 Primary = 0.40 cfs @ 0.98 hrs, Volume= 0.033 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.31' @ 0.88 hrs Surf.Area= 195 sf Storage= 56 cf

Plug-Flow detention time= 2.5 min calculated for 0.033 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (40.5 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.40 cfs @ 0.98 hrs HW=41.31' (Free Discharge)
1=Culvert (Inlet Controls 0.40 cfs @ 1.68 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.38" for 10-yr event
 Inflow = 0.42 cfs @ 0.11 hrs, Volume= 0.035 af
 Outflow = 0.42 cfs @ 0.36 hrs, Volume= 0.035 af, Atten= 0%, Lag= 15.0 min
 Primary = 0.42 cfs @ 0.36 hrs, Volume= 0.035 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.32' @ 0.32 hrs Surf.Area= 69 sf Storage= 19 cf

Plug-Flow detention time= 0.8 min calculated for 0.035 af (100% of inflow)
 Center-of-Mass det. time= 0.8 min (33.8 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 0.36 hrs HW=21.32' (Free Discharge)
1=Culvert (Inlet Controls 0.42 cfs @ 1.70 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.35" for 10-yr event
Inflow = 0.25 cfs @ 0.18 hrs, Volume= 0.021 af
Outflow = 0.25 cfs @ 0.49 hrs, Volume= 0.021 af, Atten= 0%, Lag= 18.6 min
Primary = 0.25 cfs @ 0.49 hrs, Volume= 0.021 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.25' @ 0.45 hrs Surf.Area= 75 sf Storage= 15 cf

Plug-Flow detention time= 1.2 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (36.5 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.25 cfs @ 0.49 hrs HW=32.25' (Free Discharge)
1=Culvert (Inlet Controls 0.25 cfs @ 1.49 fps)

Summary for Subcatchment 11:

Runoff = 0.51 cfs @ 0.27 hrs, Volume= 0.042 af, Depth= 0.47"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 25-yr Duration=60 min, Inten=1.88 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208	Total			

Summary for Subcatchment 31:

Runoff = 0.53 cfs @ 0.11 hrs, Volume= 0.044 af, Depth= 0.47"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 25-yr Duration=60 min, Inten=1.88 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.32 cfs @ 0.18 hrs, Volume= 0.026 af, Depth= 0.43"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 25-yr Duration=60 min, Inten=1.88 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.47" for 25-yr event
 Inflow = 0.51 cfs @ 0.27 hrs, Volume= 0.042 af
 Outflow = 0.51 cfs @ 0.92 hrs, Volume= 0.042 af, Atten= 0%, Lag= 39.0 min
 Primary = 0.51 cfs @ 0.92 hrs, Volume= 0.042 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.35' @ 0.84 hrs Surf.Area= 199 sf Storage= 64 cf

Plug-Flow detention time= 2.3 min calculated for 0.042 af (100% of inflow)

Center-of-Mass det. time= 2.4 min (40.2 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.51 cfs @ 0.92 hrs HW=41.35' (Free Discharge)
1=Culvert (Inlet Controls 0.51 cfs @ 1.78 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.47" for 25-yr event
 Inflow = 0.53 cfs @ 0.11 hrs, Volume= 0.044 af
 Outflow = 0.53 cfs @ 0.33 hrs, Volume= 0.044 af, Atten= 0%, Lag= 13.2 min
 Primary = 0.53 cfs @ 0.33 hrs, Volume= 0.044 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.36' @ 0.32 hrs Surf.Area= 72 sf Storage= 22 cf

Plug-Flow detention time= 0.7 min calculated for 0.044 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (33.8 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.53 cfs @ 0.33 hrs HW=21.36' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 1.80 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.43" for 25-yr event
 Inflow = 0.32 cfs @ 0.18 hrs, Volume= 0.026 af
 Outflow = 0.32 cfs @ 0.48 hrs, Volume= 0.026 af, Atten= 0%, Lag= 18.0 min
 Primary = 0.32 cfs @ 0.48 hrs, Volume= 0.026 af
 Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 32.28' @ 0.43 hrs Surf.Area= 78 sf Storage= 18 cf
 Plug-Flow detention time= 1.0 min calculated for 0.026 af (100% of inflow)
 Center-of-Mass det. time= 1.0 min (36.4 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.32 cfs @ 0.48 hrs HW=32.28' (Free Discharge)
1=Culvert (Inlet Controls 0.32 cfs @ 1.58 fps)

Summary for Subcatchment 11:

Runoff = 0.60 cfs @ 0.27 hrs, Volume= 0.050 af, Depth= 0.56"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 50-yr Duration=60 min, Inten=2.23 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 0.63 cfs @ 0.11 hrs, Volume= 0.052 af, Depth= 0.56"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 50-yr Duration=60 min, Inten=2.23 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.38 cfs @ 0.18 hrs, Volume= 0.031 af, Depth= 0.51"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 50-yr Duration=60 min, Inten=2.23 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.56" for 50-yr event
 Inflow = 0.60 cfs @ 0.27 hrs, Volume= 0.050 af
 Outflow = 0.60 cfs @ 0.88 hrs, Volume= 0.050 af, Atten= 0%, Lag= 36.6 min
 Primary = 0.60 cfs @ 0.88 hrs, Volume= 0.050 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.39' @ 0.81 hrs Surf.Area= 202 sf Storage= 71 cf
 Plug-Flow detention time= 2.1 min calculated for 0.050 af (100% of inflow)
 Center-of-Mass det. time= 2.2 min (40.1 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.60 cfs @ 0.88 hrs HW=41.39' (Free Discharge)
1=Culvert (Inlet Controls 0.60 cfs @ 1.87 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.56" for 50-yr event
 Inflow = 0.63 cfs @ 0.11 hrs, Volume= 0.052 af
 Outflow = 0.63 cfs @ 0.32 hrs, Volume= 0.052 af, Atten= 0%, Lag= 12.6 min
 Primary = 0.63 cfs @ 0.32 hrs, Volume= 0.052 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.39' @ 0.30 hrs Surf.Area= 74 sf Storage= 24 cf

Plug-Flow detention time= 0.9 min calculated for 0.052 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (33.7 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.63 cfs @ 0.32 hrs HW=21.39' (Free Discharge)
1=Culvert (Inlet Controls 0.63 cfs @ 1.89 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.51" for 50-yr event
 Inflow = 0.38 cfs @ 0.18 hrs, Volume= 0.031 af
 Outflow = 0.38 cfs @ 0.46 hrs, Volume= 0.031 af, Atten= 0%, Lag= 16.8 min
 Primary = 0.38 cfs @ 0.46 hrs, Volume= 0.031 af
 Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 32.30' @ 0.42 hrs Surf.Area= 80 sf Storage= 20 cf
 Plug-Flow detention time= 0.9 min calculated for 0.031 af (100% of inflow)
 Center-of-Mass det. time= 0.9 min (36.3 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.38 cfs @ 0.46 hrs HW=32.30' (Free Discharge)
1=Culvert (Inlet Controls 0.38 cfs @ 1.65 fps)

Summary for Subcatchment 11:

Runoff = 0.71 cfs @ 0.27 hrs, Volume= 0.059 af, Depth= 0.66"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 100-yr Duration=60 min, Inten=2.64 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 0.74 cfs @ 0.11 hrs, Volume= 0.061 af, Depth= 0.66"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 100-yr Duration=60 min, Inten=2.64 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.45 cfs @ 0.18 hrs, Volume= 0.037 af, Depth= 0.61"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 100-yr Duration=60 min, Inten=2.64 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.66" for 100-yr event
 Inflow = 0.71 cfs @ 0.27 hrs, Volume= 0.059 af
 Outflow = 0.71 cfs @ 0.86 hrs, Volume= 0.059 af, Atten= 0%, Lag= 35.4 min
 Primary = 0.71 cfs @ 0.86 hrs, Volume= 0.059 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.42' @ 0.80 hrs Surf.Area= 206 sf Storage= 78 cf
 Plug-Flow detention time= 2.0 min calculated for 0.059 af (100% of inflow)
 Center-of-Mass det. time= 2.0 min (39.9 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.71 cfs @ 0.86 hrs HW=41.42' (Free Discharge)
1=Culvert (Inlet Controls 0.71 cfs @ 1.95 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.66" for 100-yr event
 Inflow = 0.74 cfs @ 0.11 hrs, Volume= 0.061 af
 Outflow = 0.74 cfs @ 0.31 hrs, Volume= 0.061 af, Atten= 0%, Lag= 12.0 min
 Primary = 0.74 cfs @ 0.31 hrs, Volume= 0.061 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.43' @ 0.29 hrs Surf.Area= 76 sf Storage= 27 cf

Plug-Flow detention time= 0.6 min calculated for 0.061 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (33.7 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.74 cfs @ 0.31 hrs HW=21.43' (Free Discharge)
1=Culvert (Inlet Controls 0.74 cfs @ 1.97 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.61" for 100-yr event
Inflow = 0.45 cfs @ 0.18 hrs, Volume= 0.037 af
Outflow = 0.45 cfs @ 0.45 hrs, Volume= 0.037 af, Atten= 0%, Lag= 16.2 min
Primary = 0.45 cfs @ 0.45 hrs, Volume= 0.037 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.33' @ 0.43 hrs Surf.Area= 83 sf Storage= 22 cf

Plug-Flow detention time= 1.0 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (36.3 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 0.45 hrs HW=32.33' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.73 fps)

Summary for Subcatchment 11:

Runoff = 0.84 cfs @ 0.27 hrs, Volume= 0.070 af, Depth= 0.78"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 200-yr Duration=60 min, Inten=3.13 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 0.88 cfs @ 0.11 hrs, Volume= 0.073 af, Depth= 0.78"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 200-yr Duration=60 min, Inten=3.13 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 ' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 ' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.53 cfs @ 0.18 hrs, Volume= 0.044 af, Depth= 0.72"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 200-yr Duration=60 min, Inten=3.13 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.78" for 200-yr event
 Inflow = 0.84 cfs @ 0.27 hrs, Volume= 0.070 af
 Outflow = 0.84 cfs @ 0.83 hrs, Volume= 0.070 af, Atten= 0%, Lag= 33.6 min
 Primary = 0.84 cfs @ 0.83 hrs, Volume= 0.070 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.46' @ 0.76 hrs Surf.Area= 210 sf Storage= 87 cf

Plug-Flow detention time= 1.8 min calculated for 0.070 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (39.8 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.84 cfs @ 0.83 hrs HW=41.46' (Free Discharge)
1=Culvert (Inlet Controls 0.84 cfs @ 2.04 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.78" for 200-yr event
 Inflow = 0.88 cfs @ 0.11 hrs, Volume= 0.073 af
 Outflow = 0.88 cfs @ 0.31 hrs, Volume= 0.073 af, Atten= 0%, Lag= 12.0 min
 Primary = 0.88 cfs @ 0.31 hrs, Volume= 0.073 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.47' @ 0.29 hrs Surf.Area= 78 sf Storage= 30 cf

Plug-Flow detention time= 0.8 min calculated for 0.073 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (33.6 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.88 cfs @ 0.31 hrs HW=21.47' (Free Discharge)
1=Culvert (Inlet Controls 0.88 cfs @ 2.07 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.72" for 200-yr event
Inflow = 0.53 cfs @ 0.18 hrs, Volume= 0.044 af
Outflow = 0.53 cfs @ 0.43 hrs, Volume= 0.044 af, Atten= 0%, Lag= 15.0 min
Primary = 0.53 cfs @ 0.43 hrs, Volume= 0.044 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.36' @ 0.41 hrs Surf.Area= 86 sf Storage= 25 cf

Plug-Flow detention time= 0.8 min calculated for 0.044 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (36.2 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.53 cfs @ 0.43 hrs HW=32.36' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 1.81 fps)

Summary for Subcatchment 11:

Runoff = 1.06 cfs @ 0.27 hrs, Volume= 0.088 af, Depth= 0.98"
 Routed to Pond C11 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 500-yr Duration=60 min, Inten=3.93 in/hr

Area (sf)	C	Description
4,356	0.95	Pool Street
35,514	0.15	Woods, Good, HSG D
880	0.95	Proposed Road Impervious
5,880	0.22	Road Developed
46,630	0.25	Weighted Average
41,394		88.77% Pervious Area
5,236		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0600	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
2.1	108	0.0288	0.85		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
15.7	208				Total

Summary for Subcatchment 31:

Runoff = 1.10 cfs @ 0.11 hrs, Volume= 0.091 af, Depth= 0.98"
 Routed to Pond C31 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 500-yr Duration=60 min, Inten=3.93 in/hr

Area (sf)	C	Description
12,000	0.22	Lot Lawn
3,000	0.95	Lot Impervious
1,734	0.95	Peter Pond Ln
30,021	0.15	Woods, Good, HSG D
1,825	0.22	Path Developed
48,580	0.25	Weighted Average
43,846		90.26% Pervious Area
4,734		9.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
0.3	37	0.0800	1.98		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	137	0.0117	2.24	27.99	Trap/Vee/Rect Channel Flow, B-C Bot.W=20.00' D=0.50' Z= 10.0 '/' Top.W=30.00' n= 0.040
1.6	199	0.0125	2.06	18.03	Trap/Vee/Rect Channel Flow, D-E Bot.W=10.00' D=0.50' Z= 15.0 '/' Top.W=25.00' n= 0.040 Earth, cobble bottom, clean sides
6.1	423	Total			

Summary for Subcatchment 32:

Runoff = 0.67 cfs @ 0.18 hrs, Volume= 0.055 af, Depth= 0.90"
 Routed to Pond C32 : Culvert

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 ME-BIDDEFORD 500-yr Duration=60 min, Inten=3.93 in/hr

Area (sf)	C	Description
8,000	0.22	Lot Lawn
2,000	0.95	Lot Impervious
17,197	0.15	Woods, Good, HSG D
4,376	0.22	Road + Path Developed
300	0.95	Proposed Road Impervious
31,873	0.23	Weighted Average
29,573		92.78% Pervious Area
2,300		7.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.30"
1.6	150	0.1033	1.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
10.8	200	Total			

Summary for Pond C11: Culvert

Inflow Area = 1.070 ac, 11.23% Impervious, Inflow Depth = 0.98" for 500-yr event
 Inflow = 1.06 cfs @ 0.27 hrs, Volume= 0.088 af
 Outflow = 1.06 cfs @ 0.78 hrs, Volume= 0.088 af, Atten= 0%, Lag= 30.6 min
 Primary = 1.06 cfs @ 0.78 hrs, Volume= 0.088 af
 Routed to nonexistent node R11

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 41.52' @ 0.72 hrs Surf.Area= 216 sf Storage= 100 cf

Plug-Flow detention time= 1.8 min calculated for 0.088 af (100% of inflow)
 Center-of-Mass det. time= 1.7 min (39.6 - 37.9)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	165	0	0
42.00	262	214	214
43.00	395	329	542
44.00	5,000	2,698	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert

L= 68.0' CPP, mitered to conform to fill, Ke= 0.700
 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0074 '/' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.06 cfs @ 0.78 hrs HW=41.52' (Free Discharge)
1=Culvert (Inlet Controls 1.06 cfs @ 2.17 fps)

Summary for Pond C31: Culvert

Inflow Area = 1.115 ac, 9.74% Impervious, Inflow Depth = 0.98" for 500-yr event
 Inflow = 1.10 cfs @ 0.11 hrs, Volume= 0.091 af
 Outflow = 1.10 cfs @ 0.30 hrs, Volume= 0.091 af, Atten= 0%, Lag= 11.4 min
 Primary = 1.10 cfs @ 0.30 hrs, Volume= 0.091 af
 Routed to nonexistent node R31

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 21.54' @ 0.28 hrs Surf.Area= 82 sf Storage= 35 cf

Plug-Flow detention time= 0.7 min calculated for 0.091 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (33.6 - 33.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	6,885 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	50	0	0
22.00	110	80	80
23.00	3,500	1,805	1,885
24.00	6,500	5,000	6,885

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	15.0" Round Culvert

L= 35.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 21.00' / 20.00' S= 0.0286 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.10 cfs @ 0.30 hrs HW=21.54' (Free Discharge)
1=Culvert (Inlet Controls 1.10 cfs @ 2.20 fps)

Summary for Pond C32: Culvert

Inflow Area = 0.732 ac, 7.22% Impervious, Inflow Depth = 0.90" for 500-yr event
Inflow = 0.67 cfs @ 0.18 hrs, Volume= 0.055 af
Outflow = 0.67 cfs @ 0.42 hrs, Volume= 0.055 af, Atten= 0%, Lag= 14.4 min
Primary = 0.67 cfs @ 0.42 hrs, Volume= 0.055 af
Routed to nonexistent node R32

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 32.41' @ 0.39 hrs Surf.Area= 91 sf Storage= 29 cf

Plug-Flow detention time= 0.9 min calculated for 0.055 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (36.2 - 35.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	2,563 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	50	0	0
33.00	150	100	100
34.00	1,225	688	788
35.00	2,325	1,775	2,563

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round Culvert

L= 40.0' CPP, mitered to conform to fill, Ke= 0.700
Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0250 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 0.42 hrs HW=32.41' (Free Discharge)
1=Culvert (Inlet Controls 0.67 cfs @ 1.92 fps)

Attachment 4

Stormwater BMP Calculations

Culvert Calculations

Manning Equation $Q = VA = (1.00/n)AR^{(2/3)}\sqrt{S}$

Q = Flow Velocity (ft³/s)
v = velocity (ft/s)
A = Flow Area (ft²)
n = Mannings Roughness Coefficient
R = Hydraulic Radius (ft)
s = Channel Slope (ft/ft)

Roadway Culvert SD-1

Pipe Diameter (in) 15
INV. IN 41.0
INV. OUT 40.5
Length (ft) 68
Slope 0.007
n 0.012

25 YR Storm Peak Flow 5.75 (HydroCAD)

Location	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	R 2/3	Slope	Slope 1/2	Flow cubic ft/sec.	Velocity ft./sec.
15 INCH PIPE	15	1.2272	3.9270	0.3125	0.4605	0.0070	0.0837	5.8550	4.771

5.75 CFS < 5.855 CFS proposed pipe is large enough to meet 25 yr storm peak event

Path Culvert SD-2

Pipe Diameter (in) 15
INV. IN 32.0
INV. OUT 31.0
Length (ft) 40.0
Slope 0.025
n 0.012

25 YR Storm Peak Flow 2.79 (HydroCAD)

Location	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	R 2/3	Slope	Slope 1/2	Flow cubic ft/sec.	Velocity ft./sec.
15 INCH PIPE	15	1.2272	3.9270	0.3125	0.4605	0.0250	0.1581	11.0650	9.017

2.79 CFS < 11.065 CFS proposed pipe is large enough to meet 25 yr storm peak event

Path Culvert SD-3

Pipe Diameter (in) 15
INV. IN 21.0
INV. OUT 20
Length (ft) 35
Slope 0.028571
n 0.012

25 YR Storm Peak Flow 5.03 (HydroCAD)

Location	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	R 2/3	Slope	Slope 1/2	Flow cubic ft/sec.	Velocity ft./sec.
15 INCH PIPE	15	1.2272	3.9270	0.3125	0.4605	0.0286	0.1690	11.8290	9.639

5.03 CFS < 11.829 CFS proposed pipe is large enough to meet 25 yr storm peak event

DRAWDOWN CALCULATION FOR UDSF

Orifice Invert: 40.25
Orifice Diameter: 1 in.
Orifice Area (A): 0.00545415 ft²
WQV Elevation: 43.95
Bottom of Stone Elevation: 39.75
Discharge Coefficient (C): 0.6
Gravitational Constant (g): 32.2 ft/s²
Depth Increment: 0.10 ft

Orifice Equation: $Q = CA \cdot (2gH)^{0.5}$

Stage-Discharge Table

Depth (ft)	Stage (ft)	Area (sf)	Incremental Storage (cf Void Space %	Adjusted Storage (cf)	Discharge (Q), Time (hr)
0	40.25	1476	148	20	0.000
0.10	40.35	1476	148	30	0.008
0.20	40.45	1476	148	30	0.012
0.30	40.55	1476	148	30	0.014
0.40	40.65	1476	148	30	0.017
0.50	40.75	1476	148	30	0.019
0.60	40.85	1476	148	30	0.020
0.70	40.95	1476	148	30	0.022
0.80	41.05	1476	148	30	0.023
0.90	41.15	1476	148	30	0.025
1.00	41.25	1476	148	30	0.026
1.10	41.35	1476	148	30	0.028
1.20	41.45	1476	148	30	0.029
1.30	41.55	1476	148	30	0.030
1.40	41.65	1476	148	30	0.031
1.50	41.75	1476	148	30	0.032
1.60	41.85	1476	148	30	0.033
1.70	41.95	1476	148	30	0.034
1.80	42.05	1476	148	30	0.035
1.90	42.15	1476	148	30	0.036
2.00	42.25	1476	148	30	0.037
2.10	42.35	1476	148	30	0.038
2.20	42.45	1476	148	30	0.039
2.25	42.50	1476	148	148	0.039
2.35	42.60	1511	151	151	0.040
2.45	42.70	1545	155	155	0.041
2.55	42.80	1580	158	158	0.042
2.65	42.90	1615	161	161	0.043
2.75	43.00	1650	165	165	0.044
2.85	43.10	1684	168	168	0.044
2.95	43.20	1719	172	172	0.045
3.05	43.30	1754	175	175	0.046
3.15	43.40	1789	179	179	0.047
3.25	43.50	1823	182	182	0.047
3.35	43.60	1858	186	186	0.048
3.45	43.70	1893	189	189	0.049
3.55	43.80	1673	167	167	0.049
3.65	43.90	1674	167	167	0.050
3.75	44.00	1997	200	200	0.051

34.73333

24.62 hrs

Underdrained Soil Filter

Tributary Area

Landsaped Area	23184
Impervious Area	19750
Total	42,934

Minimum Surface Area = 2% x landscaped + 5% x impervious

Required Min. SA	1451
Maximum SA	3000
Provided SA	1476

Channel Protection Volume = 0.4" x landscaped + 1.0" x impervious

Required CPV	2419
Provided CPV	2426

Stage Storage

Elevation	Area (sf)	Incremental Volume (CF)	Total Volume (CF)	
42.5	1476	0	0	<-- Surface of Filter
43	1650	781	781	
43.91	1966	1645	2426	<-- Channel Protection Volume
44	1997	178	2605	
45	2450	2224	4828	<-- Top of Berm
46	2650			

Attachment 5

Inspection and Maintenance Manual



LONGBOARD RIDGE SUBDIVISION BIDDEFORD, MAINE STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN

Project Owner/Developer: Beachwood Development Fund, LLC.

92 York Street
Kennebunk, Maine 04043
(650) 985-3646

Responsible Party: Owner or Homeowners Association

Prepared By:

Terradyn Consultants, LLC
565 Congress Street, Suite 201
Portland, ME 04101
(207) 926-5111

INTRODUCTION:

Regular inspection and maintenance of the entire stormwater management system is crucial to the long-term effectiveness of the system. The responsible party must provide regular inspection and maintenance of all permanent erosion control measures and stormwater management structures, establish any contract services required to implement the program, and keep records and a maintenance logbook of inspection and maintenance activities. At a minimum, the inspection and maintenance activities outlined herein should be performed at the recommended intervals. A rainfall event of 0.5" in a 24 hour period would trigger a wet weather inspection during construction and a rainfall event of 1" in a 24 hour period would trigger a wet weather inspection post-construction.

All measures must be maintained in effective operating condition. A person with knowledge of erosion and sedimentation practices, stormwater management, and the standards and conditions of all local, state and federal permits for the project shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected.

Pineland 41 Campus Drive, Suite 301 New Gloucester, ME 04260	Portland 565 Congress Street, Suite 201 Portland, ME 04101	Auburn 95 Main Street, 2 nd Floor Auburn, ME 04210
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INSPECTION TASKS

1. Inspect **vegetated areas**, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
2. Inspect **ditches, swales and other open stormwater channels** in the spring, late fall and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, control vegetated growth that could obstruct flow and repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.
3. Inspect **culverts** in the spring, in late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris at the inlet, the outlet and within the culvert. Repair any erosion damage at the culvert's inlet and outlet.
4. Clear accumulations of winter sand **along roadways** 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. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.
5. Inspect **grassed underdrained soil filter** semi-annually and following major storm events. Debris and sediment buildup shall be removed from the forebay and basin as needed. Mowing of the grassed basin shall occur semi-annually to a height of 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. If drain time exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.
6. Inspect **resources** once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within site grading, ditch turnouts must be used to ensure a more even distribution of flow. Check down slope of all turnouts for erosion. If erosion is present, adjust or modify the turnout lip to ensure a better distribution of flow. Clean-out any accumulation of sediment within the turn-out pools.

ATTACHMENTS:

Example Stormwater Management Facilities Inspection & Maintenance Log

Stormwater Management Facilities Post Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 1" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Vegetated Areas			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 0.5" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Vegetated Areas			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Post Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 1" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Culverts			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 0.5" in 24 hours)			
BMP	Conditions Observed	Repairs Needed?	
Culverts			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Post Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 1" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Ditches, swales and other open stormwater channels			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 0.5" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Ditches, swales and other open stormwater channels			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Post Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 1" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Underdrained Soil Filter			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Stormwater Management Facilities Construction Inspection & Maintenance Log Longboard Ridge Subdivision, Biddeford, Maine			
General Information:			
Inspected by:		Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event, 0.5" in 24 hours)			
BMP		Conditions Observed	Repairs Needed?
Underdrained Soil Filter			
Detailed Repair Notes:			
BMP Type	Date	Description of Repairs & Sediment Disposal	

Attachment 6

Biddeford Standardized Stormwater Tables

PROJECT NAME - PREDEVELOPMENT LAND COVER SUMMARY							
Drainage Area	Area (SF)	Area (AC)	Subdrainage Land Cover Areas			Composite CN	Tc (hours)
			Impervious Area (SF)	Lawn Area HSG 'D' (SF)	Forest Area HSG 'D' (SF)		
			CN: 98	CN: 80	CN: 77		
1	574,729	13.19	22,377	-	552,352	78.0	0.52
2	284,493	6.53	-	-	284,493	77.0	0.52
3	294,903	6.77	2,914	-	291,989	77.0	0.44
4	66,370	1.52	2,339	-	64,013	78.0	0.22
TOTAL	1,220,494	28.02	27,630	-	1,192,847	77.5	

*If a drainage area contains multiple soil types with differing HSG classifications (i.e. 'C' vs 'D'), additional columns should be added for each pervious & gravel hydrologic soil group types (HSG).

*Gravel treated as impervious area

PROJECT NAME - POSTDEVELOPMENT LAND COVER SUMMARY							
Drainage Area	Area (SF)	Area (AC)	Subdrainage Land Cover Areas			Composite CN	Tc (hours)
			Impervious Area (SF)	Lawn Area HSG 'D' (SF)	Forest Area HSG 'D' (SF)		
			CN: 98	CN: 80	CN: 77		
10	510,570	11.72	40,993	57,962	411,615	79.0	0.48
11	46,630	1.07	5,236	5,880	35,514	80.0	0.26
20	284,199	6.52	4,000	16,000	264,199	77.0	0.52
30	180,926	4.15	13,870	51,704	115,352	79.0	0.43
31	48,580	1.12	4,734	13,825	30,021	80.0	0.10
32	31,873	0.73	2,300	12,376	17,197	80.0	0.18
40	65,750	1.51	2,339	2,140	61,271	78.0	0.22
50	51,956	1.19	20,038	24,175	7,743	86.0	0.22
TOTAL	1,220,484	28.02	93,510	184,062	942,912	78.9	-

*If a drainage area contains multiple soil types with differing HSG classifications (i.e. 'C' vs 'D'), additional columns should be added for each pervious & gravel hydrologic soil group types (HSG).

*Gravel treated as impervious area

PROJECT NAME - LAND COVER CURVE NUMBER SUMMARY TABLE				
USDA-NRCS SOIL CLASSIFICATION	HYDROLOGIC SOIL GROUP (HSG)	LAND COVER TYPES - CURVE NUMBERS		
		Impervious	Pervious, Good (Lawn)	Pervious, Good (Woods)
LyB (Lyman-Rock outcrop complex, 3-8% slope)	D	98	80	77
LyC (Lyman-Rock outcrop complex, 8-15% slope)	D	98	80	77
Scantic silt loam, 0 to 3 percent slopes	D	98	80	77

Source: *Urban Hydrology for Small Watersheds - TR-55*

**Gravel treated as impervious area*

BIDDEFORD - 24 HR RAINFALL DEPTHS	
2-YR	3.3 in
10-YR	4.9 in
25-YR	6.2 in
100-YR	8.7 in

*Per Appendix H of DEP's Chapter 500; Type III Storm

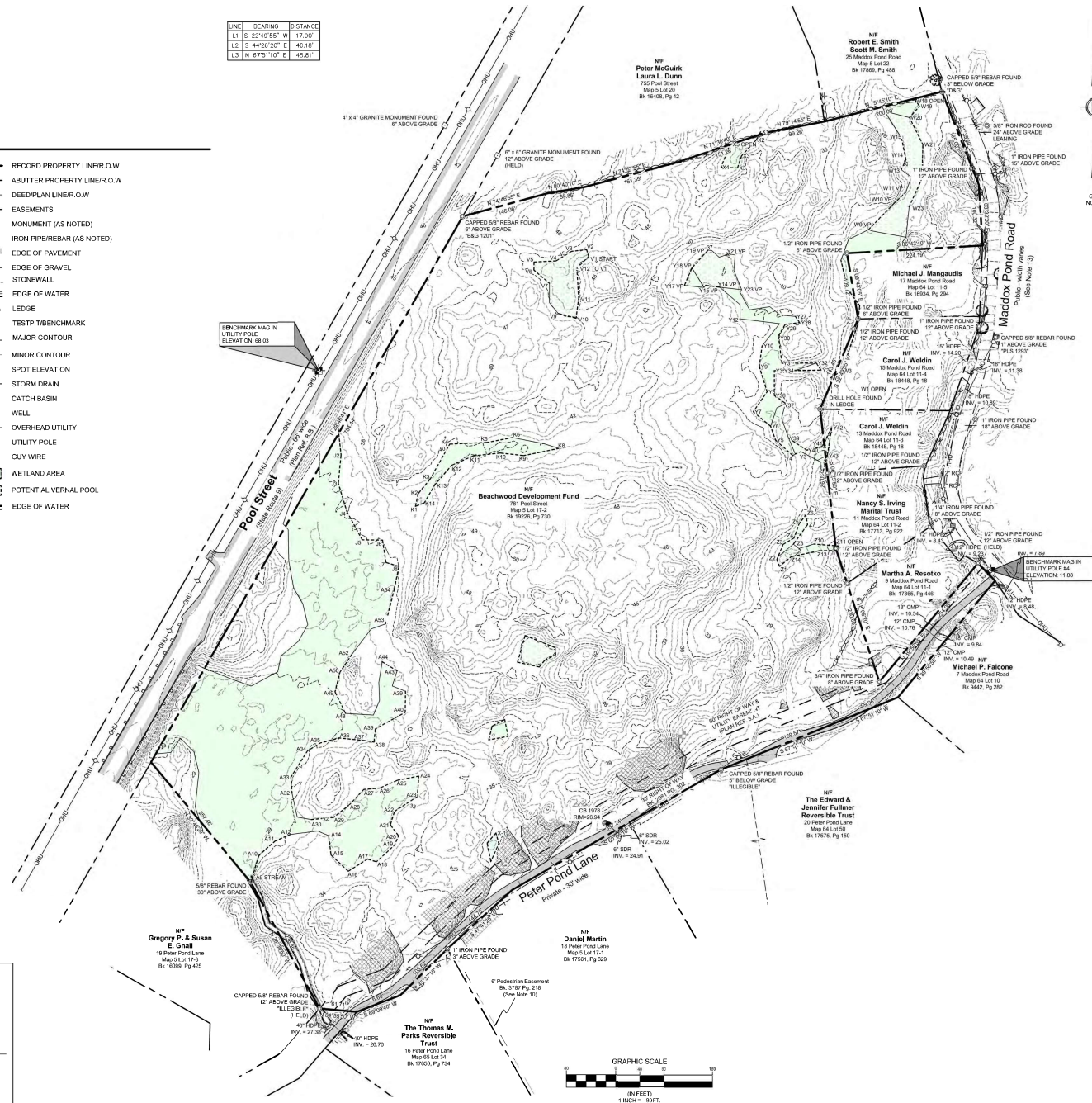
PROJECT NAME - STORMWATER RUNOFF DISCHARGE SUMMARY				
	STORM FREQUENCY	EXISTING DISCHARGE (CFS)	PROPOSED DISCHARGE (CFS)	NOTES
POI-1	Q ₂	11.36 CFS	11.01 CFS	
	Q ₁₀	22.61 CFS	21.63 CFS	
	Q ₂₅	32.33 CFS	30.78 CFS	
	Q ₁₀₀	51.56 CFS	49.44 CFS	
POI-2	Q ₂	5.31 CFS	5.30 CFS	
	Q ₁₀	10.77 CFS	10.75 CFS	
	Q ₂₅	15.52 CFS	15.50 CFS	
	Q ₁₀₀	24.94 CFS	24.91 CFS	
POI-3	Q ₂	5.90 CFS	5.87 CFS	
	Q ₁₀	11.98 CFS	11.28 CFS	
	Q ₂₅	17.28 CFS	16.31 CFS	
	Q ₁₀₀	27.77 CFS	26.48 CFS	
POI-4	Q ₂	1.85 CFS	1.83 CFS	
	Q ₁₀	3.68 CFS	3.65 CFS	
	Q ₂₅	5.26 CFS	5.21 CFS	
	Q ₁₀₀	8.37 CFS	8.29 CFS	
TOTAL	Q ₂	24.42 CFS	24.01 CFS	
	Q ₁₀	49.04 CFS	47.31 CFS	
	Q ₂₅	70.39 CFS	67.80 CFS	
	Q ₁₀₀	112.64 CFS	109.12 CFS	

LEGEND

- | | |
|--|-----------------------------|
| | RECORD PROPERTY LINE/R.O.W |
| | ABUTTER PROPERTY LINE/R.O.W |
| | DEED/PLAN LINE/R.O.W |
| | EASEMENTS |
| | MONUMENT (AS NOTED) |
| | IRON PIPE/REBAR (AS NOTED) |
| | EDGE OF PAVEMENT |
| | EDGE OF GRAVEL |
| | STONEMALL |
| | EDGE OF WATER |
| | LEDGE |
| | TEST/PIVOT/BENCHMARK |
| | MAJOR CONTOUR |
| | MINOR CONTOUR |
| | SPOT ELEVATION |
| | STORM DRAIN |
| | CATCH BASIN |
| | WELL |
| | OVERHEAD UTILITY |
| | UTILITY POLE |
| | GUY WIRE |
| | WETLAND AREA |
| | POTENTIAL VERNAL POOL |
| | EDGE OF WATER |

STATE OF MAINE, York County, SS
REGISTRY OF DEEDS

Received _____
At _____ h _____ m _____ M and recorded in
Plan Book _____, Page _____
Attest _____
Registrar



1. The purpose of this plan is to depict the results of a Boundary Retracement and Existing Contour Topographic Survey of the subject parcel.
2. All book and page numbers refer to the York County Registry of Deeds, unless otherwise noted.
3. The record owner of the subject parcel is Beachwood Development Fund, by a deed dated April 24, 2023 and recorded in Book 19226, Page 730.
4. The subject parcel is shown in the Town of Bideford Tax Map 5 as Lot 17-2 and is located in the Coastal Residential District.
5. Space and bulk standards for the Coastal Residential District as of the date of this plan are as follows:

Min. Lot Size:	20,000 sq ft
Min. Frontage:	150 ft
Min. Front Setback from major right of way:	40 ft
Min. Front Setback from other right of way:	25 ft
Min. Side Setback:	25 ft
Min. Rear Setback:	25 ft
Max. Building Height:	35 ft
6. Total area of the subject parcel is 25.30 acres.
7. Boundary and topographic information shown herein is based on an on the ground survey performed by Tensinly Consultants, LLC in May 2023 and supplemented with LIDAR Remote Sensing, collected in 2020 by the State of Maine and distributed by the USGS as classified LIDAR point cloud.

NAD83/06-Gowd18
Error (90% confidence interval) in meters = 0.030

- A. Paper References:**
8. "Peter Pond - Phase 2 Plan Showing a Standard Boundary Survey" Prepared for Richard W. Banfield by Dow & Coulombe, Inc. Dated Aug 22, 1989
9. "Maine State Highway Commission Right of Way Map: State Aid Highway #27 Federal Aid Project No. 5-011-022 Dated December 1961. Recorded in the York County Registry of Deeds Plan Book 39 Page 8.
10. "Plan Showing Lots Belonging To J. Gordon Adamson et al." Prepared by Libby & Dow Engineers, Dated 1987. Recorded in the York County Registry of Deeds Plan Book 43 Page 8.
11. "Peter Pond - Phase 3 Plan" Prepared for Peter Pond, Inc. by Dow & Coulombe, Inc. Dated July 22, 1993. Recorded in the York County Registry of Deeds Plan Book 44 Page 31.
12. Plan orientation is Grid North, Maine State Plane Coordinate System, West Zone 18SD HA083. Elevations depicted herein are NAVD83, based on dual-frequency GPS observations.
13. The subject parcel may benefit from a 6' wide pedestrian easement as described in Book 3767, Page 218. This easement is described in Plan Reference A-6, and "To Be Absorbed" in the current status of this easement as described in Plan Reference A-6.
14. The subject parcel is subject to rights of others to use of the 30-foot-wide right of way and 50-foot utility easement as shown on Plan Reference A-8, and described in the following deeds: Book 2681, Page 302; Book 3673, Page 141, and Book 3737, Page 218; Book 3109, Page 205; Page 205; Page 42; Book 1206, Page 147; Book 3622, Page 125; Book 4598, Page 131; Book 3832, Page 230; Book 2018, Page 46.
15. The subject parcel is subject to mineral rights reservations and utility easements appearing of record.
16. The word of Middleton Pond Road varies as depicted on a hand-drawn map supplied by the City of Biddeford.
17. The subject parcel is located within Zone X, Areas of Minimal Flood Hazard, as delineated on the Flood Insurance Rate Map for the Town of Biddeford, York County.
18. Community-Plan Number 201465018, having an Effective Date of May 15, 1984.
19. The depth, size, location, existence or nonexistence of underground utilities and/or structures are not investigated as part of this survey. Utilities depicted hereon may not necessarily represent all existing utilities. Owners, contractors, and/or designers need to contact Dig-Safe Systems, Inc. (call 811) and verify all existing utilities prior to digging or breaking ground.

To the best of my knowledge, I have used ordinary and prudent conduct expected of Professional Land Surveyors and the results shown here represent the licensee's responsibility to the public as required under the Standards of Practice as defined by the Board of Licensure for Professional Land Surveyors (M.R.S.A Title 32, Chapter 141, Dated April 2001).

Except as Follows

1. Survey Report Limited to Notes on the Plan
2. No Deed Description to Date

Plan Prepared by:

Nicholas Racinoppi P.I.S. # 2621

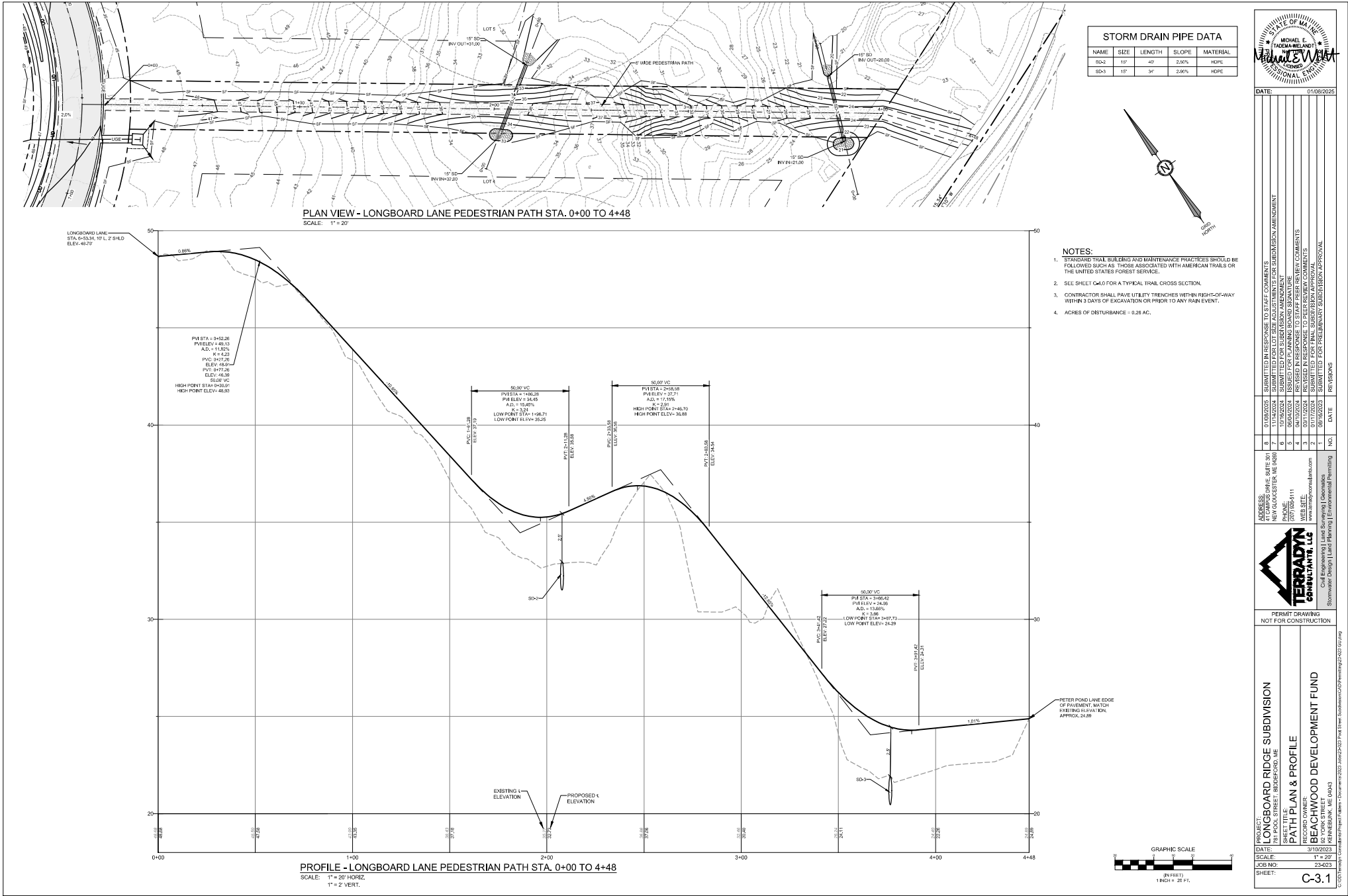
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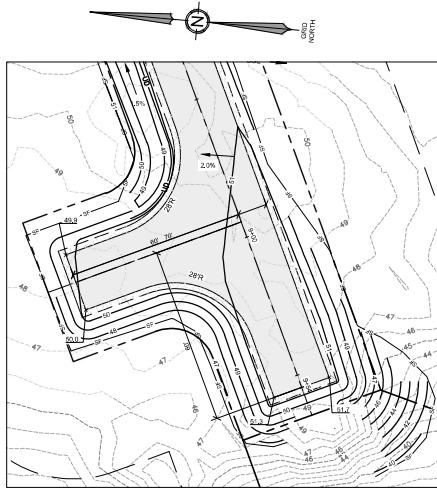
	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLouceSTER, ME 04269	PHONE: (207) 926-4311	WEB SITE: www.terradyneconsultants.com
	Civil Engineering Land Surveying Geomatics Stormwater Design Land Planning Environmental Permitting		



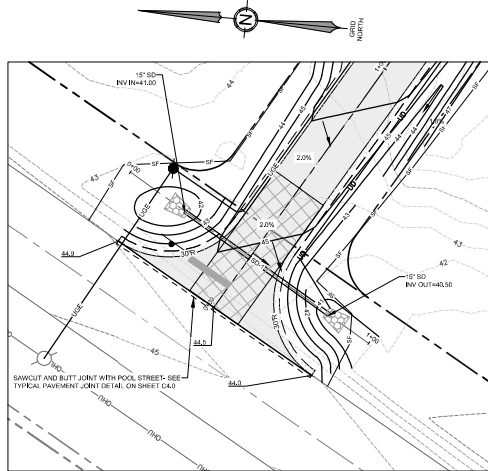
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701 POOL STREET, BIODFORE, MAINE
DATE: 06/25/2023
SCALE: 1" = 80'
JOB NO: 23-023
SHEET: 1 OF 1



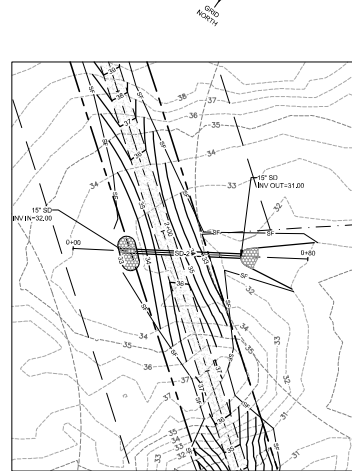




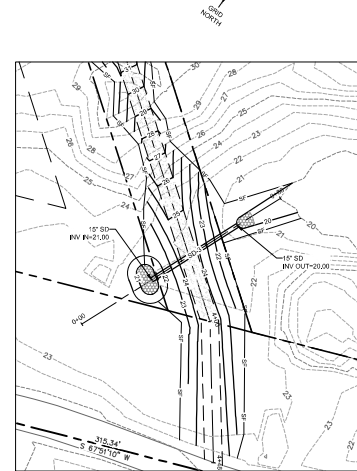
PLAN VIEW - HAMMERHEAD DETAIL
SCALE: 1" = 20'



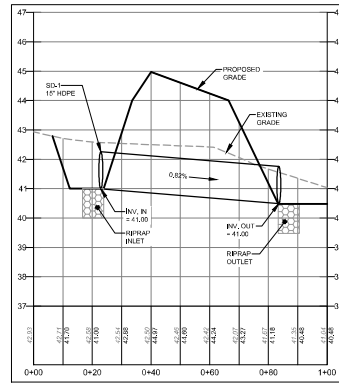
PLAN VIEW - PROPOSED ROAD CONNECTION TO POOL STREET
SCALE: 1" = 20'



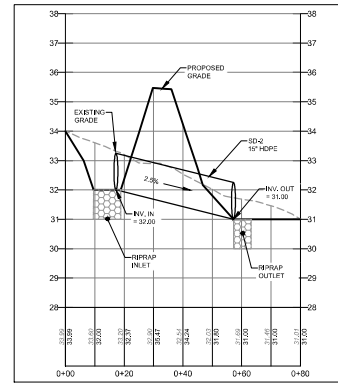
PLAN VIEW - STORM DRAIN 2
SCALE: 1" = 20'



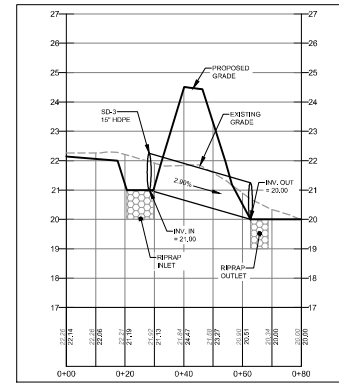
PLAN VIEW - STORM DRAIN 2
SCALE: 1" = 20'



CULVERT SECTION - STORM DRAIN 1
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1" = 2' VERT.

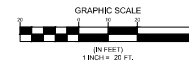


CULVERT SECTION - STORM DRAIN 2
SCALE: 1" = 20' HORIZ.
1" = 2' VERT.



CULVERT SECTION - STORM DRAIN 3
SCALE: 1" = 20' HORIZ.
1" = 2' VERT.

NOTES:
1. CONTRACTOR SHALL PAVE UTILITY TRENCHES WITHIN RIGHT-OF-WAY WITHIN 3 DAYS OF EXCAVATION OR PRIOR TO ANY RAIN EVENT.



PROJECT: LONGBOARD RIDGE SUBDIVISION
741 POOL STREET, BRIDGEFORD, ME

SHEET TITLE: PLAN & PROFILE DETAILS

SECOND OWNER: BEACHWOOD DEVELOPMENT FUND
3000 BEACHWOOD DRIVE
KENNEBUNK, ME 04043

DATE: 3/19/2023

SCALE: 1" = 20'

JOB NO: 23-023

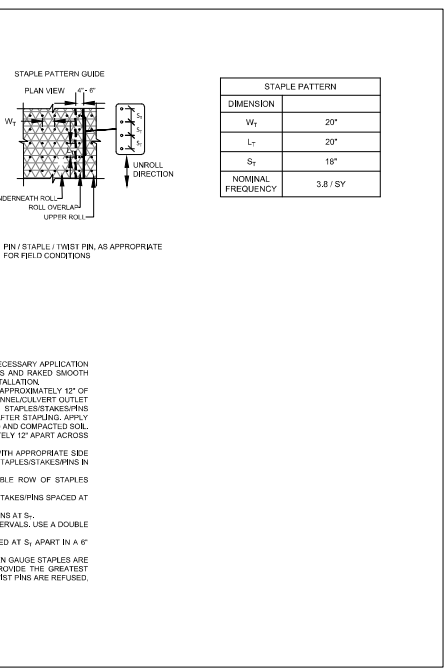
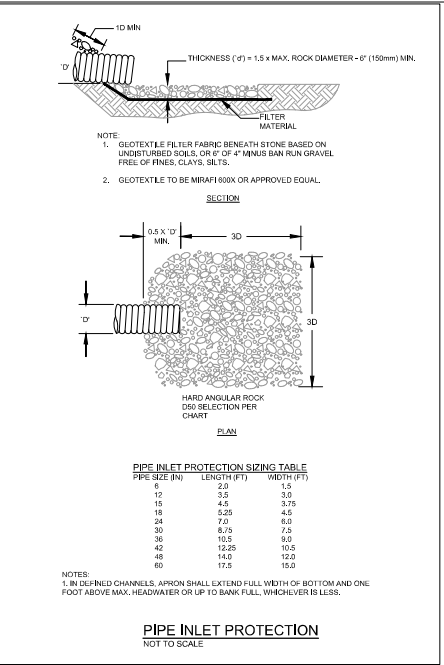
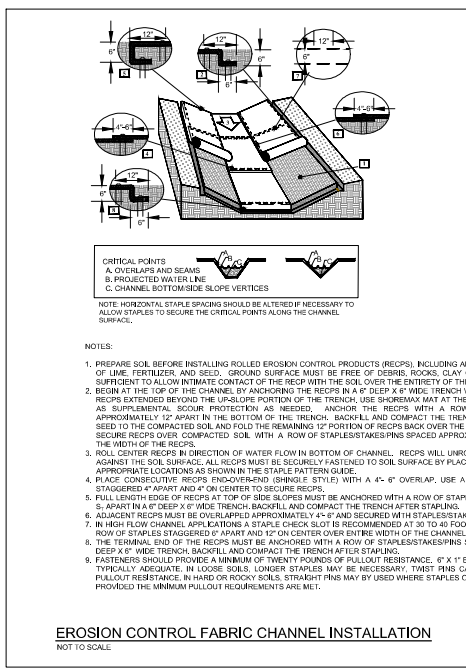
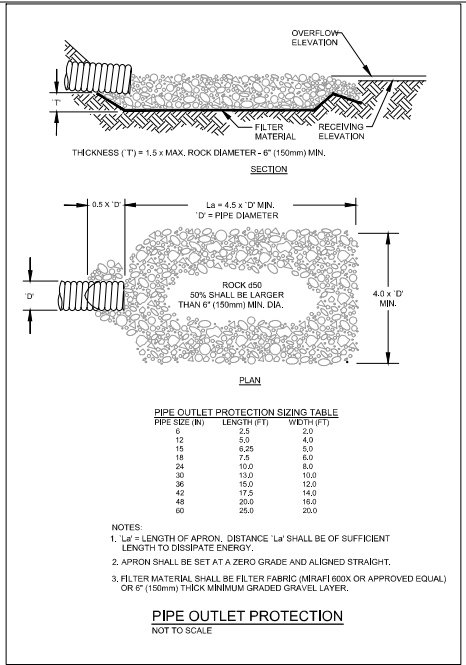
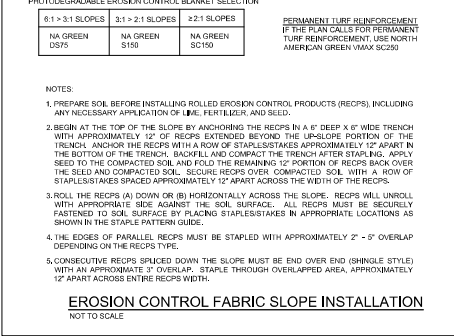
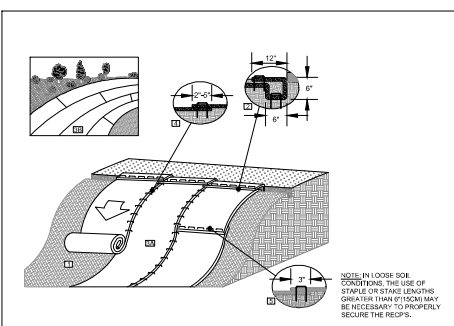
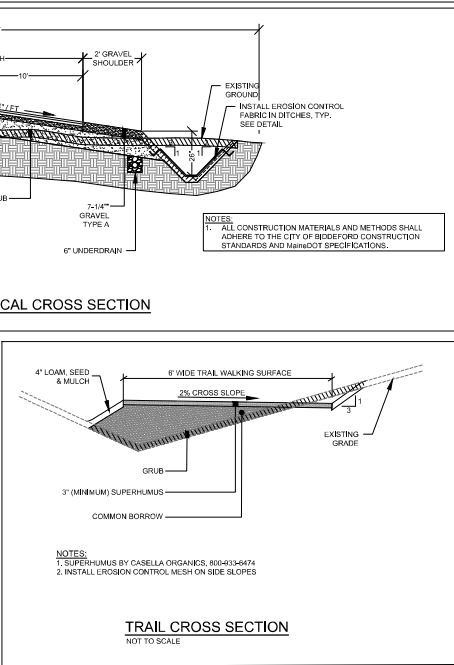
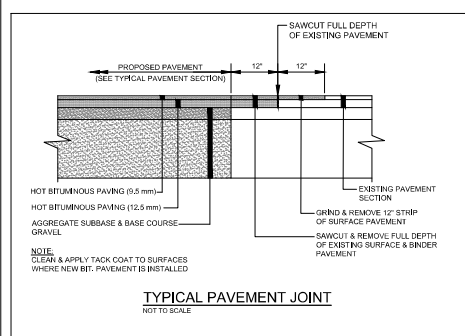
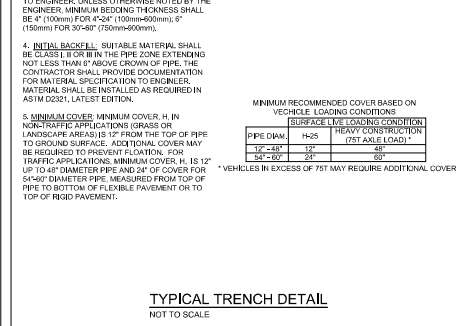
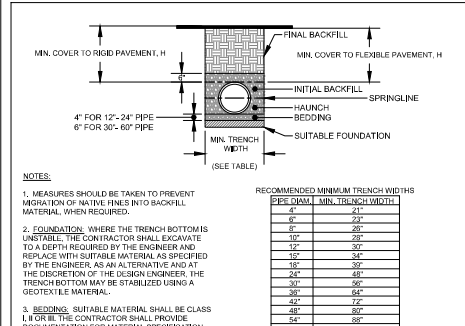
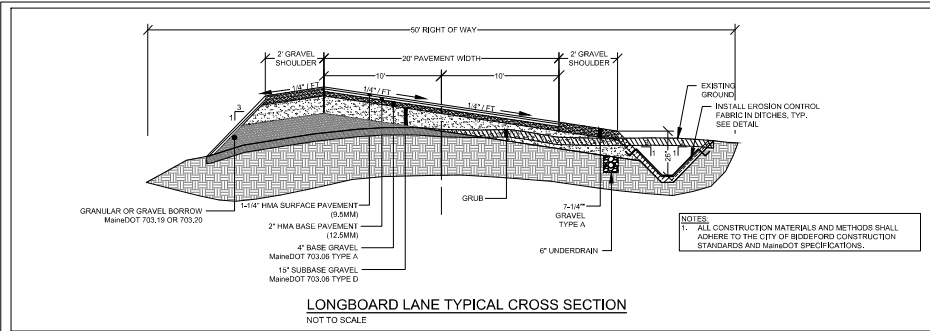
SHEET: C-3.2

DATE: 01/08/2025

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL
2	03/11/2024	REVISED IN RESPONSE TO REVIEW COMMENTS
3	03/11/2024	REVISED IN RESPONSE TO REVIEW COMMENTS
4	04/10/2024	REVISED IN RESPONSE TO STAFF REVIEW COMMENTS
5	06/04/2024	ISSUED FOR PLANNING BOARD SIGNATURE
6	06/04/2024	SUBMITTED FOR LOT SIZE ADJUSTMENTS FOR SUBDIVISION AMENDMENT
7	11/14/2024	SUBMITTED FOR LOT SIZE ADJUSTMENTS FOR SUBDIVISION AMENDMENT
8	01/08/2025	SUBMITTED IN RESPONSE TO STAFF COMMENTS

TERRADYN CONSULTANTS, LLC
Civil Engineers | Land Surveyors | Geologists
Borrower Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION



PROJECT: LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BRIDGEMONT, ME 04901

SHEET TITLE: SITE DETAILS

DATE: 01/08/2025

SCALE: AS NOTED

JOB NO: 23-023

SHEET: C-4.0

RECORD OWNER: BRIDGEMONT TOWN DEVELOPMENT FUND

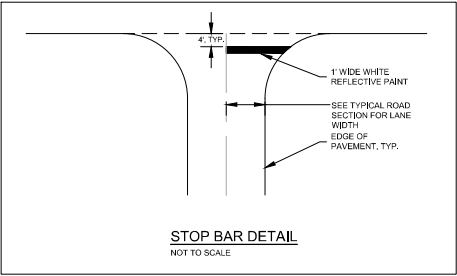
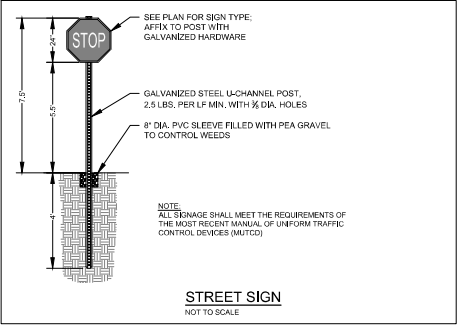
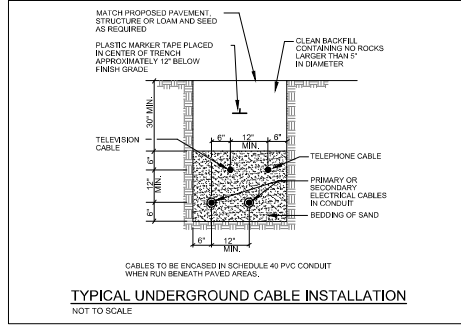
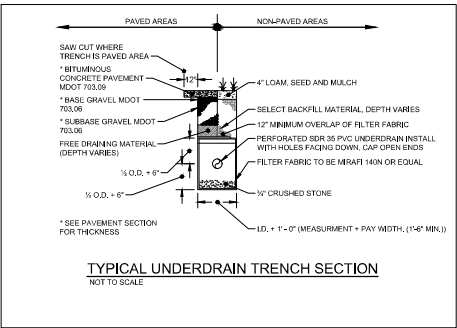
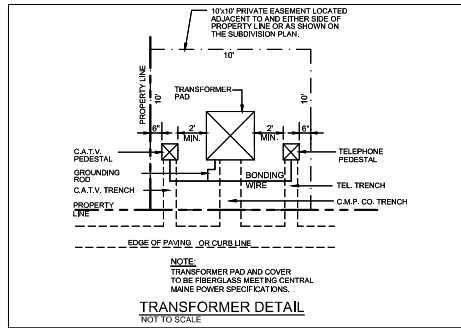
DESIGNER: TERRADYN CONSULTANTS, LLC

ENGINEER: MICHAEL E. KENNERK, P.E.

DATE: 01/08/2025

REVISIONS:

NO.	DATE	REVISIONS
1	01/08/2025	SUBMITTED IN RESPONSE TO STAFF COMMENTS
2	01/08/2025	SUBMITTED FOR LOT SIZE ADJUSTMENTS FOR SUBDIVISION AMENDMENT
3	01/08/2025	ISSUED FOR PLANNING BOARD SIGNATURE
4	01/08/2025	REVISED IN RESPONSE TO STAFF REVIEW COMMENTS
5	01/08/2025	REVISED IN RESPONSE TO STAFF REVIEW COMMENTS
6	01/08/2025	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL



DATE: 01/08/2025

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL
2	03/11/2024	REVISED IN RESPONSE TO STAFF REVIEW COMMENTS
3	04/10/2024	REVISED IN RESPONSE TO STAFF REVIEW COMMENTS
4	06/04/2024	ISSUED FOR PLANNING BOARD SIGNATURE
5	06/04/2024	REVISED FOR PLANNING BOARD SIGNATURE
7	11/11/2024	SUBMITTED FOR LOT SIZE ADJUSTMENTS FOR SUBDIVISION AMENDMENT
8	01/08/2025	SUBMITTED IN RESPONSE TO STAFF COMMENTS

ADDRESS:
41 CAMPO DRIVE, SUITE 301
NEW GLoucester, ME 04060

PHONE:
(207) 883-1111

WEBSITE:
www.terradynconsultants.com

PROJECT:
LONGBOARD RIDGE SUBDIVISION

SHEET TITLE:
UTILITY AND MISCELLANEOUS DETAILS

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
KENNEBUNK, ME 04043

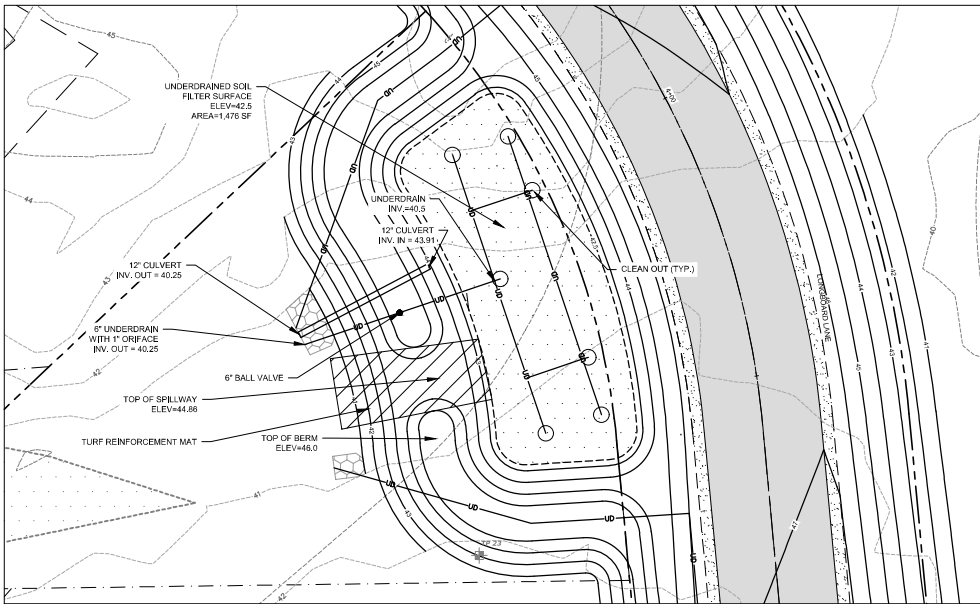
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Environmental Permitting
Borrowwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: LONGBOARD RIDGE SUBDIVISION
SHEET TITLE: UTILITY AND MISCELLANEOUS DETAILS
RECORD OWNER: BEACHWOOD DEVELOPMENT FUND
KENNEBUNK, ME 04043

DATE: 01/08/2025
SCALE: AS NOTED
JOB NO: 23-023
SHEET: C-4.2

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EMBANKMENT FILL MATERIAL

FIG. 1001 REVEALS PROPOSED SLOPE, ROCKS OVER 18 INCHES AND SOIL, BRUSH, STUMPS, TREE ROOTS, WOOD, OR OTHER PERMEABLE MATERIALS. EMBANKMENT FILLS LESS THAN 10 FEET IN FILL HEIGHT MUST BE COMPACTED USING COMPACTION METHODS THAT WOULD GUARANTEE A FILL DENSITY OF 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM-99). ALL EMBANKMENT FILL IS MORE THAN 10 FEET IN FILL HEIGHT MUST BE COMPACTED TO 90% OF THE MAXIMUM DENSITY AND MUST HAVE THEIR DENSITY VERIFIED BY FIELD DENSITY TESTING.

POND CONSTRUCTION DETAIL

NOT TO SCALE

SPILLWAY CROSS-SECTION

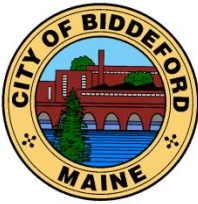
NOT TO SCALE

SPILLWAY SECTION

NOT TO SCALE

EMBANKMENT CONSTRUCTION NOTES:

1. CONTRACTOR SHALL REMOVE ALL TORCH AND ORGANIC MATERIAL FROM EMBANKMENT AND POND CONSTRUCTION AREA. SCARIFY SUBGRADE TO ESTABLISH INTERFAC FOR ALL FILLS.
2. COMPACT IN 12" LIFTS TO 92% OF MAXIMUM DRY DENSITY.
3. INSTALL EROSION AND EROSION CONTROL MESH WHERE SPECIFIED.
4. LOAM, SEED & STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN NOTES.



CITY OF BIDDEFORD

Planning and Development Department

David Galbraith
City Planner & Deputy Director of Planning &
Development
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
David.galbraith@biddefordmaine.org

FINDINGS OF FACT AND CONCLUSIONS OF LAW

**1921 Pepperell, LLC
Redevelopment of Pepperell Mill Buildings 19 & 20
64 residential units
6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1)
January 15, 2025**

RE: 2024.59 Final Site Plan Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Chapter 66 (Subdivisions), the Biddeford Planning Board has considered the application of Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning Board makes the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT:

1.	Applicant:	1921 Pepperell, LLC 16 Casco Street Portland, ME 04101
2.	Owner of Property:	Pepperell Mill Development Pepperell Mill Progression
3.	Agent:	Peter Heil P.E. Acorn Engineering PO Box 3372 Portland, ME 04104-3372
4.	Surveyor:	Randy Loubier, PLS Owen Haskell, Inc 390 US Route 1 Falmouth, ME 04105
5.	Project Location:	6, 32-40 Main Street
6.	Project Tax Map #/Lot #:	Tax Map 71, Lots 10-7, 10-4, 10-1
7.	Lot Size:	.50 Acres
8.	Base Zoning:	MSRD-3
9.	Overlay Zoning:	GD-1
10.	Existing Use:	Vacant Buildings
11.	Proposed Use:	64 Residential Units with utility infrastructure improvements
12.	Approvals Required:	Subdivision/Site Plan
13.	Uses in the Vicinity:	Commercial/Residential

FINDINGS OF FACT AND CONCLUSIONS OF LAW
1921 Pepperell, LLC – PB Case # 2024.59
Redevelopment of Pepperill Mill Buildings 19 & 20
64 residential units
6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1)
January 15, 2025

14.	Waivers Needed:	a. Stormwater Requirement Land Development Regulations Part III, Article XI, Section 5.B.1 Drainage
18.	Waivers Granted:	a. None
22.	Other Non-City Permits Required:	
23.	LDR Attachment A: Fees Paid:	Paid
25.	Planning Board Review History: June 5, 2024- Sketch Plan	

CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odors, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;

FINDINGS OF FACT AND CONCLUSIONS OF LAW
1921 Pepperell, LLC – PB Case # 2024.59
Redevelopment of Pepperill Mill Buildings 19 & 20
64 residential units
6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1)
January 15, 2025

11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for the disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

APPROVAL GRANTED – CONDITIONS OF APPROVAL (COA):

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report and pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Subdivision Review, and hereby approves Case # 2024.59 for 1921 Pepperell, LLC to build 64 residential units and associated site and infrastructure improvements, within the Pepperell Mill Campus, Buildings # 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) with the following Conditions of Approval (COA):

1. Standard Conditions of Approval apply.
2. All vehicle maneuvering, loading and unloading must occur on-site and may not utilize Main Street for loading or backing into / out of the property.
3. The Applicant shall provide interior storm and sanitary plumbing plans, confirming both gravity systems are separated and have separated downstream connections within the City's infrastructure. If the interior storm and sanitary piping are not separated or do not outfall into separated systems, the Applicant shall provide formal separation plans, including disconnection of roof drains / downspouts. If the building's interior pipe route is unclear, CCTV footage shall

FINDINGS OF FACT AND CONCLUSIONS OF LAW
1921 Pepperell, LLC – PB Case # 2024.59
Redevelopment of Pepperill Mill Buildings 19 & 20
64 residential units
6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1)
January 15, 2025

be provided. The submitted plans shall be reviewed and approved by the City's Director of Engineering prior to the issuance of any building or plumbing permits.

4. Prior to the scheduling of the required Pre-construction meeting the Applicant shall make all required changes to the project Civil Plans for the review and approval of the Director of Engineering.
5. Bonding and Inspection Fees: **Bonding and inspection fees shall be established prior to scheduling of the required Pre-construction meeting.**
6. Modifications to Approved Development Plans: The project shall be constructed in accordance with the approved development plans. **No deviations to the approved development plans shall be made without prior written authorization by the City Planner.** Should the Applicants desire a modification from approved plans, they shall be required to submit a formal letter requesting a "minor modification" to the approved development plans. The narrative shall be submitted outlining the request, the reasoning for the request (justification) and include plans illustrating the approved plans and proposed modifications. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board. It should be noted that review fees for any proposed changes may be assessed to the Applicant, for Staff or Peer Review time spent evaluating the request.
7. Once stamped and signed "As-Built drawings" are submitted to the Planning and Engineering Departments (clearly identifying what approved deviations and variances were installed based on the approved permit drawings), the City Engineering Department will conduct an inspection. The "as Built Checklist" shall be submitted for review and approval, for any performance guarantee release.
8. As-Built Drawings and CAD Files need to be submitted to the Planning & Engineering Departments **prior to a 'Site Punch list Inspection' and any bond release.**
9. York County Recorded Drawings: Applicant must submit recorded copies of York County Registry of Deed drawings to Planning & Engineering Department **prior to Building Permit Issuance.**
10. The Site Plan indicates a "potential bike rack location", and the Dero Bike Hitch detail indicates it has the capacity to two bicycles. The Applicant's shall provide a minimum one bike rack for the development, preferably one that can accommodate multiple bicycles. The Applicants shall work with the City Planner on the specific location and style.
11. **The "Amended and Restated Declaration of Covenants, Conditions, Easements and Restrictions of Pepperill Mill Master Association" shall be submitted for City Planner review and approval prior to the issuance of building permits for the project.** The document must specifically address the perpetual preservation and maintenance of the historically significant elevated and enclosed pedestrian access bridges.
12. The City's Parking Ordinance requires 102 parking stalls to be provided for the development. All proposed/required parking shall be provided in the City's parking garage located on Pearl Street, with the exception of the five (5) spaces located "on-site" adjacent to the new primary

FINDINGS OF FACT AND CONCLUSIONS OF LAW
1921 Pepperell, LLC – PB Case # 2024.59
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January 15, 2025

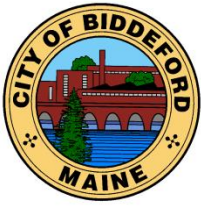
property entrance. Prior to the issuance of Occupancy Permits being issued for either building, a perpetual parking agreement, with the garage operator, shall be established and be in effect.

13. Parking: Five (5) parking stalls are being proposed “on-site”: 2 – handicapped parking stalls, 1 standard parking stall and two (2) parallel parking stalls. The three (3) non-handicapped parking stalls shall be designated and signed for short-term parking (15-30 minutes) to be utilized as loading and unloading (groceries, deliveries, moving, etc.).
14. Parking Garage: In addition to the “on-site parking” being provided, the Applicants are proposing to lease 97-parking stalls within the municipal parking garage located on Pearl Street. Copies of the executed perpetual parking lease agreements (97-parking stalls) shall be provided to the City’s Planning Department prior to the issuance of an Occupancy Permit.
15. Parking – Annual Reporting: The Applicants shall provide the City’s Planning Department copies of the executed parking lease agreements annually, to confirm that approved parking for the development remains conforming. Any desired modifications to the parking requirements or relocation of required parking shall be reviewed and approved by the Planning Board. The required parking shall be maintained for the life of the project. The City shall be informed immediately of any lapses, modifications, or changes to the agreement.
16. Construction Laydown Area: The project is located at one of the primary entrances to the Pepperill Mill Campus. During the construction of this project, it will be imperative to coordinate construction laydown areas of the subject development, with the construction activities that will be undertaken by the City during the reconstruction of the river wall reconstruction, while maintaining safe and clear access at this primary entrance of the Mill Campus and without hindering interior site circulation. The coordination of these efforts shall occur at the required pre-construction meeting, and lines of communication must remain open for the duration of both projects.
17. Required Inspections:
 - i. Erosion & Sediment Control Inspections
 1. Needs to be completed by a City-approved 3rd Party Inspector and paid by the Applicant via the inspection fee escrow being held by the City.
 2. Initial, monthly, and final inspections
 3. The City’s Engineering Department, at minimum, shall be notified for an initial E&S inspection prior to breaking ground.
 - ii. Copies of all inspection reports need to be submitted to the Engineering Department upon the completion of each inspection.
 - iii. Stormwater BMP Installation Inspections
 1. Needs to be completed by the design engineer
 2. Confirming stormwater facilities installed correctly per design
 3. Inspection reports need to be submitted to the Engineering Department

FINDINGS OF FACT AND CONCLUSIONS OF LAW
1921 Pepperell, LLC – PB Case # 2024.59
Redevelopment of Pepperill Mill Buildings 19 & 20
64 residential units
6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1)
January 15, 2025

Alexa Plotkin, Planning Board Chair

Date



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, City Planner & Deputy Director of the Planning & Development Dept.

DATE: January 9, 2025

RE: **2024.59 Final Site Plan and Subdivision Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.**

MEETING DATE: January 15, 2025, at 6:00 PM

1. INTRODUCTION

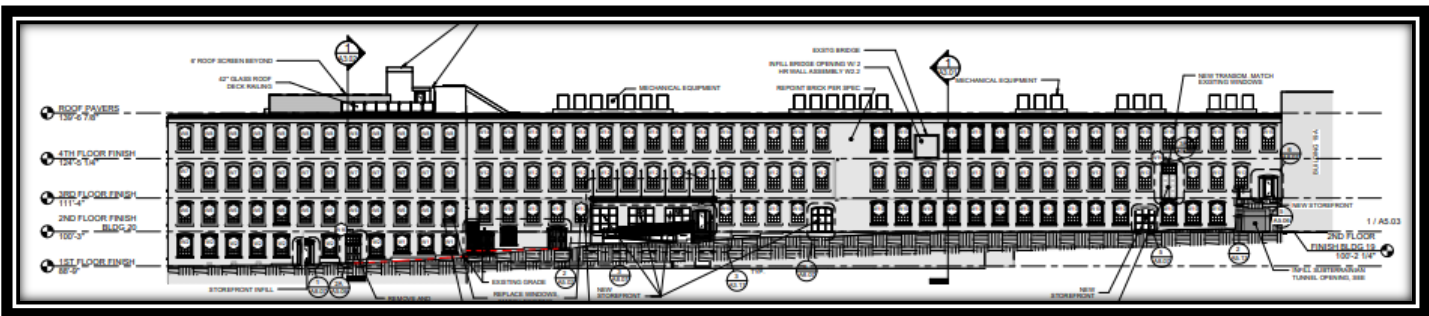
This application was last before the Planning Board on November 20, 2024, where the project received Preliminary Plan approval. The Applicant, 1921 Pepperell, LLC is before the Planning Board seeking preliminary site plan and subdivision review by the Planning Board. The Applicant is represented by Peter Heil, PE Civil Engineer of Acorn Engineering.

The proposed 1921 Pepperill, LLC project is converting the existing vacant buildings #19 & 20 of the Pepperell Mill where they plan to redevelop the buildings into 64 residential units, which will include six (6) low-income housing units, which shall remain LMI (low to moderate income) units for a period of 30 years. Should the applicant decide to NOT provide 10% of the units (6) as LMI units, the applicant has the alternative to contribute \$100,000. per unit, to comply with the City's Inclusionary Zoning Ordinance (Part III – Land Development regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning). Section The subject property (Tax Map 71, Lots 10-7, 10-4, 10-1q) is a .50-acre property lot located within the Pepperill Mill Campus.

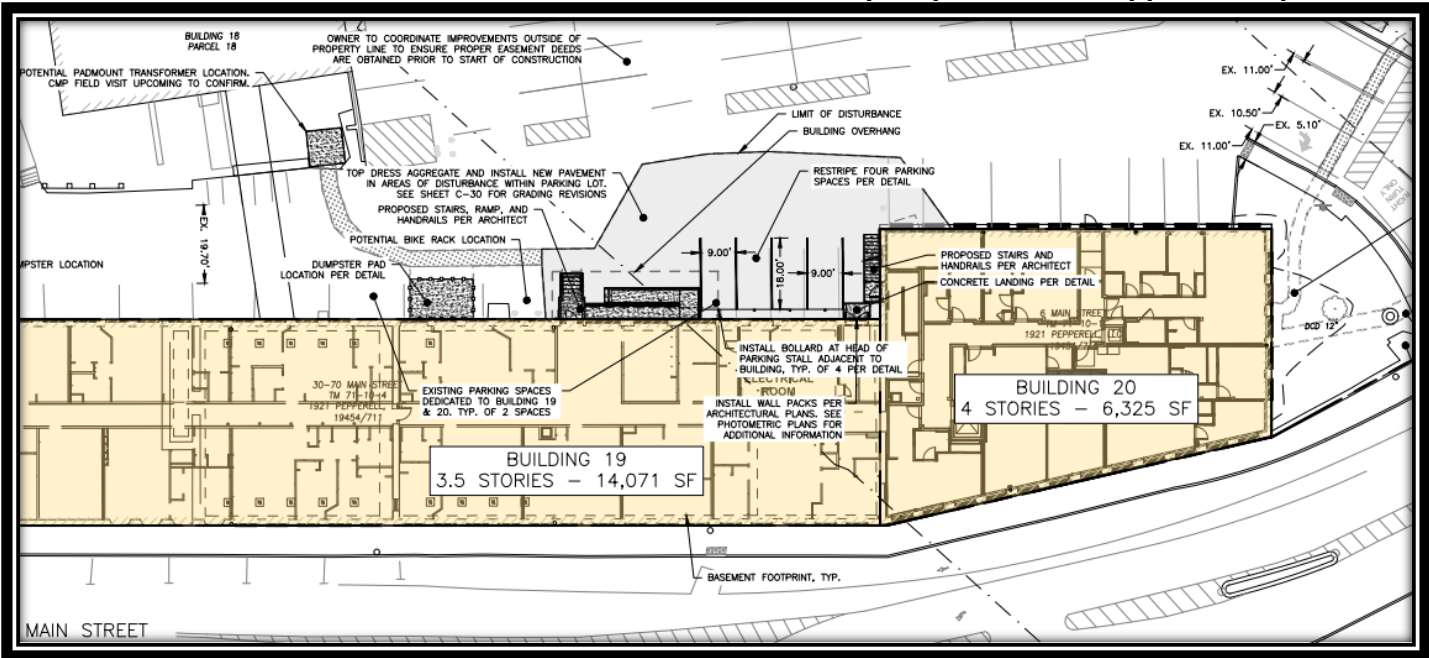


New primary building entrance with light building canopy and accessible entrance

Planning Board Meeting Date: January 15, 2025



Exterior modifications – Historic Preservation Committee (HPC) review and approval required



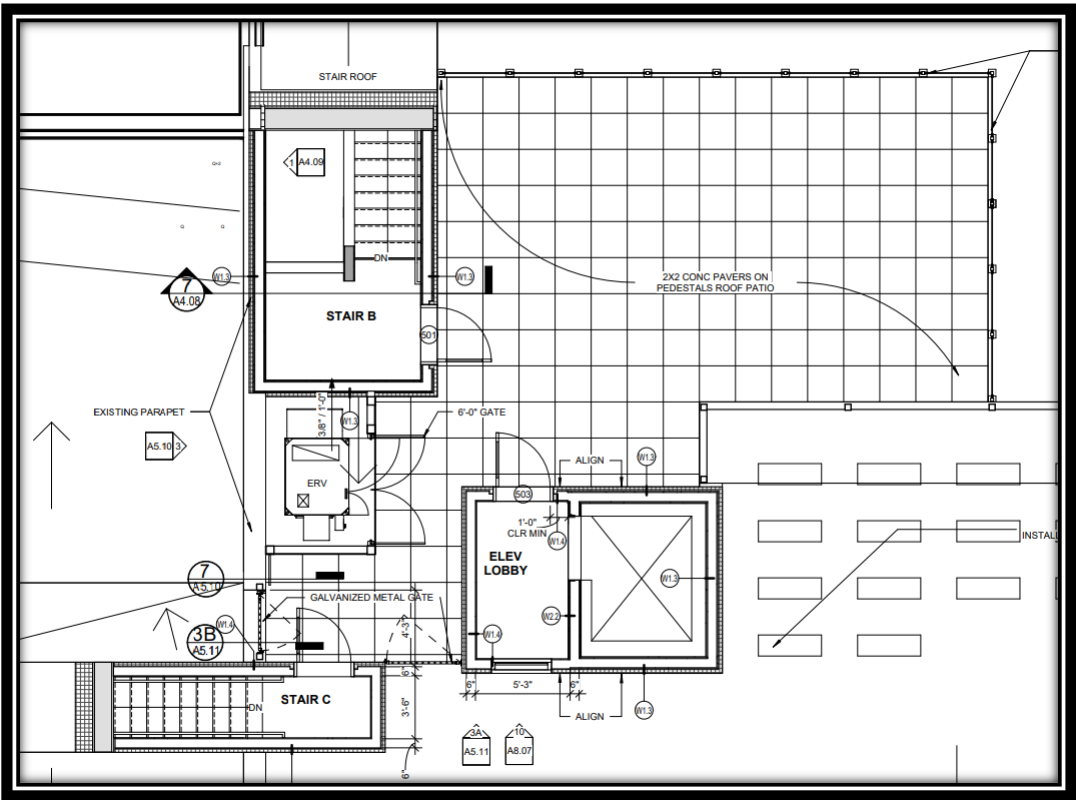
Exterior Improvements: dumpster enclosure, “potential” bike rack, stairs, ramp and handrails.

The majority of the proposed improvements are the interior re-configuration / remodeling of the existing mill buildings into 64-unit apartments. Exterior improvements to the building elevations are also being proposed, such as window replacement, handicapped accessible ramp, and which required Historic Preservation Committee (HPC) review and approval, which was granted on January 8, 2025.

Exterior improvements include a small roof-top patio for tenants which is accessible via a new elevator and stairs and some fairly minor exterior site changes to such as a dumpster enclosure; transformer with pad; a “potential” bike rack; access stairs/handrails, and an accessible ADA compliant ramp.

Case # 2024.59: Final Site Plan Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.

Planning Board Meeting Date: January 15, 2025



Proposed Roof-top Patio – Accessible by stairs and elevator

2. PROJECT DATA/INFORMATION

1.	Applicant:	1921 Pepperell, LLC 16 Casco Street Portland, ME 04101
2.	Owner of Property:	Pepperell Mill Development Pepperell Mill Progression
3.	Agent:	Peter Heil P.E. Acorn Engineering PO Box 3372 Portland, ME 04104-3372
4.	Surveyor:	Randy Loubier, PLS Owen Haskell, Inc 390 US Route 1 Falmouth, ME 04105
5.	Project Location:	6, 32-40 Main Street
6.	Project Tax Map #/Lot #:	Tax Map 71, Lots 10-7, 10-4, 10-1
7.	Lot Size:	.50 Acres
8.	Base Zoning:	MSRD-3
9.	Overlay Zoning:	GD-1
10.	Existing Use:	Vacant Buildings

Case # 2024.59: Final Site Plan Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.

Planning Board Meeting Date: January 15, 2025

11.	Proposed Use:	64 Residential Units with utility infrastructure improvements
12.	Approvals Required:	Subdivision/Site Plan
13.	Uses in the Vicinity:	Commercial/Residential
14.	Waivers Needed:	a. Stormwater Requirement Land Development Regulations Part III, Article XI, Section 5.B.1 Drainage
18.	Waivers Granted:	a. None
22.	Other Non-City Permits Required:	
23.	LDR Attachment A: Fees Paid:	Paid
25.	Planning Board Review History: June 5, 2024- Sketch Plan	

3. REVIEW PROCESS

Per City ordinance, this application is subject to Site Plan (Land Development Regulations, Article XI) review and Subdivision Review (Chapter 66 – Subdivisions) and approval by the Planning Board.

4. DEPARTMENTAL AND PEER REVIEW COMMENTS:

Consolidated Staff and Peer Review Comments have been provided to the Planning Board within your application packets. Outstanding items have been incorporated into the provided Findings of Fact (FOF) and Conditions of Approval (COA).

5. APPLICATION REVIEW

- **APPLICATION COMPLETENESS:** This application was reviewed as a Sketch Plan, received Preliminary Plan approval and the Applicants are now seeking final approval.
- **ZONING:** The subject property (Tax Map 71, Lots 10-7,10-4, 10-1) is the proposed development of two existing but vacant buildings within the Pepperell Mill Campus, namely, Buildings 19 & 20. The applicant proposes redeveloping these buildings into 64 residential units with utility infrastructure improvements.
- **REVIEW STANDARDS:** Staff have determined that the application satisfies the City’s subdivision and site plan requirements.
- **WAIVERS:** The applicant is requesting to waive the stormwater requirement from the Land Development Regulations Part III, Article XI, Section 5.B.1 Drainage on the basis of the project does not propose to alter the existing watershed or adversely impact the existing sites runoff conditions (including downstream impacts).

6. STAFF RECOMMENDATION

Staff are supportive of the proposed redevelopment and believe it will be an attractive and appropriate and welcomed adaptive re-use of Buildings 19 & 20 within the Pepperill Mill. Staff, therefore, recommend approval of the proposed redevelopment with the adoption of the provided Findings of Fact (FOF) and Conditions of Approval (COA).

Case # 2024.59: Final Site Plan Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.

Planning Board Meeting Date: January 15, 2025

7. **WAIVER REQUEST:**

WAIVER - Stormwater: The applicant is requesting to waive the stormwater requirement from the Land Development Regulations Part III, Article XI, Section 5.B.1 – Drainage: The project does not propose to alter the existing watershed or adversely impact the existing sites runoff conditions (including downstream impacts). City Staff are supportive of the requested waiver and recommends approval.

A. **Motion to Approve the requested** waiver the stormwater requirement from the Land Development Regulations Part III, Article XI, Section 5.B.1 Drainage on the basis of the project does not propose to alter the existing watershed or adversely impact the existing sites runoff conditions (including downstream impacts).

B. **Motion to Table** the requested waiver the stormwater requirement from the Land Development Regulations Part III, Article XI, Section 5.B.1 – Drainage for the following reasons:

a) _____

b) _____

c) _____

C. **Motion to Deny the requested** waiver the stormwater requirement from the Land Development Regulations Part III, Article XI, Section 5.B.1 Drainage, for the following reasons:

a) _____

b) _____

c) _____

8. **SITE PLAN AND SUBDIVISION APPROVAL:**

Staff is supportive of the proposed redevelopment, and believe it will be an attractive, appropriate, and welcomed adaptive re-use of Buildings #'s 19 & 20 of the Pepperill Mill. Staff, therefore, recommends approval of the proposed redevelopment.

A. **Motion to Approve:** Case # 2024.59 Final Site and Subdivision Plan Application for 1192 Pepperell, LLC to build 64 residential units. Property is located at 6 & 32-40 Main Street (Pepperell Buildings 19 & 20) (Tax Map 71, Lots 10-7, 10-4 & 10-1) in the MSRD 3 zone in the shoreland overlay, with the Staff recommended Conditions of Approval (COA) as presented.

B. **Motion to Table** Case # 2024.59 Final Site and Subdivision Plan Application for 1192 Pepperell, LLC to build 64 residential units. Property is located at 6 & 32-40 Main Street (Pepperell Buildings 19 & 20) (Tax Map 71, Lots 10-7, 10-4 & 10-1) in the MSRD 3 zone in the shoreland overlay based upon the following reasons:

a) _____

Case # 2024.59: Final Site Plan Application for 1921 Pepperell, LLC to build 64 residential units with utility infrastructure improvements. The subject development is within Pepperell Mill Campus, Buildings 19 & 20, located at 6 & 32-40 Main Street (Tax Map 71, Lots 10-7, 10-4, 10-1) in the MSRD-3 zone in the shoreland overlay.

Planning Board Meeting Date: January 15, 2025

b) _____

c) _____

A. **Motion to Deny:** Case # 2024.59 Final Site Plan and Subdivision Application for 1192 Pepperell, LLC to build 64 residential units. Property is located at 6 & 32-40 Main Street (Pepperell Buildings 19 & 20) (Tax Map 71, Lots 10-7, 10-4 & 10-1) in the MSRD 3 zone in the shoreland overlay, based upon the following reasons:

a) _____

b) _____

c) _____

CITY OF BIDDEFORD - SITE PLAN APPLICATION DRAWING CHECKLIST

LAST REVISED: 05/17/23

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant for any Site Plan submittal to the Planning Department.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify t
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non-acceptable reasoning will be
4. Items in **BLACK** are required for 'Preliminary Site Plan' approval & 'Final Site Plan' approval.
5. Items in **BLUE** are only required for 'Final Site Plan' approval.

SUBMITTAL REQUIREMENT		
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)
1	GENERAL PLAN REQUIREMENTS	
A	Drawing specific legends (linetypes, hatches, etc.)	YES
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	YES
C	North arrows, standard engineering scale viewports, dated revision blocks	YES
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	YES
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES
2	COVER SHEET	
A	Project Name & Property Address	YES
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES
C	Site Location Map	YES
D	Sheet Set List of Drawings	YES
E	Tax Map and Lot ID	YES
F	Zoning & Shoreland Zone Information	YES
G	Existing Use Description	YES
H	Proposed Use Description	YES
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES
J	Name of Drainage Watershed	YES
K	Within the MS4 Urbanized Area (Yes/No)	YES

L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES
M	Within the 100-year Flood Zone (Yes/No)	NO
N	Public Road Proposed (Yes/No)	NO
O	Private Road Proposed (Yes/No)	NO
P	Public Sewer Connection (Yes/No); if yes, need to include a proposed sewer flow calculation per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	YES
Q	Public Storm Drain Connection (Yes/No)	YES
R	Limits of Disturbance in acres	YES
S	Pervious Land Cover square footage, existing and proposed	YES
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES
U	Building Roof square footage, existing and proposed	YES
V	Assigned Planning Board Number	YES
W	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	YES
3	EXISTING CONDITIONS PLAN	
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES
B	Survey Benchmark Locations (with XYZ Coordinates annotated)	NO
C	Property & Right-of-Way Lines	YES
D	Boundary line information (bearings, distances, etc.)	YES
E	Property pin and monumentation locations	YES
F	Existing easements with proper ownership identified	YES
G	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES
H	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES
I	100-year Flood Zone Limits & Elevation	NO
J	USDA-NRCS Soil Boundaries and Labels	YES
K	Existing contours with adequate contour labelling; minimum 1' contour interval	YES
L	Existing building FFEs annotated	YES
M	Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs	YES
N	Existing buildings & structures	YES
O	Existing pavement areas & number of parking spaces	YES
P	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES
Q	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES

R	Existing signage and striping	YES
S	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES
T	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES
U	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES
V	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	NO
W	Location of any borings, drinking wells, and monitoring wells	NO
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN	
A	Limits-of-disturbance outlined and acreage annotated	YES
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES
C	100-year Flood Zone Limits	NO
D	Callout existing site features to be demolished/removed/replaced	YES
E	Callout existing utilities to be demolished/removed/abandoned-in-place	YES
F	Hatch existing buildings and pavement to be removed	YES
G	Construction Entrance location(s)	NO
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES
I	Stockpile and staging area(s) identified (with proper perimeter control)	YES
J	Inlet protection location(s)	YES
K	Note requiring contractor to implement dust control measures throughout construction	YES
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	YES
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	N/A
N	If large development is proposed with an extensive underground stormwater conveyance network, show sediment trap/basin location(s) needed for constructability/phasing; provide sizing calculations	N/A
5	SITE PLAN/SUBDIVISION PLAN	
A	Partial Site Plans needed for any viewport scale greater than 1"=20'	N/A
B	Existing property and right-of-way lines	YES
C	Proposed subdivision lot lines and labels	NO
D	Required Zoning Setbacks shown with dimensions and annotation	YES
E	Bulk requirement summary table (zoning/parking calculations)	YES
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES
G	100-year Flood Zone Limits	NO

H	Proposed building outlines, door entrances and loading docks	YES
I	Proposed building labels	YES
J	Proposed road extents; provide clear annotation if roads will be public or private	YES
K	Proposed parking and accessible parking locations; annotate parking space counts	YES
L	Proposed signage, parking striping, and traffic striping	YES
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	YES
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES
O	Separate hatching for buildings, sidewalks, pavement, landscaping	YES
P	Proposed landscaping; detailed landscaping design should be on separate plans	NO
Q	Designated snow storage areas	NO
R	Proposed dumpster locations and trash removal access	YES
S	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	YES
T	Radial dimensions for all curbs, landscaped islands, sidewalks	NO
U	Road centerline stationing shown, labelled every 0+50' with curve data	N/A
V	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	N/A
W	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	N/A
X	Planning Board signature block for final recording	YES
6	GRADING PLAN	
A	Partial Grading Plans needed for any viewport greater than 1"=20'	N/A
B	Limits-of-disturbance outlined and acreage annotated	YES
C	Proposed Building Labels with Individual Finished Floor Elevations (FFE's)	YES
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	YES
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	YES
F	Detailed grading for all ditches, swales, outfalls, and riprap	NO
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	YES
H	Existing spot elevations for all asphalt and curb tie-in locations	YES
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES
J	100-year Flood Zone Limits	NO
K	Proposed spot elevations for all important roadway geometric points and/or on a 50' maximum interval: low/high points, PC/PT, road centerline, edge-of-asphalt	N/A
L	Proposed spot elevations for all curblines (bottom/top-of-curb) and sidewalks	YES

M	Proposed spot elevations for all parking and drive aisle geometry points	YES
N	Proposed spot elevations for all building corners and door-entry locations	YES
O	Proposed retaining wall/loading dock elevations (bottom/top of wall)	N/A
P	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	YES
Q	Proposed % slope arrows for all ADA parking spaces and sidewalks	YES
R	Proposed longitudinal % slope arrows for drainage ditch centerlines	N/A
S	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	YES
T	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	YES
7	ROAD PROFILES (if public/private road proposed)	NO
A	Existing surface; dashed and screened	NO
B	Proposed surface; continuous and bold	NO
C	Corresponding centerline stationing and curve data annotation	NO
D	Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)	NO
E	Horizontal and vertical scale bars	NO
F	Clear annotation if proposed road will be public or private	NO
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	NO
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO
8	UTILITY PLAN	
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES
F	Proposed storm culverts, outfalls, and riprap locations and sizes	YES
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES

I	Flow directional arrows for storm & sewer pipes	YES
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES
K	All storm drains must be sized to convey the 25-year storm	N/A
L	Sewer force main sizes and invert elevations	N/A
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)	N/A
N	Grease trap & oil-water separator locations, sizes, elevations	N/A
O	Water, gas, electric, and telecom sizes labelled	YES
9	UTILITY PROFILES	
A	Utility profiles for <u>all</u> gravity storm drains and sewer pipes, including all laterals, catch basins, culverts, and outfalls; profiles preferred to be aligned on the pipe centerline (not superimposed on the road centerline)	N/A
B	Existing surface; dashed and screened	N/A
C	Proposed surface; continuous and bold	N/A
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	N/A
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	N/A
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	N/A
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	N/A
H	Known ledge or groundwater elevations	N/A
I	For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified	N/A
J	For storm outfalls, include riprap sizing and grading extents	N/A
K	Horizontal and vertical scale bars	N/A
10	DETAILS	
A	Road section detail, including pavement & gravel depths	YES
B	Sidewalk, paver, crosswalk, and any other pavement section details	YES
C	Pavement sawcut detail	YES
D	Utility trench/backfill detail	YES
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES
F	Signage, striping, and ADA details	YES
G	E&S notes and details; only show applicable/proposed measures	YES
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES

I	Storm outfall & riprap details	NO
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	NO
K	Pump station, grease trap, and oil-water separator details	N/A
L	Conduit section details	YES
M	Miscellaneous details (as needed)	YES
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS	
A	As required by ordinance; at a minimum: locations, counts, and species/models must be identified	N/A
B	Landscaping & lighting details	YES
12	DOCUMENTS/REPORTS/CALCULATIONS	
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	
B	Predevelopment & Post-development Drainage Area Maps, including: i. Subdrainage areas delineated and labeled ii. Points of Interest/Analysis shown and labeled iii. Hatching for different land cover areas (impervious, pervious, gravel) iv. Time of concentration (Tc) paths & durations v. Four City-standardized stormwater summary tables	NO
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	YES
D	A Performance Guarantee Cost Estimate utilizing Planning's template	NO
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	NO
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches) via the rational method; starting tailwater conditions/documentation must be clearly identified	NO

G	If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies	N/A
H	Sizing calculations for any SWM water quality BMP or detention facility	N/A
I	A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: i. Annual maintenance requirements ii. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed iii. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	N/A
J	Salt Management Plan	NO
K	Sewer pump station sizing calculations	N/A
L	Sewer pump station maintenance plan	N/A
M	Grease trap sizing calculations	N/A
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals	N/A

re rejected.

Project Name:
Planning Board # (if available):
Applicant Name/Info:
Submittal #/Type (Prelim/Final):
Submittal Date:

[illegible]

N/A	
N/A	
Photometric Plan is provided.	
WE ARE REQUESTING A WAIVER FROM PART III - ARTICLE XI - SECTION 5.B.1. DRAINAGE	
CURRENTLY COORDINATING THIS REQUIREMENT WITH THE CITY PLANNER	
N/A	
WE ARE REQUESTING A WAIVER FROM PART III - ARTICLE XI - SECTION 5.B.1. DRAINAGE	

No changes to the existing salt management plan for the Pepperell Mill Campus are proposed as part of the project.	



FINAL SITE PLAN & SUBDIVISION APPLICATION

PEPPERELL MILL BUILDINGS 19 & 20 REDEVELOPMENT CITY OF BIDDEFORD, MAINE



Prepared By:

ACORN ENGINEERING, INC.

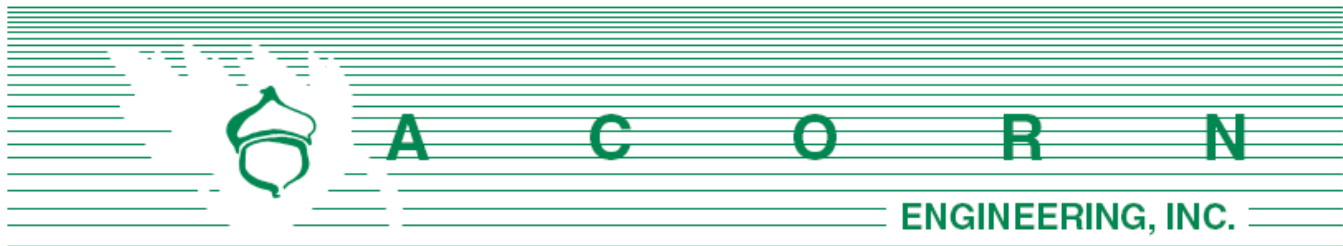
For:

1921 PEPPERELL, LLC

DECEMBER, 2024



A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104



Planning Board & Planning Department
Attn: Mr. David Galbraith
City of Biddeford, Maine
205 Main Street
Biddeford, ME 04005

December 11, 2024

Subject: Final Site Plan & Subdivision Application
Pepperell Mill – Buildings 19 and 20 Redevelopment, Biddeford

Members of the Board, & Mr. Galbraith:

On behalf of 1921 Pepperell, LLC, we are pleased to submit the accompanying package of submission materials related to the proposed redevelopment at 6 & 32/40 Main Street. The parcels are mapped as Map: 71, Block: 10-1, 10-4, 10-7 and located in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), and the General Development-1 (GD-1) Shoreland Overlay Zoning Districts. The existing site is the location of a vacant mill building. The project proposes to redevelop the existing buildings into (64) residential units, with some utility infrastructure upgrades. We understand the existing campus is primarily already built out with parking areas, and limited site improvements are anticipated as part of the redevelopment.

Limits of Disturbance: 7,629 SF

Lot 19 Area: 14,071 Square Feet

Lot 20 Area: 6,325 Square Feet

- It should be noted that the two property boundaries for Lot 19 & 20 only contain the building footprints therefore the entirety of each parcel is impervious area.

Below are the outstanding comments received from Staff Review, the Planning Board, and the Third-Party Engineer:

Comment: The application includes a “Parking Overview” narrative in Section 6 of their application submittal. The overview incorrectly states that “one parking stall is required for each residential unit with an additional 5% increase in parking spaces to allow for visitors. 68 parking spaces are required for this project”. Section 49 – Off street parking and loading requires two (2) parking stalls per dwelling unit. The Ordinance further states: “These requirements may be waived for applications that involve dwelling units with less than 1,000 square feet of floor area, senior citizen housing, single bedroom dwelling units, efficiency dwelling units and studio apartments. These requirements may also be waived if the applicant can demonstrate that all required parking can be accommodated through mixed use development, shared parking or other situations deemed acceptable. Any such waivers must also satisfy the criteria in Subsection C3(k)(2) of this section”.

Response: The parking calculations have been updated accordingly. Please refer to the revised Site Plan (C-10) parking summary table, as well as the update Section 6. Traffic Overview for additional information.

Comment: The Final Application shall include a breakdown of units, conforming to the above standards, including guest parking. Shall be provided. All proposed/required parking shall be provided in the City's parking garage located on Pearl Street. Prior to the issuance of Occupancy Permits being issued for either building, a perpetual parking agreement, with the garage operator, shall be established and be in effect.

Response: Please refer to the revised Section 6. Traffic Overview for additional information and updated breakdown of units, confirming parking requirements, along with the letter provided by the garage operator confirming the required spaced within the parking garage. The applicant acknowledges that a perpetual parking agreement will be required prior to issuance of an Occupancy Permit and request it be listed as a condition of approval.

Comment: The dumpster enclosure shall accommodate refuse and recycling containers which shall be screened on all sides (screen gates required).

Response: The dumpster enclosure will be screened per detail provided on Sheet C-40. Note, the dumpster enclosure area has shifted. Please refer to C-10 for updated location.

Comment: All stormwater (including downspouts) shall be separated from the City's sewer system.

Response: The roof stormwater downspouts are proposed to tie into the nearby catch basin network located east of Building 20 via a separated storm drain. See the Utility Plan (C-20) for additional information.

Comment: It should be noted that all of the buildings within the Pepperell Mill are historically significant due to their "...distinctive characteristics of a type, period, or method of construction..." according to National Register of Historic Places criteria as set forth by the U.S. Department of the Interior. The proposed development of Building 19 is physically attached to Building #18 within the campus via a raised pedestrian walkway. These connector walkways do not seem to be "owned" by either Building 19 or 18. Revised plans shall include a detailed narrative explaining how these elements will be preserved and maintained in place. Staff will not support their removal, regardless of is they are utilized by the proposed development or not. If the applicant is not going to be responsible for the preservation or maintenance of these historic walkways, a letter from their owner shall be submitted explaining how these elements will be maintained and who will be the party responsible for protecting these elements.

Response: The previously provided legal document titled "Amended and Restated Declaration of Covenants, Conditions Easements and Restrictions of Pepperell Mill Master Association" is still currently being updated by the applicants attorney's and will be forward upon receipt. We request a condition of approval to include this document be provided to Planning for review and approval prior to issuance of a building permit.

Comment: Will there be an ADA accessible parking space provided? There is a new ramp into the building but based on the plans there appears to be no accessible route to the ramp.

Response: The applicant has worked with the Pepperell Mill landowners to acquire additional spaces and now proposes two ADA accessible parking spaces directly adjacent to the building, one new the Building 19 entrance and another near the Building 20 entrance. The parking lot has been

slightly regraded to accommodate an ADA accessible path to each entrance.

Comment: A new dumpster pad is shown, along with a potential dumpster location. Can a waste hauler access the dumpster location?

Response: Dumpsters are proposed to be wheeled out from the dumpster pad enclosure prior to pick up to allow for the trucks to collect waste from the drive aisle. Then they will be wheeled back into the enclosure for storage. Note, the dumpster enclosure area has shifted. Please refer to C-10 for updated location.

If you have any questions regarding these materials or the completeness of the application materials, please do not hesitate to contact us.

Sincerely,



William H. Savage, P.E.
Principal
Acorn Engineering, Inc.



Peter F. Heil P.E.
Project Manager
Acorn Engineering, Inc.



TABLE OF CONTENTS

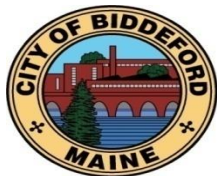
EXHIBIT #	TITLE
1.	RIGHT, TITLE, OR INTEREST
2.	DECLARATION OF EASEMENTS, COVENANTS, AND RESTRICTIONS
3.	FINANCIAL & TECHNICAL CAPACITY
4.	PHOTOGRAPHS
5.	EROSION & SEDIMENTATION CONTROL REPORT
6.	TRAFFIC OVERVIEW
7.	UTILITY SUMMARY
8.	PUBLIC SAFETY LETTER OF APPROVAL REQUESTS
9.	LIGHTING
10.	SOLID WASTE
11.	WAIVERS

LIST OF DRAWINGS

C-01	COVER SHEET & LEGEND
C-02	GENERAL NOTES
EX	BOUNDARY & TOPOGRAPHIC SURVEY – BY OWEN HASKELL, INC.
C-03	CONSTRUCTION MANAGEMENT PLAN
C-10	SITE PLAN
C-20	UTILITY PLAN
C-30	GRADING PLAN
C-40	SITE DETAILS – 1
C-41	SITE DETAILS – 2
C-42	UTILITY DETAILS – 1
C-43	UTILITY DETAILS – 2
C-44	EROSION & SEDIMENTATION CONTROL NOTES AND DETAILS
PLAT	SUBDIVISION PLAT

ARCHITECTURAL ELEVATIONS, FLOOR PLANS, & RENDERINGS
PHOTOMETRIC PLAN



**City of Biddeford – Planning Department****Planning Board Application**

P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:☒ Shoreland Zoning Permit☒ Site Plan Review☐ Extraction☐ Conditional Use Permit☐ Subdivision☐ Private Way☐ Other: _____**Applicant Information:**Name: 1921 Pepperell, LLCMailing Address: 16 Casco Street, Portland, ME, 04101Telephone: (207) 744-3084Email: jcushman@corefirms.com

What is your legal interest in the property?

☒ Owner ☐ Potential Buyer with Contract ☐ Lease/Rental Agreement**Owner's Information:**Name: See Applicant

Mailing Address: _____

Telephone: _____

Email: _____

Agent's Information:Name: Peter Heil, PE (Acorn Engineering IMailing Address: P.O. Box 3372, Portland, ME 04104Telephone: (207) 775-2655Email: Pheil@acorn-engineering.com**Engineer/Surveyor's Information:**Name: Peter Heil, PE (Acorn) / Randy Loubier, PLS (Owen Haskell, INC)Mailing Address: See Above / 390 U.S. Route 1, Falmouth, ME 04105Telephone: See Above / (207)-774-0424Email: See Above / rloubier@owenhaskell.com**Project Location and Lot Information:**Street Address: 6 and 32-40 Main Street Drainage Watershed: Saco RiverTax Map: 71Lot: 10-7, 10-4, 10-1Current Zoning: MSRD3Shoreland Zoning: GD-1Size of Lot: 23.512 SF () acres () s.f. Lot Frontage: Approx. 422 FT

Existing Use of Property: _____

Vacant Mill Building**Property currently serviced by:**☒ City Road☒ Public Sewer☒ Public Water☐ Public Trash☐ Private Road☐ Septic System☐ Private Well☒ Private Hauler

Slope Conditions in Area of Construction (if applicable):

☒ Flat (0-3% slope) ☒ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15%+ Slope)Are there any wetlands or waterbodies on the site? ☐ (Yes) ☒ (No) if yes attach informationIs the project within the 100-year floodplain? ☐ (Yes) ☒ (No) if yes attach informationDo you plan to bring fill onto the lot? ☐ (Yes) ☒ (No) If yes attach information

Project/Proposed Use:

The project proposes to redevelop the existing buildings into 64 residential units, with utility infrastructure improvements

Property to be Serviced by:

☒ City Road ☒ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road Septic System Private Well ☒ Private Hauler

Limits of Disturbance: 7,629 () acres ☒ s.f.

Net change in impervious cover: 0 SF () acres () s.f.

Is this project part of a larger project? (Yes) ☒ (No) ☐

Is the project proposing a new Private or Public Road? ☐ (Yes, Private) ☐ (Yes, Public) ☒ (No)

Is this project within the Urbanized Area/MS4 (see [City Drainage Map](#)) ☒ (Yes) (No)

Is the project proposing any Stormwater facilities/BMPs? (Yes) ☒ (No) ☐

Will a Traffic Movement Permit (TMP) be required?: (Yes) ☒ (No) ☐

☒ If in a Shoreland Zone:

Percent of residential lot coverage (Max 20%): N/A - Existing Building

Percent of structure expansion (Max 30%): 0%

If Subdivision Review, number of lots proposed: N/A

If a Private Way is proposed, number of lots served: N/A

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: 0 SF

Total new square feet paving/parking: 0 SF

Waiver Requests (attach details):

1. Part III - Article XI - Section 5.B.1 Drainage
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

- A. Letters of Approval
 - ☒ Fire Department – Contact Chief or Deputy Chief – 282-9986
 - ☒ Ability to Serve for Water Service – Maine Water – 282-1543
 - ☒ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
 - ☒ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127
- B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.
- C. Photographs of Site.
- D. Architectural renderings/drawings of proposed buildings, as required.
- E. Engineering Plans, as required.
- F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- \$75 Nonrefundable Administration Fee is required for every application.
- Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: __ (Yes) __ (No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: _____

Date 12/9/24

Signature of Property Owner: _____

Date 12/9/24

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- *Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVIDUAL DRAWING NAME.pdf'*

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- *All drawings & CAD reference files must be to-scale and within the following coordinate systems:*

- *MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)*

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

CITY OF BIDDEFORD - SITE PLAN APPLICATION DRAWING CHECKLIST

LAST REVISED: 05/17/23

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant for any Site Plan submittal to the Planning Department.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non-acceptable reasoning will be rejected.
4. Items in **BLACK** are required for 'Preliminary Site Plan' approval & 'Final Site Plan' approval.
5. Items in **BLUE** are only required for 'Final Site Plan' approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	Pepperell Mill - Buildings 19 & 20 Redevelopment
Planning Board # (if available):	
Applicant Name/Info:	1921 Pepperell, LLC
Submittal #/Type (Prelim/Final):	Final
Submittal Date:	

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE		CITY REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	GENERAL PLAN REQUIREMENTS				
	A Drawing specific legends (linetypes, hatches, etc.)				
	B Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)				
	C North arrows, standard engineering scale viewports, dated revision blocks				
	D All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)				
	E Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)				
2	COVER SHEET				
	A Project Name & Property Address	YES			
	B Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES			
	C Site Location Map	YES			
	D Sheet Set List of Drawings	YES			
	E Tax Map and Lot ID	YES			
	F Zoning & Shoreland Zone Information	YES			
	G Existing Use Description	YES			
	H Proposed Use Description	YES			
	I Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES			
	J Name of Drainage Watershed	YES			
	K Within the MS4 Urbanized Area (Yes/No)	YES			
	L Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES			
	M Within the 100-year Flood Zone (Yes/No)	NO	N/A		
	N Public Road Proposed (Yes/No)	NO	N/A		
	O Private Road Proposed (Yes/No)	NO	N/A		
	P Public Sewer Connection (Yes/No); if yes, need to include a proposed sewer flow calculation per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	YES			
	Q Public Storm Drain Connection (Yes/No)	YES			
	R Limits of Disturbance in acres	YES			
	S Pervious Land Cover square footage, existing and proposed	YES			
	T Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES			
	U Building Roof square footage, existing and proposed	YES			
	V Assigned Planning Board Number				
	W Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	N/A			
3	EXISTING CONDITIONS PLAN				
	A Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES			
	B Survey Benchmark Locations (with XYZ Coordinates annotated)	NO			
	C Property & Right-of-Way Lines	YES			
	D Boundary line information (bearings, distances, etc.)	YES			
	E Property pin and monumentation locations	YES			
	F Existing easements with proper ownership identified	YES			
	G Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES			
	H Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES			
	I 100-year Flood Zone Limits & Elevation	NO	N/A		
	J USDA-NRCS Soil Boundaries and Labels	YES			
	K Existing contours with adequate contour labelling; minimum 1' contour interval	YES			
	L Existing building FFEs annotated	YES			
	M Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs	YES			
	N Existing buildings & structures	YES			
	O Existing pavement areas & number of parking spaces	YES			
	P Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES			
	Q Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES			
	R Existing signage and striping	YES			
	S Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES			
	T Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)				
	U Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES			
	V Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	NO	N/A		
	W Location of any borings, drinking wells, and monitoring wells	NO	N/A		
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN				
	A Limits-of-disturbance outlined and acreage annotated	YES			
	B Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES			
	C 100-year Flood Zone Limits	NO	N/A		
	D Callout existing site features to be demolished/removed/replaced	YES			
	E Callout existing utilities to be demolished/removed/abandoned-in-place	YES			
	F Hatch existing buildings and pavement to be removed	YES			
	G Construction Entrance location(s)	NO	N/A		
	H Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES			
	I Stockpile and staging area(s) identified (with proper perimeter control)	YES			
	J Inlet protection location(s)	YES			
	K Note requiring contractor to implement dust control measures throughout construction	YES			
	L Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	YES			
	M If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing				

	N	If large development is proposed with an extensive underground stormwater conveyance network, show sediment trap/basin location(s) needed for constructability/phasing; provide sizing calculations			
5		SITE PLAN/SUBDIVISION PLAN			
	A	Partial Site Plans needed for any viewport scale greater than 1”=20’			
	B	Existing property and right-of-way lines	YES		
	C	Proposed subdivision lot lines and labels	NO	N/A	
	D	Required Zoning Setbacks shown with dimensions and annotation	YES		
	E	Bulk requirement summary table (zoning/parking calculations)	YES		
	F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES		
	G	100-year Flood Zone Limits	NO	N/A	
	H	Proposed building outlines, door entrances and loading docks	YES		
	I	Proposed building labels	YES		
	J	Proposed road extents; provide clear annotation if roads will be public or private	YES	N/A	
	K	Proposed parking and accessible parking locations; annotate parking space counts	YES		
	L	Proposed signage, parking striping, and traffic striping	YES		
	M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	YES		
	N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES		
	O	Separate hatching for buildings, sidewalks, pavement, landscaping	YES		
	P	Proposed landscaping; detailed landscaping design should be on separate plans	NO	N/A	
	Q	Designated snow storage areas	NO	N/A	
	R	Proposed dumpster locations and trash removal access	YES		
	S	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	YES		
	T	Radial dimensions for all curbs, landscaped islands, sidewalks	NO		
	U	Road centerline stationing shown, labelled every 0+50’ with curve data	N/A		
	V	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	N/A		
	W	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	N/A		
	X	Planning Board signature block for final recording			
6		GRADING PLAN			
	A	Partial Grading Plans needed for any viewport greater than 1”=20’			
	B	Limits-of-disturbance outlined and acreage annotated	YES		
	C	Proposed Building Labels with Individual Finished Floor Elevations (FFE)	YES		
	D	Existing contours with adequate contour labelling, screened; minimum 1’ contour interval	YES		
	E	Proposed contours with adequate contour labelling; minimum 1’ contour interval	YES		
	F	Detailed grading for all ditches, swales, outfalls, and riprap	NO	N/A	
	G	All proposed contours tie-into existing contours at limits-of-disturbance outline	YES		
	H	Existing spot elevations for all asphalt and curb tie-in locations	YES		
	I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES		
	J	100-year Flood Zone Limits	NO	N/A	
	K	Proposed spot elevations for all important roadway geometric points and/or on a 50’ maximum interval: low/high points, PC/PT, road centerline, edge-of-asphalt			
	L	Proposed spot elevations for all curblines (bottom/top-of-curb) and sidewalks			
	M	Proposed spot elevations for all parking and drive aisle geometry points			
	N	Proposed spot elevations for all building corners and door-entry locations			
	O	Proposed retaining wall/loading dock elevations (bottom/top of wall)			
	P	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points			
	Q	Proposed % slope arrows for all ADA parking spaces and sidewalks			
	R	Proposed longitudinal % slope arrows for drainage ditch centerlines			
	S	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas			
	T	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)			
7		ROAD PROFILES (if public/private road proposed)	NO	N/A	
	A	Existing surface; dashed and screened	NO	N/A	
	B	Proposed surface; continuous and bold	NO	N/A	
	C	Corresponding centerline stationing and curve data annotation	NO	N/A	
	D	Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)	NO	N/A	
	E	Horizontal and vertical scale bars	NO	N/A	
	F	Clear annotation if proposed road will be public or private	NO	N/A	
	G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	NO	N/A	
	H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO	N/A	
8		UTILITY PLAN			
	A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES		
	B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES		
	C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES		
	D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES		
	E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES		
	F	Proposed storm culverts, outfalls, and riprap locations and sizes	YES		
	G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES		
	H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES		
	I	Flow directional arrows for storm & sewer pipes	YES		
	J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES		
	K	All storm drains must be sized to convey the 25-year storm			
	L	Sewer force main sizes and invert elevations			
	M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)			
	N	Grease trap & oil-water separator locations, sizes, elevations			
	O	Water, gas, electric, and telecom sizes labelled			
9		UTILITY PROFILES			

	A Utility profiles for <u>all</u> gravity storm drains and sewer pipes, including all laterals, catch basins, culverts, and outfalls; profiles preferred to be aligned on the pipe centerline (not superimposed on the road centerline)				
	B Existing surface; dashed and screened				
	C Proposed surface; continuous and bold				
	D Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)				
	E Storm/sewer pipe labels must include: linear footage, pipe size, material, slope				
	F Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated				
	G Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated				
	H Known ledge or groundwater elevations				
	I For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified				
	J For storm outfalls, include riprap sizing and grading extents				
	K Horizontal and vertical scale bars				
10	DETAILS				
	A Road section detail, including pavement & gravel depths	YES			
	B Sidewalk, paver, crosswalk, and any other pavement section details	YES			
	C Pavement sawcut detail	YES			
	D Utility trench/backfill detail	YES			
	E All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES			
	F Signage, striping, and ADA details	YES			
	G E&S notes and details; only show applicable/proposed measures	YES			
	H Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES			
	I Storm outfall & riprap details	NO	N/A		
	J Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	NO	N/A		
	K Pump station, grease trap, and oil-water separator details				
	L Conduit section details				
	M Miscellaneous details (as needed)				
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS				
	A As required by ordinance; at a minimum: locations, counts, and species/models must be identified				
	B Landscaping & lighting details				
12	DOCUMENTS/REPORTS/CALCULATIONS				
	A On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	YES			
	B Predevelopment & Post-development Drainage Area Maps, including: i. Subdrainage areas delineated and labeled ii. Points of Interest/Analysis shown and labeled iii. Hatching for different land cover areas (impervious, pervious, gravel) iv. Time of concentration (Tc) paths & durations v. Four City-standardized stormwater summary tables	YES			
	C An approved ‘Sewer Ability-to-Serve Letter’ from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine’s Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	YES			
	D A Performance Guarantee Cost Estimate utilizing Planning’s template	NO	CURRENTLY COORDINATING THIS REQUIREMENT WITH THE CITY PLANNER		
	E For any Site Location of Development (SLODA) project, the applicant’s submittal must mimic a formal submittal to DEP. Submit must abide to DEP’s SLODA application and include DEP’s SLODA Submittal Checklist (Form D)	NO	N/A		
	F 25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches) via the rational method; starting tailwater conditions/documentation must be clearly identified				
	G If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies				
	H Sizing calculations for any SWM water quality BMP or detention facility				
	I A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: i. Annual maintenance requirements ii. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed iii. Signed Property Owner Agreement: including the current property owner’s contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership				
	J Salt Management Plan				
	K Sewer pump station sizing calculations				
	L Sewer pump station maintenance plan				
	M Grease trap sizing calculations				
	N Homeowner Association (HOA) agreement for any private road serving two (2) lots or more				
	O Summary list & copy of any required DOT/DEP/USACE permits & approvals				

Section 1: Right Title Interest

Please see attached for a copy of the Quitclaim Deeds for the rights of the applicant to the property as recorded at the York County Registry of Deeds, Book: 19454, Page 711



DLN: 1002440277158

QUITCLAIM DEED

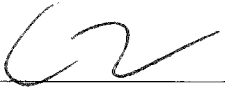
PEPPERELL MILL DEVELOPMENT, LLC, a Delaware limited liability company ("Grantor"),
with a mailing address at 3100 McKinnon Street, Suite 250, Dallas, Texas 75201, grants to **1921**
PEPPERELL, LLC, a Maine limited liability company ("Grantee"), with a mailing address at 72
Commercial Street, Suite 2, Portland, Maine 04101, the premises, together with any buildings thereon,
situated in **Biddeford**, County of **York**, and State of **Maine**, as more fully described in Exhibit "A" attached
hereto and made a part hereof (the "Property").

In Witness Whereof, the undersigned has hereunto set its hand effective this 17th day of
June, 2024.

Grantor:

PEPPERELL MILL DEVELOPMENT, LLC,

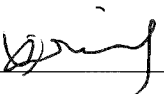
a Delaware limited liability company

By: 

Name: Cross Mocer

Title: Authorized Person

Witness:



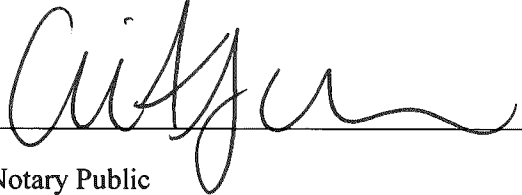
Ashley Jiang

Maine R.E. Transfer Tax Paid

STATE OF TEXAS)

COUNTY OF TRAVIS)

On this 12 day of June, 2023, before me, the undersigned notary public, personally appeared CROSS MOCCERI, the, Authorized Person of PEPPERELL MILL DEVELOPMENT, LLC, a Delaware limited liability company, and proved to me through satisfactory evidence of identification to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.



Notary Public

My Commission expires: 4-19-2025

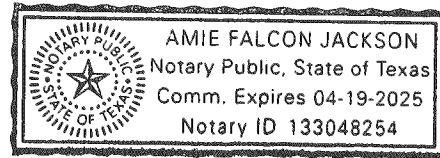


Exhibit A to Deed

Legal Description

Certain Buildings/Parcels, being lots or parcels of land, together with the buildings and improvements thereon, located in the City of Biddeford, County of York, State of Maine, and being "Building 19 or "Parcel 19" and "Building 20" or "Parcel 20" as shown on a plan entitled Functional Subdivision, The Mills at Pepperell, Main Street, Biddeford, York County, Maine made for Pepperell Mill Progression, LLC and Pepperell Mill Development, LLC, prepared by Owen Haskell, Inc., Professional Land Surveyors, dated December 10, 2021, as recorded in Plan Book 420, Page 43 of the York County Registry of Deeds.

Such parcels are conveyed together with and subject to the covenants, conditions, easements and restrictions set forth in a certain Amended and Restated Declaration of Covenants, Conditions, Easements and Restrictions of Pepperell Mill Master Association recorded in the York County Registry of Deeds in Book 19264, Page 833.

Section 2: Declaration of Easements, Covenants, and Restrictions

Access, maintenance, and utility easements are being considered based on proposed improvements. additional information to be provided as part of Final Site Plan & Subdivision application

Please refer the attached plans & documents for the existing easements across the property.

1. Boundary & Topographic Survey, prepared by Owen Haskell, Inc. dated August 30, 2024
2. Document titled "Amended and Restated Declaration of Covenants, Conditions Easements and Restrictions of Pepperell Mill Master Association" recorded June 29, 2023. Book 19264 Page 833



**AMENDED AND RESTATED DECLARATION OF COVENANTS, CONDITIONS
EASEMENTS AND RESTRICTIONS
OF
PEPPERELL MILL MASTER ASSOCIATION**

THIS AMENDED AND RESTATED DECLARATION OF COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS amends and restates that certain DECLARATION OF COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS by Pepperell Mill Progression, LLC a Delaware limited liability company having a mailing address of 3100 McKinnon Street, Ste. 250, Dallas, Texas 75201 (the “**Declarant**”) and **PEPPERELL MILL MASTER ASSOCIATION**, a Maine nonprofit corporation (the “**Association**”) dated as of the December 16, 2021 and recorded in the York County Registry of Deeds in Book 18901, Page 239. This Amended and Restated Declaration of Covenants, Conditions, Easements and Restrictions as the same may be amended from time to time is referred to herein as the “**Declaration**.” Capitalized terms used in this Declaration and not otherwise defined herein, shall have the meanings given or as referred to in Article 1 of this Declaration. **PEPPERELL MILL DEVELOPMENT, LLC**, a Delaware limited liability company and affiliate of Declarant, (“PM Development”) joins in this Declaration for the purpose of subjecting its real estate described herein to the covenants, condition, easements, restrictions and agreements all as more fully set forth herein.

RECITALS

WHEREAS, Declarant is the owner of certain real property situated in the City of Biddeford, County of York and State of Maine, comprised of the Occupied Lots, the Parking Areas and the Common Areas, as such terms are defined below, such real property being described in Exhibit A attached here to and incorporated herein, and also being shown on the following plans: (1) ALTA/NSPS Land Title Survey, “The Mills at Pepperell,” prepared by Owen Haskell, Inc., dated September 9, 2021 and revised through December, 10, 2021 (the “Survey”); (2) Plan of “Functional Subdivision” of the Mills at Pepperell, prepared by Owen Haskell, Inc. dated December 10, 2021, recorded in the York County Registry of Deeds in Plan Book 420, Page 43 (the “Subdivision Plan”); (the Survey and the Subdivision Plan as the same may be amended, are collectively referred to herein as the “Plan”); and

WHEREAS, PM Development is the owner of certain real property comprised of the Unoccupied Lots, as defined below, situated in the City of Biddeford, County of York and State of Maine, being described in Exhibit B attached here to and incorporated herein and also being shown on the Plan that it has agreed to make subject to the covenants, conditions, easements, restrictions and agreements set forth in this Declaration; and

WHEREAS, the real property described on Exhibits A and B are referred to herein as the “Subject Property;” and

WHEREAS, the Subject Property is currently improved with several occupied buildings (the "Occupied Lots"), several vacant buildings (the "Unoccupied Lots"), parking areas (the "Parking Areas"), and common areas (the "Common Areas") as the same are depicted on the Plan; and

WHEREAS, Declarant, PM Development and their successors and assigns may in the future construct additional buildings or improvements on the Occupied Lots, the Unoccupied Lots, the Parking Areas, or Common Areas; and

WHEREAS, the Developed Lots, Unoccupied Lots, Parking Areas, and Common Areas share common utilities, facilities, amenities and rights-of-way over the private roads depicted on the Plan (the "Roads," and collectively the "Shared Elements," as that term is further defined hereinafter); and

WHEREAS, the Declarant wishes to form an Association of Lot Owners for the purpose of operating, maintaining and repairing the Shared Elements and sharing the costs associated therewith; and

WHEREAS, Declarant and PM Development wish to subject the Subject Property to the covenants, conditions, easements, restrictions and agreements set forth herein benefitting and burdening the Subject Property, and respecting the Association, in accordance with this Declaration; and

WHEREAS, the Mortgagees who hold mortgages upon the Subject Property join in this Amended and Restated Declaration for the purpose of consenting to the Amendments set forth herein as set forth in Exhibits F and G attached hereto and made a part hereof.

NOW THEREFORE, Declarant and PM Development hereby declare that the Subject Property shall be held, sold and conveyed subject to the following easements, restrictions, covenants, conditions and agreements, which shall run with said Subject Property and be binding on all parties having any right, title or interest in said Subject Property, or any part thereof, their heirs, successors and assigns, and shall inure to the benefit of each Owner thereof.

ARTICLE 1. DEFINITIONS

The following words, phrases or terms used in this Declaration shall have the following meanings:

- 1.1. "**Arbitration**" means a dispute resolution proceeding in accordance with the rules of the American Arbitration Association or any successor thereto.
- 1.2. "**Articles of Incorporation**" means the articles of incorporation of the Association filed with the Secretary of State of the State of Maine, as same may be amended from time to time.
- 1.3. "**Assessment**" is defined in **Section 10.1** of this Declaration.
- 1.4. "**Assessment Lien**" is defined in **Section 10.6** of this Declaration.

- 1.5. **“Association”** means Pepperell Mill Master Association, a duly-formed Maine Nonprofit Corporation.
- 1.6. **“Association Common Expenses”** means, collectively, the costs incurred by the Association in connection with maintenance, repair, replacement, operation and administration of the Shared Elements, including Common Landscaping, and the costs of maintaining, repairing, replacing and operating the shared utility lines and infrastructure and of any Shared Elements which may, but need not, be constructed in the future; excluding Shared Utility Costs, if any, which may be collected separately.
- 1.7. **“Association Property”** means all personal property, if any, at any given time owned or leased by the Association.
- 1.8. **“Board”** or **“Board of Directors”** means the Board of Directors of the Association.
- 1.9. **“Building”** or **“Buildings”** means any building located or constructed in the future on any of the Lots, and any and all alterations, additions and/or replacements made thereto, respectively.
- 1.10. **“Bylaws”** means the bylaws of the Association as the same may be amended or supplemented from time to time.
- 1.11. **“Certification of Occupancy”** means a certificate issued by the Code Enforcement Office of the City of Biddeford.
- 1.12. **“City”** means the City of Biddeford, Maine.
- 1.13. **“Common Areas”** means all portions of the Subject Property other than the Lots.
- 1.14. **“Common Landscaping”** means maintenance of landscaping and trees in the Common Areas throughout the Subject Property.
- 1.15. **“Condominium”** means a Lot submitted to the Condominium Act.
- 1.16. **“Condominium Act”** means the provisions of the Maine Condominium Act, 33 M.R.S.A. 1601-101 et seq., as same may be amended from time to time.
- 1.17. **“Condominium Documents”** means the declaration, by-laws, plats and plans of any Condominium, as same may be amended from time to time.
- 1.18. **“Declaration”** means this Declaration of Covenants, Conditions, Easements and Restrictions, as amended or supplemented from time to time.
- 1.19. **“Director”** means any individual serving as a director on the Board of the Association.

- 1.20. "**Driveways**" means those portions of the roadways on the Subject Property, as they now exist or are hereafter constructed, if any, that provide vehicular access to one Building or to Buildings owned by one Owner.
- 1.21. "**Effective Date**" means the date that the Association is obligated to assess the Association Common Expenses among the Members of the Association, as more fully described in Section 10.1(a) hereof.
- 1.22. "**Formation Documents**" means, collectively, (i) the Articles of Incorporation, (ii) this Declaration, and (iii) the Bylaws.
- 1.23. "**Initial Operating Budget**" means the first Operating Budget adopted by the Association. The Declarant does not intend to adopt an Initial Operating Budget until the sale of one of the Lots to an individual or entity that is unrelated and unaffiliated with the Declarant.
- 1.24. "**Institutional Lender**" means any domestic or foreign commercial or savings bank, any insurance company or savings and loan association whose investments are regulated by the laws of any State or of the United States, any pension fund, trust company, governmental agency or fund, any educational, religious or charitable institution, or other non-individual entity, or a consortium of any of the foregoing, in the business, among other things, of making loans secured, directly or indirectly, by real property. Ladder Capital Finance LLC, a Delaware limited liability company, and its successors and assigns with respect to the loan made to Declarant secured by a portion of the Subject Property are Institutional Lenders.
- 1.25. "**Interest Holder**" means any party who accepts a deed, lease, mortgage, easement or other grant or conveyance of any portion of the Subject Property.
- 1.26. "**Late Charges**" is defined in **Section 11.1** of this Declaration.
- 1.27. "**Limited Shared Elements**" mean those portions of the Shared Elements the primary use of which is made by one or more, but fewer than all, of the Members, as indicated and allocated pursuant to this Declaration.
- 1.28. "**Limited Shared Expense**" mean the Expenses for services or repairs or maintenance benefiting one or more but fewer than all the Lots, if any, which may be assessed pursuant to this Declaration exclusively against the Lots benefited. Costs of repairing any utility infrastructure that serves only one Lot shall be a Limited Shared Expense allocated exclusively to such Lot. Except as set forth below, costs of repairing utility infrastructure that serves more than one Lot shall be a Limited Shared Expense allocated exclusively to such Lot, and the allocation of such Limited Shared Expense shall be allocated among the benefitted Lots based on the Rentable Square Footage of each Lot so benefitted. Notwithstanding the foregoing, repairs to utility mains that serve multiple buildings within

the Subject Property from which separate lines join into the utility mains to serve one or more buildings, shall be treated as a Permitted Cost and not as a Limited Shared Expense.

- 1.29. “**Lot**” means any one of the lots comprising part of the Subject Property upon which a separately numbered Building is now built, all as shown on the Plan and any portion of the Common Area converted to a Lot in the future and approved by the City of Biddeford. Each of the separately numbered Buildings comprising part of Lot 1 on the Amended Subdivision Plan shall be treated as a separate Lot for all purposes of this Declaration.
- 1.30. “**Member**” means any Person who is a member of the Association pursuant to the terms of this Declaration.
- 1.31. “**Membership**” means of or relating to the Members.
- 1.32. “**Nonprofit Corporation Act**” means the provisions of Title 13-B of the Maine Revised Statutes, as same may be amended from time to time.
- 1.33. “**Owner**” means the record owner(s) in fee simple of a Lot or, if a Lot is submitted to the Condominium Act, the owner in fee simple of a Unit within a condominium upon the Subject Property.
- 1.34. “**Permitted Costs**” is defined in **Section 10.3** of this Declaration.
- 1.35. “**Person**” means a natural person, corporation, business trust, estate, trust, partnership, association, joint venture, limited liability company, limited liability partnership, government, governmental subdivision or agency, or other legal or commercial entity.
- 1.36. “**Proportionate Share**” means the ratio of the Rentable Square Footage in a Building owned by an Owner divided by the total of all Rentable Square Footage of all Buildings in the Development, stated as a percentage, as such percentage shall from time to time be recalculated by the Association in accordance with the provisions of this Declaration or as otherwise noted in the attached Exhibit D. Unoccupied Buildings that have not received a building permit for renovations to enable the use of such building and that have not commenced construction of such improvements shall not be included in the Proportionate Shares, until such Building has received a building permit for the renovation thereof to enable the use of such Building and work on such renovations has substantially commenced. The Proportionate Share of all Buildings in the Association once all buildings have been developed or have received a building permit for work to enable the use thereof and such work has commenced are set forth on Exhibit D hereto. Until the sale of all of the Unoccupied Lots, the Proportionate Share of all Buildings that will be paying a Proportionate share will be computed using the relative percentages set forth in Exhibit D for each Building paying a Proportionate Share, with the adjusted Proportionate Shares to be based on a total of 100% of the Permitted Costs being allocated to the Buildings paying a Proportionate Share, other than for replacement reserves, which shall be at the fixed

percentages set forth on Exhibit D. Notwithstanding the foregoing, for any Building predominately used and developed for storage purposes, including a Building used as a self-storage facility, such Building's Proportionate Share of all Permitted Costs other than landscaping and plowing costs shall be computed based on 50% of the total Rentable Square Footage in such Building and the share of such Building's allocation of the cost of landscaping and plowing shall be computed based on 35% of the total Rentable Square Footage in such Building and such figures shall also be used when computing the total of all Rentable Square Footage of all Buildings in the Development. At such time any such Building is converted to a predominate use other than storage purposes, such Building's Proportionate Share shall be computed based on the actual total Rentable Square Footage in such Building rather than using such 50% factor. In addition, as noted on Exhibit D, the Proportionate Share for certain Permitted Expenses may be assigned by the Declarant to Buildings in a nonconforming manner to the extent that certain expenses associated with certain Buildings may be incurred and used by such Buildings in a manner that is disproportionate to the square footage of such Buildings, and the Declarant shall have the authority to alter the percentages of various components of the Permitted Expenses at the time that a particular Building is sold to an Owner other than the Declarant in order to more fairly allocate such Permitted Expenses among the Buildings within the Subject Property. In addition, as set forth in Section 10.1 (d) certain Building Owners may be obligated to pay supplemental parking assessments as set forth in Section 10.1 (d).

- 1.37. **"Operating Budget"** means the annual operating budget of the Association adopted by the Board for payment of Association Common Expenses for that year.
- 1.38. **"Recognized Mortgagee"** means the holder of a recorded mortgage on a Lot or a Unit, which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefore, which notice shall state the mortgagee's name and address, the Lot or Unit Owner's name and address, and the identifying number of the Lot or Unit, and shall state that the mortgage is a recorded first mortgage. As of the date hereof, and without the necessity of delivering written notice to the Association, (i) Ladder Capital Finance LLC, holder of a mortgage upon the property of the Declarant, together with its successors and/or assigns and (ii) The Mills at Pepperell, LLC and North Dam, LLC, together with their successors and/or assigns, holders of a mortgage upon the property of PM Development, are each Recognized Mortgagees and shall remain Recognized Mortgagees so long as they hold mortgages upon the Subject Property or any portion thereof.
- 1.39. **"Regular Assessment"** is defined in **Section 10.1** of this Declaration.
- 1.40. **"Rentable Square Footage"** means the aggregate of the floor area of all floors of all buildings in the Development that are intend for use and occupancy, including any common areas, hallways, entry lobbies in any building in the Development, but excluding any space that is unsuitable for renting such as basement space that may not be permitted for commercial or residential occupancy.
- 1.41. **"Shared Elements"** means the improvements upon the Common Areas as depicted on

the Plan, including, without limitation, the common utilities, Roads, Sidewalks, parking areas, common mailbox stations, street lighting, storm water drainage systems located throughout the Subject Property, all whether now existing or hereinafter constructed or installed.

- 1.42. **"Shared Utility Costs"** means those utility charges from utility providers of electricity, natural gas, water and sewer charges or other utility charges for utility services that serve more than one Lot and that are not separately billed or metered to an individual Lot, but that are billed to and incurred by the Association and allocated to the shared users of those utility services. Shared Utility Costs are not included in the Association's Operating Budget, or any portion thereof, and that are not separately metered to individual Lots.
- 1.43. **"Sidewalks"** means those portions of the Subject Property that are improved to provide pedestrian access throughout the Development, as they now exist or are hereafter constructed.
- 1.44. **"Sky Bridge"** means any sky bridge or aerial bridge as depicted on the Plan, as presently exists or as hereafter constructed.
- 1.45. **"Special Assessment"** (or **"Special Assessments"**) is defined in **Section 10.1** of this Declaration.
- 1.46. **"Sub-association"** means: for a Lot submitted to the Condominium Act, the condominium unit owners' association for such condominium;
- 1.47. **"Tax Map"** means the Tax Map of the City of Biddeford, Maine.
- 1.48. **"Unit"** means any Condominium Unit created within a Building constructed on a Lot that is intended for independent use and occupancy and that may lawfully be separately owned. Any two or more Units are collectively referred to as **"Units."**
- 1.49. **"Unoccupied Lot"** means a Lot containing a building that is substantially unoccupied and not leased or used by the owner thereof other than for incidental storage. Upon the issuance of a building permit issued by the City of Biddeford for the substantial rehabilitation of an Unoccupied Lot, and the commencement of construction activities under such building permit, an Unoccupied Lot shall no longer be treated as an Unoccupied Lot hereunder. As of the date hereof, the Unoccupied Lots shall mean Parcels 11, 12, 19, 20, 30, 36 and Smokestack Parcel 38 as shown on the Subdivision Plan.

ARTICLE 2.

PROPERTY SUBJECT TO THIS DECLARATION

The Subject Property from and after the date hereof shall be held, conveyed, hypothecated,

encumbered, leased, occupied, built upon or otherwise used, improved or transferred, in whole or in part, subject to this Declaration as same may be amended or supplemented from time to time. The terms of this Declaration shall run with the Subject Property and shall be binding upon the Owners of the Subject Property, including the Declarant and PM Development, the Association, the Members of the Association and all other Interest Holders and their respective successors-in-interest.

ARTICLE 3. THE DEVELOPMENT; DECLARANT'S RIGHTS

3.1. The Development. Declarant intends that the Subject Property, as developed, will consist of a mix of commercial and residential buildings and condominiums, each constructed on a Lot, including housing and associated uses, parking and Shared Elements (collectively, the "**Development**").

3.2. Declarant's Reserved Rights. During the Declarant Control Period, in addition to such other rights as are reserved by Declarant hereinafter, Declarant expressly reserves the right to add or withdraw land from the Subject Property, to relocate Parking Areas, to exercise the rights to use and allocated parking spaces as set forth in Section 3.4 below, to add one or more parking structures, to add or remove one or more Sky Bridges, convert any portion of the Common Areas to Lots within the Subject Property, to grant or obtain additional easements, to create Condominiums upon any of the Lots and to revise the maintenance responsibilities for certain portions of the Common Areas or Shared Elements or payment obligations for the maintenance of certain portions of the Common Areas or Shared Elements based on the specific use thereof by any one or more of the Lots, provided, however, that the Declarant shall not subject any Lot not owned by the Declarant with any obligation to maintain or pay for the maintenance of certain portions of the Common Areas or Shared Elements without the written consent of the owner of such Lot. The term "Declarant Control Period" means the period that extends from the date of the recording of this Declaration until the *later of*: (a) ninety (90) days after the conveyance of seventy-five percent (75%) of the total number of Lots, including Lots that may be created on the Subject Property or any additions thereto, provided that all of the Unoccupied Lots have been conveyed to parties that are not affiliated with the Declarant, but excluding any conveyance to a successor Declarant; or (b) eighteen (18) years from the date of recording of this Declaration, provided, however, that at its election the Declarant may terminate the Declarant Control Period at any time by recording a notice in the York County Registry of Deeds. Lots owned by PM Development shall be deemed to be Lots owned by the Declarant (and conveyed by the Declarant upon the conveyance thereof) for purposes of determining whether the 75% threshold has been met or for determining whether all of the Unoccupied Lots have been conveyed to parties unaffiliated with the Declarant. So long as the Declarant or a successor Declarant owns more than 25% of all of the Lots, including Lots that may be created on the Subject Property or any additions thereto, or owns any of the Unoccupied Lots, the Declarant shall have the right to extend the Declarant Control Period, prior to its expiration, for additional periods of five (5) years each, provided that upon the conveyance of seventy-five percent (75%) of the total number of Lots and conveyance of all of the Unoccupied Lots to an owner that is not affiliated with the Declarant, including Lots that may be created on the Subject Property or any additions thereto, excluding any conveyance to a successor Declarant, the Declarant Control Period, as extended, shall terminate as provided herein.

3.3. Reserved Rights of Owners of Unoccupied Lots. The Owners of the Unoccupied Lots, including any subsequent Owners thereof, shall have the right to develop any of the Unoccupied Lots and to create condominiums within or upon any of the Unoccupied Lots. Such rights shall include the right to connect to utilities within the Subject Property, subject to requirements of the City of Biddeford,

Maine and to the requirements of any applicable public utility. The Declarant agrees to grant reasonable temporary construction easements to the Owners of any Unoccupied Lot to enable reasonable site or exterior construction activities provided that such construction activities do not unreasonably interfere with the use and operation of the Subject Property. No temporary construction easement shall be granted to allow the complete obstruction of access to any Occupied Building, or that impairs access for fire or emergency equipment. Any temporary construction easements shall also be approved by the code enforcement officer of the City of Biddeford in order to assure that appropriate access and emergency equipment access is maintained.

3.4. Declarant's Reserved Rights relating to Parking upon the Subject Property and Use of the Common Areas. Declarant is the fee owner of the Common Areas, and reserves the following rights with respect to the Common Areas for the benefit of Declarant or any successor in interest including any successor declarant.

(a) The right to lease or rent any parking spaces upon the Common Areas, including the right to retain all parking space rents or revenues derived from such leases or rentals. This right to lease any of the parking spaces upon the Common Areas and to retain the rents or revenues derived from such parking space lease or rental shall continue to be held by Declarant or any successor to the Declarant, beyond the expiration of the Declarant Control Period and shall continue whether or not the Common Areas have been conveyed to the Association, unless such conveyance to the Association expressly includes the rights to lease and retain the rents or revenues from the lease of such parking spaces.

(b) The right to grant parking easements to the Owner of any Lot.

(c) The right to set and establish reasonable rules and regulations for the use of any parking spaces upon the Subject Property and for the use of any portion of the Common Areas, including maximum time periods for the use of any parking space, so as to enable daytime commercial use and evening and weekend residential use for the same parking spaces.

(d) The right to lay out and stripe or restripe the Common Areas to establish parking spaces thereon, subject to compliance with any requirements of the City of Biddeford.

(e) The right to establish reasonable rules and regulations for the use of the Roads within the Subject Property, including the right to make any Road a one-way Road or to establish other rules and regulations relating to loading zones within or upon any of the Common Areas.

(f) The right to grant easements or licenses for building extensions upon the Common Areas, including any building entrances, steps, canopies, awnings, loading docks or other building extensions into or upon the Common Areas.

ARTICLE 4. ROADS, COMMON EASEMENTS ASSOCIATION'S EASEMENTS

4.1. Road and Sidewalk Easements. Declarant, PM Development and the Owners of the Lots and the Common Areas, and their respective heirs, successors and assigns, are hereby granted a perpetual easement in common in the Roads located on the Subject Property shown on the Plan for pedestrian and vehicular ingress and egress to and from a Lot, Parking Areas and Buildings, and the

public roads, and for pedestrian access to the Sidewalks and pedestrian easement areas and for the maintenance, repair and replacement of pavement, street improvements, sidewalks and utilities, for connection to utilities, for all customary uses of and improvements accessory to a street and to manage and convey storm drainage as indicated on the Plan for the benefit of the Lots and the Common Areas.

The Declarant reserves the fee title to the Roads, Sidewalks and pedestrian easement areas as shown on the Plan and reserves the right to convey the Roads and Sidewalks or any of them to the City, in fee or easement, upon acceptance as public streets, or in the alternative to the Association should the City decline to accept any such Road or Sidewalk. The Declarant also reserves the right to convey the fee interest in the Roads, Sidewalks, Parking Areas and pedestrian easement areas to the Association, whether or not such areas are offered to the City as public streets and walkways, or are accepted by the City as public streets and sidewalks by easement as permitted by Maine law. Notwithstanding the conveyance of the Parking Areas to the Association, the Declarant may retain the right and easement to use, lease, rent and to retain the rents or revenues from the lease or rental of the Parking Areas, including the right to transfer such rights or easements to any successor or assignee.

4.2. Building Projection and Footing Easements. Declarant, PM Development and the Owners of the Lots and the Common Areas, their heirs, successors and assigns, are hereby granted a perpetual easement in common for any existing or hereafter created building projections, roof overhangs and extensions, including steps, awnings, electrical boxes, HVAC equipment, electrical equipment or other building projections or equipment that may extend beyond the boundaries of any Lot (collectively the "Building Projections") and for any existing or hereafter created foundation footings that may extend below grade beyond the boundaries of any Lot to support the Buildings, provided that any such building extensions or projections created after the date hereof shall require the express written consent of the Declarant, which shall not be unreasonably withheld or delayed. Each Owner shall be responsible for maintaining in good condition and repair the Building Projections that extend from such Owner's Building into, over or under the Common Areas.

4.3 Maintenance Easements. Declarant, PM Development and the Owners of the Lots, their heirs, successors and assigns, are hereby granted a perpetual easement over the Common Areas, for the maintenance of the Buildings, and for the placement of scaffolding, ladders, lifts, vehicles or other necessary equipment to be used to maintain the Buildings, provided that any such use of the Common Areas that interferes with the use thereof for vehicular access or parking shall require the written consent of the Association, which shall not be unreasonably withheld..

4.4 Sky Bridge Easements. Declarant, PM Development and the Owners of the Lots, their heirs, successors and assigns, are hereby granted a perpetual easement in common over the Subject Property for air rights to enable the use, construction, maintenance and repair of the Sky Bridges. Each Building on either end of a Sky Bridge is subject to and has the benefit of a pedestrian easement for access to and from the Sky Bridge, and each Building Owner shall have an obligation, in common with the other Owner of a Building connected to a Sky Bridge, to maintain and repair the Sky Bridge and to share equally in the cost of cleaning, upkeep, lighting, repair and maintenance of the Sky Bridge, unless and to the extent that Declarant or any Owner of any Lot has agreed in writing to assume the responsibility for the maintenance or removal of any Sky Bridge. Any such agreement shall be set forth in Exhibit E to this Declaration, and this Declaration may be amended by Declarant to set forth such matters Exhibit E to this Declaration. The easement to use a Sky Bridge is limited to Sky Bridges that are accessible from each of the Buildings to which they are connected and that serve as a pedestrian connection between such Buildings. Sky Bridges that are not in use may be made operable upon the

written agreement of the Declarant and the Owners of each of the Buildings on either end of such Sky Bridge, and upon obtaining any required permits or inspections from the City of Biddeford. Declarant further reserves the right to remove any Sky Bridge and the right and easement, including air rights over the Subject Property, to add additional Sky Bridges between any two Buildings on the Subject Property.

4.5 Emergency Access Easements. Declarant, PM Development and the Owners of the Lots, their heirs, successors and assigns, are hereby granted a perpetual easement in common for firefighting or other emergency equipment to access any of the Subject Property in the event of a fire or other emergency. Such emergency access easements shall extend to any and all public safety officials and personnel engaged in firefighting or other emergency public safety activities at the Subject Property.

4.6. Other Easements. The Subject Property is subject to the following easements and all other easements, notes and conditions set forth in or referred to in the Plan, which include without limitation:

(a) Subdivision Plan and City Approvals. Terms and conditions of the Subdivision Plan, and the terms and conditions of any related subdivision or site plan permits or approvals granted by the City, as evidenced by said Subdivision Plan (collectively the "**City Approvals**"), whether or not such terms and conditions are noted or referenced on the Plan or in any other instrument recorded in the York County Registry of Deeds ("YCRD").

(b) Terms and Conditions of the RiverWalk Easement Deeds (Phase IV-1 and Phase IV-2) from the Declarant to the City of Biddeford, to be recorded in the YCRD immediately prior to this Declaration.

(c) Rights reserved by York Manufacturing Company in agreements with Saco Water Power Company, dated October 17, 1840 and recorded in the YCRD in Book 170, Page 65, and in Book 334, Pages 77 and 79, as the same may affect rights to draw water and related easements.

(d) Rights and covenants set forth in deed from Pepperell Manufacturing Company to Cumberland County Power and Light dated September 22, 1930 and recorded in the YCRD in Book 795, Page 11.

(e) Rights and easements granted to Cumberland County Power and Light Company from York Manufacturing Company as set forth in the Easement Deed dated December 15, 1931 and recorded in Book 935, Page 332; as conveyed by Central Maine Power Company to Pepperell Manufacturing Company, dated September 15, 1964 and recorded in YCRD in Book 1622, Page 217; as affected by the Release Deed from Central Maine Power Company to North Dam, LLC dated September 16, 2010 and recorded in YCRD in Book 15947, Page 614..

(f) Such state of facts as shown on the plan entitled "Plan Showing a Proposed Sale of Land, West Point-Pepperell, Inc., to Neco Electrical Products Corp.," dated October 29, 1971 and recorded in YCRD in Plan Book 53, Page 44.

(g) Party wall rights of West Point-Pepperell, Inc., in and to the south wall of Building 15 and a portion of the north wall of Building 13 as shown on a plan, dated October 29, 1971 and recorded in YCRD in Plan Book 53, Page 44.

(h) Rights, privileges and easements as set forth in deed from West Point -Pepperell, Inc. to Biddeford Textile Company dated November 17, 1971 and recorded in YCRD in Book 1928, Page 556; including but not limited to an unrecorded agreement by and between West Point-Pepperell, Inc. and Necco Electrical Products Corporation, as referenced in the deed recorded in YCRD in Book 1928, Page 556; as affected by the Agreement between Biddeford Textile Corporation, Sunbeam Products, Inc., and West Point Stevens, Inc. dated May 9, 1997 and recorded in YCRD in Book 8257, Page 318, to the extent still in effect.

(i) Exceptions, reservations, restrictions, easements and conditions set forth in the Special Warranty Deed from WestPoint Stevens, Inc. I to WP Property Holdings I, LLC dated August 8, 2005 and recorded in YCRD in Book 14603, Page 592.

(j) Terms, conditions, provisions, agreements and obligations set forth in the Utility Easement Agreement by and between Westpoint Home, Inc. and North Dam Mill, LLC, dated November 18, 2008, and recorded in YCRD in Book 15532, Page 471.

(k) Exceptions, reservations, restrictions, easements and conditions set forth in Quitclaim Deed with Covenant from WP Property Holdings I, LLC to The Mills at Pepperell, LLC dated June 14, 2010 and recorded in YCRD in Book 15880, Page 864.

(l) Rights, easements, terms, conditions and agreement set forth in the Permanent Riverwalk Easement Deed (Phase I) from North Dam, LLC and The Mills at Pepperell, LLC to the City of Biddeford dated January 5, 2011, and recorded in YCRD in Book 16028, Page 417.

(m) Rights and easements granted by North Dam, LLC and The Mills at Pepperell, LLC to the City of Biddeford as set forth in the Temporary Construction Easement recorded on August 4, 2011, in YCRD in Book 16140, Page 140, to the extent the same have not expired.

(n) Rights and easements set forth in the Permanent Riverwalk Easement Deed (Phase II) from North Dam, LLC and The Mills at Pepperell, LLC to the City of Biddeford dated January 9, 2014 and recorded in YCRD Book 16770, Page 872.

(o) Such state of facts as is shown on the "Plan Showing Proposed Conveyances of Land Made for The Mills at Pepperell, LLC, Biddeford, Maine" dated July 9, 2012; as revised October 15, 2012, prepared by Michael J. Coulombe, PLS No. 1293 of Dow & Coulombe, Inc. and recorded in the York County Registry of Deeds in YCRD in Plan Book 358, Pages 15 and 16.

(p) Such state of facts as is shown on the "Composite Plan Made for North Dam, LLC and The Mills at Pepperell, LLC, Main Street, Laconia Street and York Street, Biddeford, Maine" dated May 23, 2011; prepared by Michael J. Coulombe, PLS No. 1293 of Dow & Coulombe, Inc.; as revised through February 12, 2014, including the following:

- a) Apparent shared rights of aerial bridges, bridges, steps, water mains, hydrants and 12" Vit Pipe cooling water discharge as shown on the plan;
- b) "Brick Corner Over" at the southwesterly corner of Main Street and Laconia Street and another at the westerly end of York Street;
- c) Stairs by Gallagher's Rainbow;
- d) Old canals, sewer lines and hydrant on border with Odyssey Properties;

- e) Hydrants by the property of Mill at Saco Falls, LP on Smith Street and by building 14A;
- f) 12" Vit Pipe cooling water discharge by land of FPL Energy;
- g) Easements of record not plotted or disclosed on the plan.

(q) Rights and easements granted by North Dam, LLC and The Mills at Pepperell, LLC to The City of Biddeford as set forth in the Temporary Construction Easement dated October 31, 2012 and recorded in YCRD in Book 16770, Page 867.

(r) Rights, easements, terms, conditions and agreement set forth in the Permanent Pedestrian Bridge Easement Deed from North Dam, LLC and The Mills at Pepperell, LLC to the City of Biddeford dated October 31, 2012, and recorded in YCRD in Book 16770, Page 860.

(s) Rights, easements, terms, conditions and agreements set forth in Riverwalk Easement Agreement (Phase III) between North Dam, LLC and the City of Biddeford dated April 29, 2014 and recorded in YCRD in Book 16930, Page 61.

(t) Rights, easements, conditions and agreements set forth in Temporary Construction Easement from North Dam, LLC and The Mills at Pepperell, LLC to the City of Biddeford dated April 29, 2014 and recorded in YCRD in Book 16930, Page 73.

(u) Rights and easements set forth in Access Easement from The Mills at Pepperell, LLC to North Dam, LLC dated April 29, 2014 and recorded in YCRD in Book 16930, Page 82.

(v) Such state of facts as shown on the plan entitled "Plan Showing Land and Buildings for Sale by West Point-Pepperell, Inc., to Daniel Turkanis" dated August 2, 1972 and recorded in YCRD in Plan Book 60, Page 6.

(w) Rights and easements granted to Central Maine Power Company by Saco Realty Corporation as set forth in the Indenture dated November 28, 1958 and recorded in YCRD in Book 1396, Page 280.

(x) Rights, privileges and easements as set forth in deed from West Point-Pepperell, Inc. to the City of Biddeford dated November 11, 1971, and recorded in Book 1928, Page 384.

(y) Rights, privileges and easements as set forth in deed from West Point -Pepperell, Inc. to Biddeford Textile Company dated November 17, 1971 and recorded in YCRD in Book 1928, Page 556.

(z) Terms, conditions, rights and easements set forth in deed from West Point-Pepperell to Daniel Turkanis dated August 16, 1972, and recorded in YCRD in Book 1960, Page 553.

(aa) Rights and easements granted to Central Maine Power Company from West Point Pepperell Inc. to Central Maine Power Company recorded on November 8, 1977 in YCRD in Book 2280, Page 69.

(bb) Contract for outdoor lighting by and between Central Maine Power Company and West Point Pepperell dated August 25, 1977, and recorded in YCRD in Book 2381, Page 86.

(cc) Notice of Abandoned Underground Oil Storage Facility or Tank filed by West Point-Pepperell, Inc. dated December 19, 1991 and recorded in YCRD in Book 5925, Page 271.

(dd) Possible title to and rights of others in private roads known as York Street and Laconia Street as affected by Affidavits of Physical Obstruction and Closing of Private Ways by West Point-Pepperell dated December 7, 1990 as recorded in YCRD in Book 5583, Page 177, and dated March 6, 1992 as recorded in YCRD in Book 5998, Page 51, and dated September 7, 1995 as recorded in Book 7549, Page 25, and dated November 5, 1997 as recorded in YCRD in Book 8511, Page 177.

(ee) Rights and easements granted to Central Maine Power Company from West Point-Pepperell, Inc. as set forth in the Easement Deed dated November 22, 1991, and recorded in YCRD in Book 5971, Page 121.

(ff) Rights and easements granted to Central Maine Power Company from WestPoint Stevens Inc. as set forth in the Easement Deed dated June 10, 1998 and recorded in YCRD Book 8931, Page 302.

(gg) Rights and easements granted to Northern Utilities, Inc. from WestPoint Stevens Inc. as set forth in the Easement Deed dated June 1, 1998 and recorded in YCRD in Book 9070, Page 230.

(hh) Rights and easements set forth in the Easement Deed from WP Property Holdings I, LLC to The Mill at Saco Falls, LP and Riverdam Mill, LLC dated November 6, 2009 and recorded in YCRD in Book 15787, Page 136.

(ii) Rights and easements set forth in the Easement Deed from The Mills at Pepperell, LLC to The Mill at Saco Falls, LP dated January 14, 2011, and recorded in YCRD in Book 16030, Page 789.

(jj) Rights and easements set forth in Easement from The Mills at Pepperell, LLC to Central Maine Power Company dated May 8, 2015 and recorded in YCRD in Book 17068, Page 461.

(kk) Rights and easements granted to Central Maine Power Company from Biddeford Textile Company set forth in the Easement Deed dated March 30, 1972 and recorded in YCRD in Book 2055, Page 84.

(ll) Temporary Construction, Easement set forth in the Notice of Layout and Taking by the State of Maine, Department of Transportation, dated December 12, 2001 and recorded in YCRD in Book 11435, Page 85.

(mm) Such state of facts as is shown on the plan entitled "State of Maine, Department of Transportation, Right of Way Map, State Aid Highway No. 3 and 8 (Rte 9/Main Street), Biddeford-Saco, York County", dated August 2001 and recorded in YCRD in Plan Book 322, Page 40.

(nn) Exceptions, reservations, restrictions, easements and conditions set forth in the Quitclaim Deed from Sunbeam Products, Inc. to North Dam, LLC dated April 30, 2004 and recorded in Book 14072, Page 296.

(oo) Rights and easements granted to Central Maine Power Company from North Dam, LLC as set forth in the Easement Deed (Underground Line) dated August 6, 2008, and recorded in YCRD in Book 15501, Page 812.

(pp) Rights and easements granted to Central Maine Power Company by Easement Deed from North Dam, LLC dated August 19, 2008, and recorded in YCRD in Book 15535, Page 609.

(qq) Rights and easements described in the Easement Deed (Underground Line) from North Dam, LLC to Central Maine Power Company dated April 3, 2012 and recorded in YCRD in Book 16311, Page 226.

(rr) Rights, easements, terms and conditions in Permanent Easement granted to City of Biddeford dated April 15, 2015 and recorded in Book 17005, Page 538; as affected by a Corrective Permanent Easement Deed granted to City of Biddeford dated June 30, 2017 and recorded in Book 17515, Page 854.

(ss) Terms and conditions in an Affidavit of the Maine Department of Environmental Protection Affidavit Voluntary Response Action Program North Dam Mill site dated August 26, 2015 and recorded in YCRD in Book 17092, Page 503.

(tt) Rights and easements set forth in an Underground Line Easement from North Dam LLC to Central Maine Power Company dated October 11, 2018 and recorded in YCRD in Book 17889, Page 755.

(uu) Rights and easements set forth in a Signal System Easement from North Dam, LLC to State of Maine, acting by and through its Department of Transportation dated June 11, 2021 and recorded in YCRD in Book 18736, Page 668.

(vv) Terms and conditions of the pedestrian easements to be granted by Pepperell Mills Progression, LLC to the City, to be recorded in the YCRD.

The foregoing are collectively referred to herein as the "Common Easements."

4.4. Association's Easements. The Declarant hereby grants the Association and its directors, officers, agents, employees such easements over the Subject Property as are necessary for the performance of the Association's obligations under this Declaration.

ARTICLE 5.

PURPOSE, FUNCTION, OBLIGATIONS AND POWERS OF ASSOCIATION

5.1. Purpose of Association. The Association is established pursuant to this Declaration for the purposes of maintenance, repair, replacement, administration and operation of the Shared Elements, which shall include, but not be limited to: (1) management of ice and snow removal from the Roads and Sidewalks and all other maintenance and repair thereof, and all improvements therein so as to keep the Roads passable by vehicles, including by emergency vehicles and equipment of the City, and the Sidewalks passable by foot, which maintenance and repair shall include, without limitation, grading, re-grading, addition of gravel, repair of potholes or washouts, maintenance of road shoulders, maintenance of drainage swales, culverts, snowplowing, sanding and trimming of vegetation, and any other similar

item customary or reasonably related to the maintenance, repair or improvement of similar private roadways in the City, and in accordance with the Plan; (2) maintenance, repair and replacement of all common electrical and telephone cables, water, sewer and drainage pipes, equipment and facilities serving the Development and located on or within the Subject Property, to the extent not the responsibility of any utility company pursuant to the terms and conditions of any easements to said companies, provided that the installation of any new or expanded utility service to any Lot shall be installed at the expense of the Owner of such Lot and further provided that any utility service that is not a common utility service serving more than one lot shall be maintained, serviced and repaired by the Owner of such Lot; (3) inspection, care and maintenance of any drainage facilities, storm catch basins and manholes and storm sewers serving the Development and located on or within the Subject Property; (4) inspection, care and maintenance of the Common Landscaping; and (5) all other maintenance of the Shared Elements as shall be required. Notwithstanding the foregoing, Declarant reserves the right, at all times during the Declarant Control Period, to perform any or all of the functions of the Association set forth herein and in Section 5.2 below, for the administration, maintenance, repair of the Subject Property or Shared Elements.

5.2. Functions, Obligations and Powers. Subject to Article 9 of this Declaration, the functions, obligations and powers of the Association shall include, without limitation, the following:

- (a) to maintain, repair and operate the Shared Elements in accordance with the terms hereof;
- (b) to adopt the annual Operating Budget;
- (c) to impose Assessments for purposes of paying Association Common Expenses and Shared Utility Costs and to collect such Assessments so imposed;
- (d) to bring actions to recover Assessments or otherwise against Members for failure to pay Assessments imposed against them and to enforce any lien or other right or remedy granted the Association under this Declaration;
- (e) to collect, receive, administer, protect, invest and dispose of funds in connection with its obligations hereunder;
- (f) to defend actions and negotiate and settle claims with Members in connection with Association Common Expenses and Assessments or otherwise;
- (g) to adopt rules and regulations for the conduct of Members and their guests while on the Subject Property;
- (h) to perform such other duties, obligations and functions with respect to the Shared Elements as may be appropriate for the Association to perform or which otherwise the Members may delegate to the Association in accordance with the Formation Documents; and
- (i) to obtain and pay for as a Permitted Cost the services of any Person(s) to manage the Association's affairs or any part thereof, or as the Association may deem necessary or desirable for the proper performance of the Association's functions pursuant hereto, including, without limitation, legal and accounting services necessary or desirable in connection with the foregoing or enforcement of this Declaration.

ARTICLE 6. OBLIGATIONS OF MEMBERS

6.1. **Payment of Assessments.** Upon becoming a Member, the Member becomes liable for Assessments established by the Association and shall pay Assessments imposed by the Association pursuant to this Declaration.

6.2 **Compliance with Declaration and Rules and Regulations.** Each Member shall be responsible for the compliance with all use restrictions and other terms governing the use of the Subject Property and all obligations of a Lot Owner set forth in this Declaration and in any rules or regulations established by the Association and shall assure that any Tenants of the Owner also comply with all applicable use restrictions and terms governing the use of the Subject Property. Each Owner shall provide its Tenants with copies of this Declaration and with any rules and regulations promulgated by the Association.

6.3. **Disputes.** Any dispute as to whether a Lot or Building thereon is being maintained in accordance with this Declaration or disputes as to Assessments, that cannot be resolved among the Members, shall be submitted to Arbitration.

ARTICLE 7. ADMINISTRATION AND MANAGEMENT

7.1. Administrator.

(a) During the Declarant Control Period, the Declarant shall serve as administrator (“**Administrator**”) of the Association. Thereafter, the Members of the Association shall determine which Owner, if any, they wish to serve as Administrator of the Association or the Members of the Association may agree to hire an Association Manager (as defined below) to serve as Administrator of the Association. Unless and until such determination is made and a new Owner or property manager is selected to serve as Administrator, the Declarant may, but shall not be obligated to continue to so serve.

(b) Administrator shall have the right and obligation to promulgate and present to the Members each annual Operating Budget and to allocate Permitted Costs among the Members in accordance with their respective Proportionate Share. Administrator shall also implement all other obligations of the Association and operate the Association on behalf of its Members, at least until the Development is complete and a Board comprising Directors representing five (5) Members with the obligation to pay Assessments is established.

7.2. Manager.

(a) The Association shall have the right, on or about the Effective Date, to enter into a management agreement (any such agreement, an “**Association Management Agreement**”) with a real estate management company for the performance by such company (any such company, in such capacity, the “**Association Manager**”) of duties on behalf of the Association generally. In connection with the foregoing, the Association may cause any such Association Manager to, among other things: (i) operate, manage and maintain the Shared Elements (ii) establish security and safety procedures for use of same; (iii) place and maintain upon the Shared Elements such signs as the Association deems appropriate for the proper identification, use and regulation thereof; and (iv) implement Association

policy and perform such administrative functions as are necessary for the Association to comply with its obligations hereunder with respect to the Shared Elements.

(b) By way of example and not of limitation, any such Association Manager shall, if and as directed by the Association, (i) prepare the annual Operating Budget, (ii) notify Members and Directors of meetings and keep minutes of each Board and Members meeting, (iii) open and maintain bank accounts on behalf of the Association, provided that the Association shall retain the power to designate the signatories on any such account, (iv) bill and collect Assessments, (v) enforce the remedies of the Association provided herein for non-payment of Assessments, (vi) pay Permitted Costs and (vii) collect from each Member certificates evidencing insurance required to be obtained and maintained by such Member pursuant to this Declaration.

(c) Any Association Management Agreement shall require the Association Manager thereunder to indemnify, defend (with counsel reasonably acceptable to the Association) and hold harmless the Association and the Members, and each of their respective partners, Unit Owners, stockholders, directors, members, officers, trustees, employees, agents, successors and assigns (each, an “**Indemnitee**”) from and against any and all claims, actions, suits, proceedings, losses, costs and expenses (collectively, a “**Claim**”), including reasonable attorneys’ fees, disbursements and court costs, incurred by or otherwise asserted against any Indemnitee to the extent arising out of or resulting from any accident, injury or damage whatsoever occurring during the term of such Association Management Agreement in, at or upon the Shared Elements or from any acts or omissions of the Association Manager or its directors, officers, employees, contractors, subcontractors and agents, including a Claim resulting from (i) the Association Manager’s violation of such Association Management Agreement, (ii) the Association Manager acting outside the scope of its authority under such Association Management Agreement or (iii) negligence, fraud, malfeasance, or willful, reckless or criminal misconduct. The terms of such indemnity shall survive the expiration or earlier termination of such Association Management Agreement whether with or without cause.

7.3. Special Rights of Declarant. Notwithstanding anything contained in this **Article 7** or elsewhere in this Declaration to the contrary, for so long as Declarant shall retain an ownership interest in any portion of the Subject Property, Declarant shall have the right, but not the obligation, to serve as Administrator and/or Association Manager.

ARTICLE 8. MEMBERSHIP

8.1. Membership. The Association will have a single class of Members comprising each Owner of a Lot. In the case of a Lot that is subjected to the Maine Condominium Act, the Condominium Association shall be the Member, representing the unit owners in such condominium. There shall be no qualification for Membership in the Association other than being an Owner.

8.2. Acquisition and Transfer of Membership. Membership in the Association shall commence automatically upon an Owner’s acquisition of the fee interest in a Lot or Unit, except that with respect to Declarant, Membership shall commence upon the recording of this Declaration. No Member shall be permitted to sell or otherwise convey a Lot or Unit owned by that Member, unless and until all unpaid Assessments and other amounts required to be paid shall have been paid in accordance with this Declaration. Effective upon conveyance of a Lot or Unit, Membership of the grantor in the Association automatically shall terminate and the grantee of such Lot or Unit shall automatically

become a Member, subject to this Declaration and the Bylaws.

8.3 Matters to be Voted Upon by Members. Following the expiration of the Declarant Control Period, Members shall be responsible for (a) the election of Directors; (b) the ratification of the annual Operating Budget recommended by the Board of Directors; and (c) the amendment of this Declaration, in accordance with the provisions of Article 14 hereof. The annual Operating Budget shall be deemed ratified unless rejected by not less than two-thirds of the Members in the Association voting in accordance with their Proportionate Shares. Special Assessments, whether adopted before or after the Declarant Control Period shall require the approval of majority in interest of the Members.

8.4. Voting; Quorum.

(a) The Association shall calculate the initial Proportionate Share and number of votes attributable to each Member on the Effective Date. As of the Effective Date, the Proportionate Share allocated to each Member and the voting interest of each Member, based upon the Member's Proportionate Share are set forth on Exhibit C to this Declaration. As new initial Members are added to the Association and/or as Unoccupied Buildings obtain a building permit and commence renovations to enable the use and occupancy thereof, the Proportionate Share for all Members will change based on the increased square footage of the overall Development. Accordingly, each time an Unoccupied Building obtains a building permit and commences renovations to enable the use and occupancy thereof, the Proportionate Share allocated to all Members and the number of votes attributable to each Member will change as well. Accordingly, the Association shall recalculate the Proportionate Share and number of votes attributable to each Member effective as of the date that any Unoccupied Building obtains a building permit and commences renovations to enable the use and occupancy thereof, or upon the receipt of a building permit and commencement of construction of any new building created upon the Common Areas, based upon the Rentable Square Footage of such added or renovated Building. Such recalculated Proportionate Share and number of votes per Member shall be effective as of the date that an Unoccupied Building or a newly constructed Building obtains a building permit and commences renovations or construction to enable the use and occupancy thereof. The Association may record an amendment to this Declaration setting forth the revised Proportionate Shares at each time that a Proportion Share changes as set forth above, and such amendments shall not require the consent of Members. The Proportionate Share of Member's interests once all Buildings have been added to the Proportional Shares of the Association are set forth on Exhibit D to this Declaration

(b) When Members are to vote on any matter requiring a vote or consent of a specified percentage of Members, such requirement shall mean the vote or consent of Members holding that percentage of votes based upon the Proportionate Shares, at duly called meeting of the Members. Any Association Annual Budget approved by the Board of Directors of the Association shall be deemed ratified by the Members at a meeting duly called and held to approve such Annual Budget, unless a majority of Members casting votes based on the Proportionate Shares vote to reject the Budget. In the event that a Budget is rejected by the Members, the prior budget shall continue for the next fiscal year, and the Board of Directors may approve an amended Annual Budget to be ratified by the Members at subsequent meeting of Members duly called and held for that purpose.

(c) Only Members shall have the right or be entitled to: (i) attend or participate in Association or Board meetings, whether regular or special, open or closed, (ii) bring any matter to the attention of or present any item for consideration or vote by the Members or Directors, or (iii) vote on any matter that is put to a vote of the Members.

(d) Fifty Percent (50%) of the total number of Members present in person or by proxy, irrespective of their respective proportionate shares, shall constitute a quorum at any meeting at any duly called meeting of the Members. In the event that a quorum is not present, the meeting may continue but no votes shall be taken, other than a vote to adjourn or continue the meeting to another date when a quorum may be present.

8.5. Suspension of Voting Rights. Any Member who fails to pay its allocated Assessments or any other charges or assessments provided for herein within sixty (60) days after the due date thereof shall have all voting rights as provided herein suspended until such amounts plus any accrued interest and Late Charges arising hereunder are paid in full.

ARTICLE 9 ORGANIZATION OF ASSOCIATION

9.1. Board of Directors and Officers.

(a) The affairs of the Association shall be managed and conducted by a Board of Directors. No compensation shall be paid to any Director or officer of the Association. Approvals given or actions taken by the Board in accordance with this Declaration and the Formation Documents shall be approvals given or actions taken by the Association.

(b) Except as otherwise provided herein below, during the Declarant Control Period, the Board of Directors of the Association shall be composed of three (3) natural persons appointed by the Declarant. The Declarant shall have the right during the Declarant Control Period to appoint, remove and replace from time to time any and all members of the Board of Directors and officers of the Association, without the necessity of obtaining resignations. The directors appointed by the Declarant need not be Lot Owners.

(c) At the expiration of the Declarant Control Period, all members of the Board of Directors appointed by the Declarant shall resign and the remaining Directors shall elect new members of the Board of Directors in accordance with the Bylaws.

9.2. Quorum. The presence of Directors representing 60% of the then existing Directors at a duly called meeting of the Board, shall constitute a quorum of the Board for the transaction of business.

9.3. Voting.

(a) Each Director shall have one vote.

(b) At a meeting where a quorum is established, the affirmative vote of a majority of the Board shall be the act of the Board, unless a different percentage of votes is required by the Formation Documents, this Declaration or the Nonprofit Corporation Act. The phrase "vote of a majority of the Board" as used in this Declaration and the Formation Documents means the casting of a majority of the total votes entitled to be cast by all Directors present at a meeting of the Board at which a quorum is established when the vote is taken.

9.4. Personal Liability. To the fullest extent permitted by applicable law, as amended from time

to time:

(a) No past or present Director, officer or employee of the Association shall be personally liable to the Association, any Member, any Interest Holder or any other Person, for any damage, loss or prejudice suffered or claimed on account of any act, omission, error or negligence of the Association, the Board, or any past or present Director, officer, employee, contractor, consultant, counsel, managing agent or other agent or representative of the Association; unless, however, such damage, loss or prejudice occurred as the result of such Director's (or officer's or employee's) failure to act in good faith, negligence, bad faith actions or inactions or willful or intentional misconduct, in which case the limitations on liability set forth in this paragraph shall not apply.

(b) Subject to the exclusions from limitations on liability listed in the previous paragraph, the Association shall indemnify, hold harmless and defend Declarant (and each Member comprising Declarant and their respective affiliates, members, agents and employees) and every past and present Member, Director, officer and employee of the Association (in their capacity as such) from liability incurred by virtue of their involvement with the Association.

ARTICLE 10. ASSESSMENTS

10.1 (a) Annual Assessments. The Association shall, from time to time, commencing upon the earlier of (i) the date of the first sale of a Lot by Pepperell Mill Progression, LLC; or (ii) upon issuance of a building permit and commencement of substantial construction of renovations to an Unoccupied Lot by a successor to Pepperell Mill Development, LLC, that will be converted to an Occupied Lot upon completion of such renovations (the "Effective Date") make an assessment upon each Lot and at least once each year thereafter, determine the Association Common Expenses for that year and allocate Assessments (in the applicable **Proportionate Share**) to each Member then required to pay such Association Common Expenses. In implementing the foregoing, the Association shall, in each year, commencing with the year in which the Effective Date occurs, adopt the annual Operating Budget and establish, levy and assess the following: (i) annual assessments or charges for Permitted Costs (individually, a "**Regular Assessment**," and collectively, "**Regular Assessments**"), and (ii) special assessments or charges, as necessary for a Permitted Cost or as otherwise provided in this Declaration (individually, a "**Special Assessment**," and collectively, "**Special Assessments**"). Notwithstanding the foregoing, the Declarant may elect to delay the Effective Date by continuing to pay all of the Association Common Expenses and causing the Association to delay making any Assessment after the occurrence of events that would otherwise enable the Association to commence making Assessments. In such case, the Effective Date shall be the date that the Association first makes an Assessment payable by each Member following the occurrence of events that would otherwise establish the Effective Date as set forth in this Section 10.1 (a).

(b) Shared Utility Assessments. In addition to the Assessments levied in accordance with paragraph 10.1(a) above, the Association shall collect from the Members such Member's Proportionate Share of the Shared Utility Costs, which costs shall be collected as Assessments. Provided, however, that in the event that a Member arranges for separate metering or sub-metering of any utility that is included as a Shared Utility Cost as of the Effective Date, such that the Member pays the utility provider directly for such service, said Member shall no longer be responsible for payment to the Association of its Proportionate Share of the costs associated with that Shared Utility. Thereafter, responsibility for the Shared Utility shall be borne only by those Members who have not arranged for separate or sub-

metering, and the Proportionate Share of the Shared Utility Cost shall be reallocated, reducing the denominator by the number of separately metered or sub-metered Units.

(c) Limited Shared Assessments. The Limited Shared Expenses shall be assessed solely against each Unit benefited except as otherwise provided in this Declaration; if a Limited Shared Expense benefits more than a single Unit, but fewer than all of the Units, that Limited Common Expense shall be divided proportionally, according to square footages among those Units benefited.

(d) Supplemental Parking Assessments. For any Lot that has a disproportionate increased share of parking spaces or driveway areas, the Association may make a Supplemental Parking Assessment against such Lot, provided that the original Owner of such Lot that acquires such Lot from the Declarant has agreed to make such Lot subject to the Supplemental Parking Assessment, and agrees to a formula for determining the Supplemental Parking Assessment.

(e) The term “**Assessments**” shall refer to, collectively, Regular Assessments, Special Assessments, Shared Utility Assessments, Supplemental Parking Assessments and Limited Element Assessments.

10.2. **Agreement to Pay**. Each Member of the Association shall be deemed to covenant and agree (whether or not it shall be so expressed in any deed or instrument of conveyance or declaration establishing a Lot as a Condominium), to pay to the Association, any and all Assessments attributable to its Lot or Unit as provided herein. Notwithstanding the fact that the Members may be members of sub-associations, and that the Association may collect Assessments from the sub-associations as a matter of convenience, each Member of a sub-association shall be personally liable for the Assessments attributable to the Member’s Lot or Unit.

10.3. **Purpose of Assessments.**

(a) The purpose of Assessments shall be to fund the following costs of the Association (each, a “**Permitted Cost**” and collectively, the “**Permitted Costs**”): (i) Association Common Expenses, (ii) costs of labor, equipment, materials, management and supervision associated therewith, (iii) reserves and payment of operating deficits (if any) sustained in one or more prior years, (iv) administrative and other operating costs of the Association, (v) costs of implementing such other actions as are consistent with, and in furtherance of, the Association’s purposes and obligations set forth in this Declaration. Permitted Costs shall not include costs of development of additional buildings or improvements within the Development that are intended for the rental or use by the Owner thereof, including the cost of extending utilities to such developments, and shall not include the cost of any improvements to any of the Buildings in the Development, but Permitted Costs will include the cost of development of any improvements to the Shared Elements within the Development such as the cost of construction of addition of any storm drainage that may be required for the Development or the replacement of any utility infrastructure that is not associated with the rehabilitation of a Building to make it useable and that is not to be allocated as a Limited Shared Expense.

(b) To the extent the Association incurs an expense that is a Permitted Cost but was not budgeted to be paid as part of the Regular Assessments, the Association may impose a Special Assessment against all Members (or against a specific Member, as described in the following paragraph), to pay for that Permitted Cost.

(c) To the extent a Permitted Cost or any other cost is incurred by the Association as a result of the actions or inactions of any Member (or any Unit Owner owning a Unit in the Condominium that is a Member), or such Member's (or Unit Owner's) tenant, licensee, agent, contractor, employee or invitee, the Association may impose a Special Assessment against the applicable Member in the amount incurred by the Association (plus interest thereon and any and all attorneys' fees and disbursements incurred in connection therewith), and the other Members shall not be liable for same. If the Member is a Condominium, the board of managers may provide in its Condominium Documents that any such Special Assessment assessed by the Association arising out of the actions or inactions of a Unit Owner or its tenant, licensee, agent, contractor, employee or licensee, may in turn be specially assessed by the board of managers against that Unit Owner and failure of Unit Owner to pay same shall be treated as failure to pay common charges of the Condominium.

10.4. Assessment Commencement; No Exemptions.

(a) Assessments shall not be imposed by the Association or payable by Members, until after the Effective Date. As of the Effective Date, the Association shall promulgate the Initial Budget, and any Member shall thereafter be obligated to pay Assessments based on that initial budget.

(b) The Initial Budget and Assessments based thereon shall be adjusted according to the number of months remaining in the fiscal year of the Association (as the same shall be established by the Board) in which the first Assessments are payable. Assessments shall thereafter be levied on a full year basis. At least fifteen (15) days prior to the end of each fiscal year of the Association, the Association shall provide each Member then obligated to pay Assessments with written notice of the Assessment attributable to said Owner's Lot due for the next fiscal year of the Association. Regular Assessments shall be due and payable monthly unless the Association determines to require payment on a different basis.

(c) Dissatisfaction with the quantity or quality of any maintenance or services furnished with respect to the Shared Elements shall not be grounds for withholding or failure to pay any Assessment. Likewise, no Member shall deem itself or be deemed exempt from liability to pay Assessments for any reason, including waiver of use or enjoyment of the Shared Elements, abandonment, renunciation of membership in the Association or by claiming the quantity or quality of services are not worthy of such payment or are not as were expected by such Member at the time of acquisition of the Lot or at any other time.

10.5. Liability After Transfer; Bankruptcy.

(a) No Member shall be liable to the Association for Assessments or other Obligations assessed against a Lot owned by that Member from and after the date of closing of sale, transfer or other conveyance of fee title to that Lot by such Member, which Assessments or Obligations are applicable only to the period from and after the date of such conveyance. However, the grantee of a Lot shall be jointly and severally liable with grantor for unpaid Assessments and other Obligations assessed against that Lot up to the date of conveyance, without prejudice to the grantee's right to recover from the grantor any amounts paid by the grantee therefor.

(b) Upon conveyance of fee title to a Lot to a grantee through a sale or other transaction, a proceeding arising out of a Member's bankruptcy or liquidation, as a gift or donation, or pursuant to foreclosure or deed in lieu of foreclosure, or through any other means whatsoever, or upon conveyance

of more than a 50% ownership interest in a Member, all then unpaid Assessments and other Obligations on that Lot due and owing shall be paid out of sales proceeds or otherwise by transferee or transferor, to the Association.

(c) Any Person (other than a Recognized Mortgagee) acquiring a Lot or Unit through foreclosure or by deed in lieu of foreclosure, through a sale or other proceeding arising out of an Owner's bankruptcy or liquidation, through purchase, gift or donation, or through any other means whatsoever, shall be liable for all unpaid Assessments and other Obligations assessed against the Lot and due as of the date of such Person's acquisition of title to such Lot. A Recognized Mortgagee, or a purchaser at a foreclosure sale from a Recognized Mortgagee, acquiring a Lot or Unit through foreclosure or by deed in lieu of foreclosure, shall be liable for Assessments commencing as of the date that such Recognized Mortgagee or the purchaser at a Recognized Mortgagee's becomes the record owner of a Lot or Lots, provided that the Recognized Mortgagee or the purchaser at a foreclosure sale from a Recognized Mortgagee shall not be liable for unpaid assessments relating to any period before such Recognized Mortgagee or the purchaser at a foreclosure sale from a Recognized Mortgagee became a record owner of any Lot.

(d) If a petition in bankruptcy is filed by or against a Member, or if a trustee, receiver or similar official is appointed to administer a Member's assets, the Member, trustee, receiver or other official shall remain obligated to pay, and the Lot shall continue to be subject to, Assessments and other Obligations, if any, for the entire duration of any bankruptcy or other reorganization proceeding.

10.6. Assessment Lien; Priority; Personal Obligation. All sums assessed by the Association as an Assessment against a Lot or against a Unit pursuant to this Declaration but unpaid, together with Late Charges, interest, attorneys' fees and disbursements and other costs incurred in connection with collection of same (such Late Charges, interest, attorneys' fees, disbursements and other costs collectively, "**Obligations**"), shall be a charge and shall constitute a continuing lien against such Lot or Unit (such Assessment and Obligations, collectively, the "**Assessment Lien**"). Said Assessment Lien shall have priority over any and all liens and encumbrances other than (i) municipal liens and assessments for taxes and sewer charges, as required by law, and (ii) liens to holders of a first mortgage upon any portion of the Subject Property, or other mortgages held by an Institutional Lender (collectively, the "**Priority Liens**"). The Assessment Lien shall at all times be subordinate to any Priority Lien. Foreclosure of a Priority Lien may have the effect of extinguishing the Assessment Lien as provided by applicable law. The Assessment Lien also shall be the personal obligation of the Owner of the Lot (or Unit Owner, as applicable, as described below) at the time assessed, and such personal obligation shall continue with respect to any remaining unpaid portion of the Assessment, following a foreclosure by the Association of the Association Lien or following the foreclosure of a Priority Lien.

10.7. Assessments to a Sub-Association. Following the establishment of a Sub-Association within the Development:

(a) The Assessment by the Association against a Lot upon which a Condominium or against Lots upon which a Sub-Association is established shall in turn be assessed by such Sub-Association's board of managers against each Unit in each such Unit's applicable Unit Proportionate Share, as part of the common charges assessed against Units to pay common expenses. Accordingly, the Assessment Lien assessed against a Lot established as a Condominium shall be a charge, and shall constitute a continuing lien, against each individual Unit within such Condominium, proportionately allocated to each such Unit based on each such Unit's applicable Unit Proportionate Share as well. Such Unit Proportionate Share of

the Assessment Lien shall also be a personal obligation of the Unit Owner owning such Unit at the time the Assessment was assessed against the Lot.

(b) The board of directors of the Condominium shall be obligated to act in accordance with law and the applicable condominium declaration establishing such Condominium to collect unpaid common charges and other assessments, if any, from its Unit Owners. Such board of managers shall use the common charges so collected for, among other things, payment of Assessments and other Obligations to the Association. However, if such board of managers fails to pay Assessments and other Obligations assessed against it as a Member of the Association as and when due (whether or not such board of managers has collected common charges sufficient to cover same), the Association may take action against such board of managers or against the individual Unit Owners owning Units within such Condominium to collect all such unpaid sums. The liability of each Unit Owner for the Assessment Lien shall be limited to an amount equal to such Unit Owner's Unit Proportionate Share of the Assessment Lien due.

(c) If the board of directors of a Condominium fails to pay the Assessments and Obligations assessed by the Association to the Condominium as a Member of the Association, then upon payment by or on behalf of a Unit Owner to the Association of the Unit Owner's Unit Proportionate Share of such Assessments and Obligations assessed against such Member, such Unit shall be released by the Association from the Assessment Lien and the Unit Owner shall have no further personal liability therefor with respect to its Unit so released.

10.8. Right to Maintain Surplus. The Association shall not be obligated in any fiscal year to spend all sums collected in such year by way of Assessments or otherwise, and may carry forward as surplus any balances remaining. The Association shall not be obligated to apply any such surplus to reduction of the amount of Assessments in the succeeding fiscal year, but may carry forward from year to year such surplus as the Association in its absolute discretion may determine to be desirable to effectuate the purposes of the Association.

10.9. Assessment Certificates. Upon written request of a Member, the Association shall, within a reasonable period of time, issue and furnish a certificate in writing signed by an officer or designee of the Association setting forth with respect to such Lot (or if applicable, Unit) as of the date of such certificate, (i) whether the Assessments, if any, have been paid, (ii) the amount of such Assessments, including interest and costs, if any, due and payable as of such date, and (iii) whether any other amounts or charges are owing to the Association (e.g., for the cost of extinguishing a violation of this Declaration). A reasonable charge, as determined by the Association, may be imposed for the issuance of such certificates. Any statement, certificate or other information regarding status of assessments and other charges which is duly issued as herein provided by the Association shall be conclusive and binding with respect to any matter therein stated as against any bona fide purchaser of, or lender on, the property in question, but in no event shall any Member, Owner or Interest Holder be entitled to avoid the payment of Assessments or Obligations arising hereunder otherwise payable by it on the basis of a certificate, statement or other information issued to a third party that contains a mistake concerning the status of Assessments or Obligations arising hereunder.

10.10. Assessment of Maintenance Costs Resulting from Interest Holder's Negligence. Any maintenance, repair or replacement of any portion of the Shared Elements made or incurred by the Association in accordance with its responsibilities and obligations hereunder and occasioned by the negligent or willful act or omission of any Interest Holder (or the tenant, contractor, agent, employee,

invitee or licensee of any Interest Holder), shall be made at the cost and expense of such Interest Holder. Subject to **Section 5.4** of this Declaration, if such maintenance, repair or replacement is performed and/or paid for by the Association, the cost of same shall be considered a Special Assessment allocable to the Lot in conjunction with which the cost arose. Such cost shall be added to the Regular Assessment attributable to such Lot and, as part of that Assessment, shall constitute a lien on such Lot to secure the payment thereof (and it shall be left to the sole discretion of any Member so assessed whether to attempt to recover such cost from the culpable Person, including a Unit Owner if applicable). The decision of the Board shall be final and binding as to whether any need for repair is caused by any willful or negligent act of any Person described in the first sentence of this section.

10.11. Improper Use of Shared Elements. In the event any portion of the Shared Elements is being used by any Interest Holder in a manner that violates this Declaration, the By-laws or any of the Project Documents, the Association shall give written notice thereof to the applicable Member and its appointed Director and make demand that enforcement and/or corrective action be taken by such Member, within five (5) business days of the date of the notice (or within such shorter period of time as the Board may specify in such notice if such violation threatens the health, safety or welfare of any Person or poses an imminent threat to person or property). In any event, such Member shall be jointly and severally liable with any culpable Interest Holder for any violation, and the Association may enforce any and all remedies available to it against such Member, such Interest Holder or all of them at any time and in any order. If at the expiration of the applicable period the requisite enforcement and/or corrective action has not been taken by such Member or Interest Holder, as applicable, then the Association shall be authorized and empowered to take direct action against the Member or culpable Unit Owner or other Person. The costs of any action taken by the Association as set forth herein, including incidental costs and attorneys' fees, shall be added to and become a part of the Regular Assessments to which such Member is subject (and it shall be left to the sole and absolute discretion of any Member so assessed whether to attempt to recover such cost from the culpable Interest Holder, including a Unit Owner, if applicable).

ARTICLE 11. NON-PAYMENT OF ASSESSMENTS; ENFORCEMENT

11.1. Non-Payment of Assessments.

(a) Any Assessment, or installment thereof, not paid when due shall be deemed delinquent, and a Member shall be in default under this Declaration for such non-payment.

(b) If an Assessment or any installment thereof is not paid within ten (10) days after the due date, the Association may impose a late charge or charges in the minimum amount of 6% of the overdue amount or such other amount in excess thereof as the Association deems reasonable (collectively, the "**Late Charges**").

(c) If an Assessment or any installment thereof is not paid within thirty (30) days after the due date, then the Assessment shall be deemed delinquent, and the Assessment plus any Late Charges thereon, shall bear interest compounded monthly from such date of delinquency in the amount of not less than 5% over the prevailing "prime rate" as published from time to time in the *Wall Street Journal*, (or in the event that the *Wall Street Journal* ceases publishing the prime rate, the prime rate established from time to time by such other national or regional bank reasonably selected by the Board). If the rate to be charged would exceed the maximum rate permitted by law, the rate shall be deemed reduced to the

maximum legal rate.

(d) The Association shall take prompt action to collect Assessments previously imposed by the Association which remain unpaid for more than ninety (90) days from the due date for payment thereof. In so doing, the Association may bring an action at law or in equity for collection of the Assessment, interest thereon, Late Charges and the costs and expenses of collection, including attorneys' fees and expenses, against the Owner personally obligated to pay the same. If the default is by the Owner of a Lot upon which a Condominium has been established, then the action at law or equity may be brought against each Unit Owner owning Units within such Condominium for the applicable Unit Proportionate Share of the amount owed. Any suit to recover a money judgment for unpaid Assessments, Late Charges and the associated costs of collection as described in the previous sentence, may be maintained without waiving the Assessment Lien securing the same, should the suit be brought under circumstances where the Association holds such an Assessment Lien.

11.2. Enforcement.

(a) The Association shall have the right to enforce its Assessment Lien against the Lot or Unit, as applicable by all methods available for the enforcement of liens against real property, including foreclosure and sale. The cost of such proceedings, including attorneys' fees and expenses, shall be added to the amount of such Assessment, accelerated installments, if any, Late Charges and interest, and shall be treated as an Obligation of the Association secured by the Assessment Lien.

(b) In connection with its Assessment Lien, the Association may (x) file a notice of lien in the York County Registry of Deeds (but such filing shall not be necessary to perfect or establish the priority of such continuing lien), and (y) establish a fixed fee to reimburse the Association for its cost in recording such notice of lien, processing the delinquency and recording a notice of payment, which fixed fee shall be treated as an Obligation secured by the Assessment Lien hereunder.

ARTICLE 12. CONDEMNATION

12.1. Notice of Condemnation of Shared Elements. A Member who is an Owner of a Lot containing any portion of the Shared Elements which becomes the subject of a condemnation or eminent domain proceeding (such Member, an "**Affected Member**"), shall send written notice to the Association and all other Members of any such condemnation or eminent domain proceeding affecting such portion of the Shared Elements, of which the Affected Member has actual notice, promptly upon receipt of such notice.

12.2. Action to Contest Condemnation. The Affected Member shall have the exclusive right to contest and settle, at such Member's sole cost and expense, any condemnation or eminent domain proceeding (i) which is directed at taking any portion of the Affected Member's Lot on which is located any portion of the Shared Elements, or (ii) which touches upon, concerns or affects the use of any such portion of the Affected Member's Lot subject to the Project Documents (and, if applicable, the Condominium Documents governing the Affected Member's Lot). The cost of any such contest by the Affected Member shall not be a Permitted Cost. Neither the Association nor any Member shall impair or prejudice the action of the Affected Member in contesting such condemnation.

12.3. Obligation to Restore. Subject to the Project Documents, in the event of a taking in

condemnation or by eminent domain of part or all of the Shared Elements, the award respecting the same shall be paid to the Affected Member. Except as may be set forth in the Project Documents, or in the declaration establishing a Condominium on a Lot impacted by a condemnation or eminent domain proceeding, a Member shall not be obligated to restore any Improvements on a Lot following any taking through condemnation or eminent domain.

12.4. **Disputes.** In the event of any dispute with respect to the allocation of an award, or any obligation to restore, the matter shall be submitted to Arbitration.

ARTICLE 13. INSURANCE

13.1. **Association Obligations.** The Association shall obtain comprehensive public liability insurance in such amounts as it shall deem desirable, insuring the Association, Board and Manager, if any, from liability in connection with the Shared Elements, which policies shall name all Members as additional insureds. Such policy shall provide coverage of at least \$2,000,000.00 for bodily injury and property damage for any single occurrence resulting from the operation, maintenance or use of the Shared Elements, and coverage for any legal liability resulting from law suits related to employment contracts in which the Association is a party. Such policy shall name the owners of the Lots as additional insured and shall provide for at least ten (10) days' written notice to the Board, to the Owners of the Lots, and to each holder of a first mortgage on any Lot before the insurer can cancel or substantially modify it. Also, the Board shall have authority to purchase worker's compensation insurance and insurance to indemnify the Directors and Officers for losses in managing the Association's affairs. The premiums for all the aforementioned insurance coverage shall be a common expense. Each Owner, at his own cost, shall be responsible for his own insurance on his own Lot and his additions and improvements thereto and decorations and furnishings, personal property therein and stored elsewhere on the Lot, and the Owner's personal liability to the extent not covered by the liability insurance provided by the Association. Notwithstanding the foregoing, during the Declarant Control Period the Declarant may elect to maintain the insurance coverages required as set forth in this Article 13 by naming the Association as an additional named insured on the policies of insurance maintained by the Declarant. In the event that there is any additional premium due and payable as a consequence of naming the Association as an additional named insured, the Declarant may be reimbursed by the Association for the additional premiums incurred by the Declarant to name the Association as an additional named insured on the Declarant's policies of insurance.

The Board shall obtain fidelity bond coverage for anyone who either handles or is responsible for funds held or administered by the Association. Such fidelity bonds shall name the Association as an obligee and shall be written in an amount equal to at least one hundred fifty percent (150%) of the estimated annual operating expense for the Association, including any reserves.

13.2. **Declarant-Owned Lots.** For so long as Declarant owns a Lot, Declarant shall have the option to maintain public liability insurance on those Shared Elements located on the said Lot, provided that all such policies shall be in the amounts required in Section 13.1 and shall name the Master Association as an additional insured. The Declarant may include PM Development as an additional insured on such public liability policy.

13.3. Sub-Association Obligations. Any Sub-association shall name the Master Association as an additional insured under any policies that it is required to maintain pursuant to its governing documents.

13.4. Restoration or Reconstruction of Shared Elements After Fire or Other Casualty. Unless otherwise agreed by the Members, neither the Association nor any Member shall be obligated to restore any portion of the Shared Elements, Association Property or other Improvements on a Lot that has been damaged by fire or other casualty, except as may be set forth in the Project Documents, or in the declaration establishing a Condominium on that Lot, following such fire or other casualty.

ARTICLE 14. TERM; AMENDMENTS; DISSOLUTION

14.1. Duration and Termination. This Declaration and the Association shall continue in full force and effect in perpetuity unless and until there is an affirmative vote to terminate this Declaration and dissolve the Association by a unanimous vote of the Members at a duly called meeting of the Members held for such purpose. Any such vote and determination shall be subject in all respects to any and all applicable requirements of the Restrictive Declaration.

14.2. Amendments.

(a) During the Declarant Control Period, this Declaration may be amended from time to time by a vote of the majority of the Directors. Thereafter, this Declaration may be amended from time to time only by a vote of a seventy-five percent (75%) in interest of the Members, voting at a duly called meeting of the Members. Notwithstanding the foregoing, no amendment altering or adversely affecting the rights or interests of a Recognized Mortgagee shall be effective without the written consent of a Recognized Mortgagee. In addition, no amendment deleting or adversely affecting any easement benefitting any Lot owned by a party other than the Declarant, nor any exercise of Declarant Rights pursuant to Section 3.2 hereof having such effect upon any easement, shall be effective without the written consent of the owner of such Lot. Notice of such vote, containing the date, time and place of the meeting and a copy of the proposed amendment, shall be mailed or delivered by the Association to all Members, each Director and, in the case of any amendment altering or adversely affecting the rights or interests of a Recognized Mortgagee, to each Recognized Mortgagee at least fifteen (15) days prior to the date of the meeting.

(b) Following the expiration of the Declarant Control Period, the Association, upon the initiative of the Board or pursuant to a written petition signed by a majority in interest of the Members and delivered to the Board, may propose an amendment to this Declaration to the Members, subject to the limitations set forth in Section 14.2 (a) above. If the amendment is proposed by petition to the Board as provided in the previous sentence, the Board shall be obligated to present it to the Members for a vote.

14.3. Disposition of Assets Upon Dissolution of Association. Upon dissolution of the Association, Association Property, if any shall exist, shall be dedicated to an appropriate public agency or utility to be devoted to purposes as nearly as practicable the same as those to which they were required to be devoted by the Association. In the event such dedication is refused acceptance, such assets shall be granted, conveyed and assigned to a non-profit corporation, association, trust or other organization to be devoted to purposes as nearly as practicable the same as those to which they were required to be devoted by the Association.

ARTICLE 15. SPECIAL PROVISIONS

15.1. Transferee and Interest Holder Acknowledgements.

(a) Each Person (including any Interest Holder) acquiring a fee or leasehold interest in a Lot or any portion thereof (including, without limitation, any Unit) or any other portion of the Subject Property, or otherwise occupying any portion thereof (whether or not the deed, lease or any other instrument incorporates or refers to this Declaration), covenants and agrees for himself, herself, themselves, or itself, and for his, her, their or its heirs, successors and assigns, (a) to observe, perform and be bound by the provisions of this Declaration, (b) that, by acceptance of a deed, lease or such other instrument with respect to all or any part of a Lot (including, without limitation, any Unit), such Person expressly assumes the obligations to pay Assessments imposed to carry out the Association's obligations under this Declaration. The foregoing recital shall be incorporated in every deed conveying title to a Lot or Unit and every declaration establishing a Lot as a Condominium, however, failure to include these provisions shall not relieve a Member or Unit Owner from the obligation to comply with same.

(b) Each Person (including any Interest Holder) acquiring a fee interest in a Lot or Unit vests in the Association, or its agents, the right and power (x) to bring all actions against such Person for collection of Assessments and other Obligations, and (y) where applicable, to enforce the Assessment Lien hereunder by all methods available for the enforcement of liens against real property, including foreclosure. Each such Person, by acceptance of any such instrument, expressly grants the Association a power of sale in connection with such foreclosure.

15.2. Incorporation into Instruments of Conveyance. The requirement in **Section 14.1(a)** shall be satisfied by a reference in the deed, lease or occupancy agreement to this Declaration and the provisions thereof. Failure to include the specific provisions of this Declaration in any such deed, lease or occupancy agreement, shall not relieve any Person acquiring the interest conveyed thereby (any such Person, a "**Bound Party**") from any obligations under this Declaration, nor shall it render the Bound Party liable to the Association for damages. The Association shall, however, have the right to require that the Bound Party reform its document so as to specifically comply with the foregoing obligations hereunder.

15.3. Mortgagee Provisions.

(a) A Recognized Mortgagee will be entitled to receive written notification from the Association of: (i) any proposed termination of the Association; (ii) any delinquency in payment of Assessments with respect to a Lot owned by the Member that is its borrower where such delinquency has existed for thirty (30) days following notice from the Association to the Member that same is due; (iii) any other material violation of or default under this Declaration by the Member that is its borrower that has existed for sixty (60) days following notice from the Association to the Member of such violation; and any proposed amendments that may alter or adversely affect the rights or interests of a Recognized Mortgagee.

(b) No amendment to this Declaration that may alter or adversely affect the rights or interests of a Recognized Mortgagee shall be effective without the written consent of each Recognized Mortgagee.

(c) A Recognized Mortgagee receiving a notice of a Member's delinquency in payment of

Assessments or other default by a Member pursuant to clause (a) of this Section shall have a period of thirty (30) days to cure the default by paying all the past due Assessments, which period shall commence on the date the Member's cure period expires without Member having cured such delinquency and shall run for 30 days from the last day of Member's cure period, and shall have a period of thirty (30) days to cure any other Member default, or if such other default cannot reasonably be cured within a thirty (30) day period, such additional period of time, not to exceed one hundred and twenty (120) days as may be reasonably required to cure such other default, provided that the Recognized Mortgagee has commenced such cure during the initial 30 day period . During such the period allowed for a Recognized Mortgagee to cure defaults, the Association shall not commence proceedings to foreclose its Assessment Lien, and in any event, the Association will not seek issuance of a judgment of foreclosure until after expiration of the cure period afforded to a Recognized Mortgagee.

(d) If a receiver is appointed by a Recognized Mortgagee or any other mortgagee of a Lot or holder of a lien on a Lot, the mortgagee or lien holder shall become liable for Assessments from and after the date the receiver is appointed.

(e) A Recognized Mortgagee may be granted a collateral assignment of the Declarant's rights hereunder, provided, however, that the Declarant shall be entitled to exercise all of its Declarant Rights hereunder notwithstanding any assignment to a Recognized Mortgagee, unless and until the Recognized Mortgagee shall have provided written notice to the Declarant and, following the Effective Date, to the Association, following a default by the Declarant to such Recognized Mortgagee and the expiration of any applicable cure periods.

15.4. Condominium Provisions.

(a) The by-laws of any Condominium shall be deemed to have incorporated into them the requirement that if a holder of a mortgage on a residential Unit, or a holder of a recorded mortgage on any other Unit, requires notice of any of the actions by the Association, it shall be the obligation of the board of directors of such Condominium, not the Association, to provide such information to the mortgagee. Accordingly, the Association shall have no obligation to provide notice of any actions to the holder of a mortgage on a residential Unit, or to a holder any recorded mortgage on any other Unit.

(b) The by-laws of any such Condominium shall be deemed to have incorporated into them the requirement that if a mortgagee of a Unit desires to receive notice from the Board pertaining to particular actions of its borrower, the Condominium or the Association, such mortgagee must provide to the board of managers of such Condominium written notice including its name and address, and a list of the information as to which it requests notice, consistent with the Bylaws and this Declaration. Upon the Association's written request from time to time, such board of managers shall furnish the Association with a list of the names and addresses of each mortgagee of a Unit in the Condominium of which the board of managers has received notice pursuant to the provisions of the foregoing sentence.

(c) **Multiple Person Owners.** If any Lot is owned by more than one Person, all Persons comprising Owner shall give to the Association a single written statement, executed and acknowledged by all of them, in form proper for recording, which shall (a) designate one Person, having an address in the State of Maine to whom shall be given, as agent for all Persons comprising Owner, all notices thereafter given to such Owner, (b) designate such Person, as agent for the service of process in any action or proceeding against such Owner, whether before a court or by arbitration, involving the determination or enforcement of any rights or obligations hereunder and (c) designate such Person, as

agent for Owner, as having the authority to exercise all approval and consent rights of such Owner hereunder and to bind the Persons comprising Owner. Thereafter, until such designation is revoked by notice given by all Persons comprising Owner or their successors in interest, any notice, and any summons, complaint or other legal process or notice given in connection with an arbitration proceeding (which such summonses, complaints, legal processes and notices given in connection with arbitration proceedings are hereafter in this Section collectively referred to as "legal process"), given to, or served upon, such agent shall be deemed to have been given to, or served upon, each and every one of the Persons comprising Owner at the same time that such notice or legal process is given to, or served upon, such agent. If the Persons comprising Owner shall fail so to designate in writing one such agent to whom all notices are to be given and upon whom all legal process is to be served, or if such designation shall be revoked as aforesaid and a new agent is not designated, then any notice or legal process may be given to, or served upon, any one of the Persons comprising Owner as agent for Owners and such notice or legal process shall be deemed to have been given to, or served upon, Owner at the same time that such notice or legal process is given to, or served upon, any one of the Persons comprising Owner and each of them shall be deemed to have appointed each of the other Persons comprising Owner as agent for the receipt of notices and the service of legal process as stated above. An Owner that is a board of managers of a Condominium is not deemed a "multiple owner" for purposes of this Section.

ARTICLE 16. GENERAL PROVISIONS

16.1. Headings and Captions. The headings and captions contained in this Declaration are for convenience only and shall not affect the meaning or interpretation of the content thereof.

16.2. Notice. Any notice required under this Declaration to be sent to any Person shall be deemed to have been properly given five (5) days after mailing, certified mail with postage prepaid, to the last known address of the Person appearing as such on the records of the Association at the time of such mailing, except notices of change of address which shall be deemed to have been given when received.

16.3. Conflict with Laws. The protective covenants, conditions and restrictions set forth herein shall not be taken as permitting any action or item prohibited by applicable zoning laws, or laws, ordinances, rules or regulations of any governmental authority, or by specific restrictions imposed by any deed or lease.

16.4. Dispute Resolution. Disputes under this Declaration (e.g., between Members or between Members and the Association) in connection with Assessments, withholding or delaying consent, acting in accordance with this Declaration, or any other instances pursuant to this Declaration where a dispute cannot be resolved among the parties themselves, shall be resolved through Arbitration.

16.5. Enforceability. The provisions of this Declaration shall inure to the benefit of and be enforceable by the Association (being hereby deemed the agent for all Members), and by any Member and said Member's successors and assigns, through actions at law or by suits in equity.

16.6. No Waiver by Failure to Enforce. The failure of any beneficiary hereof to enforce any provision of this Declaration shall in no event be construed as a waiver of the right by that beneficiary or any other to do so thereafter, as to the same or a similar violation occurring prior or subsequent thereto.

16.7. Effect of Unenforceability or Invalidity of Provision of Declaration. The determination by any court that any provision of this Declaration is unenforceable, invalid or void shall not affect the enforceability or validity of any other provision hereof.

16.8. Reliance on Documents. In making determinations or taking any action pursuant to this Declaration or otherwise, the Association may rely and/or act on any document or instrument believed by the Association in good faith to be genuine and executed by the proper party.

16.9. Right of Association to Transfer Interest. Notwithstanding any other provision herein to the contrary, but subject to the provisions of the Restrictive Declaration and all other Project Documents, the Association and its successors shall at all times have the absolute right to fully transfer, convey and assign its right, title and interest under this Declaration to any successor not-for-profit corporation, association or trust. Upon such assignment, the successor corporation, association or trust shall have all the rights and be subject to all the duties of said Association as set forth in this Declaration and shall be deemed to have agreed to be bound by all provisions hereof, to the same extent as if the successor corporation, association or trust had been an original party. Any such assignment shall be accepted by the successor corporation, association or trust under a written agreement pursuant to which the successor corporation, association or trust expressly assumes all the duties and obligations of the Association.

16.10. Right of Association to Transfer Functions. Unless otherwise specifically prohibited herein or the Formation Documents, any and all functions of the Association shall, upon duly adopted vote of the Members, be transferable in whole or in part to any other property owners' association or similar entity satisfying the applicable requirements of the Project Documents, or to the City.

16.11. Change of Circumstances. Except as otherwise expressly provided in this Declaration, no change of conditions or circumstances shall operate to extinguish, terminate or modify any of the provisions of this Declaration.

16.12. Gender and Number. Wherever the context of this Declaration so requires, words used in the neuter gender shall include the masculine and feminine genders, words used in the masculine and feminine genders shall include the neuter gender; words in the singular shall include the plural; and words in the plural shall include the singular.

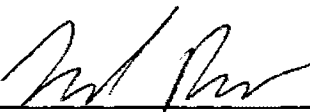
16.13. Remedies Cumulative. Each remedy afforded the Association herein is cumulative and not exclusive.

16.14. Ratification of Prior Acts. The authority given the Association and Declarant hereunder shall be deemed retroactive and any and all acts authorized hereunder, whether performed heretofore or hereafter by the Association and/or Declarant, are hereby ratified and affirmed in all respects.

16.15. Counterparts. This Declaration may be executed in any number of counterparts, all of which taken together shall constitute one and the same original, and the execution of separate counterparts by the Persons comprising Declarant shall bind each such Person as if they had each executed the same counterpart.

No Further Text. Signature Pages Follow.

IN WITNESS WHEREOF, Pepperell Mill Progression, LLC, the Declarant, has caused this instrument to be executed by Cross Mocer, in his capacity as Manager of Pepperell Mill Progression Manager, LLC, which is Manager of Pepperell Mill Progression Member, LLC., the sole Member of Pepperell Mill Progression, LLC, hereunto duly authorized,

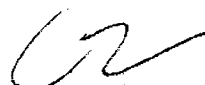
Witness: 
Jared Runn

DECLARANT:

Pepperell Mill Progression, LLC,
a Delaware limited liability company,

By: Pepperell Mill Progression Member, LLC,
a Delaware limited liability company
Its: Sole Member

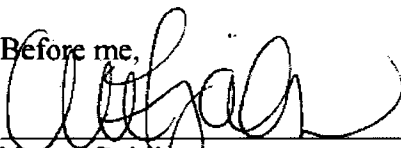
By: Pepperell Mill Progression Manager, LLC
a Texas limited liability company
Its: Manager

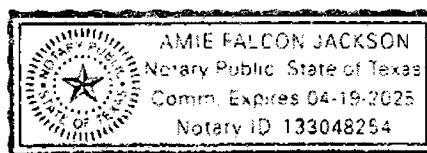
By: 
Name: Cross Kevin Mocer
Its: Manager

STATE OF TEXAS
COUNTY OF Travis

June 8, 2023

Then personally appeared the above-named Cross Kevin Mocer, manager of Pepperell Mill Progression Manager, LLC, which is Manager of Pepperell Mill Progression Member, LLC, the sole Member of Pepperell Mill Progression, LLC, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said entities.

Before me, 
Notary Public
Print Name: Amie Falcon Jackson
My Commission Expires: 4-19-2025



JOINDER OF PEPPERELL MILL DEVELOPMENT, LLC

PEPPERELL MILL DEVELOPMENT, LLC, being the owner of the real property described on Exhibit B attached hereto, does hereby join in this Declaration for the sole and limited purpose of subjecting the real estate described on Exhibit B attached hereto to the covenants, conditions, easements, restrictions and agreements set forth in the foregoing Declaration of Covenants, Conditions Easements and Restrictions, becoming the beneficiary and holder of the covenants, conditions, easements, restrictions and agreements set forth in the foregoing Declaration and to consent to the terms and conditions set forth in such Declaration.

Witness



Pepperell Mill Development, LLC,
a Delaware limited liability company,

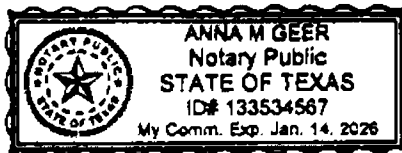
By: Pepperell Mill Development Manager, LLC
a Texas limited liability company
Its: Sole Member

By: 
Name: John Griggs
Its: Manager

STATE OF TEXAS
COUNTY OF Travis

June 8, 2023

Then personally appeared the above-named John Griggs, manager of Pepperell Mill Development Manager, LLC, which is the sole Member of Pepperell Mill Development, LLC, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said entities.



Before me,


Notary Public
Print Name: Anna Geer
My Commission Expires: 1-14-2026

EXHIBIT A
(Land of Pepperell Mill Progression, LLC)

Occupied Buildings and Common Areas:

A certain lot or parcel of land, together with the buildings and improvements thereon, situated on the northerly side of Main Street in the City of Saco, County of York and State of Maine, as shown and set forth on a plan entitled Functional Subdivision The Mills at Pepperell, Main Street, Biddeford, York County, Maine made for Pepperell Mill Progression, LLC and Pepperell Mill Development, LLC, prepared by Owen Haskell, Inc., Professional Land Surveyors, dated December 10, 2021, as recorded in Plan Book 420, Page 43 (the "Plan"), and being bounded and described by the following metes and bounds, **however, specifically excepting therefrom** those certain Buildings/Parcels as shown on said Plan that are thereon designated as Building/Parcel No's 11, 12, 19, 20, 30, 36, and Smokestack Parcel 38:

Beginning on the northerly sideline of Main Street at the southeasterly corner of land now or formerly of Main St., LLC as described in deed book 6392, page 208, thence N 07°04'00" E along land of said Main St., LLC, land now or formerly of Luma LLC as described in deed book 14489, page 467, land now or formerly of J. Parison Holdings, LLC as described in deed book 17621, page 630 and land now or formerly of Polakewich Block, LLC 149.89 feet;

Thence, N 82°56'00" W along land of said Polakewich Block, LLC 52.93 feet to land now or formerly of EHDG Development Properties as described in deed book 5609, page 187;

Thence the following courses and distances along land of said EHDG Development Properties:

N 47°46'00" E a distance of 40.56 feet;
S 82°56'00" E a distance of 26.48 feet;
N 07°04'00" E a distance of 45.00 feet;
N 82°56'00" W a distance of 18.35 feet;
N 42°16'45" W a distance of 108.52 feet to land now or formerly of Praetorium LLC as described in deed book 17843, page 298;

Thence, N 47°43'15" E along said Praetorium LLC 6.20 feet;

Thence, N 82°55'00" W continuing along Praetorium LLC and land now or formerly of 1-3A Beacon LLC as described in deed book 1422, page 808 a distance of 147.54 feet;

Thence, N 07°05'00" E along said 1-3A Beacon LLC 1.00 feet;

Thence, N 82°55'00" W continuing along 1-3A Beacon LLC 106.30 feet to the northerly sideline of said Main Street;

Thence, N 48°02'15" W along the northerly sideline of Main Street 60.08 feet to the southeasterly corner of land of Gallagher's Rainbow, Inc. as described in deed book 9554, page 212;

Thence, N 08°46'30" E along land of said Gallagher's Rainbow, Inc. 80.30 feet;

Thence, N 47°33'30" E continuing along land of Gallagher's Rainbow and land now or formerly of LHL Holding, LLC as described in deed book 17085, page 431 a distance of 39.62 feet;

Thence, N 79°25'15" E along land of said LHL Holdings, LLC 67.07 feet to a capped iron rod stamped #1209;

Thence, N 07°06'30" E continuing along LHL Holdings, LLC 516.12 feet to the southerly sideline of Saco Falls Way marked by a capped iron rod found stamped #1209;

Thence, S 82°58'00" E along the southerly sideline of said Saco Falls Way 179.70 feet to The Mills at Saco Fall, LP as described in deed book 15787, page 114;

Thence the following courses and distances along said The Mills at Saco Falls, LP:

S 07°07'30" W a distance of 120.56 feet;

S 18°03'30" E a distance of 41.00 feet to a capped iron rod found stamped #239;

S 54°06'30" E a distance of 76.51 feet;

N 82°04'00" E a distance of 84.36 feet;

S 83°00'15" E a distance of 123.19 feet;

S 06°48'00" W a distance of 188.28 feet;

S 04°22'30" E a distance of 103.96 feet;

S 56°35'45" E a distance of 78.18 feet to land now or formerly of City of Biddeford as described in deed book 16930, page 51;

Thence, S 14°20'20" E along the said City of Biddeford 35.48 feet;

Thence, S 83°00'19" E continuing along the land of the City of Biddeford 142.66 feet;

Thence, N 02°33'01" W along the land of the City of Biddeford 32.04 feet to a drill hole found;

Thence, S 83°14'45" E a distance of 116 feet, more or less to the thread of the Saco River;

Thence, Southeasterly along the thread of the Saco River 870 feet, more or less to said Main Street;

Thence, Southwesterly 121 feet, more or less to a point being S 45°19'45" E from the last-mentioned drill hole found;

Thence the following courses and distances along the northerly sideline of Main Street:

S 84°42'59" W a distance of 20.84 feet;

S 76°56'30" W a distance of 162.98 feet;

N 87°16'00" W a distance of 100.08 feet;

N 74°21'27" W a distance of 271.59 feet;

N 73°35'33" W a distance of 82.49 feet;

N 82°03'00" W a distance of 233.46 feet;

N 77°46'00" W a distance of 95.18 feet;
N 68°43'00" W a distance of 49.70 feet;
N 59°11'00" W a distance of 36.11 feet;
N 56°23'30" W a distance of 48.57 feet to the point of beginning, containing 788,128 s.f. or 18.09 acres, more or less.

Together with rights and easements set forth in Utility Easement by and between Westpoint Home, Inc. and North Dam Mill, LLC dated November 18, 2008 and recorded in Book 15532, Page 471.

Together with the easements and rights, if any, located in the City of Biddeford, York County, Maine, as more particularly reserved by The Mills at Pepperell, LLC or otherwise held by The Mills at Pepperell, LLC pursuant to the following instruments: the Quitclaim Deed with Covenant from The Mills at Pepperell, LLC to City of Biddeford dated as of April 29, 2014 and recorded in the York County Registry of Deeds on November 25, 2014 in Book 16930, Page 51; the Riverwalk Easement Agreement (Phase III) with the City of Biddeford dated as of April 29, 2014 and recorded in said Registry of Deeds on November 29, 2014 in Book 16930, Page 61.

TOGETHER WITH the exceptions, reservations, restrictions, easements and conditions set forth in the Quitclaim Deed from Sunbeam Products, Inc. to North Dam, LLC dated April 30, 2004 and recorded in the York County Registry of Deeds in Book 14072, Page 296.

TOGETHER WITH the exceptions, reservations, restrictions, easements and conditions set forth in the Quitclaim with Covenant Deed from The Mills at Pepperell, LLC to North Dam, LLC dated December 6, 2012 and recorded in the York County Registry of Deeds in Book 16478, Page 953.

TOGETHER WITH covenants, conditions, easements and restrictions set forth in Declaration of Covenants, Conditions, Easements and Restrictions by Pepperell Mill Progression, LLC dated December 15, 2021 to be recorded in the York County Registry of Deeds.

Together with the following historical rights and easements:

Easement One:

Those rights and easements conveyed by York Manufacturing Company to Cumberland County Power and Light Company by Indenture dated September 22, 1938, recorded in York County Registry of Deeds, Book 935, Page 332 for the benefit of Parcels One and Two as set forth and defined in the deed from Central Maine Power Company to Pepperell Manufacturing Company dated September 15, 1964 and recorded October 12, 1964 in Book 1622, Page 217, including the bridge, penstock and pipelines, the intake, screen chamber and gates to the center of the Saco River.

Easement Two:

Right and easement for the purpose of operating, replacing, repairing and maintaining a steam pipe line and a return condensate pipe line, with valves, fittings and necessary appurtenances, together with necessary steel trestles, bridges and wall brackets to support the same as further described by the deed from Saco Realty Corporation to Central Maine Power Company dated November 28, 1958,

recorded in said Registry, Book 1396, Page 280, for the benefit of Parcels One and Two as set forth and defined in the deed from Central Maine Power Company to Pepperell Manufacturing Company dated September 15, 1964 and recorded October 12, 1964 in Book 1622, Page 217.

Easement Three:

The right to lay a pipeline or pipelines along the canals and/or penstocks of Pepperell Manufacturing Company for the purpose of obtaining sufficient water from above the Upper York Dam for the proper operation of a steam plant as further described in the deed from Pepperell Manufacturing Company to Cumberland County Power and Light Company dated September 22, 1930 and recorded in Book 795, Page 11 to include any and all of the following: the right to excavate the bed of the westerly branch of said Saco River in any part thereof between said northwesterly boundary line of the power house property and said southerly boundary line of the property described in said section 15 therein; the right to take water from the said west branch of the Saco River at any point above Upper York Dam for use on the premises occupied by its manufacturing plant in said Biddeford as the same now is or may hereafter be constituted, the said water to be used for any purpose on said premises except for the generation of water power; and the right to lay, construct and maintain on and across that part of the land thereby conveyed to Cumberland County Power and Light Company which lies northerly of the northerly boundary of the parcel described in section 13 therein a suitable pipe line or lines and a suitable intake to enable Pepperell Manufacturing Company, its successors and assigns, to obtain said water, said intake to be located approximately on a line running northerly from the northeasterly corner of said parcel described in section 13 therein, together with the right to enter on said land for the purposes of laying, constructing, inspecting, repairing and/or replacing said pipe line or lines and intake for the benefit of Parcels One and Two as set forth and defined in the deed from Central Maine Power Company to Pepperell Manufacturing Company dated September 15, 1964 and recorded October 12, 1964 in Book 1622, Page 217.

Easement Four:

Right of way and easement for the purpose of ingress and egress on foot and by vehicle from and to Main Street and Buildings 13, 16, 19, 20, 37 and 37B and appurtenant land over the roadway as shown on the Neco Plan for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 1 of deed from West Point -Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928 Page 556.

Easement Five:

Right of way and easement for the purpose of receiving, delivering and shipping goods, merchandise, raw materials and other personal property by vehicle from and to Buildings 16, 19, 20, 37 and 37B over the area as shown on the Neco Plan for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 2 of the deed from West Point -Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928, Page 556.

Easement Six:

Easement to maintain, operate and repair the fire pump and auxiliary equipment located adjacent to the northeast corner of Building 18 as shown on the Neco Plan and all pipes, mains, valves and other equipment connected thereto or used or useful in the operation thereof, for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 3 of the deed from West Point - Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928, Page 556.

Easement Seven:

Easement to own, maintain, repair and demolish certain aerial bridges attached to certain buildings as shown on the Neco Plan for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 4, except that bridge referred to in Paragraph C, section 4(b), of the deed from West Point - Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928 Page 556.

Easement Eight:

Right of way and easement for access over the premises conveyed in the deed referenced below for the purposes of maintaining all buildings, walls, foundations, fences, bridges and causeways and other property owned by West Point -Pepperell, Inc., or its successors and assigns, and located on the adjoining premises owned by West Point - Pepperell, Inc., or its successors and assigns, for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 5 of the deed from West Point Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928 Page 556.

Easement Nine:

Easement over the premises conveyed in the deed referenced below for any overhang of, or roof drainpipes on existing buildings located on the adjoining premises owned by West Point -Pepperell, Inc. and for the dripping of water, snow and ice therefrom for the benefit of Parcels One and Two as set forth and defined in Paragraph C, section 6 of the deed from West Point -Pepperell, Inc., to Biddeford Textile Company dated November 17, 1971 and recorded November 17, 1971 in Book 1928 Page 556.

Easement Ten:

Easement for installation, use, repair and replacement of a fourteen inch water intake system consisting of pipes, penstocks, screen chamber, gates, valves and other related property located in part on the property owned by Sunbeam Products, Inc. as further shown on the Neco Plan for the benefit of Parcels One and Two as set forth and defined in Agreement among Biddeford Textile Corporation, Sunbeam Products, Inc. and WestPoint Stevens Inc., dated May 9, 1997 and recorded May 13, 1997 in Book 8257, Page 323.

Easement Eleven:

Easement and right of way of passage thirty feet wide as shown on the Turkanis Plan for the benefit of Parcel One as set forth and defined in the deed from West Point -Pepperell, Inc. to Daniel Turkanis, dated August 16, 1972 and recorded August 21, 1972 in Book 1960 Page 553; as relocated pursuant to Plan Book 138, page 19, referred to in Warranty Deed recorded in Book 3575, Page 78 and Warranty Deed (Corrective Deed) recorded in Book 3895, Page 169.

Easement Twelve:

Easement for the purposes of maintaining, repairing, replacing and relocating a sewer line extending from Building 30 of West Point -Pepperell, Inc., to the sewer line of Daniel Turkanis, or his successors or assigns, between Buildings 1 and 2 and the right to use the sewer line of Daniel Turkanis, or his successors or assigns, the point where the sewer line enters other land of West Point -Pepperell, Inc., as shown on the Turkanis Plan for the benefit of Parcels One and Two as set forth and defined in the deed from West Point -Pepperell, Inc. to Daniel Turkanis, dated August 16, 1972 and recorded August 21, 1972 in Book 1960 Page 553.

Easement Thirteen:

Easement to enter upon, under and through the land and buildings conveyed pursuant to the deed described below for the purpose of inspecting the sewer line, the steam line and the canals, and for the purpose of repairing, replacing, maintaining and relocating said lines and canals as shown on the Turkanis Plan for the benefit of Parcels One and Two as set forth and defined in the deed from West Point-Pepperell, Inc., to Daniel Turkanis, dated August 16, 1972 and recorded August 21, 1972 in Book 1960 Page 553.

Easement Fourteen:

Right of way and easement for the purpose of passage of vehicles and pedestrians on and over the land as set forth and described in the deed from West Point - Pepperell Foundation, Inc. to Maine Energy Recovery Company dated January 9, 1986 and recorded January 15, 1986 in Book 3736, Page 62 and more particularly shown on the plat of survey entitled "Plan showing proposed acquisition of lands by Maine Energy Recovery Company from George W. Newman III & West Point-Pepperell Inc., Biddeford, Maine" prepared by Dow & Coulombe, Inc., dated June 5, 1985 and revised June 11, 1985, recorded in the York County Registry of Deeds July 17, 1985, in Plan Book 138, Page 19.

EXHIBIT B
(Land of Pepperell Mill Development, LLC)

Unoccupied Buildings:

Certain Buildings/Parcels, being lots or parcels of land, together with the buildings and improvements thereon, located in the City of Biddeford, County of York, State of Maine, and being Building/Parcel No.'s 11, 12, 19, 20, 30, 36, and Smokestack Parcel No. 38, all as shown on a plan entitled Functional Subdivision The Mills at Pepperell, Main Street, Biddeford, York County, Maine made for Pepperell Mill Progression, LLC and Pepperell Mill Development, LLC, prepared by Owen Haskell, Inc., Professional Land Surveyors, dated December 10, 2021, as recorded in Plan Book 420, Page 43 (the "Plan").

Together with rights and easements set forth in Utility Easement by and between Westpoint Home, Inc. and North Dam Mill, LLC dated November 18, 2008 and recorded in Book 15532, Page 471.

Together with the easements and rights, if any, located in the City of Biddeford, York County, Maine, as more particularly reserved by The Mills at Pepperell, LLC or otherwise held by The Mills at Pepperell, LLC pursuant to the following instruments: the Quitclaim Deed with Covenant from The Mills at Pepperell, LLC to City of Biddeford dated as of April 29, 2014 and recorded in the York County Registry of Deeds on November 25, 2014 in Book 16930, Page 51; the Riverwalk Easement Agreement (Phase III) with the City of Biddeford dated as of April 29, 2014 and recorded in said Registry of Deeds on November 29, 2014 in Book 16930, Page 61.

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1964 and recorded October 12, 1964 in Book 1622, Page 217, including the bridge, penstock and pipelines, the intake, screen chamber and gates to the center of the Saco River.

Easement Two:

Right and easement for the purpose of operating, replacing, repairing and maintaining a steam pipe line and a return condensate pipe line, with valves, fittings and necessary appurtenances, together with necessary steel trestles, bridges and wall brackets to support the same as further described by the deed from Saco Realty Corporation to Central Maine Power Company dated November 28, 1958, recorded in said Registry, Book 1396, Page 280, for the benefit of Parcels One and Two as set forth and defined in the deed from Central Maine Power Company to Pepperell Manufacturing Company dated September 15, 1964 and recorded October 12, 1964 in Book 1622, Page 217.

Easement Three:

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Easement Eleven:

Easement and right of way of passage thirty feet wide as shown on the Turkanis Plan for the benefit of Parcel One as set forth and defined in the deed from West Point -Pepperell, Inc. to Daniel Turkanis, dated August 16, 1972 and recorded August 21, 1972 in Book 1960 Page 553; as relocated pursuant to Plan Book 138, page 19, referred to in Warranty Deed recorded in Book 3575, Page 78 and Warranty Deed (Corrective Deed) recorded in Book 3895, Page 169.

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Right of way and easement for the purpose of passage of vehicles and pedestrians on and over the land as set forth and described in the deed from West Point - Pepperell Foundation, Inc. to Maine Energy Recovery Company dated January 9, 1986 and recorded January 15, 1986 in Book 3736, Page 62 and more particularly shown on the plat of survey entitled "Plan showing proposed acquisition of lands by Maine Energy Recovery Company from George W. Newman III & West Point-Pepperell Inc., Biddeford, Maine" prepared by Dow & Coulombe, Inc., dated June 5, 1985 and revised June 11, 1985, recorded in the York County Registry of Deeds July 17, 1985, in Plan Book 138, Page 19.

EXHIBIT C

(Reserved)

EXHIBIT D

PROPORTIONATE SHARE OF LOT OWNERS AND VOTING PERCENTAGES

(Upon full build out of the existing buildings)

(See Attached Exhibit D)

EXHIBIT E

SKY BRIDGE MAINTENANCE RESPONSIBILITIES THAT ARE NOT ALLOCATED TO EACH LOT TO WHICH A SKY BRIDGE IS CONNECTED

The Declarant, as owner of Building 12 and The Eleven at Pepperell Mill, LLC have entered into a Mutual Use Agreement dated as of June 29, 2023 to be recorded in the York County Registry of Deeds providing for the restricted use of the Sky Bridge that runs between Building 11 and Building 12 and providing for a mechanism of determining what is a Necessary Expense to be shared equally between the owners of Building 11 and Building 12.

EXHIBIT D

PROPORTIONATE SHARE OF LOT OWNERS AND VOTING PERCENTAGES

(Upon full build out of the existing Buildings)

<u>Building</u>	<u>SF</u>	<u>Voting</u>	<u>Common</u>					<u>Replacement Reserve</u>	<u>Insurance</u>	<u>Tax</u>	<u>Management</u>
			<u>Landscaping</u>	<u>Plowing</u>	<u>Security</u>	<u>Light Electric</u>	<u>Common R&M</u>				
11	61,278	7%	7.1%	1.0%*	7.0%	7.0%	7.0%*	7.0%*	7.0%	7.0%	7.0%
12	43,136	5%	5.0%	5.2%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
19	30,936	4%	3.6%	3.7%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
20	28,024	3%	3.2%	3.4%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
30	7,900	1%	0.9%	3.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
36	53,748	6%	4.4%	4.5%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%
9	51,604	6%	6.0%	6.2%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
10	59,650	7%	6.9%	7.2%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%
13	160,000	18%	18.5%	19.3%	18.2%	18.2%	18.2%	18.2%	18.2%	18.2%	18.2%
13W	51,054	6%	5.9%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%
15	97,000	11%	11.2%	11.7%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
17	86,430	10%	10.0%	10.4%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
18	105,020	12%	12.2%	12.7%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%
19a	9,000	1%	1.0%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
35	14,000	2%	1.6%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
37	21,435	2%	2.5%	2.6%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Total	880,215	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Until the sale of all of the Unoccupied Lots (the "Full Build Out"), the Proportionate Share of all Buildings that will be paying a Proportionate share will be computed using the relative percentages set forth in this Exhibit D for each Building paying a Proportionate Share, with the adjusted Proportionate Shares to be based on a total of 100% of the Permitted Costs being allocated to the Buildings paying a Proportionate Share, other than for replacement reserves, which shall be at the fixed percentages set forth on this Exhibit D.

Note that the budgeted amount to fund replacement reserves shall be based upon the Full Build Out of all of the Buildings within the Subject Property. Until the Full Build Out, budgeted amounts of replacement reserves will be prorated among the Buildings paying Assessments based on the Full Build Out, with the fully budgeted amounts of replacement reserves being received by the Association once all Buildings are paying Assessments. Prior to Full Build Out, the total amount of replacement reserves will be smaller until Build Out occurs.

* 1% allocation for annual plowing expense for Building 11. In addition, Building 11 will be allocated 3% of the cost of any special assessments for road and parking lot replacement or resurfacing that are not funded from the repairs and maintenance budget or from replacement reserves.

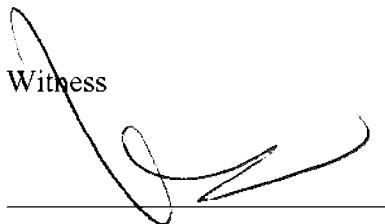
EXHIBIT F

MORTGAGEE'S JOINDER AND CONSENT

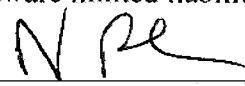
The undersigned **Ladder Capital Realty III LLC**, a Delaware limited liability company having a mailing address of 320 Park Avenue, 15th Floor, New York, New York 10022 ("Ladder"), being the holder of that certain Mortgage, Assignment of Leases and Rents and Security Agreement given by Pepperell Mill Progression, LLC to Ladder Capital Finance LLC dated December 16, 2021 and recorded in the York County Registry of Deeds in Book 18901, Page 368 (the "Mortgage") and assigned to Ladder Capital Realty III LLC, which Mortgage encumbers the property of Pepperell Mill Progression, LLC described in Exhibit A of the Declaration, hereby joins in and consents to foregoing Amended and Restated Declaration of Covenants, Conditions, Easements and Restrictions (the "Declaration") and agrees that Ladder's rights thereunder shall be subject and subordinate to the Declaration and the rights and easements contained therein as if the Declaration had been recorded prior to the recordation of the Mortgage and that in its exercise of its rights under the Mortgage it will recognize and agree to be bound by the terms and conditions set forth in the Declaration.

IN WITNESS WHEREOF, Ladder Capital Realty III LLC has caused this instrument to be executed under seal by its duly authorized representative as of this ____ day of June, 2023.

Witness



LADDER CAPITAL REALTY III LLC
a Delaware limited liability company

By: 

Name: Robert Perelman

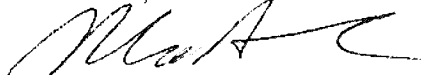
Title: Managing Director

State of New York
County of New York, ss.

June 13, 2023

Personally appeared the above named Robert Perelman, as Managing Director of Ladder Capital Realty III LLC, as aforesaid, and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of said Ladder Capital Realty III LLC.

Before me,



Notary Public

Print Name:

Commission Expires:

MICHAEL ALEXANDER

Notary Public, State of New York
No. 02AL6434610
Qualified in Queens County
Commission Expires June 06, 2026

MORTGAGEE'S JOINDER AND CONSENT

The undersigned **The Mills at Pepperell, LLC**, a Maine limited liability company and **North Dam, LLC**, a Maine limited liability (collectively, the "Mortgagee"), being the joint holders of that certain Mortgage, Security Agreement, Assignment of Rights and Financing Statement given by Pepperell Mill Development, LLC to Mortgagee dated December 16, 2021 and recorded in the York County Registry of Deeds in Book 18901, Page 434 (the "Mortgage") which encumbers the property of Pepperell Mill Development, LLC described in Exhibit B of the Declaration, hereby joins in and consents to foregoing Amended and Restated Declaration of Covenants, Conditions, Easements and Restrictions (the "Declaration") and agrees that Mortgagee's rights under the Mortgage shall be subject and subordinate to the Declaration and the rights and easements contained therein as if the Declaration had been recorded prior to the recordation of the Mortgage and that in its exercise of its rights under the Mortgage it will recognize and agree to be bound by the terms and conditions set forth in the Declaration.

IN WITNESS WHEREOF, The Mills at Pepperell, LLC and North Dam, LLC have caused this instrument to be executed under seal by its duly authorized representative as of this 23rd day of May, 2023.

Witness

Kathy Larkin

THE MILLS AT PEPPERELL, LLC

By: [Signature]

Name: William D. Sanford

Title: Manager

State of Maine

County of Cumberland, ss.

May 23, 2023

Personally appeared the above named William D. Sanford as Manager of The Mills at Pepperell, LLC, as aforesaid, and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of The Mills at Pepperell, LLC.

Before me,

[Signature]
~~Notary Public/Attorney at Law~~

Print Name: John S. Kaminski

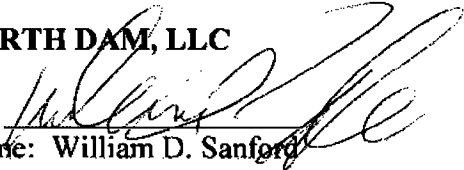
~~Commission Expires:~~

[signatures continue on following page]

Witness

Kathy Larkin

NORTH DAM, LLC

By: 

Name: William D. Sanford

Title: Manager

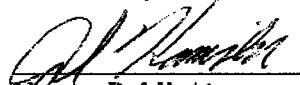
State of Maine

County of Cumberland, ss.

May 23, 2023

Personally appeared the above named William D. Sanford, as Manager of North Dam, LLC, as aforesaid, and acknowledged the foregoing instrument to be his/her free act and deed in his said capacity and the free act and deed of said North Dam, LLC.

Before me,



Notary Public/Attorney at Law

Print Name: John S. Kaminski

~~Commission Expires:~~

Section 3: Financial and Technical Capacity

Financial Capacity

Please refer to the attached letter from the Applicant's bank confirming financial capacity for the project.

Technical Capacity

Acorn Engineering specializes in providing urban redevelopment, civil/site design, environmental services, municipal consulting, and construction administration. Together, Acorn Engineering, Inc. and Ryan Senatore Architecture have successfully designed and permitted more than 20 level II/III projects in Portland during the past 5 years, including four for Redfern Properties: Munjoy Heights, East Bayside Lofts, The Hiawatha, 70 Anderson, and 1 Upper Falls Way.

Fathom Development, based in Portland, ME, serves as an Owner's Representative and provides Project Management services for the hospitality and multi-family sectors, specializing in historic renovations. Their technical capacity includes master planning, ground-up development, design management, and construction monitoring, ensuring projects honor historical integrity while meeting modern standards.

Archetype Architects provides architectural design planning. Our highly qualified team of six Architects, three Intern Architects, two Interior Designers and an Office Manager brings experience and the highest professional standards to our firm and clients. We work strongly as a team in developing designs. Our team size also assures strict control in cost and design management. Archetype uses the latest in BIM software and project delivery technology. All design decisions are thus available to the client in clear, visually understandable forms so that there is less possibility for misunderstanding or unexpected results. By focusing on transparent, open lines of communication, Archetype has consistently delivered projects with the confidence that there will be no surprises on the client's part when construction begins.





Josh Cushman, 1998-2021 Owner of Portland Builders Inc. we focused on Multi unit Housing, Historic Tax Credit Projects, and Commercial Build Outs

Historic Tax Credit Projects:

- **Cummings Mill* - South Berwick ME 48 Units 65,000 S.F.**
- **Presumpscot Commons* - Westbrook ME 29 Units 40,000 S.F.**
- **Saco Island Apartments* - Saco ME 36 Units 50,000 S.F.**
- **Olde Woolen Mill* - North Berwick ME 44 Units 60,000 S.F.**
- **Campus Commons* - Lisbon ME 14 Units 29,000 S.F.**
- **Sullivan School* - Berwick ME 34 Units 45,000 S.F.**
- **Village Green Apartments – Cumberland ME 38 Units 50,000 S.F.**
- **Hyacinth Place* – Westbrook ME 37 Units 55,000 S.F.**
- **The Inn at Diamond Cove* – Great Diamond Island 44 Hotel Rooms**
- **Hodgkins School* - Augusta ME 47 Units 60,000 S.F.**
- **Mother House* - Portland ME 88 Units 101,000 S.F.**
- **Thomas Plant – Bath ME Memorial Home 37 Units**
- **Congress Square – Portland ME 160 Units 110,000 S.F.**
- **York Manor – Biddeford ME 45 Units 60,000 S.F.**
- **Mildred Fox School – South Paris ME 12 Units 20,000 S.F.**
- **Regency Hotel – Portland ME 60 Hotel Rooms 70,000 S.F.**
- **ME Girls Academy – Portland ME Commercial office space 60,000 S.F**

The above projects are examples of work that are all in similar kind to the proposed Laconia project in Biddeford ME. All of the projects utilized the Historic tax credit process. Projects designated with an * were recipients of the Maine Preservation Honor Award. Additionally I have built many millions of S.F. Of Multi Unit Housing, Condos, and Office Buildings throughout Maine and New Hampshire. When owning Portland Builders Inc. we were one of the premier Construction Managers to be selected as part of the team to revitalize many great historic projects.

Josh Cushman was also an owner on the development side of Tidewater farms in Falmouth and Village green in Cumberland

Stephen Goodrich - Real Estate and Business Accomplishments

Residential Housing Development; Mary Lane, Cumberland Foreside, ME

- In 2004, developed a 12-lot residential subdivision on the border of Falmouth and Cumberland Foreside, ME. Acted as the owner, developer, and marketer, contributing to the area's residential growth.

Industrial Mill Conversion to Housing; Lofts at Saco Falls and Mill at Saco Falls, Biddeford, ME

- From 2011 to 2014, supported developer Nathan Szanton in converting industrial mills into 146 mixed-income housing units. Provided preparatory development work, including coordination with city officials and design input.

Historic Building Redevelopment; Tracy-Causser Building, Portland, ME

- In 1994, restored and redeveloped one of the last surviving colonial-era commercial structures in Portland. The project, recognized as the Portland Historical Society Project of the Year, adhered to State, Local, and National historic guidelines and was listed on the National Registry with the US Park Service. The building was repurposed for commercial use.

Commercial Redevelopment to Silver LEED Standard; Portland Public Market, Portland, ME

- Redeveloped the long-vacant Portland Public Market building into an office space, preserving approximately 200 jobs in Portland. The project utilized New Markets Tax Credits (NMTC) and became the largest redevelopment project in New England to achieve Silver LEED standard at the time.

CEO of PowerPay

- Stephen Goodrich is the CEO of PowerPay, a leading payment processing company. He has expanded the business and invested in landmark properties, such as the Portland Public Market and Riverdam Millyard in Biddeford, aiming to revitalize these properties and support local economic growth.

Acquisition of ZipLine

- In 2023, Stephen Goodrich led ZipLine, a Portland-based fintech company, until its acquisition by PDI Technologies. This strategic move was aimed at expanding ZipLine's services under PDI's umbrella.



February 23, 2022

To Corporate Realty Advisors:

Androscoggin Bank has completed a preliminary review of Joshua Soley's financial capacity.

The Bank deems Joshua Soley to have the financial capacity and experience to successfully finance and purchase the proposed property. Mr. Soley has the ability to finance up to \$100 million with our institution with other bank participants involved.

Final approval would be contingent on receipt of the hotel financials and a complete financial analysis.

If you have any further questions, please do not hesitate to call me at 207-376-6303.

Sincerely,

A handwritten signature in blue ink that reads 'Eric Hansen'.

Eric Hansen
SVP, Commercial Loan Officer
100 Middle Street
Suite 303, West Tower
Portland, Maine 04101
Office: 207.376.6303
Cell: 207.232.4040



August 24, 2022

To Whom It May Concern:

Androscoggin Bank has completed a preliminary review of Stephen Goodrich's financial capacity.

The Bank deems Stephen Goodrich to have the financial capacity and experience to successfully finance and purchase the proposed properties.

Final approval would be contingent on a complete financial analysis.

If you have any further questions, please do not hesitate to call me at 207-376-6303.

Sincerely,

A handwritten signature in blue ink that reads 'Eric Hansen'.

Eric Hansen
SVP, Commercial Loan Officer
100 Middle Street
Suite 303, West Tower
Portland, Maine 04101
Office: 207.376.6303
Cell: 207.232.4040

Section 4: Photographs



Figure 1: View of the north face of Building 19 & 20 (left side of image) facing west.



Figure 2: View of the north face of Building 19 (left side of image) facing west.



Figure 3: View of the east face of Building 20 facing south.



Figure 4: View of the south face of Building 19 & 20 facing west.



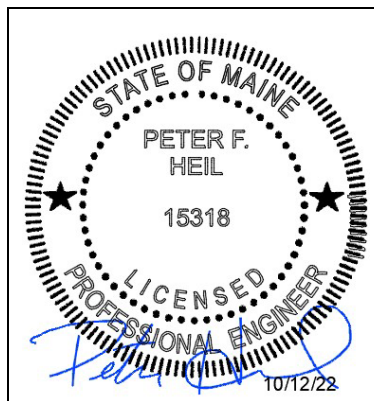
Section 5: EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

**1921 Pepperell, LLC
Portland, ME 04101**

Prepared By:

**Acorn Engineering, Inc.
500 Washington Avenue Suite #200
Portland, Maine 04103**



October 2024

INTRODUCTION

Acorn Engineering, Inc. has been retained by 1921 Pepperell, LLC to provide civil engineering services for the proposed redevelopment of 6, 32 & 40 Main Street. The project proposes to redevelop the existing mill buildings into (64) residential units, with utility infrastructure improvements. We understand the existing campus is primarily developed with parking areas, and limited site improvements are anticipated as part of the redevelopment.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Biddeford Land Development Regulations, Article VI: Performance Standards, Section 26: Erosion Control and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The proposed project site is located within the Pepperell Mill Campus adjacent to the Saco River. A Boundary & Topographic Survey has been prepared by Owen Haskell, Inc. on August 30, 2024.

Abutting Uses:

- North MSRD3 Commercial
- East MSRD3 Saco River
- South MSRD3 Commercial
- West MSRD3 Commercial

The site contains 100% impervious area currently being utilized as building footprint. The existing grades on site are relatively flat.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for York County

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	Subsurface	Substratum
Urban Land (Ur)	0.27	0.27

The soil "K" values for the soils, listed above, show a low to moderate susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for York 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 proximity of the site to the Saco River.

1.2 Existing Erosion Problems

There are no signs of existing erosion.

1.3 Critical Areas

There are no known critical areas.

1.4 Protected Natural Resource

The site is located adjacent to the Saco River, which is a Protected Natural Resource. 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 is unaware of any construction activity in the last 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 roadways.
- 2.1.2 Erosion control berm mix with hay bale reinforcement 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 Main 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 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached $\frac{1}{2}$ the design height.
 - 2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
 - 2.1.10 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 denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.



5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.



5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.
- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a “storm event”. A “storm event” shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers 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: Peter Heil, PE
Telephone: (207) 775-2655



Qualifications:

- Maine Professional Engineering License #15318
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert
- Maine DEP – Certified Third-Party Inspector
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071

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 erosion control berm with hay bale reinforcement
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence earthwork operations, associated with the roadway construction.
5. Commence installation of any utility work.
6. Continue earthwork and grading to subgrade as necessary for construction.
7. Complete installation of utilities.
8. Complete remaining earthwork operations.
9. Install sub-base and base gravels in paved areas.
10. Install paving, curbing and brickwork.
11. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
12. 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.
13. Touch up areas without a vigorous catch of grass with loam and seed.
14. Complete site signage and striping.

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
- Housekeeping Plan
- Soil Report Prepared by USDA Web Soil Survey
- ASTM Phase I Environmental Site Assessment Prepared by Ransom Consulting, LLC



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.

HOUSEKEEPING PLAN

The following housekeeping plan has is developed in accordance with Maine DEP Chapter 500 Stormwater Management standards. For additional information, reference Appendix C of Chapter 500.

1. **Spill prevention.** Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

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

2. **Groundwater protection.** 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. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See Chapter 500 Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. **Fugitive sediment and dust.** 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, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

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



4. **Debris and other materials.** Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. **Excavation de-watering.** Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, 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. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

6. **Authorized Non-stormwater discharges.** Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- (a) Discharges from firefighting activity;
- (b) Fire hydrant flushings;
- (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- (d) Dust control runoff in accordance with permit conditions and Section 3, above;
- (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
- (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- (g) Uncontaminated air conditioning or compressor condensate;

- (h) Uncontaminated groundwater or spring water;
- (i) Foundation or footer drain-water where flows are not contaminated;
- (j) Uncontaminated excavation dewatering (see requirements in Section 5, above);
- (k) Potable water sources including waterline flushings; and
- (l) Landscape irrigation.

7. Unauthorized non-stormwater discharges. The Department's approval under Chapter 500 does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Section 6, above. Specifically, the Department's approval does not authorize discharges of the following:

- (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
- (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
- (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
- (d) Toxic or hazardous substances from a spill or other release.

(8) Additional requirements. Additional requirements may be applied on a site-specific basis.





United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for York County, Maine



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 22, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ur	Urban land	0.6	100.0%
Totals for Area of Interest		0.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

York County, Maine

Ur—Urban land

Map Unit Composition

Urban land: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear

Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Drainage class: Moderately well drained

Depth to water table: About 24 to 72 inches

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

**ASTM PHASE I ENVIRONMENTAL SITE ASSESSMENT DRAFT EXECUTIVE SUMMARY
PEPPERELL MILL CAMPUS
BIDDEFORD, YORK COUNTY, MAINE**

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Project 081.06097.500
September 27, 2021

EXECUTIVE SUMMARY

The following report presents the findings of a Phase I Environmental Site Assessment (ESA) performed by Ransom Consulting, LLC (Ransom) for Presidium RE (Presidium; the “User”¹) at the Pepperell Mill Campus, located in the City of Biddeford, York County, Maine (hereinafter referred to as the “Property”, “Properties”, or “Site”). The Site is identified by the City of Biddeford Assessor’s Office as Lots 6, 10, 10-1, 11, and 12 of Tax Map 71, which corresponds to 2, 6, 32 to 40, and 100 Main Street; 1 to 15 and 12 York Street; 10 West Point Lane; and 44 to 50 Laconia Street. Please see Figure 1 for a Site Location map.

This Phase I ESA was conducted in general accordance with the requirements provided by the ASTM International Designation: E 1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 2013 (ASTM E 1527-13), United States Environmental Protection Agency (U.S. EPA) All Appropriate Inquiry (AAI), 40 CFR Part 312, and Ransom’s Scope of Work with Ransom’s Scope of Work with Presidium dated September 9, 2021 (executed on September 12, 2021) to evaluate environmental conditions for evidence of recognized environmental conditions (RECs) in connection with the Site. The purpose of this Phase I ESA was to document the environmental history of the Site, evaluate the likelihood that a release of hazardous substances and/or petroleum products (HSPP) has occurred or has the potential to impact the Site, and provide Ransom’s professional opinion regarding evidence of recognized environmental conditions (RECs) in connection with the Site

The Site is currently improved with 17 mill buildings that were formerly used for WestPoint Stevens Mill and North Dam Mill operations, which make up the entirety of the Pepperell Mill Campus today. The current buildings associated with the former WestPoint Stevens Mill are buildings 9, 10, 11, 12, 13, 13-Wing, 19, 20, 30, 34, 36, 37 (“Boiler House” and/or “Steam Plant”) and 37-B; and the current buildings associated with the former North Dam Mill are buildings 15, 17, 18, and 35. Building #16 was demolished circa 2016. The Site buildings are identified on the appended Site Plan (Figure 2). Paved driveway and parking areas are located throughout the Site. Limited grass/landscaped areas are located along mill building perimeters and Site boundaries. In addition, the Biddeford Riverwalk is located along the northern and eastern portions of the Site, adjacent to the Saco River; and an underground canal system is present beneath the Site.

The Site was operated as a mill complex between the mid-1800’s and 2009. Former mill entities included the Laconia Manufacturing Co., WestPoint Stevens Mill, and North Dam Mill. The Site was originally developed as textile mills, with construction commencing in the 1840s. The mills began production of woven cloth using automatic/machine operated looms; however, when production of those materials was shifted to southern states, the mill transitioned into making non-woven products (Vellux material products, similar to polar fleece)². The current Site buildings are primarily used for commercial and/or light industrial purposes, including, but not limited to, restaurants, fitness studios, salons, law offices,

¹ ASTM International Designation: E 1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 2013 (ASTM E 1527-13) defines the *User* as the party seeking to use Practice E1527 to complete an *environmental site assessment* of the *property*. A *User* may include, without limitation, a potential purchaser of *property*, a potential tenant of *property*, an *owner* of *property*, a lender, or a *property* manager. The *User* has specific obligations for completing a successful application of this practice outlined in Section 6 of ASTM E1527-13. For this project, the User is specifically identified in Section 1.0 and User Reliance is defined in Section 1.6.

² <https://mereda.org/2014/04/08/a-closer-look-at-the-pepperell-mill-in-biddeford/>

breweries, food and beverage production facilities, woodworking facilities, an antique/classic auto storage and service garage (Building 37B), art studios, counseling centers, and commercial offices. In addition, apartment units are located on the upper floors of Buildings 15, 17, and 18. Buildings 19, 20, and 37 are currently unoccupied. Building 11 is currently being renovated and is occupied by Site contractors.

As part of Ransom's assessment of the Site, EDR conducted an environmental database search. Ransom also reviewed Maine Department of Environmental Protection (MEDEP) online databases. The Site was identified on the State Hazardous Waste Site (SHWS), RCRA Very Small Quantity Generator (VSQG), Aboveground Storage Tank (AST), Facility Index Systems (FINDS), Environmental Compliance History Online (ECHO), Manifest, Institutional/Engineering Controls, Leaking AST, Spills, All Sites, VCP, Underground Storage Tank (UST), and Brownfields databases. These database listings are associated with former mill operations, releases, storage tanks, environmental investigations, and remedial actions conducted at the Site. REC's, spills, and other environmental conditions identified in connection with the Site have been evaluated through multiple environmental investigations and remediations conducted by Ransom and others between 2002 and 2021. The environmental database listings identified at the Site during this assessment are not anticipated to represent additional environmental conditions that have not already been properly investigated during the prior environmental assessments.

Over 40 MEDEP spill reports have been filed for the Site between 1986 and 2006. Historic releases documented in these reports that warranted further investigation have been evaluated by Ransom and others during the course of multiple assessments and investigations. Ransom performed a Site-wide Phase II Subsurface investigation in 2014 under the MEDEP's Brownfields Assessment Program, which addressed environmental data gaps and environmental conditions associated with these spills (among other issues). At that time, the extent of contamination was determined, and a remediation strategy was developed through the MEDEP Voluntary Response Action Program (VRAP). No additional spill reports have been filed in connection with the Site since 2014.

As indicated above, extensive environmental assessments and investigations have been completed for the Site by Ransom and others between 2002 and 2021. These assessments included Phase I and Phase II ESAs, Limited Subsurface Investigations (LSIs), underground storage tank (UST) closures, data gap reviews, Analyses of Brownfield Cleanup Alternatives (ABCAs) and Remedial Action Plans (RAPs), Resource Conservation and Recovery Act (RCRA) assessment and closure; and Hazardous Material Inventories (HMIs), among others. The previous environmental investigations/ assessments are further summarized in the following report. Impacted soils and hazardous building materials throughout portions of the Site and certain buildings have also been cleaned up through remedial and/or abatement actions, construction of cover systems to protect Site occupants from direct contact with contaminated surficial soils (i.e., engineering controls), asbestos abatement, encapsulation and/or removal of lead-based paint, removal and disposal of universal wastes and hazardous wastes, UST removals, and activity use restrictions (i.e., institutional controls). Abatement of hazardous building materials throughout the Site is currently ongoing and is being conducted in a phased approach concurrent with building redevelopment/renovations.

The portion of the Site which was formerly occupied by the North Dam Mill (Building 15, 17, 18 and 35) was entered into the MEDEP VRAP and received a "No Action Assurance" letter in 2009 and a "Certificate of Completion" in 2014. A Post-Closure Cover System Maintenance and Soil Management Plan was prepared by Ransom in 2015, and a revised VRAP Closure memo was issued by the MEDEP in 2015 for the North Dam mill. A Declaration of Environmental Covenant (DEC) was prepared for the

North Dam Mill property in 2015; however, to the best of our knowledge, that draft document was never approved or recorded at the Registry of Deeds.

The portion of the Site which was formerly occupied by the WestPoint Stevens Mill was entered into the MEDEP VRAP and received a “No Action Assurance” letter in 2014. A Post-Closure Cover System Maintenance and Soil Management Plan was prepared by Ransom in 2018. A VRAP Closure Report was prepared by Ransom in September of 2018 to document remedial actions which were performed in Building 13-1; this document was reviewed and approved by the MEDEP, but because this was an interim closure associated with the overall WestPoint Stevens mill complex, no Certificate of Completion was issued. Buildings #37 (the former Boiler House) and #37-B were remediated using federal Brownfields Cleanup grants, and a Brownfield and VRAP Closure Report was prepared. Through the Brownfields program, Building #37 and #37B received a VRAP Certificate of Completion. At this time, remaining portions of the former WestPoint Stevens Mill have not received closure through the MEDEP VRAP.

On September 16 2021, Ransom conducted a reconnaissance of the Site. No evidence (fill or vent pipes, access ways) indicating the presence of active USTs or abandoned USTs was observed which had not been previously identified during prior assessments at the Site. Ransom observed one 550-gallon diesel fuel AST within concrete secondary containment at the western exterior of Building 17. This AST is used for fueling maintenance and construction equipment at the Site. Additionally, one approximately 100-gallon used cooking oil AST was observed in the northern portion of the parking lot adjacent to Building 10. No holes or evidence of corrosion were observed on the sides of the 550-gallon diesel or 100-gallon used cooking oil ASTs. No HSPP was observed in remaining exterior areas of the Site. It should be noted that based on Ransom’s experience on the Site, it is known that existing pavement and grassy/landscaped areas on-Site are acting as temporary or permanent soil cover systems to prevent human exposure to underlying contaminated soils. Ransom observed that the pavement in the vicinity of Building 11 and pavement in the parking lot west of Building 10 were damaged/cracking in a manner that allowed underlying contaminated soils to be exposed.

Ransom observed hundreds of small volume/consumptive use containers (capacities of 10 gallons or less) of adhesives, paints, paint products, petroleum products, and various other maintenance and cleaning products stored on shelving and concrete floor areas throughout the Site buildings. Ransom did not observe significant staining and/or evidence of a release to the environment in connection with these containers; however, minor HSPP staining was observed on concrete walls and slabs throughout the basements of the Site buildings. Slabs and flooring within the Site buildings where staining was observed appeared to be in good condition with no cracks or floor drains that would represent a preferential pathway for HSPP releases to the environment. Ransom observed a universal waste storage area in the southwestern portion of the Building 13 basement. Used fluorescent light bulbs, ballasts, and fire extinguishers were consolidated in this area for disposal by off-Site contractors. Universal waste (primarily fluorescent light bulbs and ballasts) was observed in smaller quantities throughout the basements of Buildings 12, 13, 19, and 36.

Ransom has completed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-13 for the property located at 2, 6, 32 to 40, and 100 Main Street; 1 to 15 and 12 York Street; 10 West Point Lane; and 44 to 50 Laconia Street in the City of Biddeford, York County, Maine. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report. Based on the information obtained during this Phase I ESA, this assessment has revealed no evidence of RECs in connection with the Site.

However, the following Controlled RECS (CRECs) were identified:

1. Surficial soils, subsurface soils, and sediment on-Site have been documented to contain polycyclic aromatic hydrocarbons (PAHs), metals, and/or petroleum compounds at concentrations above the applicable MEDEP Remedial Action Guidelines (RAGs) for Residential, Outdoor Commercial Worker, and/or Excavation/Construction Worker exposure scenarios. These impacted soils are located beneath MEDEP-approved cover systems (pavement, building slab/foundations, walkways/Riverwalk, and landscaped areas). Ransom has prepared Post-Closure Cover System Maintenance and Soil Management Plans for the entire Site to document maintenance/inspection procedures for the existing cover systems, and to provide information for future Site contractors/redevelopers who may disturb these areas during future development work including utility repairs and upgrades. *It should be noted that pavement cover systems on-Site in the vicinity of Building 11 and in the parking lot west of Building 10 are currently damaged/cracking in a manner that is allowing Site occupants to potentially be exposed to underlying contaminated soils.*
2. The tunnel area/canals located between Building 15 and Building 17 contains soil and sediments with concentrations of PAH, arsenic, cadmium, and lead exceeding the applicable MEDEP RAGs. The MEDEP VRAP approved a remedial strategy for this area which includes access restrictions and limited occupancy.
3. Two abandoned-in-place 50,000-gallon No. 6 oil USTs are present in the vicinity of Building 37. Petroleum and metal-impacted soils were documented surrounding these USTs at concentrations above the applicable MEDEP RAGs. One 7,500-gallon solvent UST is located east of Building 11 that was installed in 1968 and abandoned-in-place in 1985. Both of these areas are covered by a pavement cover system and have been included in VRAP documentation.
4. Although outside the scope of ASTM, historic documents have identified the presence of hazardous building materials in on-Site buildings, including asbestos, lead-based paint, and hazardous/universal wastes. These materials represent an exposure risk to Site occupants, if they are disturbed during future renovation and/or demolition activities; remediation/abatement of hazardous building materials is ongoing and concurrent with the phased Site redevelopment.

Based on the information obtained during this assessment and our conclusions presented above, Ransom recommends the following:

1. The WestPoint Stevens Mill No Action Assurance Letter, dated February of 2014, contained five recommendations/conditions, as follows. Some of the recommendations have already been completed (preparation of and ABCA/RAP and preparation of a Post-Closure Cover System Maintenance and Soil Management Plan); however, some of the recommendations are still outstanding. Ransom recommends that these conditions be followed/implemented during all phases of future on-going Site redevelopment.
 - A DEC be prepared and recorded which restricts installation of groundwater extraction wells, requires that soil excavation be performed in accordance with a Post-Closure Cover System Maintenance and Soil Management Plan, and restricts the use of Building 13 to industrial and/or commercial purposes.

- Hazardous waste in all on-Site building be quantified/investigated and managed in accordance with applicable regulations.
 - Prior to renovation and/or demolition, that hazardous waste in on-Site buildings be abated/removed and managed in accordance with applicable regulations.
2. The North Dam Mill Certificate of Closure (as amended by the August 28, 2015 VRAP Participation Update Letter prepared by the MEDEP), contained a list of uncompleted remedial actions. The MEDEP stated that once those remedial actions were completed (as well as the conditions outlined in the original No Action Assurance Letter), a final Certificate of Completion could be issued. The recommendations/requirements that are still outstanding are listed below. Ransom recommends that these conditions be followed/implemented during all phases on on-Site redevelopment.
- Develop institutional controls (i.e. deed restrictions or a DEC) that restrict access to the Dye Pit area, Tunnel Areas, and Sub-Basement Areas, that prohibit excavation of soils and sediment without MEDEP approval, and that prohibit the extraction of groundwater without MEDEP approval.
 - Construct a soil cover system over the “paved gravel mound area’ between Building 17 and the former Building 16.
 - Removal of unused transformers. *(It should be noted that representatives of the current owner have indicated that most, if not all, of the defunct transformers have been removed from Site and properly disposed; however, they indicated that “there may be a few left in hard to reach places.” The VRAP Closure Report for Building 13-1 contains documentation and a bill of lading for off-site disposal of fifteen site-wide pole-mounted transformers; it is unclear if this represents the entirety of the transformers on-Site, or if additional transformers remain on-Site which need to be removed from Site. Ransom recommends that any transformers which remain on-Site be removed and properly disposed).*
 - Conduct lead paint and asbestos abatement as necessary to facilitate Site redevelopment in an ongoing/phased approach concurrent with Site construction/redevelopment.
3. Any cracking, potholes, or otherwise damaged pavement within the Site-wide MEDEP approved cover systems should be repaired by the Site owner(s). Damaged pavement areas observed during our reconnaissance included, but were not limited to, the parking lot west of building 10 and parking/driveway areas surrounding Building 11. The Site Owner should continue inspections and maintenance of existing cover systems in accordance with Ransom’s MEDEP-approved Post-Closure Cover System Maintenance and Soil Management Plan.
4. Any future on-Site disturbance of soils must be completed in accordance with Ransom’s MEDEP-approved Post-Closure Cover System Maintenance and Soil Management Plan, including the proper management, waste characterization analysis and off-Site disposal of impacted soils as necessary.

5. If residential use of Building 13 is proposed, additional soil vapor and/or indoor air sampling may be necessary. At this time and for the purposes of this report, the ultimate use of Building 13 is not anticipated to be residential.
6. A “Conditional” Hazardous Waste Generator Closure Certificate was prepared for the Site in 2016. This document has two recommendations that are preventing full closure of the Site’s Hazardous Waste Generator status. These recommendations are as follows. Ransom recommends that once these recommendations are complete, that the Owner contact the MEDEP to obtain full generator closure status.
 - The contaminated sediments present in the underground canal system must be addressed via the MEDEP VRAP (as outlined above, via a DEC restricting access). VRAP documentation should be submitted to the MEDEP hazardous waste unit for review and approval.
 - The 2016 Hazardous Waste Generator Closure Report prepared by Hoffman Engineering, Inc. identified “hoods and other apparatus” on the first floor of Building 10, as well as vats, piping, and concrete containment areas in the manufacturing areas of Building 10. The MEDEP recommended that these items be removed from Site and properly disposed. *(Based on information provided by the current Site owner, these items have been removed from Site; however, no disposal documentation could be obtained.)*
7. Certain ASTM non-scope considerations were identified in connection with the Site that represent potential business environmental risk, including the presence of hazardous building materials including ACM, lead-based paint, and hazardous/universal wastes in certain on-Site buildings (a summary of remediation status for each on-Site building is included in the report text). As previously noted, abatement and mitigation of hazardous building materials is ongoing and concurrent with the phased Site redevelopment. Any remaining materials will need to be properly abated and/or remediated if they are disturbed during future Site redevelopment or demolition activities.

Once the recommendations and remedial actions outlined above have been completed, Ransom recommends preparation of a VRAP Closure Report that documents the final remedial activities completed at the Site for submission and approval by the MEDEP. Once that document has been reviewed by the MEDEP, a Certificate of Completion can be issued for the entire Pepperell Campus and the RCRA Closure status can be closed.

This summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in decisions made or actions taken based on this information.

Section 6: Parking Overview

The project proposes to redevelop the existing buildings into (64) residential units, with utility infrastructure upgrades. Two (2) parking spaces are required per dwelling unit (One (1) if designed exclusively for, and occupancy is restricted to, senior housing, studio apartments and 1-bedroom apartments). The unit breakdown for the proposed project is as follows: (31) 1-bedroom units & (33) 2-bedroom units = $((31 \times 1) + (33 \times 2)) = 97$ parking spaces required for the tenants with an additional 5% increase in parking spaces to allow for visitors a total of 102 parking spaces are required for this project.

Two ADA spaces will be constructed in the existing parking area behind Buildings 19 & 20. Additionally, (3) spaces are being specifically reserved for the project in the parking lot adjacent to the buildings, with the remaining required parking spaces being reserved in the municipal parking garage. Traffic patterns are anticipated to remain unchanged as part of the proposed redevelopment project.

Buildings 19 and 20 currently control (7) parking spaces within the Pepperell Mill Campus. As part of the project's building improvements, including the construction of a new ramp, stair and dumpster location, (4) parking spaces will be eliminated for the proposed improvements. Therefore, three (3) parking spaces remain on the Pepperell Campus to serve Building 19 and 20. (97) spaces will be provided within the parking garage located at 15 Pearl Street. See the attached letter from Premium Parking confirming the garage will have adequate parking capacity for the proposed redevelopment.

Due to space limitations within the property, residents and guests will have parking spots available within the garage, approximately 0.5 miles away from the project site. An emphasis on multi-modal, walkability and sustainable urban development has led to a decrease in on-site parking for new developments in a urban downtown setting. This approach encourages residents to embrace alternative modes of transportation, such as walking, biking, or using public transit. See the attached exhibit outlining a pedestrian route to and from the existing parking garage located off Pearl Street.





March 28, 2024

Maine Realty Advisors
2 Main Street- Buildings 19 & 20
Biddeford, Maine, 04005

Parking at P4301- 15 Pearl Street Garage

To Whom It May Concern,

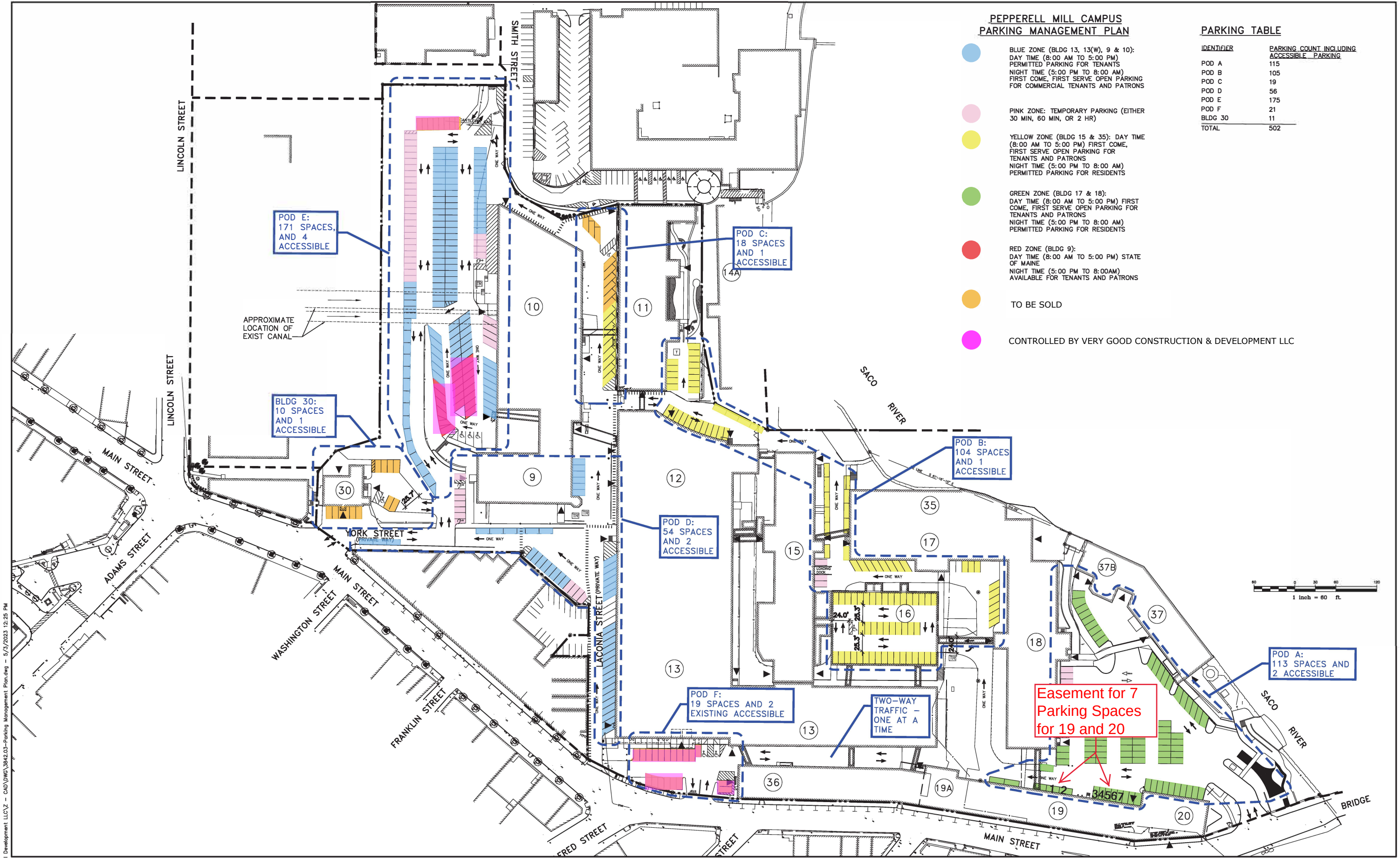
This official notice is confirming Premium Parking location of P4301- 15 Pearl Street Garage to be used for up to approximately 100 parking spaces for residents of these buildings. This parking location has adequate capacity to accommodate these needs.

Respectfully,

Tony Rock
Account Manager
Premium Parking

PREMIUM PARKING

1.844.236.2011 · 601 POYDRAS STREET · SUITE 1500 · NEW ORLEANS, LA 70130



PEPPERELL MILL CAMPUS
PARKING MANAGEMENT PLAN

- BLUE ZONE (BLDG 13, 13(W), 9 & 10):
DAY TIME (8:00 AM TO 5:00 PM) PERMITTED PARKING FOR TENANTS
NIGHT TIME (5:00 PM TO 8:00 AM) FIRST COME, FIRST SERVE OPEN PARKING FOR COMMERCIAL TENANTS AND PATRONS
- PINK ZONE: TEMPORARY PARKING (EITHER 30 MIN, 60 MIN, OR 2 HR)
- YELLOW ZONE (BLDG 15 & 35): DAY TIME (8:00 AM TO 5:00 PM) FIRST COME, FIRST SERVE OPEN PARKING FOR TENANTS AND PATRONS
NIGHT TIME (5:00 PM TO 8:00 AM) PERMITTED PARKING FOR RESIDENTS
- GREEN ZONE (BLDG 17 & 18):
DAY TIME (8:00 AM TO 5:00 PM) FIRST COME, FIRST SERVE OPEN PARKING FOR TENANTS AND PATRONS
NIGHT TIME (5:00 PM TO 8:00 AM) PERMITTED PARKING FOR RESIDENTS
- RED ZONE (BLDG 9):
DAY TIME (8:00 AM TO 5:00 PM) STATE OF MAINE
NIGHT TIME (5:00 PM TO 8:00AM) AVAILABLE FOR TENANTS AND PATRONS
- TO BE SOLD
- CONTROLLED BY VERY GOOD CONSTRUCTION & DEVELOPMENT LLC

PARKING TABLE

IDENTIFIER	PARKING COUNT INCLUDING ACCESSIBLE PARKING
POD A	115
POD B	105
POD C	19
POD D	56
POD E	175
POD F	21
BLDG 30	11
TOTAL	502

POD E:
171 SPACES,
AND 4
ACCESSIBLE

POD C:
18 SPACES
AND 1
ACCESSIBLE

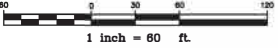
BLDG 30:
10 SPACES
AND 1
ACCESSIBLE

POD B:
104 SPACES
AND 1
ACCESSIBLE

POD D:
54 SPACES
AND 2
ACCESSIBLE

POD F:
19 SPACES AND 2
EXISTING ACCESSIBLE

Easement for 7
Parking Spaces
for 19 and 20



Rev.	Date	Revision

Issued For	Date	By

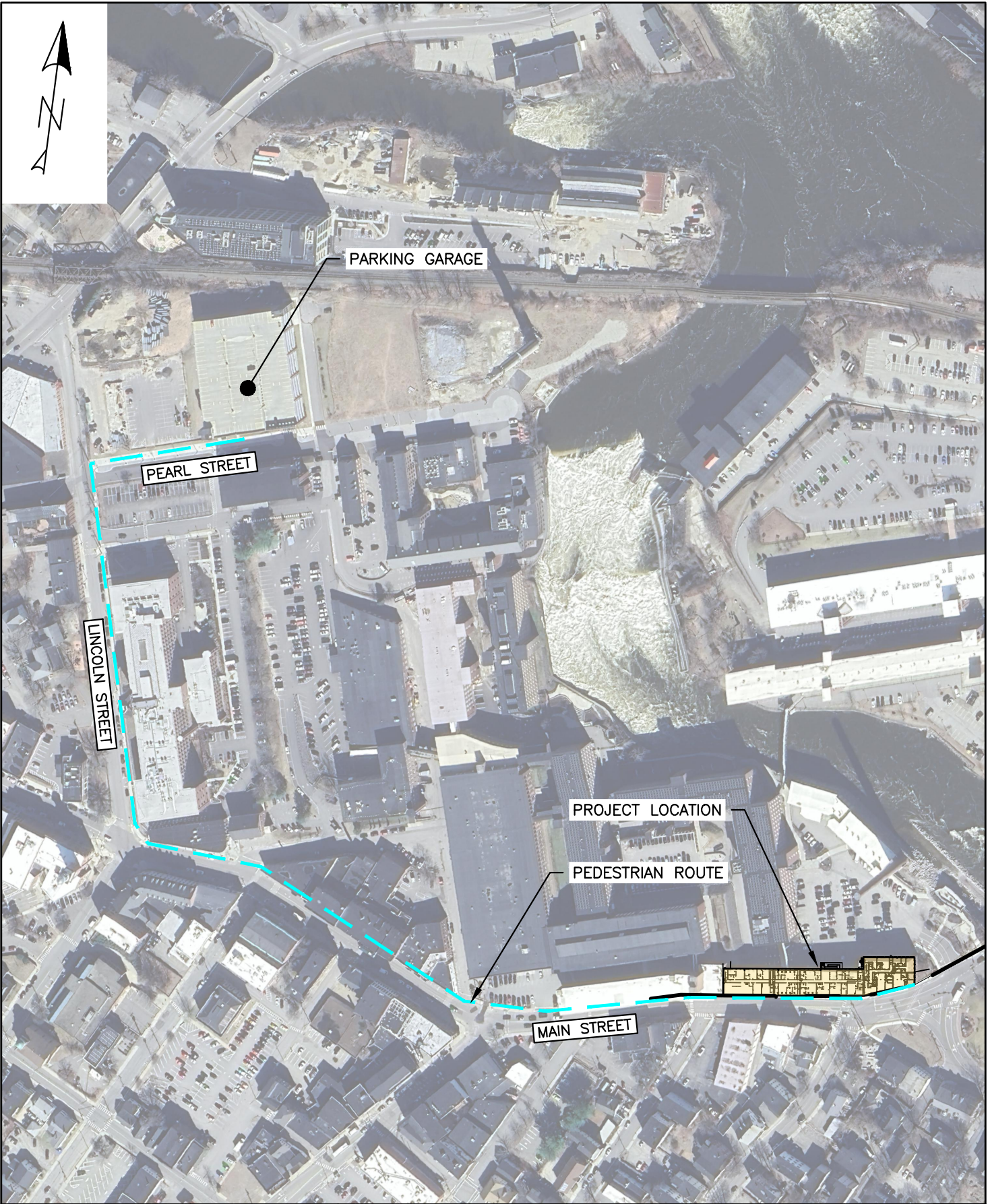
Design: MYR	Draft: -	Date: MAY 2023
Checked: AMP	Scale: 1"=60'	Job No.: -
File Name: 3842.03-Parking Management Plan.dwg		
This plan shall not be modified without written permission from Gorrill-Palmer Consulting Engineers, Inc.(GPCEI). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GPCEI.		

Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515
300 Southborough Drive -Suite 200
South Portland, ME 04106

Drawing Name:	Parking Management Plan
Project:	Pepperell Mill Laconia Street, Biddeford, Maine
Client:	Pepperell Mill Progression, LLC AND Pepperell Mill Development, LLC 2 Main Street, Ste. 17-301E, Biddeford, ME 04005

Drawing No.
1

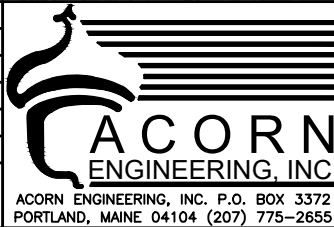
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THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.
EX-1

FILE: AE_1246_CIVIL
JN: 1246
SCALE: 1" = 2500'
DESIGN BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



DRAWING NAME:
EXHIBIT - 1

PROJECT NAME:
PEPPERELL MILL - BUILDING 19 & 20 REDEVELOPMENT

CLIENT:
**1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101**

ISSUED FOR	BY
PRELIMINARY	DATE PFH 11/5/23

Section 7: Utilities Summary

The project proposes to utilize existing infrastructure in the area and provides utility upgrades for various utility lines. Summaries of each utility are as follows:

Water:

The existing building is served by a 12" water service from the existing 12" water main (1896) within Main Street that connects to the southern face of building 19. A new 4" domestic line is proposed to connect into the existing 12" service through a parent child connection. The existing 12" service is anticipated to remain as a fire suppression service.

Sanitary Sewer:

The existing building is served by a 12" PVC sewer service from the sewer manhole located on the northeast corner of building 20. It is proposed to install a new back flow preventer internally and the existing service will remain serve the redevelopment.

Stormwater:

The redeveloped building will install new roof drains and direct them to a new 12" storm drain that includes a new catch basin. The catch basin will ultimately connect to the existing storm drain network within Main Street.

Electric/ Cable/Telephone:

The existing site is served by a building mounted transformer on the north face of building 19. The existing transformer is proposed to be removed and replaced with a new pad mount transformer that will be located north of Building 19 within the Pepperell Campus. It is our understanding primary conduit will extend from within the Pepperell Campus and secondary conduit will extend from the transformer to the redeveloped building. New Telecommunication services are also anticipated to serve the building and are currently being coordinated with utility providers.

Gas:

The existing building is served by a gas line located on the northern face of building 19 and will be retired in coordination with Unitol. The project proposes a new gas service from the existing 6" coated steel gas main located on the easterly side of the property and will connect to the east face of building 20.

In addition to the summaries above, Ability to serve letters have been sent out to the respective utility companies on April 11, 2024, and September 20. Responses not received thus far will be provided upon receipt and submitted to the Planning Department within the subsequent application.



April 11, 2024

Marcus Knipp

Maine Water Company
93 Industrial Park Rd
Saco, Maine 04072

**Subject: Proposed Residential Facility
Pepperell Mill – Buildings 19 & 20
6 & 32-40 Main Street, Biddeford, ME, 04005
Ability to Serve Request**

Dear Marcus,

On behalf of **Maine Realty Advisors** we would like to verify Maine Water Company's ability to provide water service for a proposed residential facility located in Buildings 19 and 20 of the Pepperell Mill at 6 Main Street and 32-40 Main Street in Biddeford, ME.

The project site includes Buildings 19 and 20 of the Pepperell Mill, identified as Parcel IDs 71-10-1, 71-10-4, and 71-10-7 on the City of Biddeford's Assessor's Map. Buildings 19 and 20 are part of the Pepperell Mill campus located in the Main Street Revitalization District 3 (MSRD3). Both buildings have three levels (including the basement) with a combined gross floor area of 87,700 square feet. The applicant is proposing to convert the building into 64 residential dwelling units across the three stories. An overall existing conditions plan with the site location highlighted has been provided with this letter.

EXISTING AND PROPOSED SERVICE

Based on archive as-built utility plans for Main Street, there appears to be a water service to Building 19 from the existing 12" main in Main St. The size of this service is currently unknown. If possible, the development would seek to utilize this service for domestic and/or fire suppression for both Building 19 and 20. A proposed fixture count has been provided with this letter. As part of this Ability to Serve, the applicant is also seeking information on any service upgrades that would be necessary to serve this project. The as-built plan has been attached to this letter for reference.

ANTICIPATED FLOWS

The anticipated water usage of the storage facility is 9,420 GPD, which is based on the 2023 Maine Subsurface Wastewater Disposal Rules. For multifamily residential, Section 5.E.2. of MSWDR specifies 120 GPD per dwelling unit for one-bedroom units and 90 GPD per bedroom for multiple bedrooms units. Of the 64 units, 15 are proposed as studio apartments. As MSWDR does not differentiate between studio and one-bedroom units, they are both assumed to generate 120 GPD. Based on the publication, *Water Supply and Pollution Control, Third Edition*, by Clark, Viessman and Hammer, Chapter 4, Section 5; the peak daily use can be considered to be about 180% of the average daily use. Based on this information, the estimated project water usage is as follows:



Flow Type	Design Flow (GPD)	Peak Daily Design Flow (GPD)
Building 19		
Studio & 1-Bedroom Unit (19 units @ 120 gpd)	2,280	4,104
2-Bedroom Unit (23 units @ 180 gpd)	4,140	7,452
Subtotal	6,420	11,556
Building 20		
Studio & 1-Bedroom Unit (16 units @ 120 gpd)	1,920	3,456
2-Bedroom Unit (6 units @ 180 gpd)	1,080	1,944
Subtotal	3,000	5,400
TOTAL	9,420	16,956

CLOSURE

As required by the City of Biddeford, we are writing to request a letter indicating the ability of the Maine Water Company's ability to serve this project. An overall existing conditions plan and a Main St as-built utility plan is attached for your reference.

Specifically, our office is interested in a letter from you indicating the following:

- The ability of Maine Water Company's facilities to serve the project.
- Any system maps available for the area.
- Any other factors which may affect the water service to this site.
- Any connection service or impact fees.

We are in the process of submitting a Site Plan Application to the City of Biddeford and would appreciate your confirmation of site conditions in a timely manner. If you have any questions on the information submitted, please contact our office.

Regards,

GORRILL PALMER

Matt Rabasco, PE

Project Engineer

Phone: (207) 772-2515x296

mrabasco@gorrillpalmer.com

Mr. Marcus Knipp
April 11, 2024
Page 3



Attachments:

Overall Existing Conditions Plan
Main Street As-Built Utility Plan
Fixture Count

U:\3842.52_Pepperell Mill_Buildings 19 & 20\H Utilities\Ability to Serve\abs_water_04-02-2024.docx



October 18, 2024

Zachary Stevens, PE
Acorn Engineering, Inc.
500 Washington Ave, Suite 202
Portland, ME 04103

Re: Ability to Serve Determination – 6 & 32 Main St, Biddeford

Greetings,

The Maine Water Company (MWC) has received your request on the behalf of your client, 1921 Pepperell, LLC, for an Ability to Serve Determination for a proposed residential development to be located at 6 & 32 Main St, Biddeford, ME.

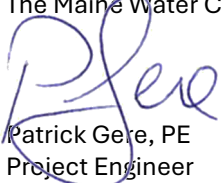
The request specifies a plan to convert a former mill building into 33 two-bedroom units & 31 one-bedroom units (64 total units) and construct utility infrastructure improvements. The expected peak domestic service demand is 21 gallons per minute. The expected fire service demand for the project was not provided. Based on the criteria provided by the developer's engineer, the expected increase in water usage is within the water system's available capacity. The static pressure in the area is approximately **50 psi**. The Biddeford Saco Division of MWC does have sufficient capacity from the existing 12-inch cast iron water main in the Main Street Right-of-Way to serve this project. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- MWC has the understanding that fire service demand is unknown at this time, are not to be included in this request, or accounted for in this Ability to Serve Determination.
- If fire service is required, a hydrant flow test at the nearest available hydrant will need to be conducted and analyzed by the sprinkler designer to ensure that adequate flows can be met during a peak fire demand event.
- The developer is required to pay for the cost of any modification, renewal of impacted service lines, and retirement of unused or discontinued services to MWC standards of best practice.
- Additional plan approval, paperwork, and fees associated with this project will require proper coordination with MWC. MWC requires upfront payment for inspection and paperwork to be fully completed before any construction on waterworks materials.
- Service lines must comply with MWC Cross Connection Control Program.
- Allow up to 30 days for the MWC utility review process once final plans are ready to be completed before any construction on waterworks materials will be approved.

Should a request for service or completion of the project not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project. All work must be completed in accordance with MWC Terms and Conditions as well as material specifications. All appropriate paperwork must be completed, and deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with Maine Public Utility Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at Patrick.Gere@mainewater.com. We look forward to working with you throughout design and construction.

Sincerely,
The Maine Water Company


Patrick Gere, PE
Project Engineer

April 11, 2024

Craig Chekan

City of Biddeford – Engineering Department
205 Main Street
Biddeford, Maine 04005

**Subject: Proposed Residential Facility
Pepperell Mill - Buildings 19 & 20
6 & 32-40 Main Street, Biddeford, ME, 04005
Ability to Serve Request**

Dear Mr. Chekan,

On behalf of **Maine Realty Advisors**, we would like to verify the City of Biddeford's ability to provide wastewater treatment capacity for a proposed residential facility located in Buildings 19 and 20 of the Pepperell Mill at 6 Main Street and 32-40 Main Street in Biddeford, ME.

The project site includes Buildings 19 and 20 of the Pepperell Mill, identified as Parcel IDs 71-10-1, 71-10-4, and 71-10-7 on the City of Biddeford's Assessor's Map. Buildings 19 and 20 are part of the Pepperell Mill campus located in the Main Street Revitalization District 3 (MSRD3). Both buildings have three levels (including the basement) with a combined gross floor area of 87,700 square feet. The applicant is proposing to convert the building into 64 residential dwelling units across the three stories. An overall existing conditions plan with the site location highlighted has been provided with this letter.

EXISTING AND PROPOSED SERVICE

The presence or location of sanitary sewer service to Building 19 or 20 is currently unknown. Based on plans and other information provided to us by the City Engineering Department, there is an existing 72" RCP sewer main originating at the intersection of Main Street and Alfred Street that continues down to Water Street. A smaller branch of the main appears to serve a portion of the Pepperell Mill complex. There is an existing manhole on the eastern side of Building 20 next to the site driveway. We understand that Main St is currently under moratorium, and therefore would propose a connection to the specified manhole or its tributary pipes to avoid disturbance within the public R.O.W. Please refer to the Existing Conditions Plan and the Main St as-built plan attached to this letter for reference.

ANTICIPATED FLOWS

The anticipated water usage of the storage facility is 9,420 GPD, which is based on the 2023 Maine Subsurface Wastewater Disposal Rules. For multifamily residential, Section 5.E.2. of MSWDR specifies 120 GPD per dwelling unit for one-bedroom units and 90 GPD per bedroom for multiple bedrooms units. Of the 64 units, 15 are proposed as studio apartments. As MSWDR does not differentiate between studio and one-bedroom units, they are both assumed to generate 120 GPD. Based on the publication, *Water Supply and Pollution Control, Third Edition*, by Clark, Viessman and Hammer, Chapter 4, Section 5; the peak daily use can be



considered to be about 180% of the average daily use. Based on this information, the estimated project water usage is as follows:

Flow Type	Design Flow (GPD)	Peak Daily Design Flow (GPD)
Building 19		
Studio & 1-Bedroom Unit (19 units @ 120 gpd)	2,280	4,104
2-Bedroom Unit (23 units @ 180 gpd)	4,140	7,452
Subtotal	6,420	11,556
Building 20		
Studio & 1-Bedroom Unit (16 units @ 120 gpd)	1,920	3,456
2-Bedroom Unit (6 units @ 180 gpd)	1,080	1,944
Subtotal	3,000	5,400
TOTAL	9,420	16,956

CLOSURE

As required by the City of Biddeford Site Plan Review process, we are writing to request a letter indicating the City of Biddeford's ability to serve this project.

Specifically, our office is interested in a letter from you indicating the following:

- Confirmation of the City of Biddeford's facilities to serve the project.
- Any other factors which may affect the sewer service to this site.
- Any connection service or impact fees.

We are in the process of submitting a Site Plan Application to the City of Biddeford and would appreciate your confirmation of site conditions in a timely manner. If you have any questions on the information submitted, please contact our office.

GORRILL PALMER

Matt Rabasco, PE

Project Engineer

Phone: (207) 772-2515x296

mrabasco@gorrillpalmer.com

Attachments:

Existing Conditions Plan

Main Street As-Built Utility Plan



City of Biddeford, Maine

City of Biddeford

Public Works Department / Engineering Division/Wastewater Administration Division
P.O. Box 586, 205 Main Street, Suite 301
Biddeford, ME 04005
Phone: (207) 284-9118, Fax: (207) 571-0662

**Letter of Wastewater Treatment Plant Capacity to Serve
64 Unit Apartment Building
Pepperell Mill Campus, Bldgs. 19 and 20
Lower Main Street**

Matt Rabasco, PE
Gorrill Palmer
300 Southborough Drive
Suite 200
South Portland, Me 04106

June 12, 2024

Brief description of project: **Proposed 64 Unit Apartment Project in Building 19 and 20, Pepperell Mill Campus on Lower Main Street, Biddeford, Maine-** Currently Estimated new flow: **9260 gpd.**

Determination

The applicant is proposing a 64 unit apartment Building Project in Building 19 and 20, Pepperell Mill Campus on Lower Main Street. Based on emails received from Gorrill Palmer, Inc., it is currently projected that the proposed use development will discharge 9260 gallons per day of flow to the system.

The City of Biddeford Wastewater Department has reviewed the request to serve the above described project. It has been determined that at this time, once the flow reaches the wastewater treatment facility, the City has sufficient capacity to treat the estimated flows from the above described project. However, it should be noted, based on studies being performed by the City's engineering consultant, there may be sewer and pump station capacity issues in many of the sewershed areas that must be addressed in order to allow any additional flow into the collection and conveyance system. Sewer capacity issues may require certain upgrades be undertaken to increase sewer system capacity. Changes to the project from that presented to this department may require a new review of the request for ability to serve. This determination will be effective for a period of one year from the date above.

Upon approval of the Planning Board, the applicant must make application for sewer service. Flow amounts for the project will be determined at the time application is made and may or may not be the amount stated above. The applicant will be required to pay all fees based on the flow amount

205 Main Street, Biddeford, ME 04005 P: 207.284.9313 F: 207.571.0678 www.biddefordmaine.org

*The City of Biddeford is an equal opportunity provider. To file a complaint, write to
Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

calculated at the time application is made and prior to the issuance of any building permits and/or the issuance of a certificate of occupancy.

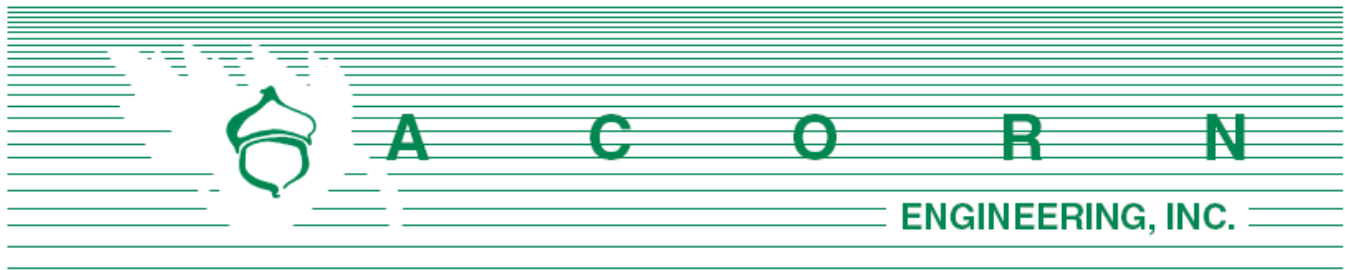
As a condition of approval, you will be required to remove any roof drains or Catch basins that are connected to the combined sewer system.

Any food preparation activities will need to be discussed with the Fats, Oils and Grease (FOG) coordinator to determine if a permit may be required.

This Capacity to Serve Letter is intended only to indicate that the City of Biddeford Wastewater Treatment Facilities has the ability to handle and treat the flow from the above stated project once it is received at the treatment facility. Project design plans must be submitted to the City for review and comment. The Planning Department, Engineering Department or other persons from the Wastewater Department may require further studies, calculations or documentation to determine any actions that may need to be taken to address any impacts/capacity issues and/or any system upgrades that may be needed to address any impacts this project may have on the City's sewer collection and conveyance system(s) or its components.

Thomas Milligan, PE
City Engineer Emeritus
City of Biddeford Engineering Department
Tom.milligan@biddefordmaine.org
207-284-9118

CC: Jeff Demers, Public Works/Wastewater Director
Craig Chekan, City Engineer
Roby Fecteau, Code Enforcement
David Galbraith, City Planner
Alex Buechner, Wastewater Superintendent



Unitil Service Corp.
Attn: Mr. Scott Carpenter
376 Riverside Industrial Parkway
Portland, Maine 04103

September 20, 2024

Subject: Redevelopment of Pepperell Mill – Buildings 19 and 20
Re: Ability to Serve Request

Mr. Carpenter:

On behalf of 1921 Pepperell, LLC, we are pleased to submit the following request for Unitil's ability to serve the project. The parcels are mapped as Map: 71, Block: 10-1, 10-4, 10-7 and located in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to redevelop the existing buildings into (64) residential units, with some likely utility infrastructure upgrades. The existing campus is primarily already built out with parking areas, and limited site improvements are anticipated as part of the redevelopment.

It is our understanding there is an existing gas service located on the northern face of building 19. We are not sure if the existing service is able to remain in use or if a new service will need to be installed as part of this project. Please see the Utility Plan for additional information.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Main Street location of existing service connections.
2. Any proposed infrastructure improvements by Unitil within the project vicinity.
3. Unitil's ability to serve the project.

I have attached a Bounday & Topographic Survey prepared by Owen Haskell dated August 30, 2024, and a proposed preliminary Utility Plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Zachary Stevens PE
Project Engineer
Acorn Engineering, Inc.



September 23, 2024

Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104

Attn: Zachary Stevens, PE

Subject/Description of project: Pepperell Mill Campus (Building 19 & 20) Ability to Serve Request

Re: Natural Gas Ability to Serve Response

Dear Zachary,

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that Unitil has natural gas in the vicinity to the proposed Pepperell Mill Campus (Building 19 & 20) redevelopment. I have asked our locators to mark out any existing gas services that may service the buildings currently. My GIS department has already sent you a map showing gas mains in the area.

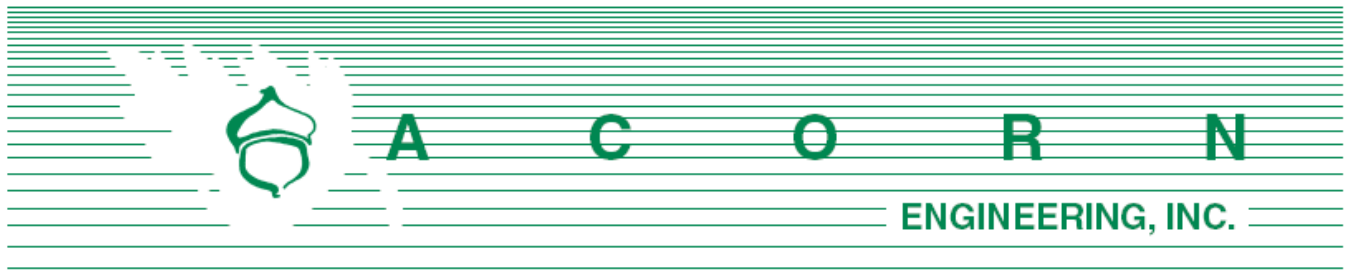
Once the gas load is available please send that along and we can size any new gas mains, services and/or meter(s) that will be needed.

If you have any further questions or require additional information, please contact me at 207-541-2543 or email at carpenters@unitil.com.

Sincerely,

Scott Carpenter

Scott Carpenter
Senior Business Development Representative
207-541-2543



Consolidated Communications
Attn: Mr. Patrick Morrison
5 Davis Farm Road
Portland, Maine 04101

September 20, 2024

Subject: Redevelopment of Pepperell Mill – Buildings 19 and 20
Re: Ability to Serve Request

Mr. Morrison:

On behalf of 1921 Pepperell, LLC, we are pleased to submit the following request for Consolidated Communications' ability to serve the project. The parcels are mapped as Map: 71, Block: 10-1, 10-4, 10-7 and located in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to redevelop the existing buildings into (64) residential units, with some likely utility infrastructure upgrades. The existing campus is primarily already built out with parking areas, and limited site improvements are anticipated as part of the redevelopment.

We are unaware if any telecom services currently serve the building. Assuming not, a proposed underground telecom conduit from an existing utility pole located on the eastern side of building 20 will serve the development. Please see the Utility Plan for additional information.

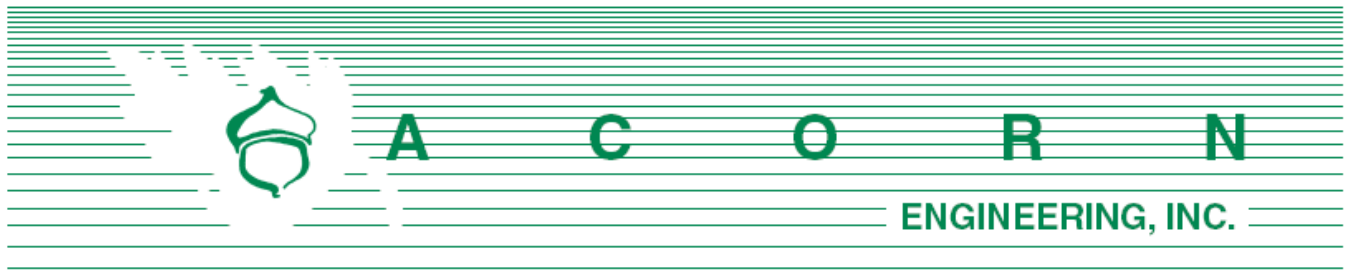
On behalf of the client, we are requesting the following information:

1. Any easements for services currently crossing the proposed development.
2. Any additional information, such as utility mapping within Main Street, abutting properties, and/or existing service connections.
3. Any proposed infrastructure improvements by Consolidated within the project vicinity.
4. Consolidated's ability to serve the project.

I have attached a Bounday & Topographic Survey prepared by Owen Haskell dated August 30, 2024, and a proposed preliminary Utility Plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Zachary Stevens PE
Project Engineer
Acorn Engineering, Inc.



Spectrum Cable
Attn: Mr. Steven Holmes
444 Perry Road
Bangor, Maine 04401

September 20, 2024

Subject: Redevelopment of Pepperell Mill – Buildings 19 and 20
Re: Ability to Serve Request

Mr. Holmes:

On behalf of 1921 Pepperell, LLC, we are pleased to submit the following request for Spectrum Cable's ability to serve the project. The parcels are mapped as Map: 71, Block: 10-1, 10-4, 10-7 and located in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to redevelop the existing buildings into (64) residential units, with some likely utility infrastructure upgrades. The existing campus is primarily already built out with parking areas, and limited site improvements are anticipated as part of the redevelopment.

We are unaware if any telecom services currently serve the building. Assuming not, a proposed underground telecom conduit from an existing utility pole located on the eastern side of building 20 will serve the development. Please see the Utility Plan for additional information.

On behalf of the client, we are requesting the following information:

1. Any easements for services currently crossing the proposed development.
2. Any additional information, such as utility mapping within Main Street, abutting properties, and/or existing service connections.
3. Any proposed infrastructure improvements by Spectrum within the project vicinity.
4. Spectrum's ability to serve the project.

I have attached a Bounday & Topographic Survey prepared by Owen Haskell dated August 30, 2024, and a proposed preliminary Utility Plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Zachary Stevens PE
Project Engineer
Acorn Engineering, Inc.

Section 8: Public Safety Letter of Approvals

Please refer to the attached response letters from the City of Biddeford Fire and Police Departments.





CITY OF BIDDEFORD

REGIONAL COMMUNICATIONS CENTER

Division of Biddeford Police Department



39 Alfred Street, Biddeford, ME 04005

March 07, 2024

Joshua Cushman
Maine Realty Advisors

Dear **Mr. Cushman**,

The address shown below is the physical E-911 emergency response address for your residence.

Property Address: Pepperell Mill Bldg. #19 **14 Main St. Biddeford, ME 04005**

Identifying Your Property / Building

For Police, Fire, and Medical purposes, it is very important that you place your street number on your house or building in a location visible from the street or driveway. The height of each number in your address should be a minimum of 4 inches. The color of the numbers should contrast with the color of building. We strongly recommend the numbers be made of reflective materials to enhance nighttime viewing.

In addition, if your house or building is located further than 75 feet back from the road or otherwise not visible from the road, your street number(s) is required to be placed at the beginning of your driveway/private way. Acceptable methods for display include the use of your mailbox, placement of a plaque on a post, etc.

If you have any questions or concerns, I may be reached at (207) 282-5127 or dylan.martin@biddefordmaine.org. Thank you in advance for your cooperation.

Regards,

Dylan D. Martin
RCC Supervisor / E-911 Addressing Officer
Biddeford Regional Communications Center
Division of; Biddeford Police Department



CITY OF BIDDEFORD

REGIONAL COMMUNICATIONS CENTER

Division of Biddeford Police Department



39 Alfred Street, Biddeford, ME 04005

March 07, 2024

Joshua Cushman
Maine Realty Advisors

Dear **Mr. Cushman**,

The address shown below is the physical E-911 emergency response address for your residence.

Property Address: Pepperell Mill Bldg. #20 **6 Main St. Biddeford, ME 04005**

Identifying Your Property / Building

For Police, Fire, and Medical purposes, it is very important that you place your street number on your house or building in a location visible from the street or driveway. The height of each number in your address should be a minimum of 4 inches. The color of the numbers should contrast with the color of building. We strongly recommend the numbers be made of reflective materials to enhance nighttime viewing.

In addition, if your house or building is located further than 75 feet back from the road or otherwise not visible from the road, your street number(s) is required to be placed at the beginning of your driveway/private way. Acceptable methods for display include the use of your mailbox, placement of a plaque on a post, etc.

If you have any questions or concerns, I may be reached at (207) 282-5127 or dylan.martin@biddefordmaine.org. Thank you in advance for your cooperation.

Regards,

Dylan D. Martin
RCC Supervisor / E-911 Addressing Officer
Biddeford Regional Communications Center
Division of; Biddeford Police Department

Subject: FW: notice to serve Fire Dept
Date: Thursday, March 28, 2024 at 12:09:47 PM Eastern Daylight Time
From: Marieke Thormann
To: Robyn Smith-Payne
Attachments: image001.png, image002.jpg, image001.png

FYI for site plan application for Pep Mill

Marieke Thormann, PE | VP of Development



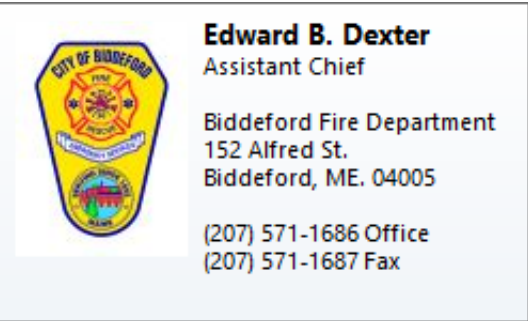
On 3/28/24, 8:50 AM, "Josh Cushman" <jcushman@mainerealtyadvisors.com> wrote:

----- Forwarded message -----
From: **Dexter, Edward** <Edward.Dexter@biddefordmaine.org>
Date: Tue, Mar 5, 2024 at 10:30 AM
Subject: notice to serve
To: jcushman@mainerealtyadvisors.com <jcushman@mainerealtyadvisors.com>

Good Morning Mr. Cushman:

This email is to indicate that the Biddeford Fire Department can serve your property in the city. If you have any questions or need further information please feel free to reach out.

Sincerely,
Ed Dexter



The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error; any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

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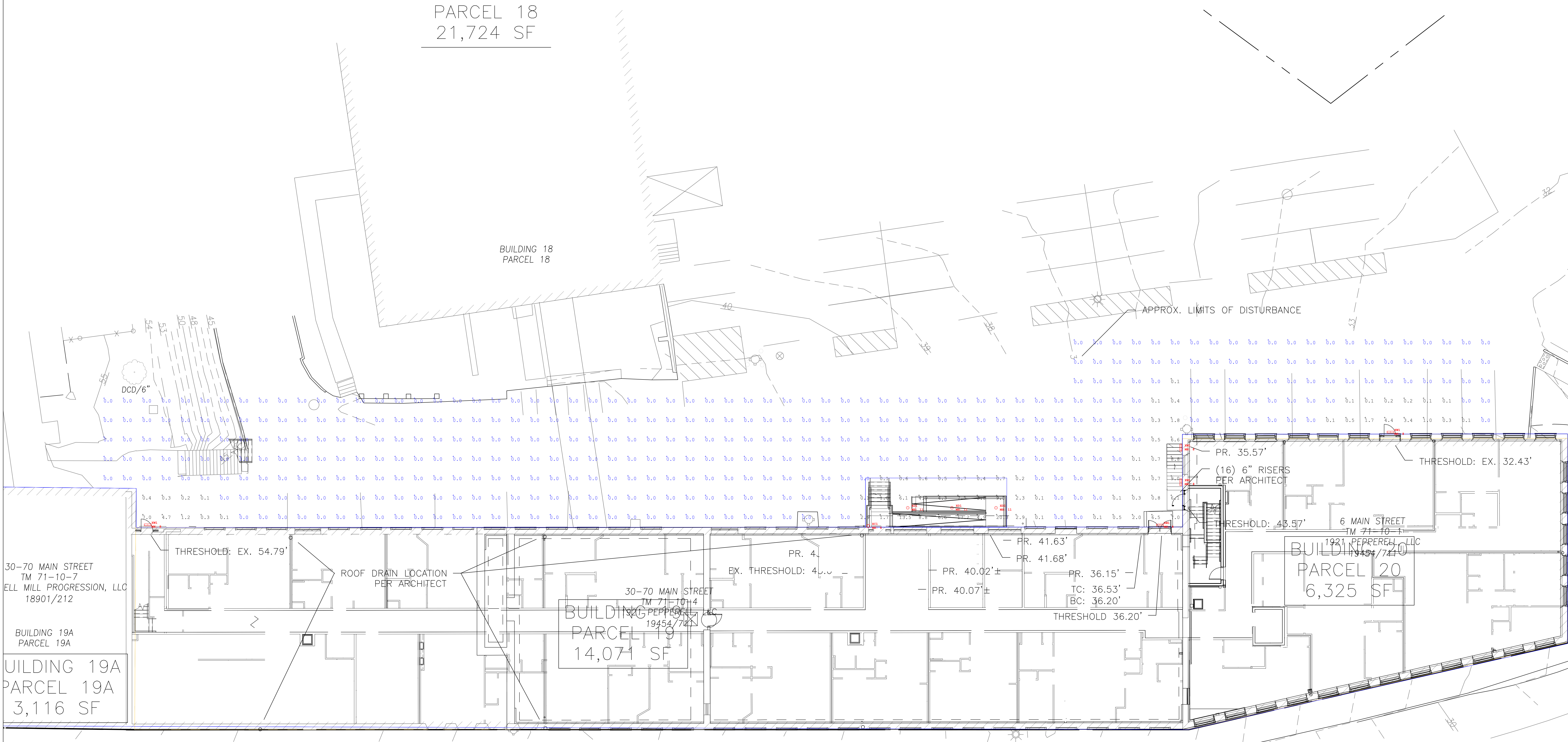
CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize

the sender and know the content is safe.

Section 9: Lighting

Photometric plans and associated cut sheets have been prepared by Illuminate on October 7, 2024, and can be found attached.

PARCEL 18
21,724 SF



Luminaire Schedule					
Qty	Label	Arr. Watts	Arrangement	LLF	Description
1	XC1	10.5	SINGLE	0.900	66655_BEGA_IES
3	XD1	14	SINGLE	0.900	24243K3_BEGA_IES
5	XW1	11	SINGLE	0.900	24218_BEGA_IES

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site	Fc	0.41	20.3	0.0	N.A.	N.A.

Project:
Pepperell Mill - Site

Contact:
Steve Johnson
Applications Specialist
(603) 490-2446
sjohnson@illuminatene.com

Detail: Photometric Calculation
Date: 10/07/2024
Revision:-----
Scale: 1" = 10'-0"
Drawn By: SHJ

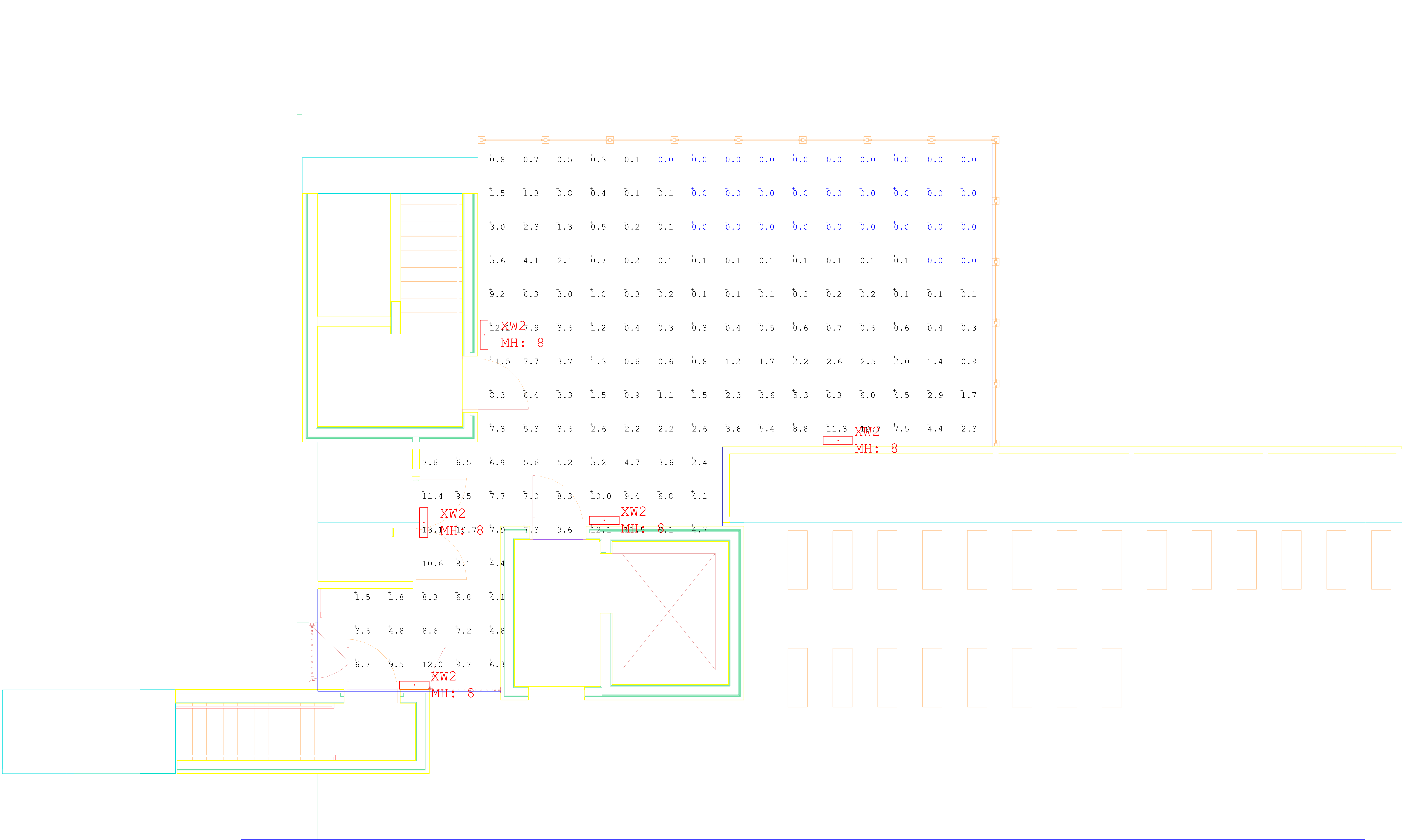
Drawing Number:

L-1

Sheet 1 of 1

illuminatene
263 Winn Street
Burlington, MA 01803
(781) 935-8500
333 Pleasant Valley Road
South Windsor, CT 06074
(860) 282-0597

Page 344 of 528



Luminaire Schedule					
Qty	Label	Arr.	Watts	Arrangement	LLF Description
5	XW2	11		SINGLE	0.900 24218_BEGA_IES

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Roof Deck	Fc	3.22	13.1	0.0	N.A.	N.A.

Project:
Pepperell Mill - Site

Contact:
Steve Johnson
Applications Specialist
(603) 490-2446
sjohnson@illuminatene.com


263 Winn Street
Burlington, MA 01803
(781) 935-8500
333 Pleasant Valley Road
South Windsor, CT 06074
(860) 282-0597

Detail: Photometric Calculation
Date: 10/07/2024
Revision: ---
Scale: 1" = 2'-0"
Drawn By: SHJ

Drawing Number:

L-1

Sheet 1 of 1

Page 345 of 528

Application

Wall luminaires with directed narrow beam light distribution on one side that can be oriented upward or downward. Arranged individually or in groups, they are great design elements for a host of lighting applications.

Materials

Clear safety glass
Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Mechanically captive stainless steel fasteners
High temperature silicone gasket
Pure anodized aluminum reflector

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 4.4 lbs.

Electrical

Operating voltage 120-277V AC
Minimum start temperature -30° C
LED module wattage 7.9W
System wattage 10.5W
Controllability 0-10V dimmable
Color rendering index Ra > 80
Luminaire lumens 652lm
LED service life (L70) 60000 hrs

LED color temperature

- ☐ 4000K (K4)
- ☐ 3500K (K35)
- ☐ 3000K (K3)
- ☐ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish

All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors

- ☐ Black (BLK)
- ☐ Bronze (BRZ)
- ☐ Silver (SLV)
- ☐ White (WHT)
- ☐ RAL:
- ☐ CUS:

Type:

BEGA Product:

Project:

Modified:

Available options

- ☐ AMB Amber LED
- ☐ CUS Custom finish
- ☐ FSC Fusing
- ☐ MGU Marine grade undercoat
- ☐ RAL RAL finish

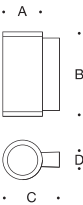
Available accessories

- ☐ B79547 Surface mounted wiring box

See individual accessory spec sheet for details.

Included (available for pre-shipment)

- ☐ B19537 Narrow opening wiring box



Wall luminaire · Narrow beam upward or downward						
	LED	☐	A	B	C	D
B66655	7.9W	20°	4 ³ / ₈	9	6 ³ / ₈	1 ⁵ / ₈



Application

Wall luminaire with symmetric light distribution designed for general illumination of pathways, plazas and building entrances.

Materials

- Clear safety glass with matte finish
- Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
- High temperature silicone gasket
- Mechanically captive stainless steel fasteners
- Silicone applied robotically to casting, plasma treated for increased adhesion
- Galvanized zinc-plated mounting bracket
- Pure anodized aluminum reflector

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 4.0 lbs.

Electrical

- Operating voltage120-277V AC
- Minimum start temperature-30° C
- LED module wattage8.9W
- System wattage11.0W
- Controllability0-10V dimmable
- Color rendering indexRa > 80
- Luminaire lumens989lm
- LED service life (L70)60000 hrs

LED color temperature

- ☐ 4000K (K4)
- ☐ 3500K (K35)
- ☐ 3000K (K3)
- ☐ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish

All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish, a fluoropolymer technology, provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors

- ☐ Black (BLK)
- ☐ Bronze (BRZ)
- ☐ Silver (SLV)
- ☐ White (WHT)
- ☐ RAL:
- ☐ CUS:

Type:

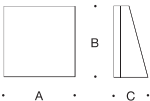
BEGA Product:

Project:

Modified:

Available options

- ☐ CUS
- Custom finish
- ☐ FSC
- Fusing
- ☐ MGU
- Marine grade undercoat
- ☐ RAL
- RAL finish



Wall luminaire · Symmetric					
		LED	A	B	C
B24218	ADA	8.9W	8	8	3¾



Application
Wall luminaire with symmetric light distribution designed for general illumination of pathways, plazas and building entrances.

Materials
Clear safety glass with matte finish
Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
High temperature silicone gasket
Mechanically captive stainless steel fasteners
Silicone applied robotically to casting, plasma treated for increased adhesion
Galvanized zinc-plated mounting bracket
Pure anodized aluminum reflector

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 4.0 lbs.

Electrical
Operating voltage 120-277V AC
Minimum start temperature -30° C
LED module wattage 8.9W
System wattage 11.0W
Controllability 0-10V dimmable
Color rendering index Ra > 80
Luminaire lumens 989lm
LED service life (L70) 60000 hrs

LED color temperature
☐ 4000K (K4)
☐ 3500K (K35)
☐ 3000K (K3)
☐ 2700K (K27)

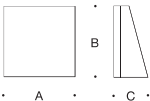
BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish, a fluoropolymer technology, provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors
☐ Black (BLK) ☐ Bronze (BRZ)
☐ Silver (SLV) ☐ White (WHT)
☐ RAL: ☐ CUS:

Type:
BEGA Product:
Project:
Modified:

Available options
☐ CUS Custom finish
☐ FSC Fusing
☐ MGU Marine grade undercoat
☐ RAL RAL finish



Wall luminaire · Symmetric					
		LED	A	B	C
B24218	ADA	8.9W	8	8	3 ³ / ₄



Application

Recessed downlight with a symmetric wide beam distribution. These luminaires are designed for down lighting atriums, canopies, passages, and other interior and exterior locations.

Materials

- Clear safety glass
- Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
- Silicone applied robotically to casting, plasma treated for increased adhesion
- Stainless steel screw clamps
- High temperature silicone gasket
- Aluminum ceiling mounted driver box
- Pure anodized aluminum reflector surface
- Silicone optic with excellent high temperature and UV stability
- BEGA Hybrid Optics®

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 1.8 lbs.

Electrical

- Operating voltage120-277VAC
- Minimum start temperature-20° C
- LED module wattage12.3 W
- System wattage14.0 W
- Controllability0-10V dimmable
- Color rendering indexRa > 90
- Luminaire lumens1241 lm
- LED service life (L70)60000 hrs

LED color temperature

- 4000K (K4)
- 3500K (K35)
- 3000K (K3)
- 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish

All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors

- Black (BLK)
- Silver (SLV)
- RAL:
- Bronze (BRZ)
- White (WHT)
- CUS:

Type:

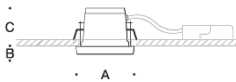
BEGA Product:

Project:

Modified:

Available options

- CUS Custom finish
- DALI-2 Digital addressable lighting interface
- ELV/TRIAC Electronic low voltage/TRIAC dimming
- FRO Frosted lens
- FSC Fusing
- MGU Marine grade undercoat
- RAL RAL finish



Downlight · Wide beam					
	LED	□	A	B	C
B24243	12.3 W	32°	4 ³ / ₈	0 ⁵ / ₈	2 ³ / ₄



Section 10: Solid Waste

The property management company or owner shall be responsible for managing and contracting with a private hauler to remove solid waste. The expectation is that solid waste would be collected as needed by the private hauler. All solid waste containers are anticipated to be located externally and will be screened from view.



Section 11: Waivers

The project does propose the following Waivers.

- 1.) The project proposes a waive the Stormwater Requirement from the City of Biddeford Land Development Regulations Part III – Article XI – Section 5.B.1 Drainage.
 - a. The project does not propose to alter the existing watershed or adversely impact the existing sites runoff conditions (including downstream impacts).



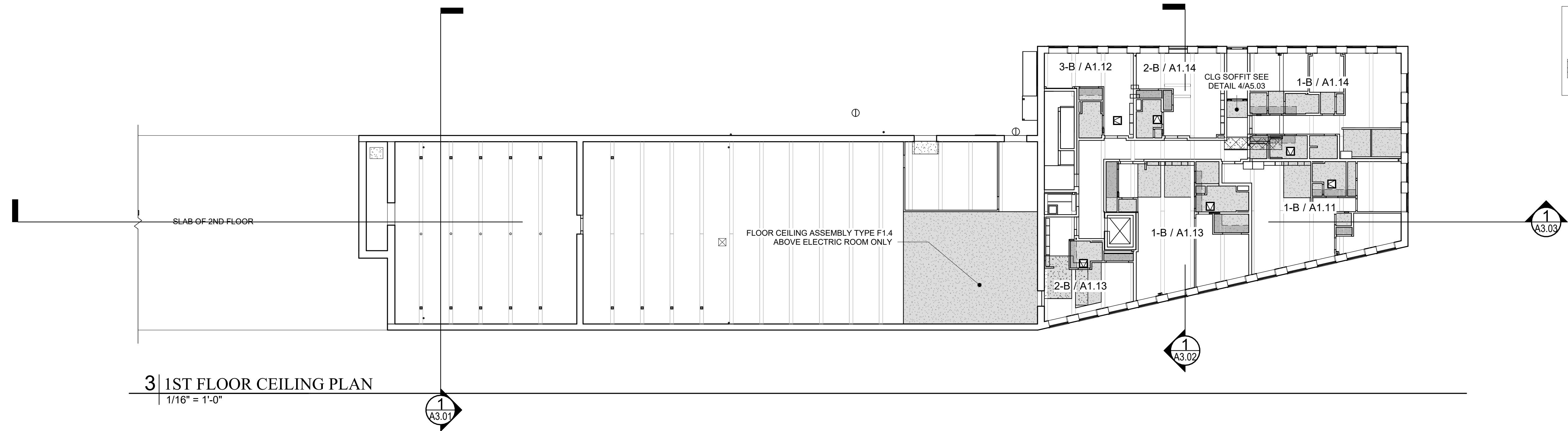
BUILDING 19 BASEMENT - +/- 9,320 SF
BUILDING 20 - +/- 6,423 SF

RCP LEGEND

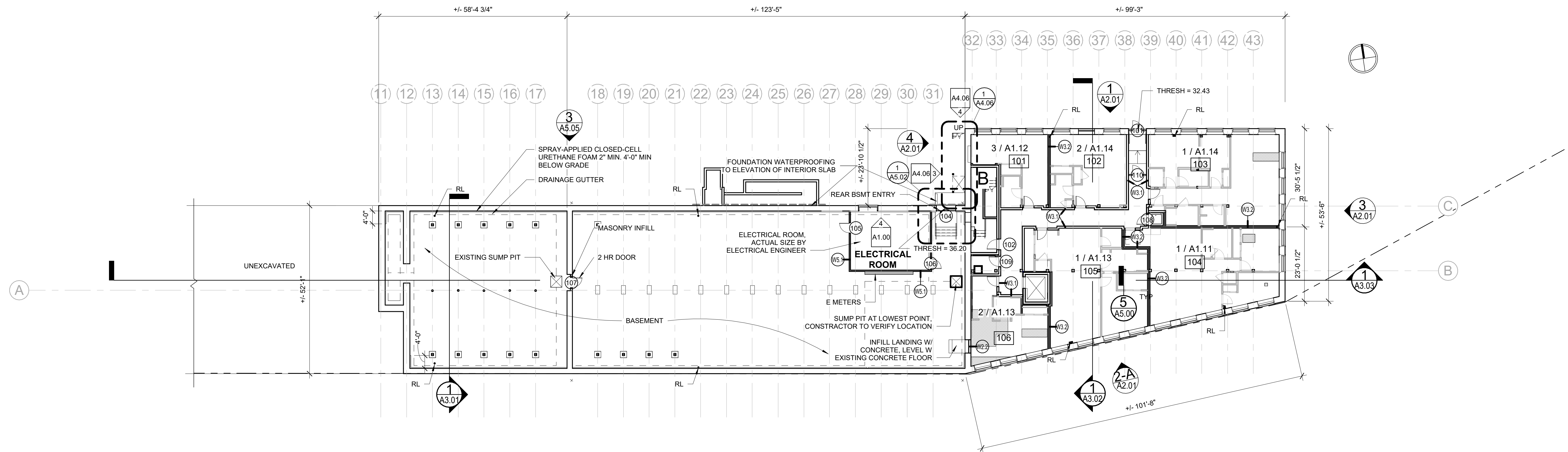
- | | |
|---|---|
|  | GWB CEILING IN BATHROOMS AND CLOSETS (SUSPENDED ON 1ST FLOOR ONLY) SEE SECTION FOR CEILING HEIGHT |
|  | SHELF ABOVE CEILING PLATFORM |
|  | CEILING INFILL |

FLOOR PLAN LEGEND

- FLOOR INFILL



3 | 1ST FLOOR CEILING PLAN



1	1ST FLOOR PLAN(6 UNITS)
	1/16" = 1'-0"

Prepared For:

1921 Pepperell,
LLC

2 MAIN STREET, SUITE 17-301-E
BIDDEFORD, ME 04005

Consultant:

Architect:

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LACONIA

5 MAIN STREET
BIDDEFORD, ME 04005

Submission for Review by
Biddeford HP

Revisions:	3	10/09/24
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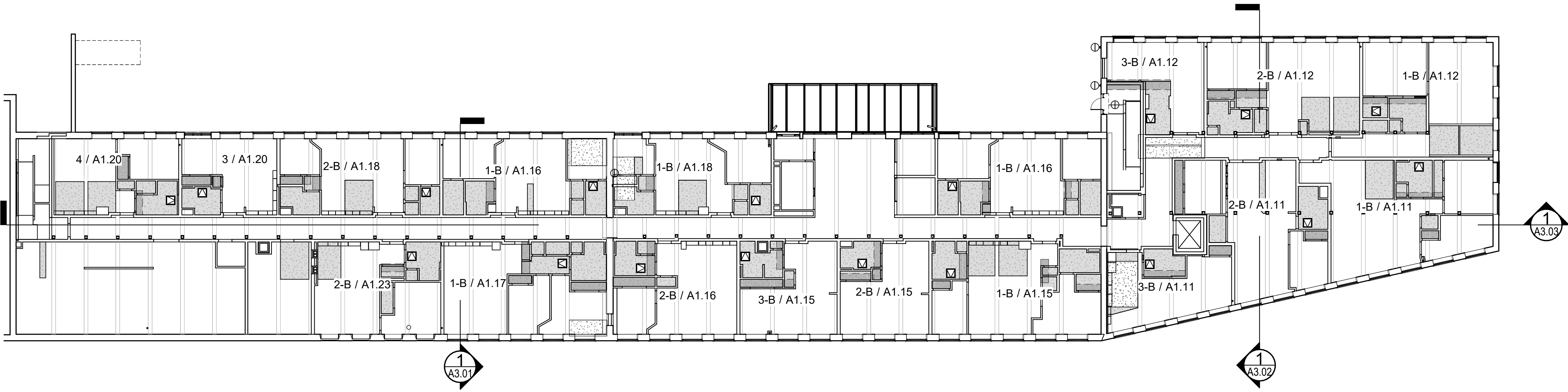
As indicated

10-09-2024

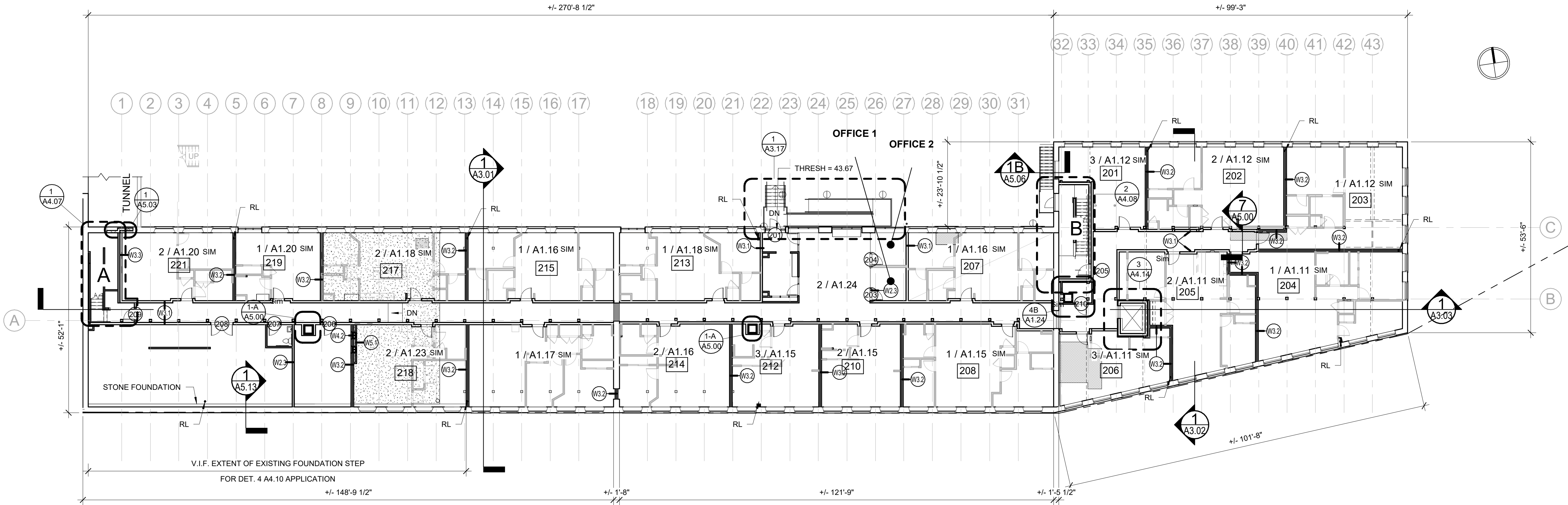
1ST FLOOR PLAN

A1.01

BUILDING 19 - +/- 14,098 SF
BUILDING 20 - +/- 6,423 SF



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



1 | 2ND FLOOR PLAN(18 UNITS)
1/16" = 1'-0"

RCP LEGEND

GWB CEILING IN BATHROOMS AND CLOSETS (SUSPENDED ON 1ST FLOOR ONLY) SEE SECTION FOR CEILING HEIGHT

SHELF ABOVE CEILING PLATFORM

CEILING INFILL

FLOOR PLAN LEGEND

FLOOR INFILL

FLOOR TYPE F1.2

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Address
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Project:
2ND FLOOR PLAN

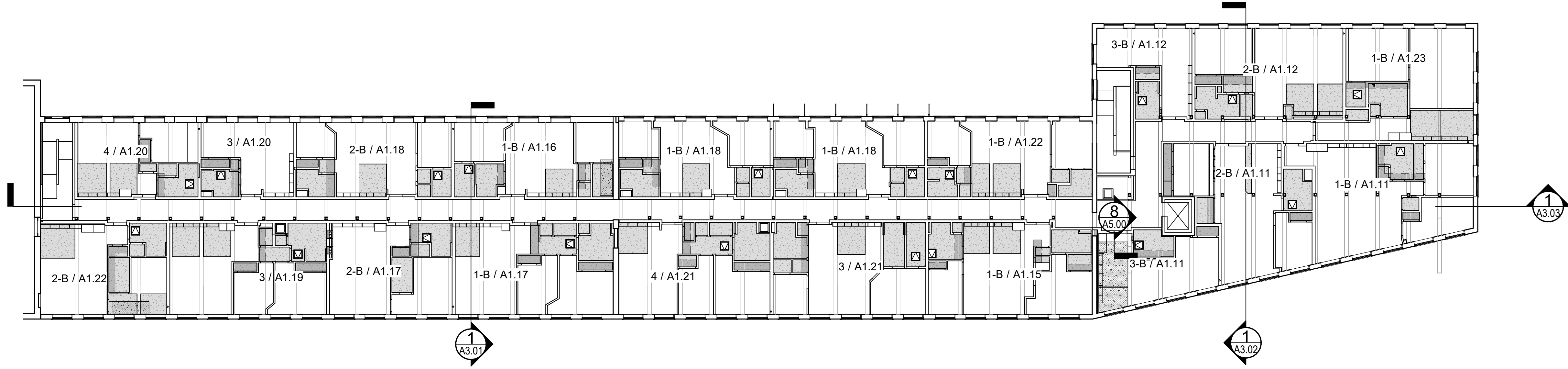
Date:
10-09-2024

Scale:
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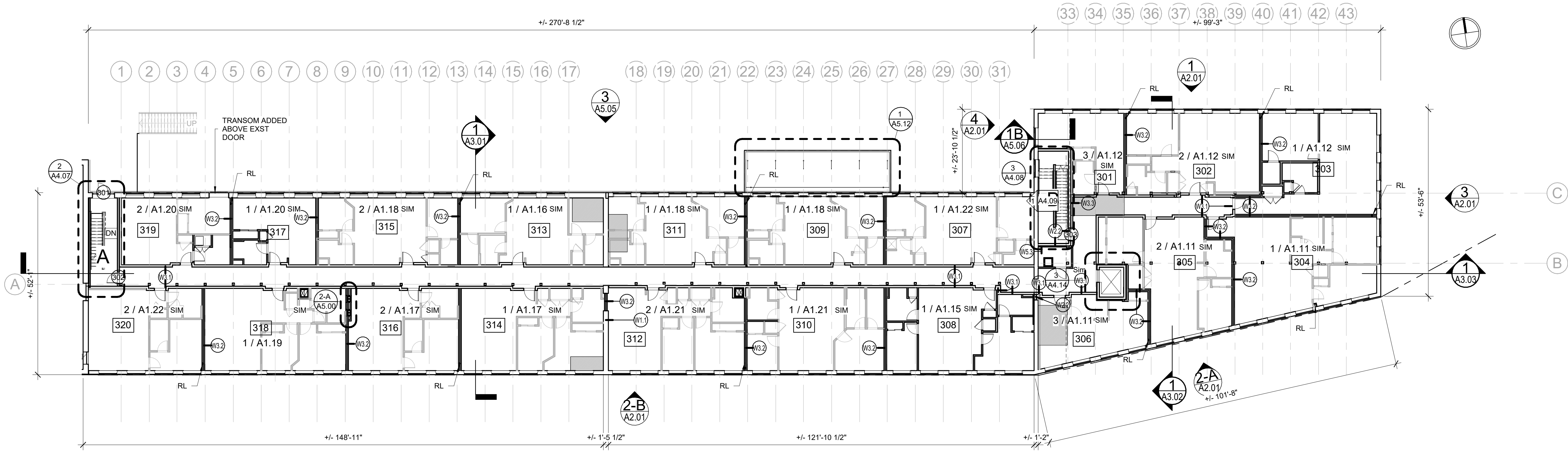
Revisions:
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A1.02

BUILDING 19 - +/- 14,098 SF
BUILDING 20 - +/- 6,423 SF



2 | 3RD FLOOR CEILING PLAN
1/16" = 1'-0"



1 | 3RD FLOOR PLAN(20 UNITS)
1/16" = 1'-0"

RCP LEGEND

- GWB CEILING IN BATHROOMS AND CLOSETS (SUSPENDED ON 1ST FLOOR ONLY) SEE SECTION FOR CEILING HEIGHT
- SHELF ABOVE CEILING PLATFORM
- CEILING INFILL

FLOOR PLAN LEGEND

- FLOOR INFILL

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Scale:
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3RD FLOOR PLAN

A1.03

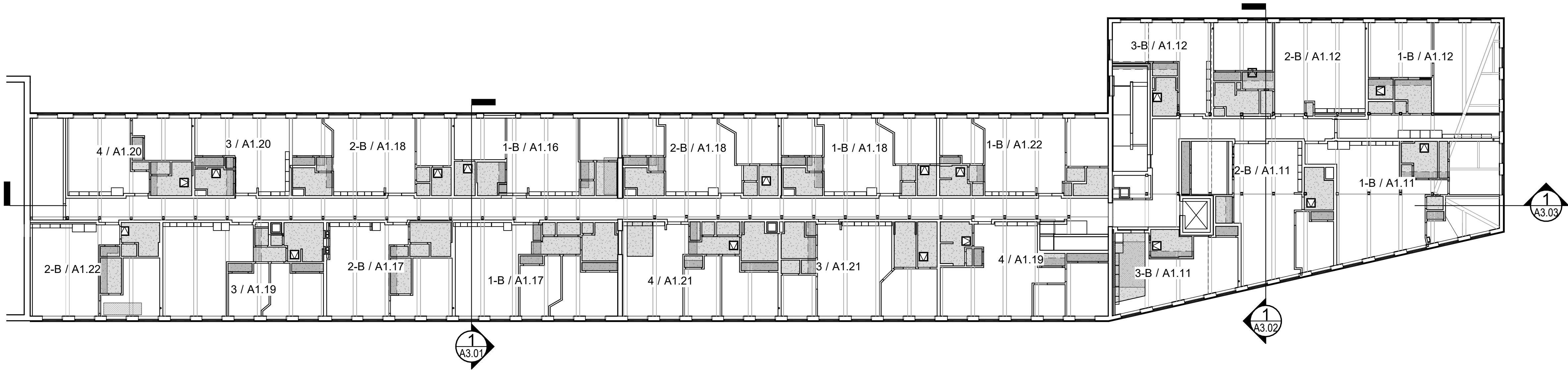
BUILDING 19 - +/- 14,098 SF
BUILDING 20 - +/- 6,423 SF

RCP LEGEND

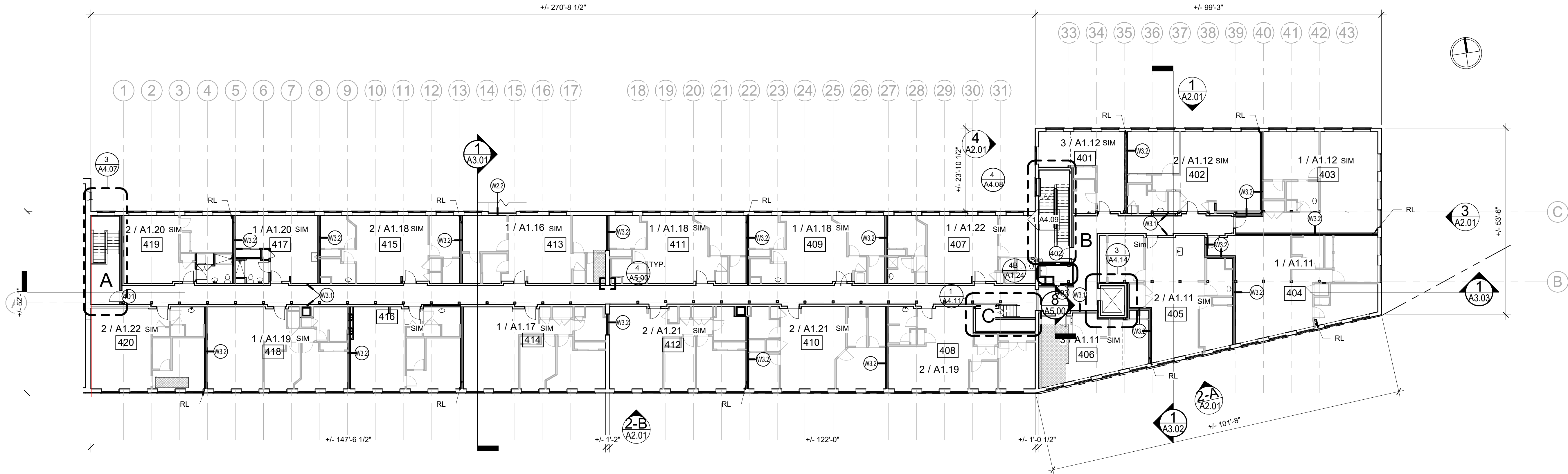
GWB CEILING IN BATHROOMS AND CLOSETS (SUSPENDED ON 1ST FLOOR ONLY) SEE SECTION FOR CEILING HEIGHT

SHELF ABOVE CEILING PLATFORM

CEILING INFILL



1 | 4TH FLOOR CEILING PLAN
1/16" = 1'-0"



2 | 4TH FLOOR PLAN(20 UNITS)
1/16" = 1'-0"

Prepared For:
1921 Pepperell,
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Consultant:

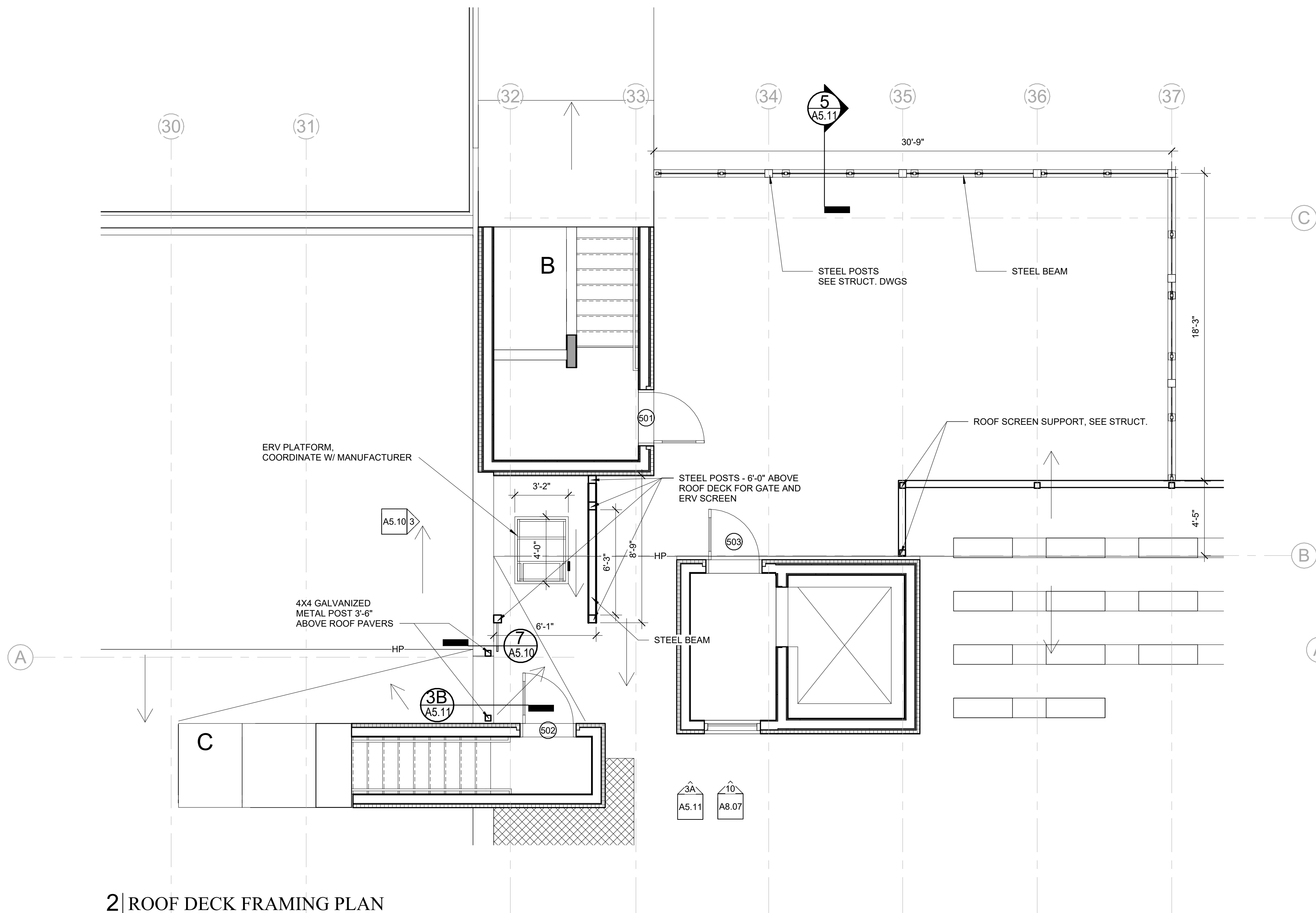
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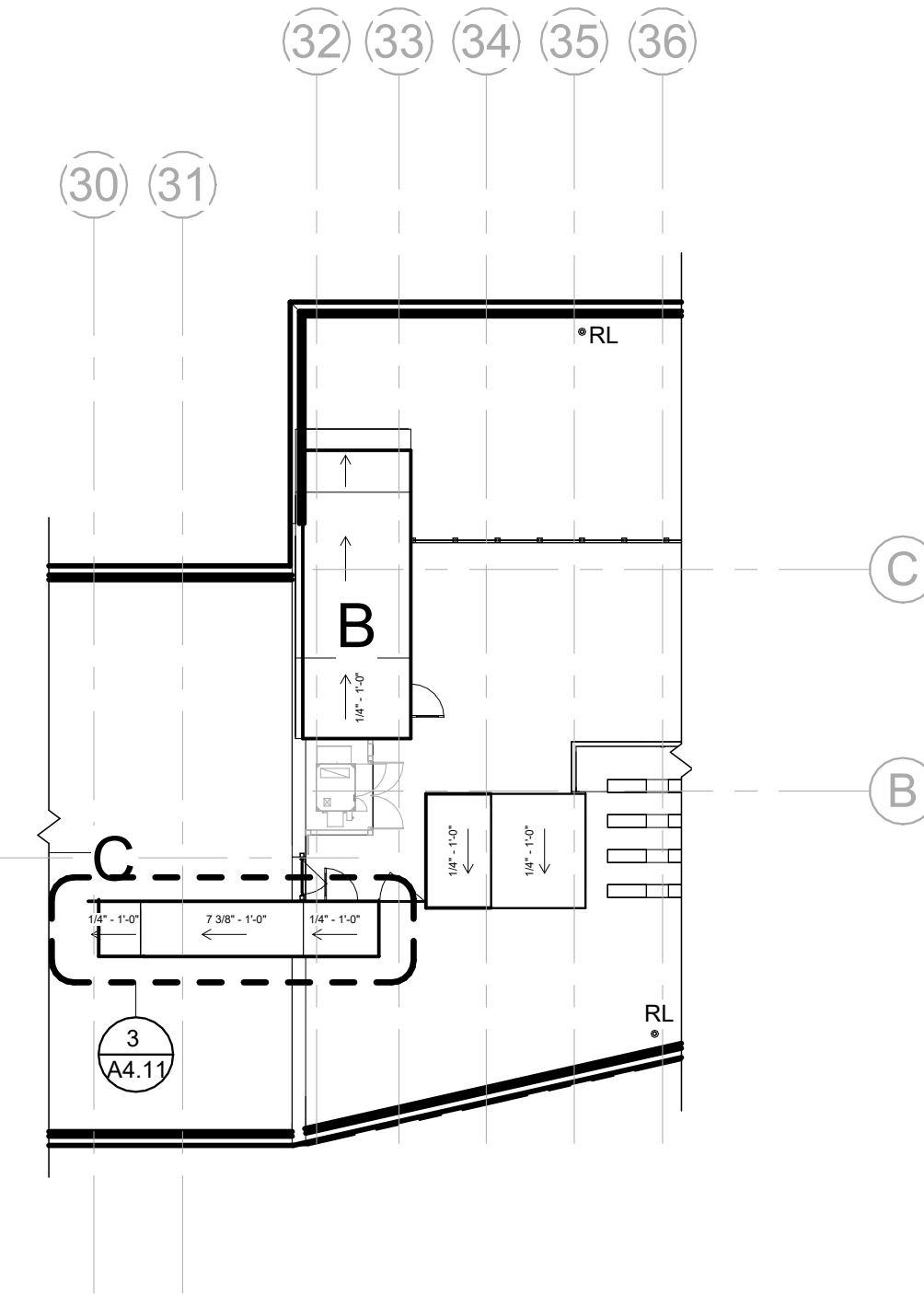
Revisions:
1 08/05/24 Submission for Review by
NPS

Date:
10-09-2024
Scale:
As indicated
4TH FLOOR PLAN

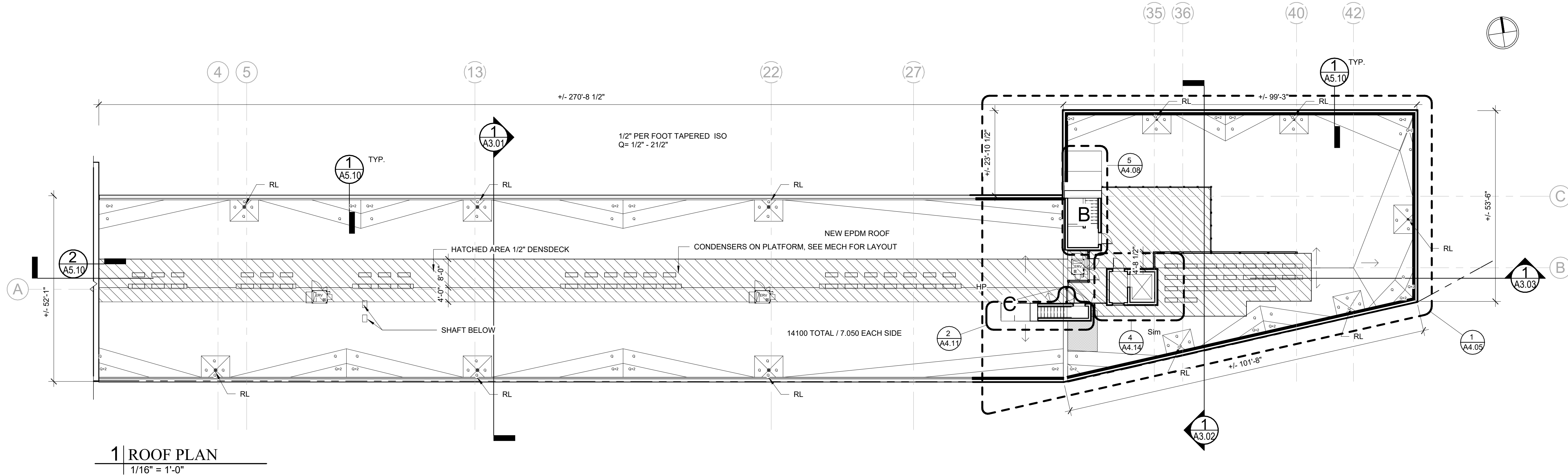
A1.04



2 ROOF DECK FRAMING PLAN
1/4" = 1'-0"



3 UPPER ROOF PLAN
1/16" = 1'-0"



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

FLOOR PLAN LEGEND

FLOOR INFILL

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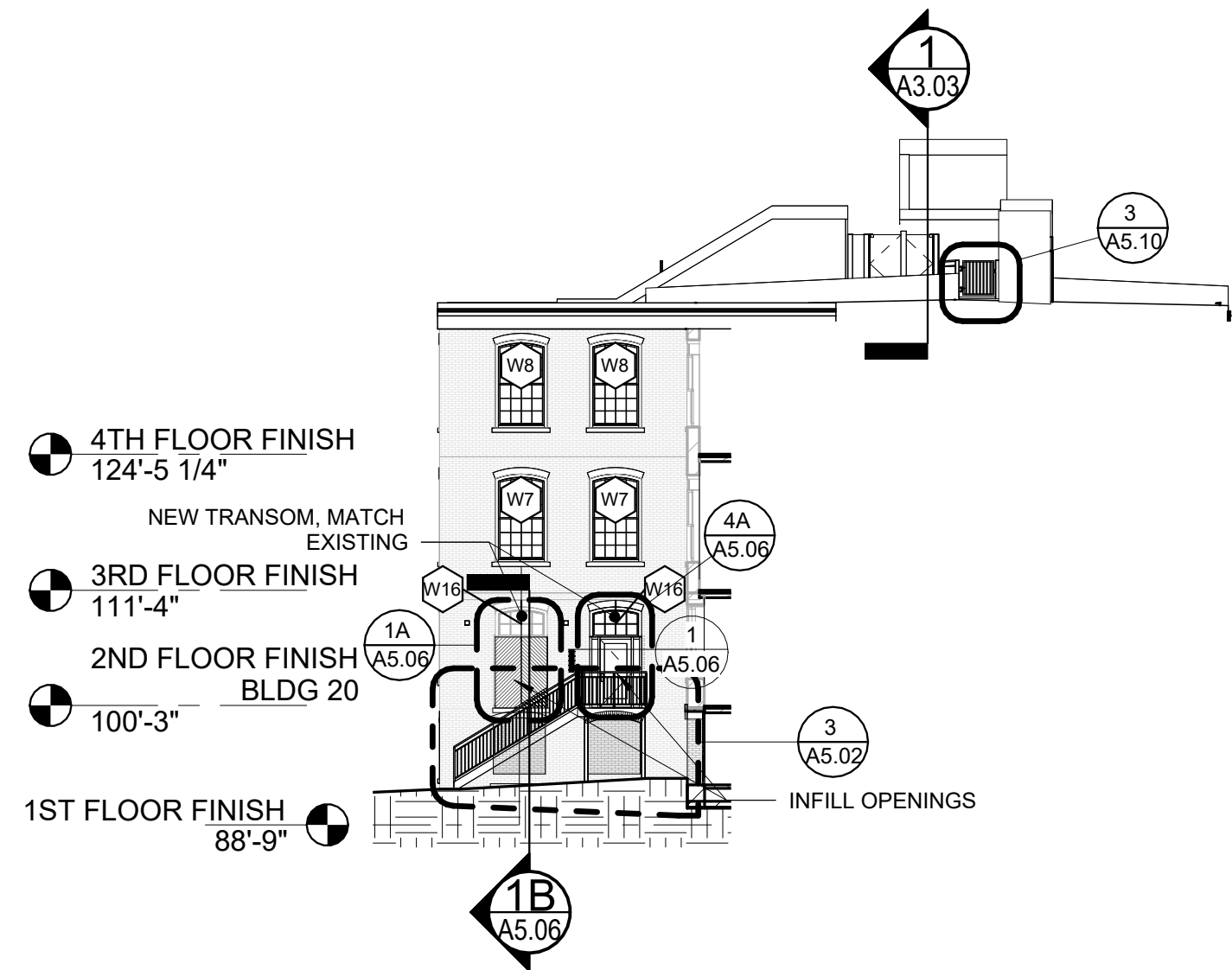
Project:
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BIDDEFORD, ME 04005

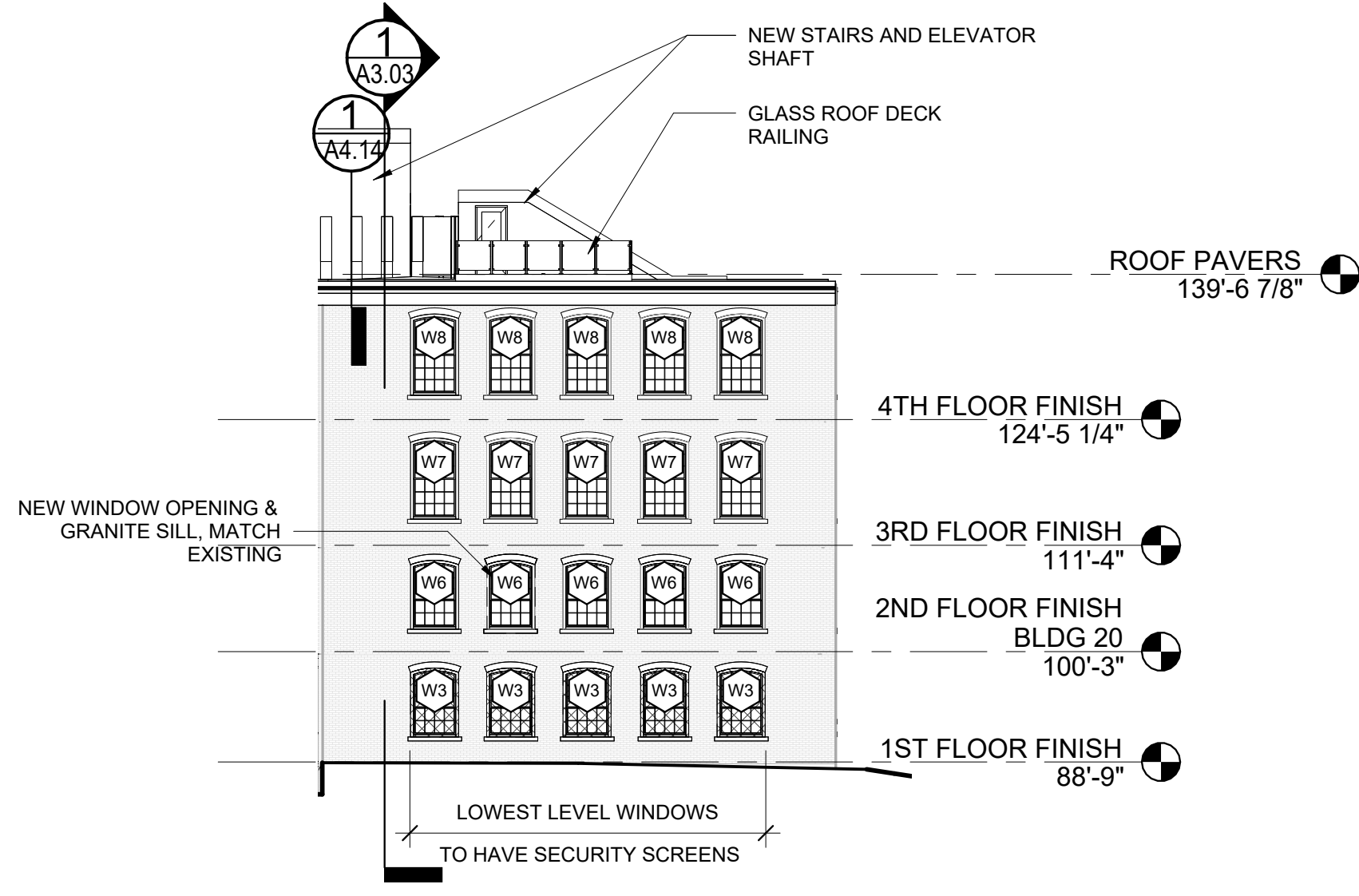
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Date: 10-09-2024
Scale: As indicated
ROOF PLAN

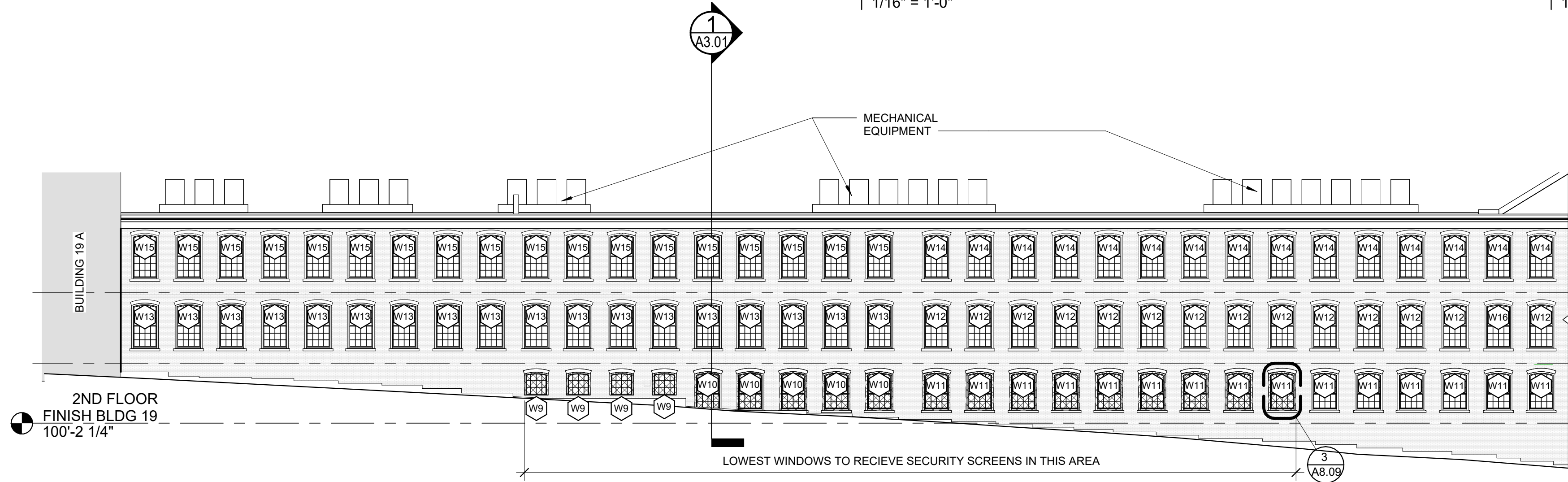
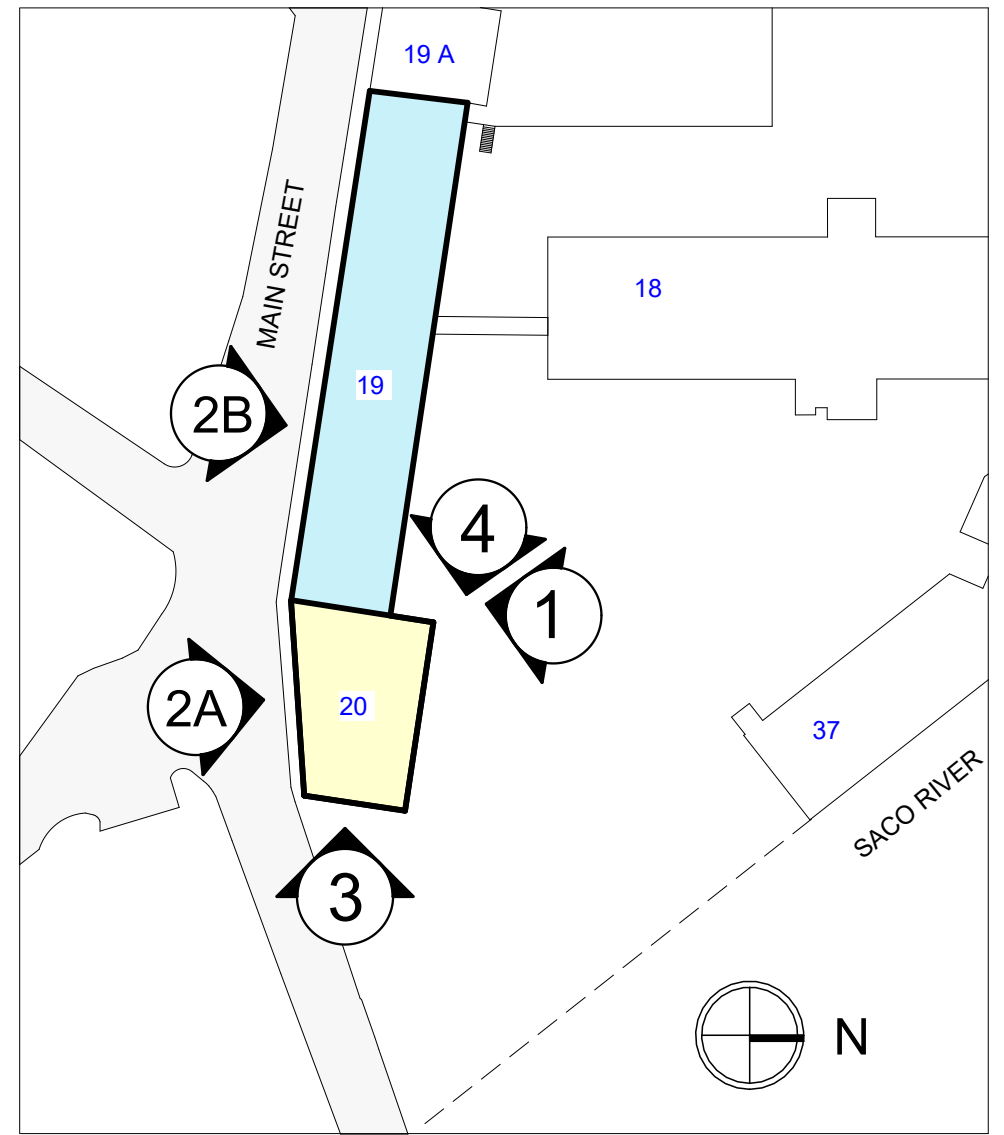
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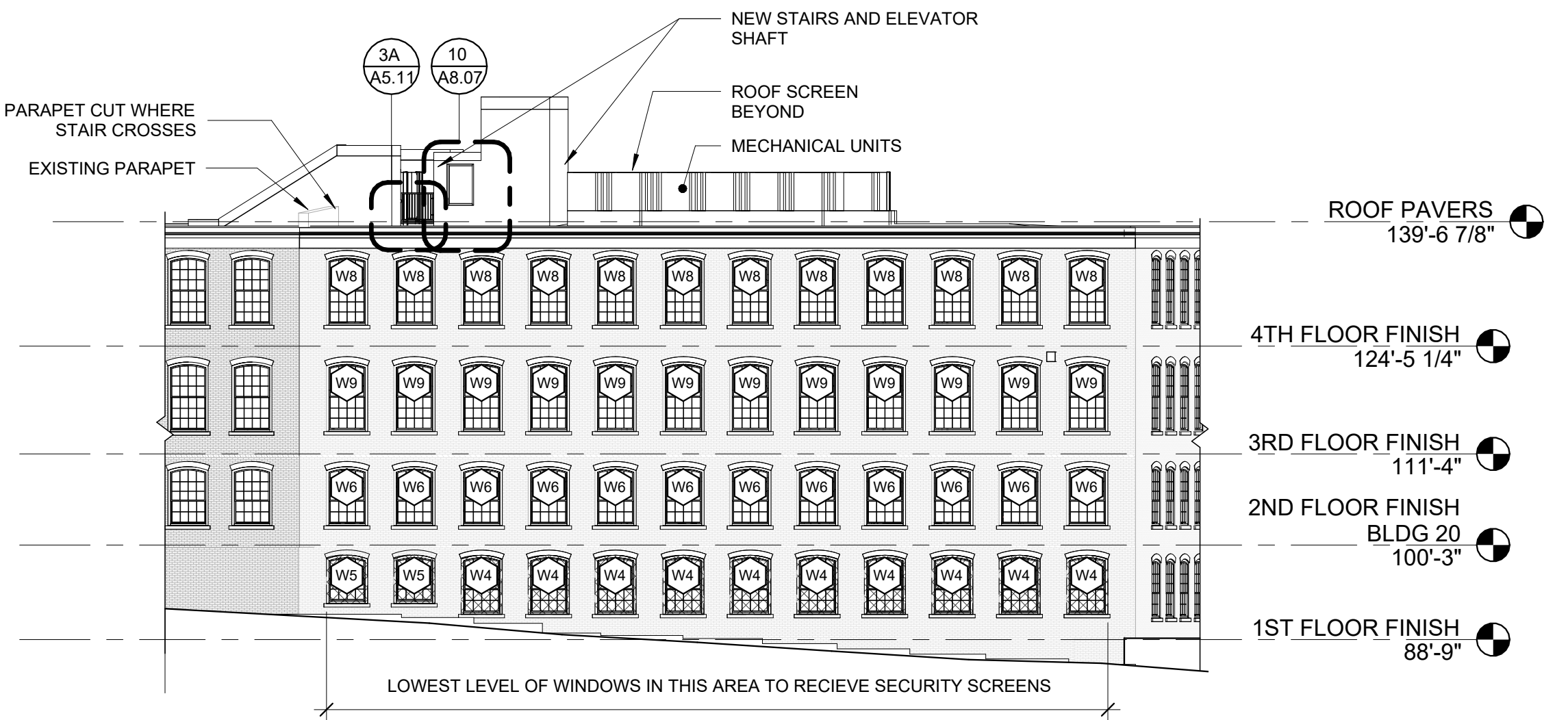
4 | BUILDING 20 WEST ELEVATION
1/16" = 1'-0"



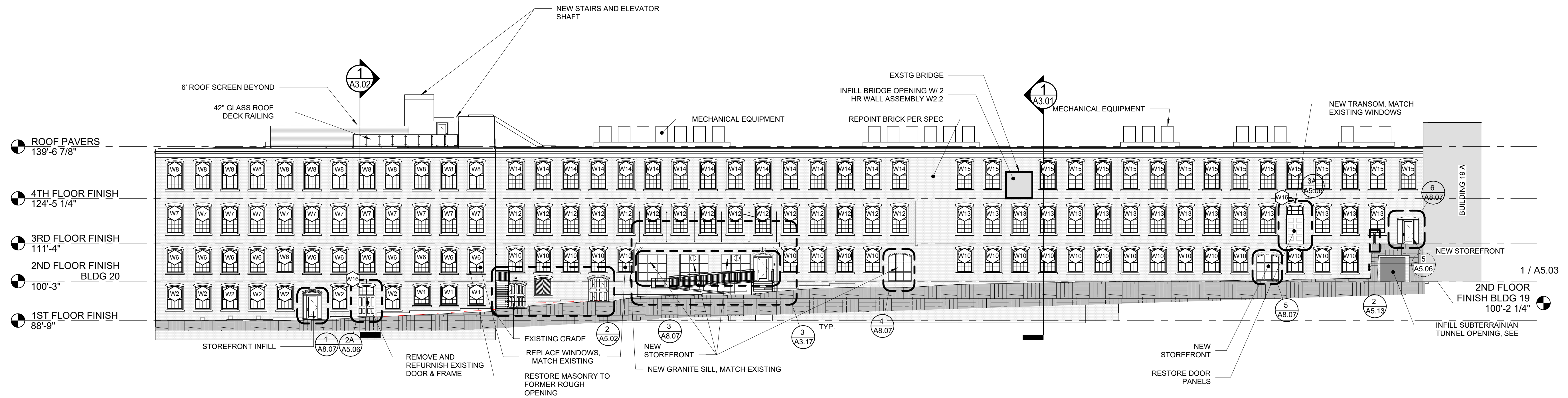
3 | BUILDING 20 EAST ELEVATION
1/16" = 1'-0"



2-B | BUILDING 19 SOUTH ELEVATION
1/16" = 1'-0"



2-A | BUILDING 20 SOUTH ELEVATION
1/16" = 1'-0"



1 | BUILDINGS 19&20 NORTH ELEVATION
1/16" = 1'-0"

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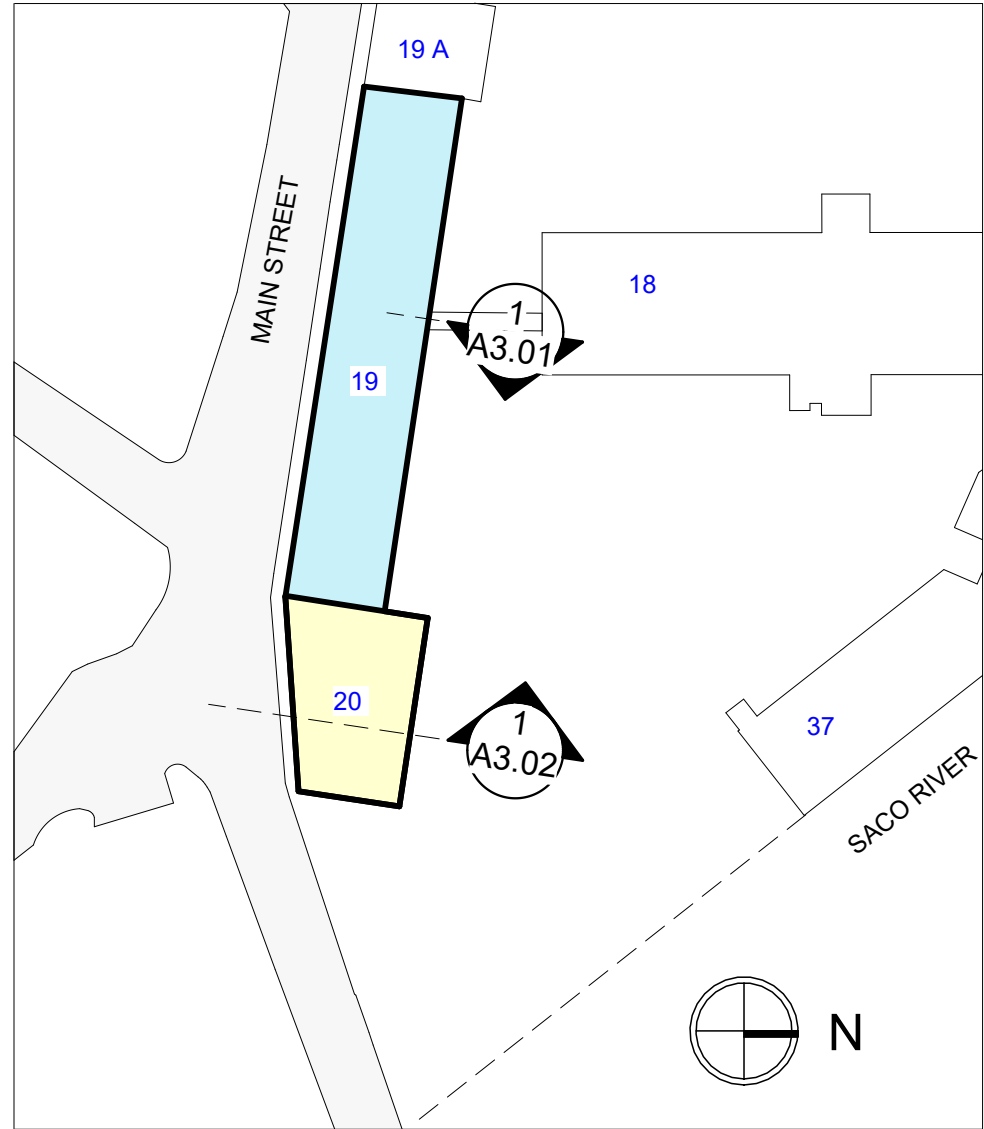
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3 10/09/24 Submission for Review by
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Date:
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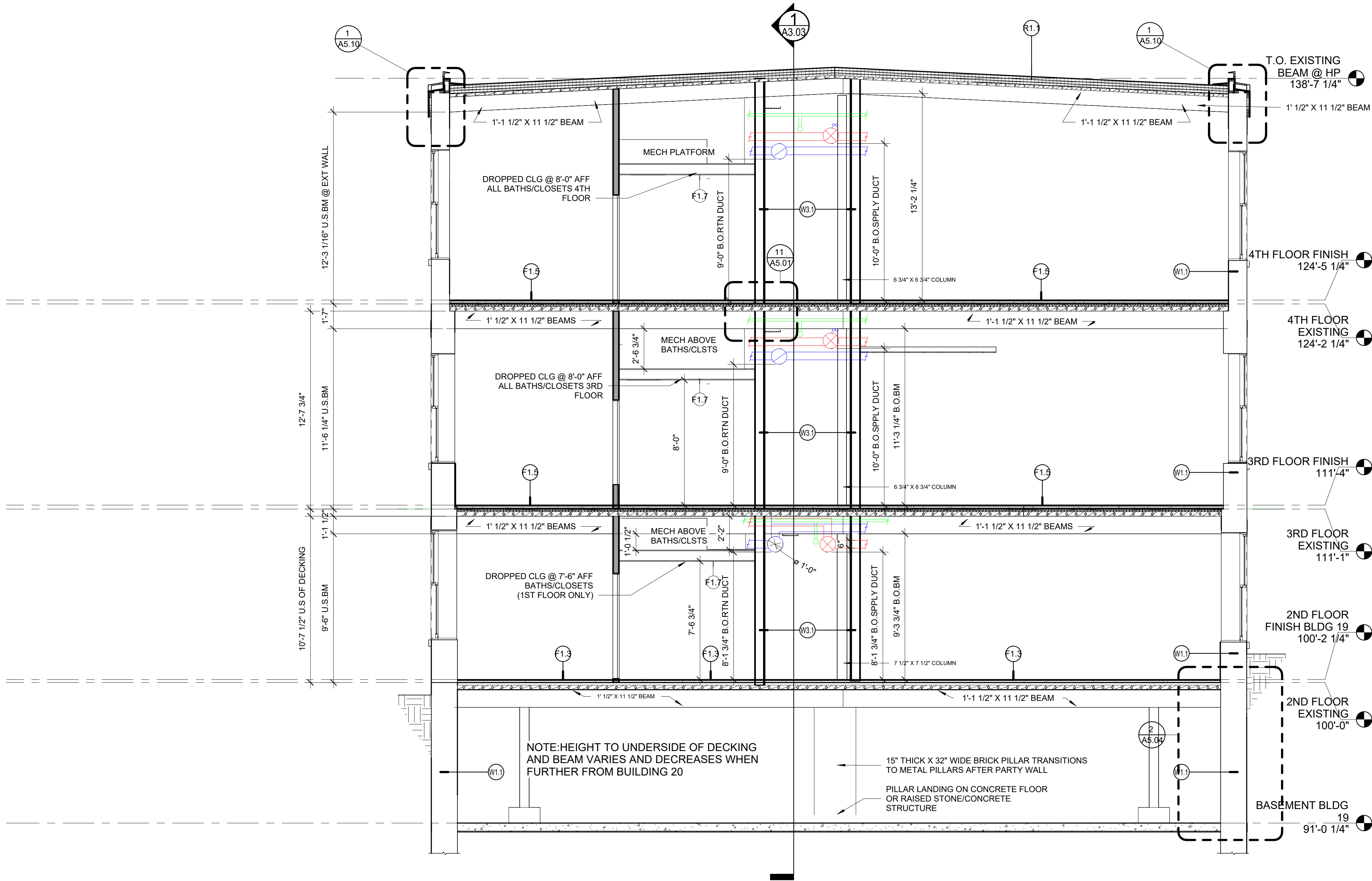
Scale:
As indicated

**BUILDING
ELEVATIONS**

A2.01



KEY PLAN



1 | TYP BLDG SECTION - BLDG 19
1/4" = 1'-0"

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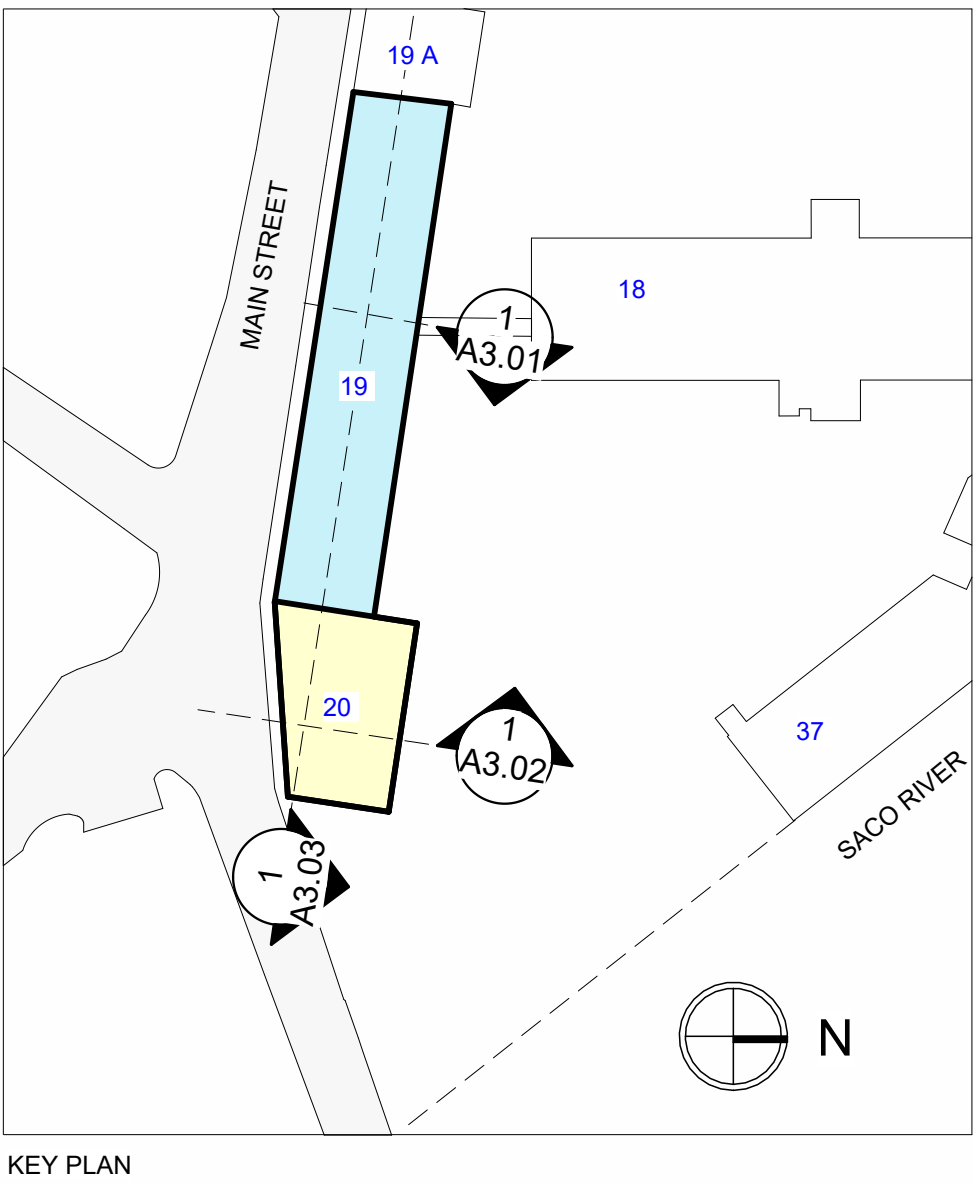
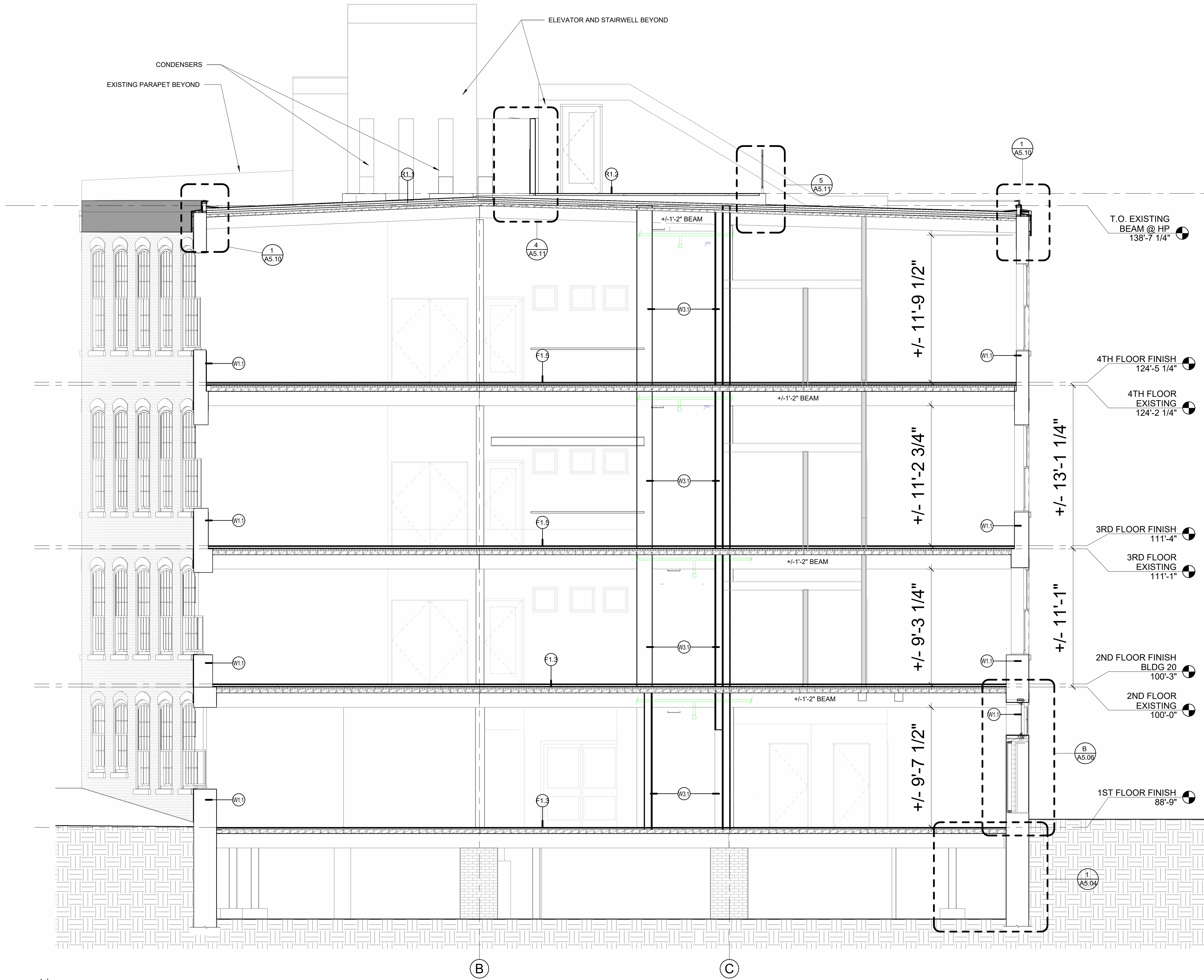
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Date:
10-09-2024
Scale:
As indicated
BUILDING SECTION

A3.01



1 | NEW BLDG SECTION - BLDG 20
1/4" = 1'-0"

Prepared For:
1921 Pepperell,
LLC

Consultant:

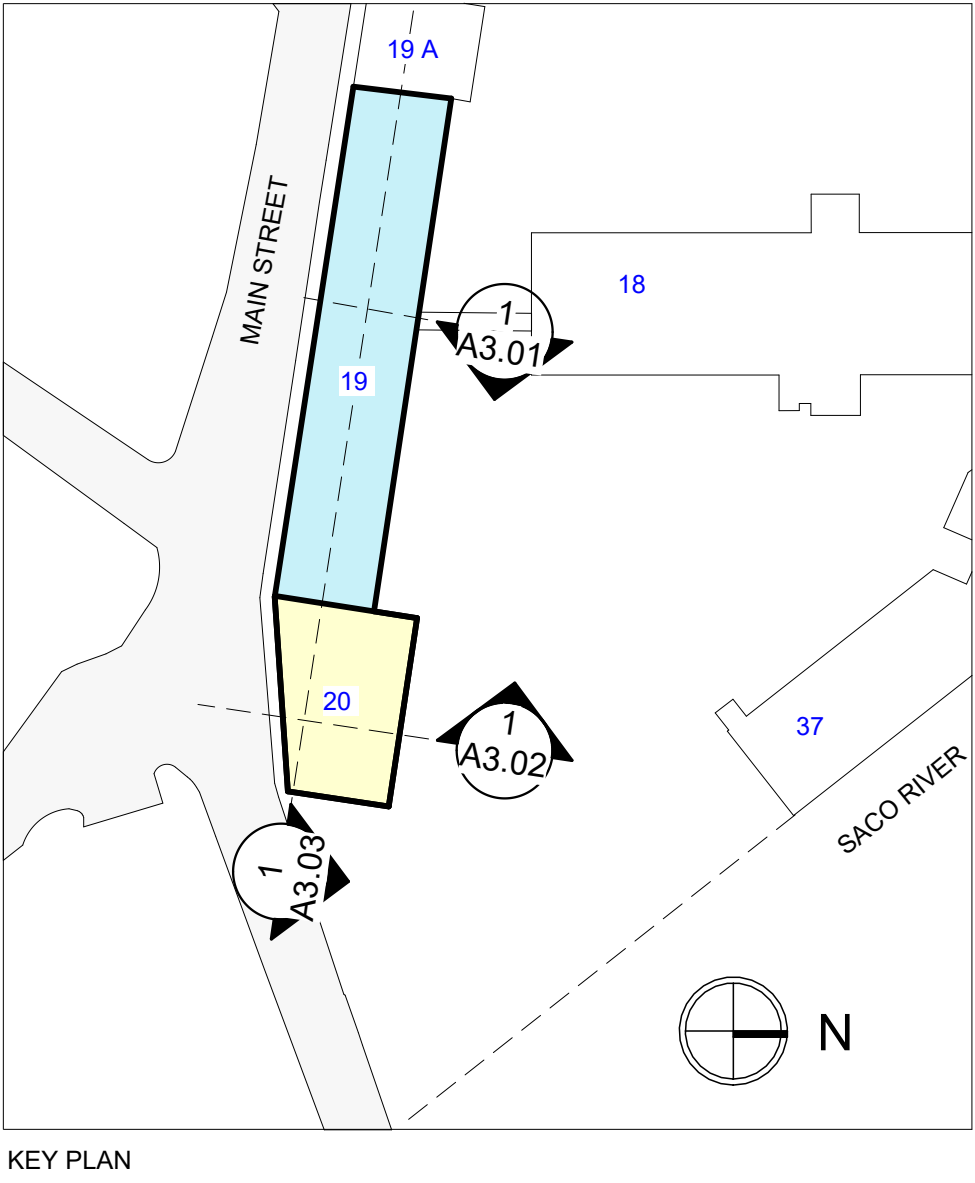
Architect:
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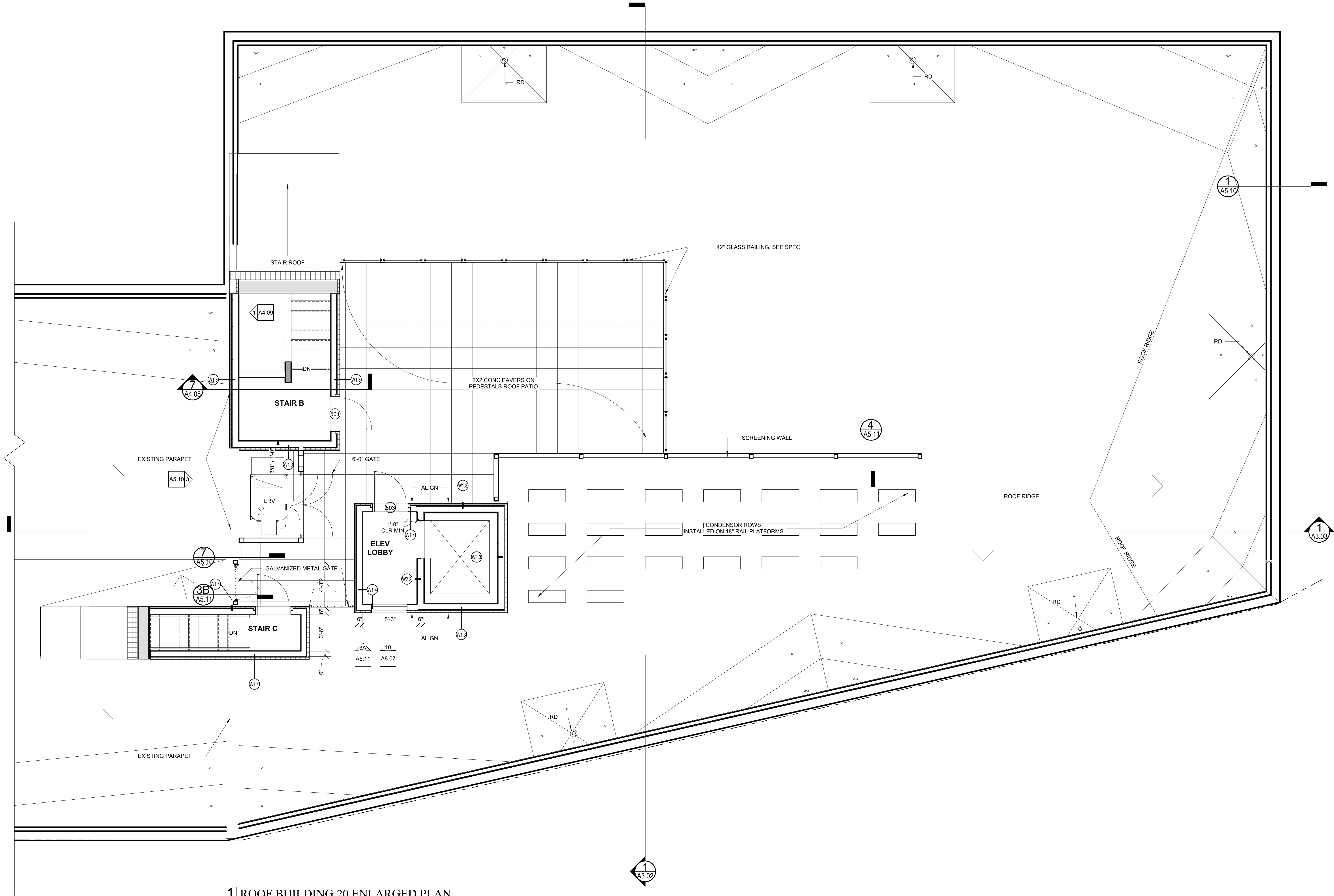
Project:
LACONIA

Revisions:
1 08/05/24 Submission for Review by
NPS

Date:
10-09-2024
Scale:
As indicated
BUILDING SECTION

A3.02





1 | ROOF BUILDING 20 ENLARGED PLAN
1/4" = 1'-0"

Date: 10-09-2024		Scale: 1/4" = 1'-0"		Revisions: 1 08/05/24 Submission for Review by NPS		Project: LACONIA		Architect: ARCHETYPE ARCHITECTS 48 Union Wharf Portland, Maine 04101 (207) 772-6022 ARCHETYPE@ARCHETYPEDPA.COM		Consultant:		Prepared For: 1921 Pepperell, LLC	
ROOF BUILDING 20 ENLARGED PLAN				A4.05									

CODE SUMMARY

Applicable Codes

- MUBEC - Maine Uniform Building and Energy Code
- 2015 International Building Code - IBC
- 2015 International Existing Building Code - Level 3 Alteration
- 2015 IECC: International Energy Conservation Code
- 2015 International Mechanical Code
- 2021 Uniform Plumbing Code
- 2018 NFPA 101 Life Safety

Accessibility Codes

- State of Maine Human Rights Act
- 2010 ADAAG Americans with Disabilities Act
- ICC ANSI 117.1 Accessible and Usable Buildings and Facilities
- 2015 MUBEC - Chapter 11

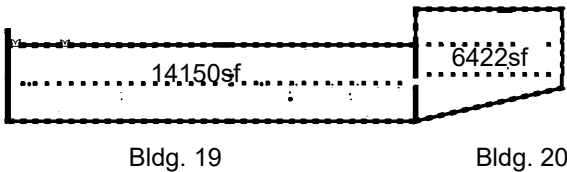
PROJECT SUMMARY:

Overview

Conversion of 2 currently vacant historic mill buildings into an R-2. The mill complex had been a textile manufacturer and a probable F-1 moderate hazard industrial use. The design will be reviewed by the National Park Service.

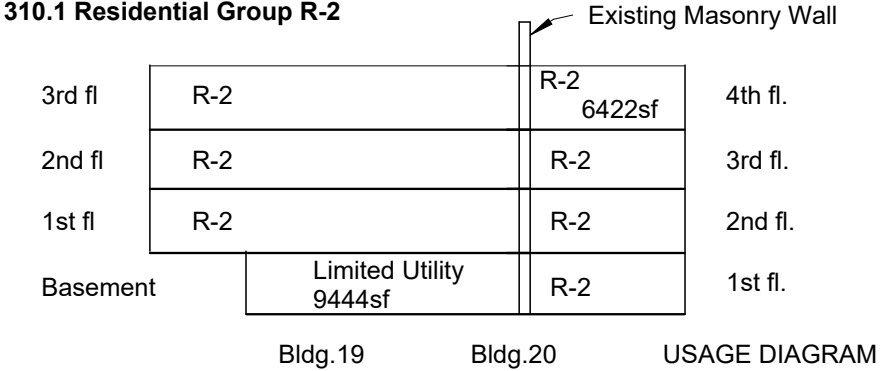
Gross Building Area: Note buildings 19 and 20 will be combined into 1 building

1st Floor: (R-2):	12,850 s.f.
2nd Floor: (R-2):	20,522 s.f.
3rd Floor: (R-2):	20,522 s.f.
4th Floor: (R-2):	20,522 s.f.
Roof Deck: (R-2):	735 s.f.
Total Square Footage:	75,151 s.f.



Chapter 3- Use and Occupancy Classification Mixed Use

310.1 Residential Group R-2



Chapter 5- General Building Heights and Areas

Max Building Height = 60'

Chapter 5- General Building Heights and Areas

Table 504.3 Allowable Heights and Areas

Residential Group R-2
Type 3B Construction 13R - 4 stories . 60 feet 16,000 SF w/ 13Red

Exist hgt. 50' +/- @ 20ED

Exist. Stories - 3@ 19, 4@20

Exist. Area - 20,522 sf. **Note : see area increase w/ perimeter**

ALLOWABLE AREA INCREASE CALCULATION:

506.2.3

Aa = (A1+(NS x I1) x Sa = (16000 SF +(16000 SF x 0.68) x 4 = **26,880**

4 floors x 26880 + 107,520 SF

506.3

If = (F/P-0.25)W/30 = (819'-9 1/2" / 871'-10 1/2" - 0.25) 29'-11 1/2" / 30'-0" = 0.69 x 0.99 = 0.68

506.3.2

W = (L1 x W1 + L2 x W2 +...)/F = (270'-10"x30'-0" + 101'-7 1/2"x30'-0" + 53'-6"x30'-0" + 99'-3"x30'-0" + 23'-10 1/2"x30'-0" + 122'-7"x30'-0" + 148'-1 1/2"x29'-9")/819-9 1/2" = 29'-11 1/2"

Chapter 6- Types of Construction

Table 601 - Fire Resistance Ratings for Building Elements

Building Element	Type 3B
Primary Structural Frame	0 hour
Bearing Walls	
Exterior Walls	2 hours
Interior Walls	0 hour-(Note int. Bearing Wall
Non-Bearing Walls and Partitions, Exterior	(See Table 602)
Non-Bearing Walls and Partitions, Interior	0 hour
Floor Construction and Secondary Members	0 hour Note: floor rated 1 hour by char calc 0 hour-NA

Roof Construction and Secondary Members 0 hour

Table 602- Fire Resistance Rating Requirements For Exterior Walls Based on Fire Separation Distance (non-loadbearing walls)

All exterior walls 2 hours

Chapter 7 - Fire and Smoke Protection Features

Table 705.8 Maximum Area of Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Dist.	Degree of Opening Protection	Allowable Area
Note: Closest building is #18. Closest point is +/- 51.5'. 51.5' /2+ 26.25'		
25' to less than 30'	Unprotected, Sprinklered	No Limit
30' or greater	Unprotected, Sprinklered	Not Required

705.8.5 Vertical Separation of Openings

Not Required, Exception NO. 2, Automatic Sprinkler System in Accordance with 903.3.1.1

T 706.4 Fire Wall Fire-Resistance Ratings

Fire wall - 3 hours
Note: Fire wall infills occur at 2nd floor tunnel, 3rd floor door to Bldg 19A, and Bridge at 4th floor.

707.3.2

The fire resistance rating of exit enclosures shall comply with Section

1023.2 1 Hour @ 3 stories or less - **Bldg 19 Stair A**
2 hours @ 4 stories or more - **Bldg 20 Stair B**

708.3 Fire Resistance Ratings

Walls Separating Dwelling Units (420.2) 1 hour
1/2 hour (when fully sprinklered per NFPA 13)

708.4 Continuity: Fire partitions shall extend from floor below to underside of floor/roof sheathing above. Supporting structure shall be protected similarly to wall. Fire blocking is not required if equipped with automatic sprinkler system and sprinklers are installed within combustible floor/ceiling and roof/ceiling spaces.

713 Shaft Enclosures (stairs, chutes, elevators, duct shafts, etc.)

713.2 Shaft enclosures to be constructed as fire barriers

713.4 Shaft enclosures shall have a 2 hour fire resistance rating where connecting 4 stories or more, and shall have a fire resistance rating not less than the floor assembly penetrated but not exceeding 2 hours. 1 hour is allowed when 3 stories or under.

Note: Stair A 3 stories and 1 hour. Stair B 4 stories and 2 hour

713.8.1 Penetrations other than those necessary for the purpose of the shaft shall not be permitted.

Table 716.5

Type of Assembly	Required Assembly Rating	Min Door Assembly Rating (hrs)
Fire Partitions	1 hour	
Dwelling unit separations	1 hour	1/3 hour
Corridor walls	.5 hour	3/4 hour
Other fire partitions	1 hour	
Exterior Walls	2 hours	1 1/2 hours
Stairs shaft	2 hour	1 1/2 hour
Stairs shaft	1 hour	1 hour

716.5.3.1 Fire door assemblies shall meet requirements for smoke and draft control door assemblies

718 Concealed Spaces

718.2 In combustible construction fire barriers shall be installed to cut off concealed draft openings and form a barrier between floors.
Note: Wall construction is non combustible

718.3.2 Use Group R-2 Draft stopping in floor/ceiling spaces @ DU separation or sprinkler

Note : DUed separation walls go to underside of wood deck above

Chapter 8- Interior Finishes

Table 803.1.1 Interior Wall and Ceiling Finish Requirements By Occupancy- Sprinklered

Group	Exit Enclosures	Corridors	Rooms and Enclosed Spaces
R-2	Class C	Class C	Class C

Chapter 9- Fire Protection Systems

903.3.1.1 NFPA 13 Sprinkler Systems

The building will be equipped throughout with an automatic sprinkler system in accordance with NFPA 13.

905 Standpipe Systems

905.2 Standpipe Systems will be provided in accordance with NFPA 14

906 Portable Fire Extinguishers- Required in Group R-2

occupancies: provided in accordance with NFPA 10. Locations as directed by BFD.

907.2.9.1 ex 2

Group R-2: Manual fire alarm station is not required in building equipped with automatic sprinkler system.

907.2.11.2 Group R-2: Smoke alarms shall be installed outside each sleeping area and within each room used for sleeping. (Ex 2)

912.2.1 Fire Department Connections: Locations as approved by BFD>

Chapter 10- Means of Egress

1004 Occupant Load

Table 1004.1.2 R2 200sf gross occupant load factor

Max load per floor	20522sf /200=103 occupants per floor
Roof	735sf/ 15=49 occupants

1005 Egress Width

Stair A & B 103x .3= 31"

Note: occupant load over 50 therefore stair =44"

1006 Number of exits

T1006.3.2.(1) Stories with 1 exit for R-2
1st floor above grade plane - Max 4 dwelling units

Note: 8 DU proposed therefore 2 exits required

1007 Accessible Means of Egress

1007.2.1 Elevators Required. In buildings where a required accessible floor is four or more stories above a level of exit discharge, at least one accessible means of egress shall be an elevator. Back up generator is provided.

Note: N/A Max number of floors is 3 above level of exit discharge in Bldg. 20

1009.3 Stairways

Clear width 48". Not Required in buildings with automatic sprinkler system. Exception no. 2. Minimum width of 44" is provided.
Area of Refuge- Not Required in Group R-2, Exception no. 8

1009.4 Elevators Exception 2: Area of refuge not required if building equipped with automatic sprinkler system.

1009.6.5 Two-way communication system shall be provided at each elevator landing.
- Minimum Clear width = 32", maximum leaf width 48"

1009.10 Directional signage shall be provided at elevator landings.

1010 Doors, Gates and Turnstiles

1010.1.1 Size of Doors

Exception no. 1- Minimum and maximum widths do not apply to door openings not part of the required means of egress in Group R-2 occupancies.

1008.1.4.4 Group R-2 occupancies building entry doors are permitted to be equipped with access control system.

1010.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.

1010.1.9.11 Interior stairway means of egress doors shall be openable from both sides
Exception 1: Stairway discharge doors shall only be locked from the opposite side.

1011.12 Stairway to Roof- In buildings four or more stories above grade plane, one stairway shall extend to the roof surface. In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an *alternating tread device*.

1017 Exit Access Travel Distance

Table 1017.2 Exit Access Travel Distance

Occupancy	Max. Distance Sprinklered
S-2	400'
R-2	250'

1020 Corridors

Table 1020.1 Corridor Fire Resistance Rating

Occupancy	Occupant Load	Fire Rating with Sprinkler System
R-2	Greater than 10	.5 hour

1020.2 Corridor Width: Minimum 44" provided.
Exception No. 3: 36" minimum width allowed within dwelling units.

1020.4 Dead Ends: 50' maximum dead end corridor allowed per Exception No. 2 for Group R-2 and B Occupancies in buildings with automatic sprinkler system.

1023.7 Exit Enclosure Exterior Walls

Exterior exit walls comply with Section 705

Floor level identification signs required at each floor landing within stair (tactile).

3006.2 Hoistway Opening Protection

Not required per 1 thru 5

2018 NFPA 101
1021.1
CHAPTER 30

43.1.2.2 Change of use shall comply w/ sec. 43.7

43.1.2.4 Historical Bldg Rehab shall comply w/ sec. 43.10

43.7 Hazard category: General industrial and residential are both a 3

43.7.2.4 Historic bldg change of use with same hazard shall meet 43.7.2.1.

43.7.2.1 (1) Requirements of applicable existing occupancy
(2) Requirementsfor sprinkler, and detection, alarms, comm. systems. Hazard area as new construction

IECC 2015

T502.2.1

Zone 6

Insulation above roof deck - R-30

2018 NFPA 101

1021.1
CHAPTER 30 Existing Apartment Building

8.6.5- Exit enclosures 2 HR

31.2.4.3 - Dwelling unit access to two separate exits as required by 7.5.1
7.5.1.3.2 - Located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building

31.2.5.3.2 - Common path - 50' when sprinklered

31.2.5.4.2 - Dead end corridor not to exceed 50'

31.2.6.2 - Travel distance in unit not to exceed 125' when sprinklered

31.2.6.3.2 - Travel distance from unit entrance to exit max 200'

31.2.6.4 - Travel distance from areas other than living units max 250'

31.3.6.1.2 - Exit access corridor, 1/2 hr

IECC 2009

T502.2.1

Zone 6

Insulation above deck - R-20

Walls - R13 + R7.5

Floors - R30

Prepared For:

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Architect:

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5 MAIN STREET
BIDDEFORD, ME 04005

Revisions:
1 08/05/24 Submission for Review by NPS

Date:
10-09-2024

Scale:
12" = 1'-0"

CODE SUMMARY

AC0.1

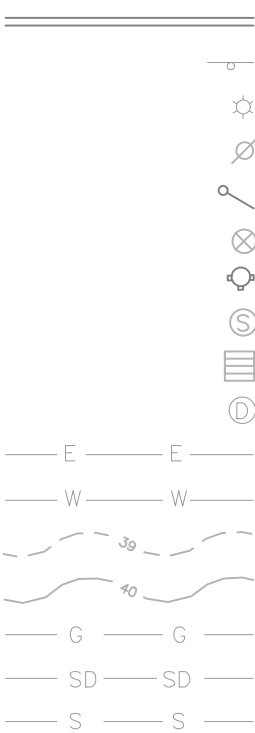
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT

1921 PEPPERELL, LLC
PORTLAND, MAINE

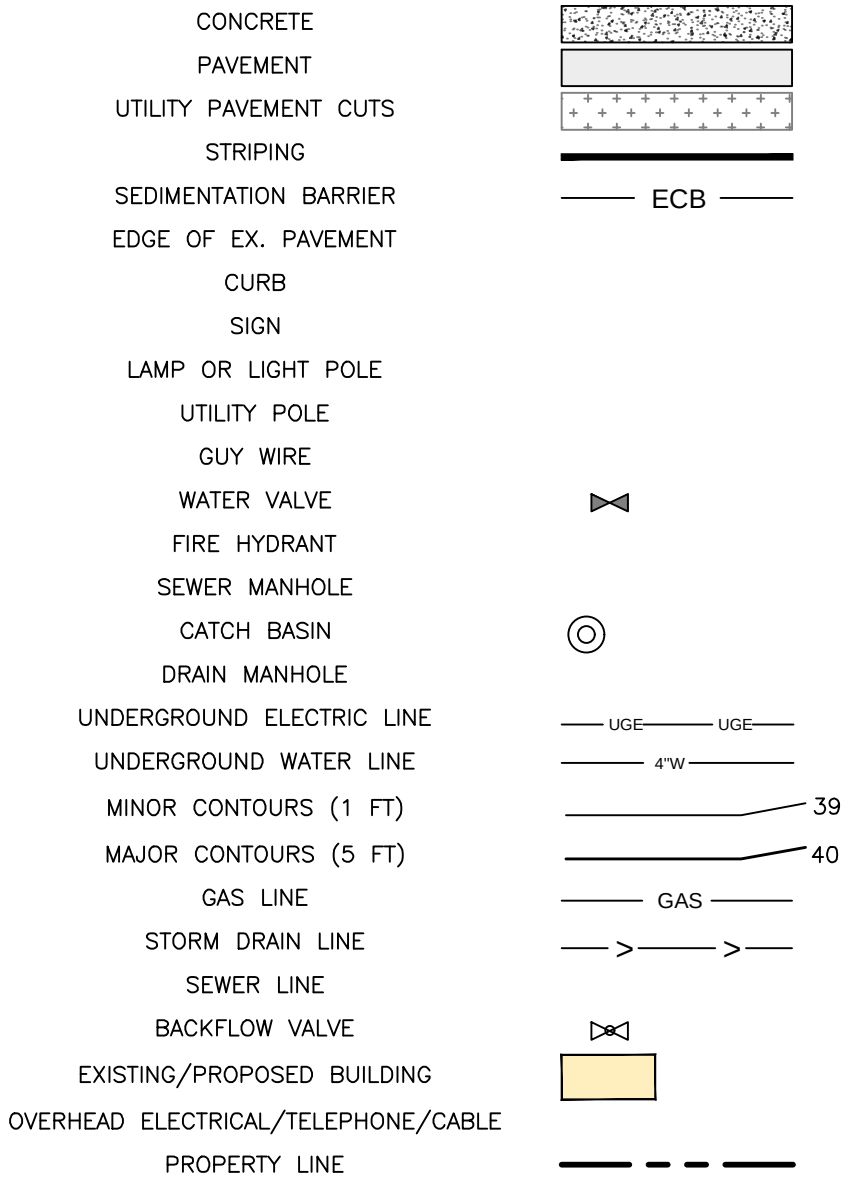
LEGEND

EXISTING

REFER TO THE
EXISTING
CONDITIONS PLAN
FOR ADDITIONAL
INFORMATION



PROPOSED



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PLAT	SUBDIVISION PLAT

EXISTING USE	VACANT MILL BUILDING
PROPOSED USE	APARTMENTS
DRAINAGE WATERSHED	SACO RIVER
MS4 URBANIZED AREA	YES
NEARBY NATURAL RESOURCES	YES (SACO RIVER)
WITHIN 100-YEAR FLOOD ZONE	NO
PUBLIC ROAD PROPOSED	NO
PRIVATE ROAD PROPOSED	NO
PUBLIC SEWER CONNECTION	YES
PUBLIC STORMDRAIN CONNECTION	YES

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

UTILITIES

SEWER:

DEPARTMENT OF PUBLIC WORKS (DPW)
205 MAIN STREET
BIDDEFORD, MAINE 04005
CONTACT: CRAIG CHECKAN, P.E.
(207) 284-9118



WATER:

MAINE WATER COMPANY
93 INDUSTRIAL PARK ROAD
SACO, MAINE 04072
CONTACT: MARCUS KNIPP E.I.T
(207) 282-1543



ELECTRIC:

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: JAY AGRESTE
(207) 207-842-2367



CABLE:

SPECTRUM CABLE
444 PERRY ROAD
BANGOR, MAINE, 04401
CONTACT: STEVEN HOLMES
(207) 631-1618



NATURAL GAS:

UNITIL SERVICE CORP.
376 RIVERSIDE INDUSTRIAL PARKWAY
PORTLAND, MAINE 04103
CONTACT: SCOTT CARPENTER
(207) 541-2543



TELEPHONE:

CONSOLIDATED COMMUNICATIONS
45 FOREST AVENUE
PORTLAND, MAINE 04101
CONTACT: PATRICK MORRISON
(207) 745-9363



PROJECT TEAM

DEVELOPER:

1921 PEPPERELL, LLC
PORTLAND, MAINE
CONTACT: JOSH CUSHMAN
(207) 744-3084 EXT. 317



DEVELOPERS REPRESENTATIVE:

FATHOM COMPANIES
PORTLAND, MAINE
CONTACT: MARIEKE THORMANN P.E.
(207) 317-2818



CIVIL ENGINEER:

ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: PETER F HEIL, P.E.
(207) 775-2655



ARCHITECTS:

ARCHETYPE ARCHITECTS
PORTLAND, MAINE
CONTACT: BILL HOPKINS
(207) 772-6022



SURVEYOR:

OWEN HASKELL, INC.
FALMOUTH, MAINE
CONTACT: RANDY LOUBIER, PLS
(207) 774-0424



CONSTRUCTION MANAGER:

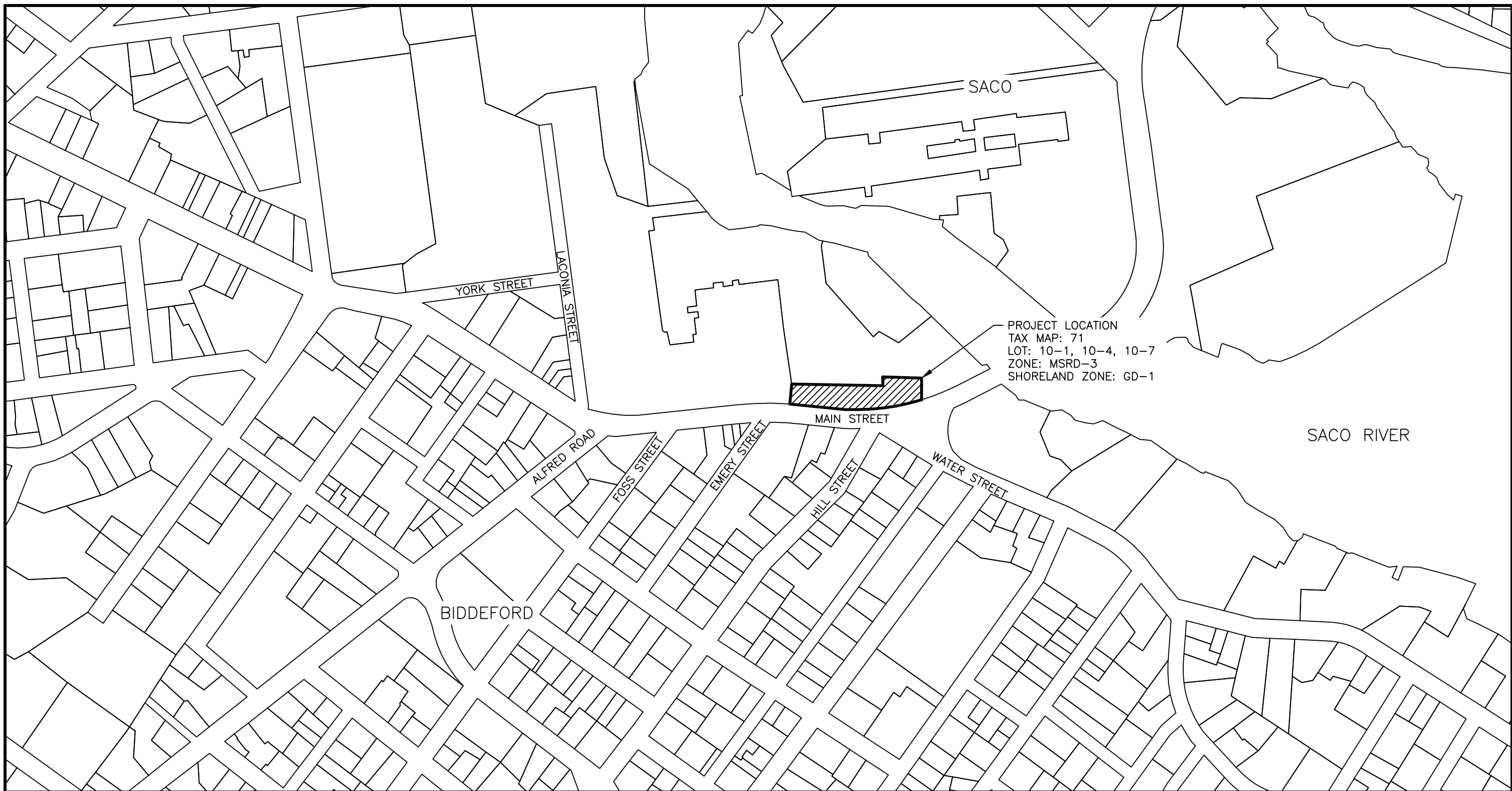
WOODHULL ARCHITECTURE
PORTLAND, MAINE
CONTACT: MICHAEL CLEARY
(207) 502-2555



ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CAD	COMPUTER AIDED DESIGN
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
HDPE	HIGH DENSITY POLY ETHYLENE
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDEP	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
M.E.P	MECHANICAL, ELECTRICAL, PLUMBING DESIGNER
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
VIF	VERIFY IN FIELD



VICINITY MAP

SCALE: 1:250

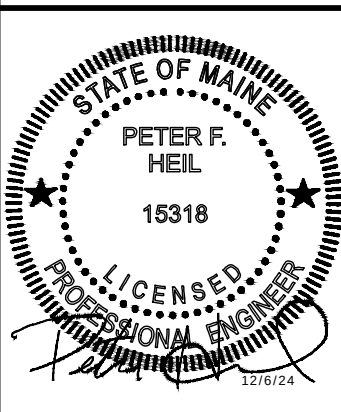
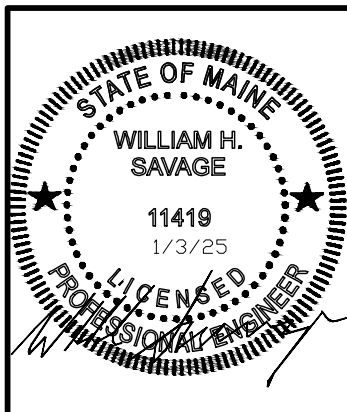
PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
DATE	DATE
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

COVER SHEET & LEGEND	PROJECT NAME	CLIENT
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDDEFORD ME	1921 PEPPERELL, LLC	16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.	ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104	(207) 775-2655

FILE: AE_1246_DETAILS
JN: 1246
SCALE: AS NOTED
DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



DRAWING NO.
C-01

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITIES COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ALL 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 (IF APPLICABLE), 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 BIDDEFORD 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 .DWG FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD CAPABILITY IS NOT AVAILABLE, EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED BOUNDARY & TOPOGRAPHIC SURVEY BY OWEN HASKELL, INC. FOR FATHOM COMPANIES, DATED AUGUST 30, 2024.
8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE 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 BIDDEFORD PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
9. CONSTRUCTION MANAGEMENT PLAN AND SITE LOGISTICS NARRATIVE SHALL BE PREPARED BY THE CONTRACTOR AND SHALL BE REFERRED TO FOR ANTICIPATED PROJECT SCHEDULE AND CLOSURES. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
11. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL BE COMPLETED AT A MINIMUM ADJACENT STRUCTURES. PROVIDE A COPY OF THE SURVEY TO THE OWNER. DOCUMENT WITH PICTURES AT A MINIMUM.
13. THE CONTRACTOR SHALL PROVIDE A GPS MODEL OF THE PROPERTY TO ACORN ENGINEERING, INC. (ACORN).
14. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH THE ENGINEER, ACORN ENGINEERING INC, IF ANY.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES AND SHRUBS ON THE PROJECT WHICH ARE NOT TO BE REMOVED.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING, OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY. REMOVAL OF WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE WARRANTY PERIOD. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO ACORN TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP, ERECTION, AND CONSTRUCTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION FOR ACORN'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 ACORN 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 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. PRIOR TO BACKFILLING, CONCRETE SHALL BE CURED PER STRUCTURAL ENGINEER'S SPECIFICATIONS.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE, IF APPLICABLE.
12. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
13. ACORN BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND SITE OBSERVATION VISITS DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.
14. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBPART P OF 29 CRF PART 1926.650-.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).
15. ALL TRENCH PAVEMENT REPAIR SHALL BE COMPLETED WITH THE USE OF A STREET PAYER WITH A SCREED WIDTH CAPABLE OF SPANNING THE FULL WIDTH OF THE TRENCH UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN.
3. IF NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT ARE NECESSARY. NOTIFY CITY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.

5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- 5.1. 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.
- 5.2. 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.
- 5.3. 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.
- 5.4. SPECIAL INSPECTOR SHALL BE EMPLOYED BY OWNER AND COORDINATED BY THE CONTRACTOR.

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO ITS ORIGINAL LOCATION AND ELEVATION BY A LICENSED PROFESSIONAL LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO ACORN 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 BIDDEFORD, 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 STRUCTURE CORNERS.
6. CONTRACTOR TO ENSURE THAT ACCESS, INCLUDING BUT NOT LIMITED TO WALKWAYS, DRIVEWAYS, AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND AVAILABLE FOR USE AT ALL TIMES.

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF MAJOR SITE PLAN & SUBDIVISION PERMIT FROM THE CITY OF BIDDEFORD, A SACO RIVER CORRIDOR COMMISSION PERMIT APPLICATION, AND A MANDEP NATURAL RESOURCE PROTECTION ACT PERMIT BY RULE APPLICATION.
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.
3. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A STREET OPENING PERMIT FROM THE CITY OF BIDDEFORD. ADDITIONALLY, COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS.

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM (MEETS THE REQUIREMENTS WITHIN SECTION 615 OF THE MDOT STANDARD SPECIFICATIONS, MOST RECENT VERSION AND IS FREE OF TRACEABLE AMOUNTS OF CONTAMINANTS) SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY STRIPPED TOPSOIL 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. DEWATERING SHALL INCLUDE TREATMENT OF SILT THROUGH THE USE OF A DIRTBAG BY ACF ENVIRONMENTAL OR APPROVED EQUIVALENT. FLOWS FROM DEWATERING ACTIVITIES SHALL NOT BE DISCHARGED INTO SANITARY SEWERS. SEE BORING LOGS FOR ADDITIONAL INFORMATION.
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 ADJACENT LAND OWNERS. PRIOR TO THE CONTRACTOR PRICING THE WORK, THEY SHALL PROVIDE ACORN WITH 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 MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES WHERE NOT NOTED ON THE GRADING PLAN. SLOPES IDENTIFIED ON THE GRADING PLAN TAKE PRECEDENT. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.
6. CONTRACTOR TO REVIEW EXISTING SOIL CONDITIONS, TEST PITS, AND BORINGS. THERE WILL BE NO ADDITIONAL PAYMENT FOR UNSUITABLE SOILS.
7. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF $N=0.012$ OR LESS.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. NATIVE SOILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, CONTACT ACORN. THE DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.

1. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. ALL ROUTINE WORK ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
3. 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.
4. 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.
5. 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.

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 ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR SHALL 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, PRIOR TO THE ORDERING OF STRUCTURES.
4. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED AND SHOWN TO PASS PRIOR TO 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 5.5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
7. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAINT ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN WITHIN THE PLAN SET.
8. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH THE MAINE WATER COMPANY & CITY OF BIDDEFORD, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
9. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH MAINE WATER COMPANY AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
10. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE MAINE WATER COMPANY SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
12. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
13. COORDINATE EXIT POINT FOR SECONDARY UTILITY SERVICES WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN WITHIN THE UTILITY PLAN.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF BIDDEFORD TECHNICAL MANUAL PRIOR TO ANY WORK.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL AT NO EXTRA EXPENSE TO THE OWNER.
16. ALL UTILITY PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. THERE SHALL BE NO CRESTS OR SAGS PERMITTED IN THE PIPING. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED PIPE LINES SHALL BE SUITABLY RESTRAINED WITH THRUST BLOCKS OR RETAINER GLANDS. RETAINER GLANDS ALLOWED FOR DUCTILE IRON PIPE ONLY. PROVIDE ALL BENDS, HORIZONTAL AND VERTICAL, AS REQUIRED TO MEET THE GRADES AND ALIGNMENTS INDICATED ON THE DRAWINGS.
17. ALL WASTEWATER PIPING, EXCLUDING BUILDING DRAINS, AND ALL PRESSURIZED PIPING, TO INCLUDE WATER MAINS, INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
18. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS AND ADDITIONAL PIPE AS REQUIRED TO ENSURE A COMPLETE AND PROPERLY FUNCTIONING CONNECTION. CONTRACTOR TO VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. ADAPTERS AND FITTINGS ARE INCIDENTAL TO THE PIPE INSTALLATION.
19. WHENEVER POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A WATER LINE CROSSES UNDER THE WASTEWATER LINE, A FULL LENGTH OF WASTEWATER PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
20. THE CONTRACTOR SHALL BE ANTICIPATE THAT THE NATIVE SILT AND CLAY SOILS WILL NOT BE SUITABLE FOR PIPE TRENCH BACKFILL IN PAVED AREAS.
21. GROUNDWATER SHALL BE CONTROLLED TO A LEVEL OF AT LEAST ONE FOOT BELOW SUBGRADE OF THE PIPE OR STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE LOWERED GROUNDWATER LEVEL UNTIL CONSTRUCTION HAS BEEN COMPLETED TO SUCH AN EXTENT THAT THE STRUCTURES OR PIPES WILL NOT BE FLOATED OR OTHERWISE DAMAGED.
22. EXCAVATION TO SUBRADE IN NATIVE SILT AND CLAY SHALL BE COMPLETED WITH A SMOOTH EDGE BUCKET TO MINIMIZE SUBGRADE DISTURBANCE.
23. ALL ADJUSTMENTS TO FINISHED GRADE ARE TO BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONFIRM STRUCTURES THAT REQUIRE ADJUSTMENT WITH THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO ADJUSTING FRAMES.

- ROCK AND CONCRETE FOUNDATIONS
- CONCRETE SLABS
- BITUMINOUS ASPHALT PAVEMENT
- CONCRETE PADS AND BLOCKS
- FENCE POST AND FENCING
- UNDERGROUND UTILITY LINES
- ABOVE AND OR BELOW FUEL OIL AND PROPANE GAS TANKS
- STORM DRAIN PIPES AND APPURTENANCE STRUCTURES
- OTHER TRASH & MISCELLANEOUS SOLID WASTES

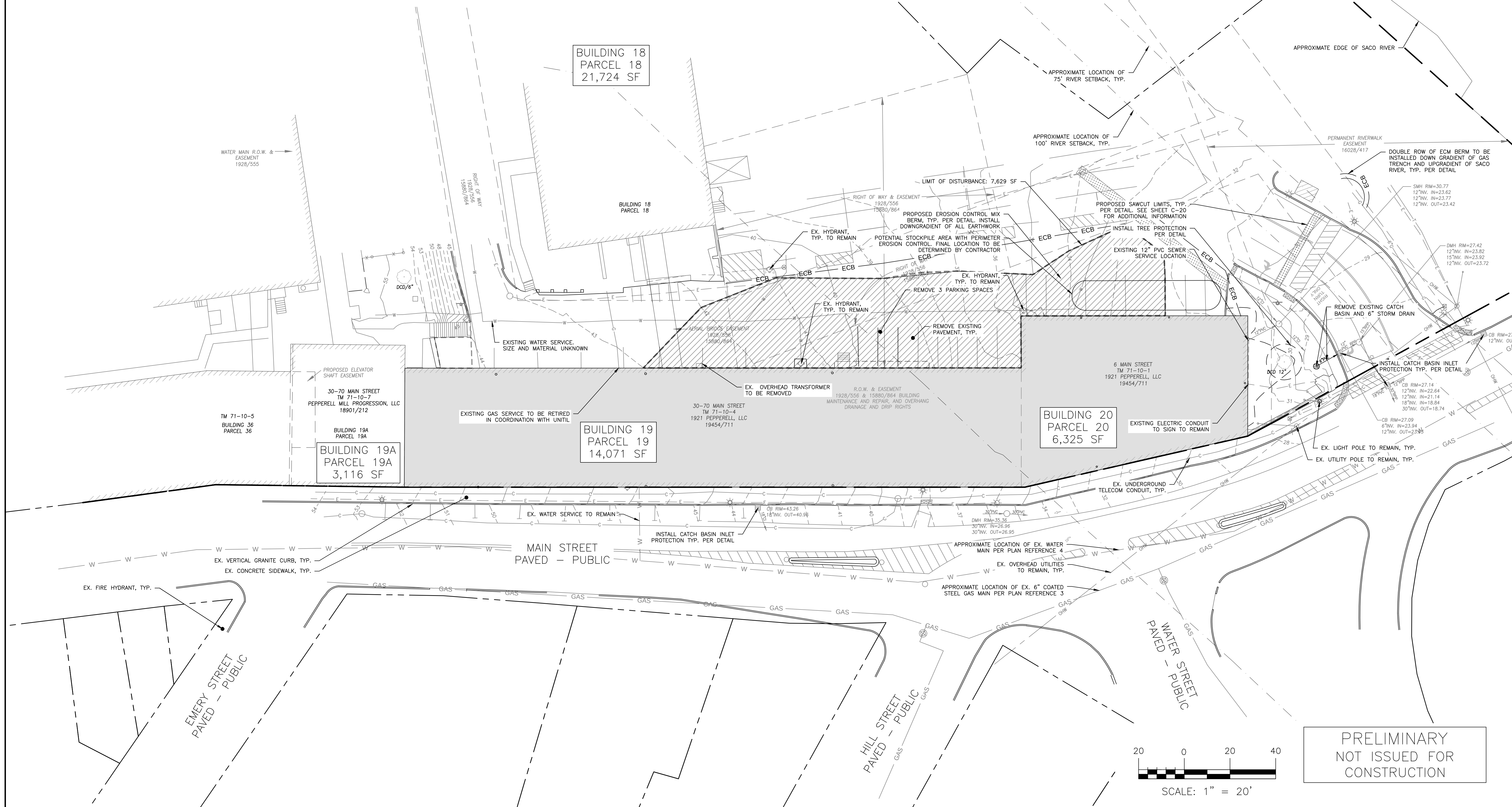
2. THE CONTRACTOR IS ADVISED TO VISIT THE SITE TO CONFIRM DEMOLITION ITEMS SINCE THE LIST IS NOT INCLUSIVE OF THE SITE CONDITIONS WHICH MAY BE ENCOUNTERED
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
4. A PHASE I ENVIRONMENTAL SITE ASSESSMENT FOR THE PEPPERELL MILL CAMPUS HAS BEEN PREPARED BY RANSOM CONSULTING, LLC

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

[illegible]

1. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
2. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
3. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
5. THE CONSTRUCTION SIGNAGE IS TEMPORARY AND SHALL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT LOCATION TO BE ACCEPTED BY THE CITY.
6. PLACE SEDIMENT BARRIERS DIRECTLY ON THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES AND DO NOT NECESSARILY DEPICT THE PHYSICAL LOCATION.
7. DEMOLITION SHALL BE IN ACCORDANCE WITH THE CITY OF CHICAGO'S PLACEMENT OF FIELD INLETS, SLOPE GRADIENT AND ALL NON-STABILIZED SURFACES, PER DETAIL.
8. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO LANDSCAPING, UTILITIES, WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF BIDEFORD REGULATIONS.
9. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR GUARANTEED. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY OF CHICAGO FOR ON-STREET PARKING SPACES DURING THE CONSTRUCTION PERIOD.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW REMOVAL ALONG CONSTRUCTION FENCE AND GATE.
11. CONTRACTOR TO SUBMIT A Dewatering Plan for Review and Approval to the Department of Public Works Prior to the Pre-Construction Meeting, During the Building Permit Application Process, or Prior to Advanced Site Work. Contact the Department of Public Works for Additional Information and Current Regulations.
12. CONTRACTOR TO IMPLEMENT DUST CONTROL MEASURES THROUGHOUT CONSTRUCTION.
13. CONTRACTOR TO PAVE UTILITY TRENCHES (IF ANY) WITHIN THE RIGHT OF WAY WITHIN 3 DAYS OF EXCAVATION OR PRIOR TO ANY RAIN EVENT.

1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, MCDONALD, MILLIGAN INC. DATED APRIL 4, 2020

[illegible]

DRAWING NAME: CONSTRUCTION MANAGEMENT PLAN

PROJECT NAME: PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
- BIDDFORD ME

CLIENT: 1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE; 04101

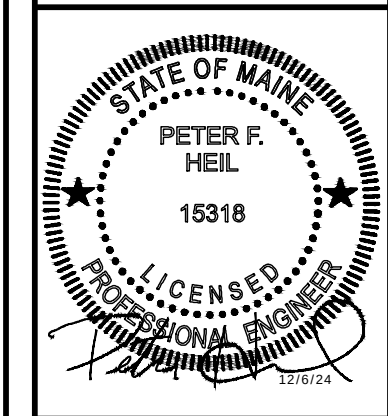

A C O R N

ENGINEERING, INC.

ACORN ENGINEERING, INC. 04-104
 P.O. BOX 3372, PORTLAND, MAINE
 (207) 775-2665

THIS PLAN SHALL NOT BE ASSURED WITHOUT WRITTEN PERMISSION
 FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED
 OR UNAUTHORIZED, SHALL BE AT THE USER'S SOLE RISK AND
 WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	AE_1246_CMT
JN:	1246
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	DSH
CHECKED BY:	PFH



DRAWING NO.
C-03

GENERAL NOTES:

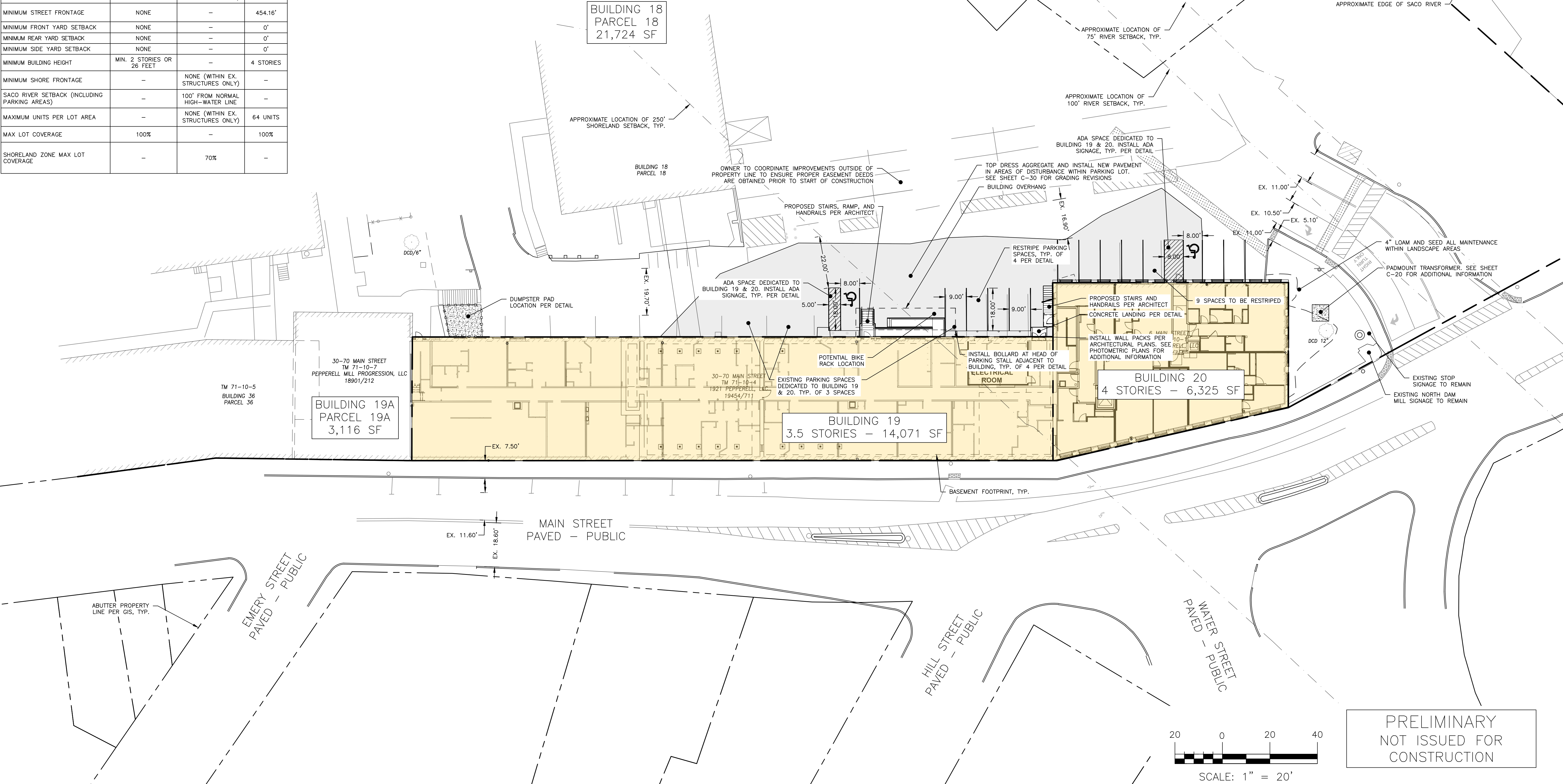
1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF BIDDEFORD STANDARDS.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF BIDDEFORD STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

PLAN REFERENCES:

1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, McDONALD, MILLIGAN INC. DATED APRIL 4, 2020

PARKING SUMMARY				
USE	UNITS	SPACES REQUIRED	EXISTING	PROPOSED
RESIDENTIAL	64	2 SPACES / DWELLING UNIT* = 97 SPACES**	-	-
MULTIFAMILY DEVELOPMENTS	-	INCREASE OF 5% (OF 97 SPACES) TO ALLOW FOR VISITORS = 5 SPACES	-	-
ADA (8'X18')	-	-	-	2
STANDARD (9'X18')	-	-	-	1
PARALLEL (8'X20')	-	-	-	2
TOTAL SPACES	-	102	-	102***
*1 IF DESIGNED EXCLUSIVELY FOR, AND OCCUPANCY IS RESTRICTED TO, SENIOR HOUSING, STUDIO APARTMENTS AND 1-BEDROOM APARTMENTS. **31 1-BEDROOM UNITS & 33 2-BEDROOM UNITS = (31+66 = 97 SPACES) ***97 PARKING SPACES TO BE REQUESTED FROM THE CITY OF BIDDEFORD PARKING GARAGE TO SATISFY THE PARKING REQUIREMENT				

SPACE AND BULK STANDARDS			
ZONE:	REQUIRED (MSRD3)	REQUIRED (GD-1)	LOT 19 & LOT 20
MINIMUM LOT SIZE	NONE	NONE (WITHIN EX. STRUCTURES ONLY)	20,396 SF
MINIMUM STREET FRONTAGE	NONE	-	454.16'
MINIMUM FRONT YARD SETBACK	NONE	-	0'
MINIMUM REAR YARD SETBACK	NONE	-	0'
MINIMUM SIDE YARD SETBACK	NONE	-	0'
MINIMUM BUILDING HEIGHT	MIN. 2 STORIES OR 26 FEET	-	4 STORIES
MINIMUM SHORE FRONTAGE	-	NONE (WITHIN EX. STRUCTURES ONLY)	-
SACO RIVER SETBACK (INCLUDING PARKING AREAS)	-	100' FROM NORMAL HIGH-WATER LINE	-
MAXIMUM UNITS PER LOT AREA	-	NONE (WITHIN EX. STRUCTURES ONLY)	64 UNITS
MAX LOT COVERAGE	100%	-	100%
SHORELAND ZONE MAX LOT COVERAGE	-	70%	-



ISSUED FOR	BY
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

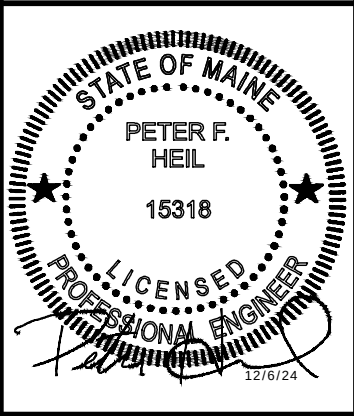
SITE PLAN	PROJECT NAME:	CLIENT:
	PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDDEFORD ME	1921 PEPPERELL, LLC
		16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

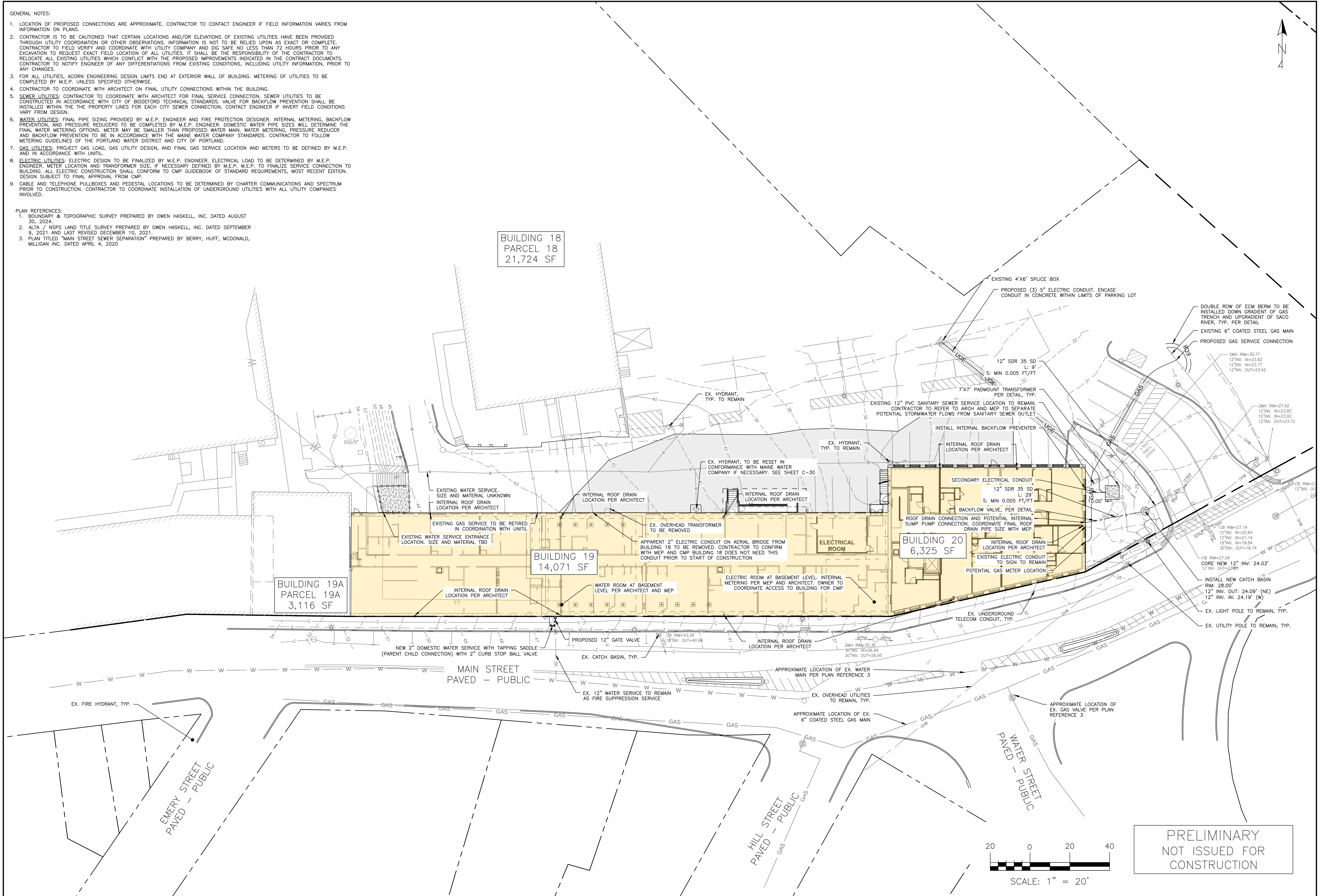
FILE:	AE_1246_SITE
JN:	1246
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	DSH
CHECKED BY:	PFH



DRAWING NO.
C-10

- GENERAL NOTES:
1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
 2. 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 DIG 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 NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
 3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
 4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
 5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BIDEFORD TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
 6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE MAINE WATER COMPANY STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
 7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND IN ACCORDANCE WITH UNTIL.
 8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.E.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
 9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND SPECTRUM PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

- PLAN REFERENCES:
1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
 2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
 3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, MCDONALD, MILLIGAN INC. DATED APRIL 4, 2020



ISSUED FOR		BY
ATS	PFH	9/26/24
PRELIMINARY	PFH	10/16/24
FINAL	PFH	12/4/24

UTILITY PLAN	
PROJECT NAME:	PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
CLIENT:	1921 PEPPERELL, LLC
	16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.

STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER

FILE: AE_1246_UTILITY

JN: 1246

SCALE: AS NOTED

DESIGNED BY: ZMS

DRAWN BY: DSH

CHECKED BY: PFH

DRAWING NO.
C-20

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
2. 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 FOLLOW UP WITH COORDINATING COMPANY AND VERIFY LOCATIONS 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 NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE COORDINATED IN ACCORDANCE WITH CITY OF BIDDFORD TECHNICAL SPECIFICATIONS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METER OPTIONS. METER SHALL BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE MAINE WATER COMPANY STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. ENGINEER AND BIDDFORD GAS UTILITY.
8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. ENGINEER TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION.
9. FINAL APPROVED CONTRACT SHALL BE PROVIDED FROM CMP.
10. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND SPECTRUM PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

21,724 SF

RAMP WITH HANDRAILS PER ARCHITECT
(DO NOT EXCEED 8.3% SLOPE)

PR. 39.96'±
PR. 40.04'±
PR. 40.04'±
PR. 40.09'±
(7) 6.09" RISERS
PER ARCHITECT
TS: 43.59'
BS: 40.04'
PR. 40.14'±
PR. 40.21'±
PR. 40.25'±
PR. 40.28'±
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

PR. 40.37'±
HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
PR. 43.59'
EX. THRESHOLD: 43.67'
INSTALL 1/2" LIP: 43.63'

PR. 41.63'
PR. 41.68'
PR. 40.02'±
PR. 40.07'±
PR. 36.15'
ELE TC: 36.53'
BC: 36.16'
EX. THRESHOLD 36.20'
INSTALL 1/2" LIP: 36.16'

BUILDING 20
PARCEL 20
6,325 SF

LIMIT OF DISTURBANCE: 7,629 SF

PR. 32.30'
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS AISLE
EX. 32.05'
EX. 31.36'
PR. 32.17'
EX. 32.22'
PR. 35.57'
(16) 6" RISERS
PER ARCHITECT
TS: 43.53'
BS: 35.57'
PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.48'

BUILDING 20
6,325 SF

THRESHOLD: EX. 54.79'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.37'±
PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
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PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.48'

BUILDING 20
6,325 SF

THRESHOLD: EX. 54.79'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.37'±
PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
PR. 43.59'
EX. THRESHOLD: 43.67'
INSTALL 1/2" LIP: 43.63'

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EX. THRESHOLD 36.20'
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BUILDING 20
PARCEL 20
6,325 SF

LIMIT OF DISTURBANCE: 7,629 SF

PR. 32.30'
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS AISLE
EX. 32.05'
EX. 31.36'
PR. 32.17'
EX. 32.22'
PR. 35.57'
(16) 6" RISERS
PER ARCHITECT
TS: 43.53'
BS: 35.57'
PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.48'

BUILDING 20
6,325 SF

THRESHOLD: EX. 54.79'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.37'±
PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
PR. 43.59'
EX. THRESHOLD: 43.67'
INSTALL 1/2" LIP: 43.63'

PR. 41.63'
PR. 41.68'
PR. 40.02'±
PR. 40.07'±
PR. 36.15'
ELE TC: 36.53'
BC: 36.16'
EX. THRESHOLD 36.20'
INSTALL 1/2" LIP: 36.16'

BUILDING 20
PARCEL 20
6,325 SF

LIMIT OF DISTURBANCE: 7,629 SF

PR. 32.30'
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS AISLE
EX. 32.05'
EX. 31.36'
PR. 32.17'
EX. 32.22'
PR. 35.57'
(16) 6" RISERS
PER ARCHITECT
TS: 43.53'
BS: 35.57'
PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.48'

BUILDING 20
6,325 SF

THRESHOLD: EX. 54.79'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.37'±
PR. 40.42'±
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PR. 43.59'
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INSTALL 1/2" LIP: 43.63'

PR. 41.63'
PR. 41.68'
PR. 40.02'±
PR. 40.07'±
PR. 36.15'
ELE TC: 36.53'
BC: 36.16'
EX. THRESHOLD 36.20'
INSTALL 1/2" LIP: 36.16'

BUILDING 20
PARCEL 20
6,325 SF

LIMIT OF DISTURBANCE: 7,629 SF

PR. 32.30'
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS AISLE
EX. 32.05'
EX. 31.36'
PR. 32.17'
EX. 32.22'
PR. 35.57'
(16) 6" RISERS
PER ARCHITECT
TS: 43.53'
BS: 35.57'
PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.48'

BUILDING 20
6,325 SF

THRESHOLD: EX. 54.79'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

PR. 40.37'±
PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
PR. 43.59'
EX. THRESHOLD: 43.67'
INSTALL 1/2" LIP: 43.63'

PR. 41.63'
PR. 41.68'
PR. 40.02'±
PR. 40.07'±
PR. 36.15'
ELE TC: 36.53'
BC: 36.16'
EX. THRESHOLD 36.20'
INSTALL 1/2" LIP: 36.16'

[illegible]

1. ALL ASPECTS OF RESERVED PARKING SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION
2. SIGN SHALL BE CONSTRUCTED AS SIGN R7-8 UNDER THE "PARKING AND STANDING SIGNS AND PLAQUES" (R7 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION. VAN ACCESSIBILITY SHALL BE CONSTRUCTED AS SIGN R7-8a OR R7-8b.
3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



4"Ø X 3'-0" LG. CONCRETE FILLED STEEL BOLLARD SET IN 18"Ø SONO TUBE (3 PLACES) (SEE CONCRETE BOLLARD DETAIL)

16'-0" CONCRETE PAD

6" 4,500 PSI REINFORCED PORTLAND CEMENT CONCRETE SLAB - WWF 6 X 6 1.4W X 1.4W

6" 5" 5'-0" 5'-0" 5'-0" 6"

10'-0" CONCRETE PAD

4'-7" 4'-7" 5"

PITCH' DOWN 1"/FT

5'-0" O.C.

2 X 4 P.T. WOOD BLOCKING

3"Ø SCH. 40 GALVANIZED POST W/S-GALV. HINGES PER GATE

1"X6" P.T. FENCE PICKETS 55" O.C. ATTACHED TO 2" X 4" PRESSURE TREATED FENCE FRAME W/GALV. NAILS

2" X 4" P.T. CROSS BRACING TOP & BOT.

4" X 4" X 8' LG. PRESSURE TREATED POST (8 PLACES)

18"Ø X 3'-6" DEEP SONO TUBE

18" LG. CANE BOLT (PROVIDE SLEEVE IN CONC. FOR BOLT)

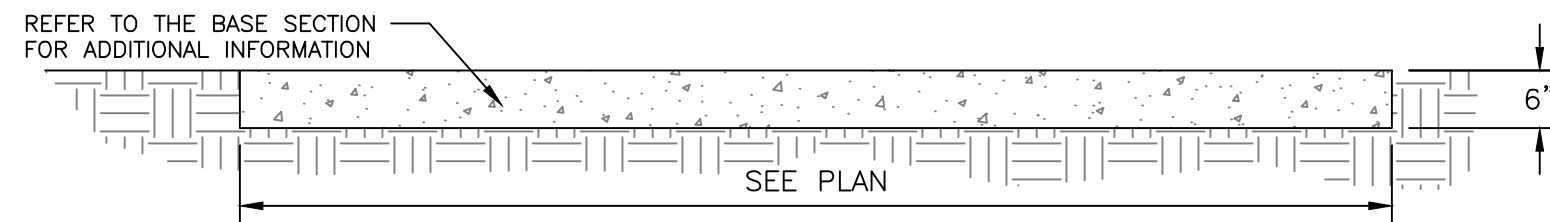
DUMPSTER ENCLOSURE PLAN AND DETAILS
NOT TO SCALE

-
- A cross-sectional diagram of a pavement joint. The diagram shows a vertical section of a road. At the top, a layer is labeled "MILL EX. SURFACE COAT AND PROVIDE SHIPLAP JOINT WITH NEW SURFACE COURSE AND EX. BASE COURSE". Below this is the "EXISTING PAVEMENT" layer. A "SAWCUT" is shown in the existing pavement, with a "2' MIN." dimension indicating the distance from the sawcut to the joint. Below the existing pavement is the "EXISTING BASE AND SUBBASE" layer. The "NEW PAVEMENT SECTION (PER DETAIL)" is shown on the right, with a "2' MIN." dimension indicating the distance from the sawcut to the joint. The joint is a vertical line separating the existing and new pavement sections.

PAVEMENT SAWCUT DETAIL
NOT TO SCALE

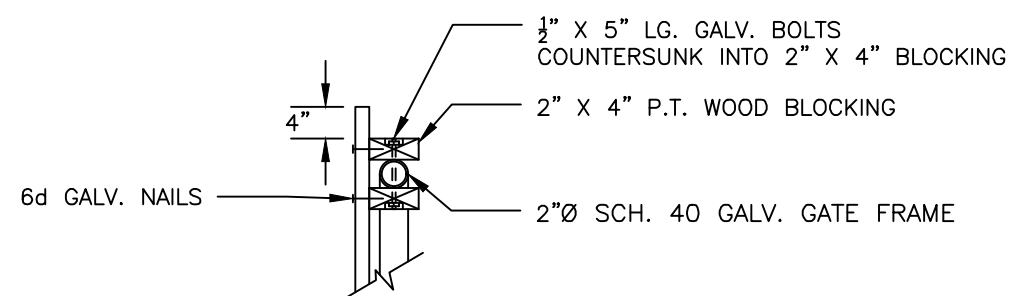
-
- Diagram illustrating the cross-section of a pavement structure, showing the following layers and materials:
- 6X6 W4XW4 WWF**: A layer of wire mesh reinforcement.
 - 4,000 PSI 28-DAY COMPRESSIVE STRENGTH PORTLAND CEMENT CONCRETE 6% ±1% AIR ENTRAINED**: The main concrete slab.
 - BASE MOOT 703.06 TYPE B, 8" THICKNESS**: A base layer of material.
 - COMPACTED SUBGRADE**: The underlying ground surface.
- The diagram is labeled **BASE SECTION** at the bottom.

CONCRETE PAD DETAIL
NOT TO SCALE



-
- 6'-0"
- 4" x 4" WOOD POSTS BOLTED TO U-SHAPED, 7GA. 2" WIDE GALV. POST BASES WITH 2-5/8" GALV. BOLTS (#CB44 AS MANUFACTURED BY SIMPSON STRONG TIE COMPANY, INC., OF EQUAL)
- PRESSURE TREATED FENCE PICKETS ATTACHED TO FENCE FRAME WITH GALVANIZED NAILS
- 4" x 4" x 8' LG. PRESSURE TREATED POST (8 PLACES)
- 2" x 4" PRESSURE TREATED FENCE FRAME
- 3'-0"
- 3'-0"
- 3'-0"
- 3'-0"
- 5'-0"
- 5'-0"
- 5'-0"
- 3'-0"
- 6"
- 45°
- 12"
- 12"
- #5'S T & B
- COMPACTED STRUCTURAL FILL
- SECTION A-A

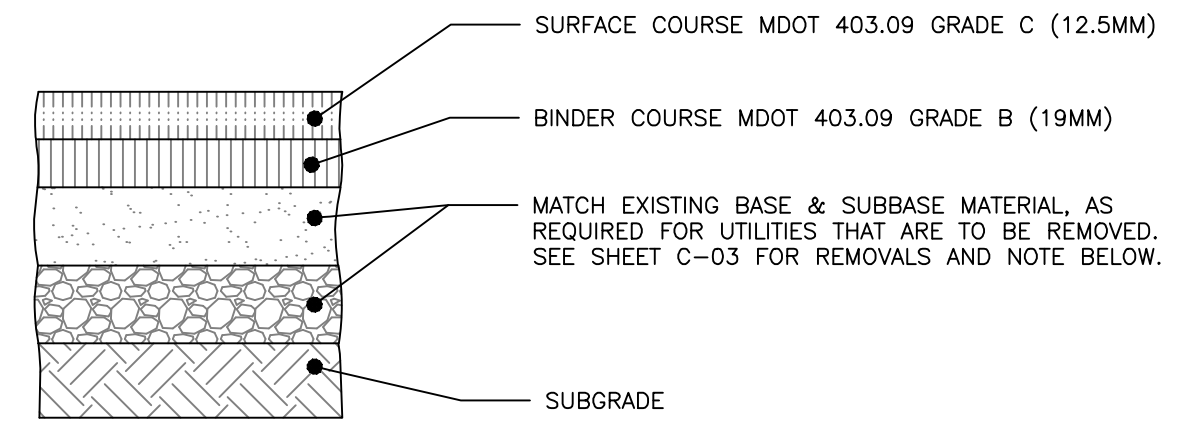
SECTION A-A



DETAIL A

- 1" X 6" P.T. FENCE PICKETS
ATTACHED TO WOOD
BLOCKING WITH GALV. NAILS.
- 18" LG. CANE BOLT (ONE
PER SET OF GATES)

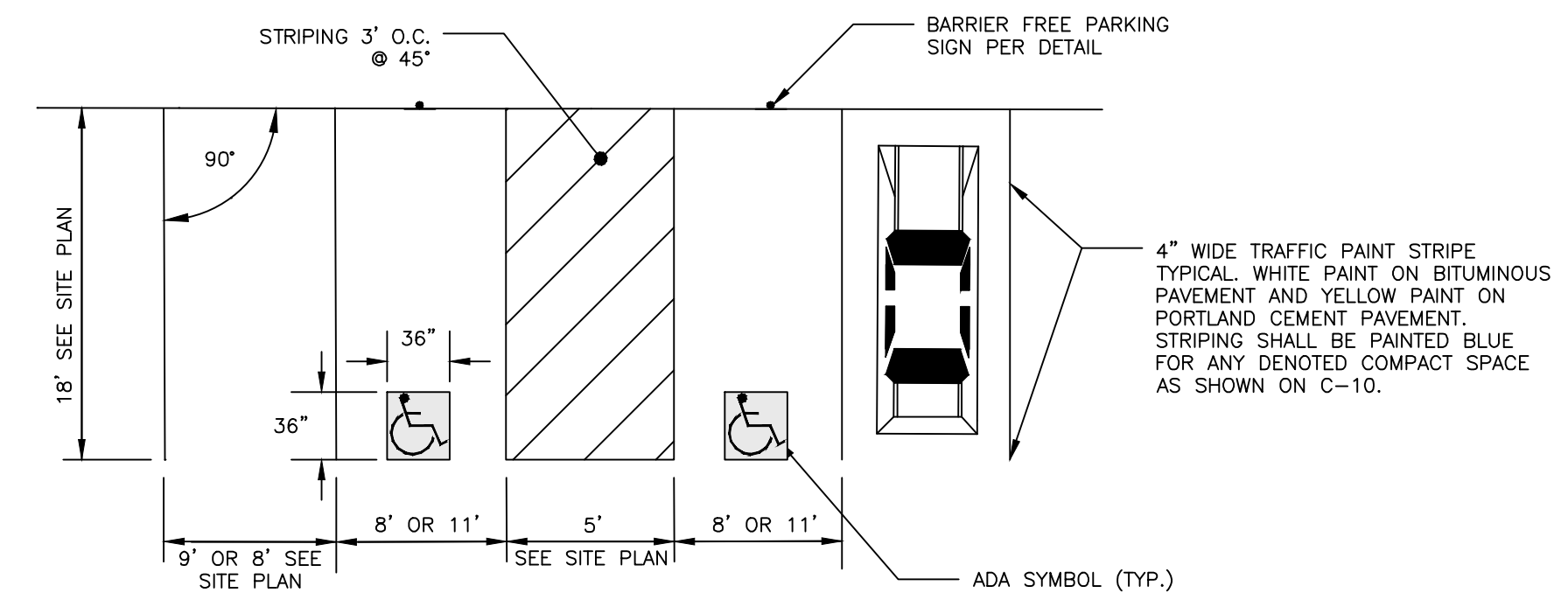
SECTION B-B



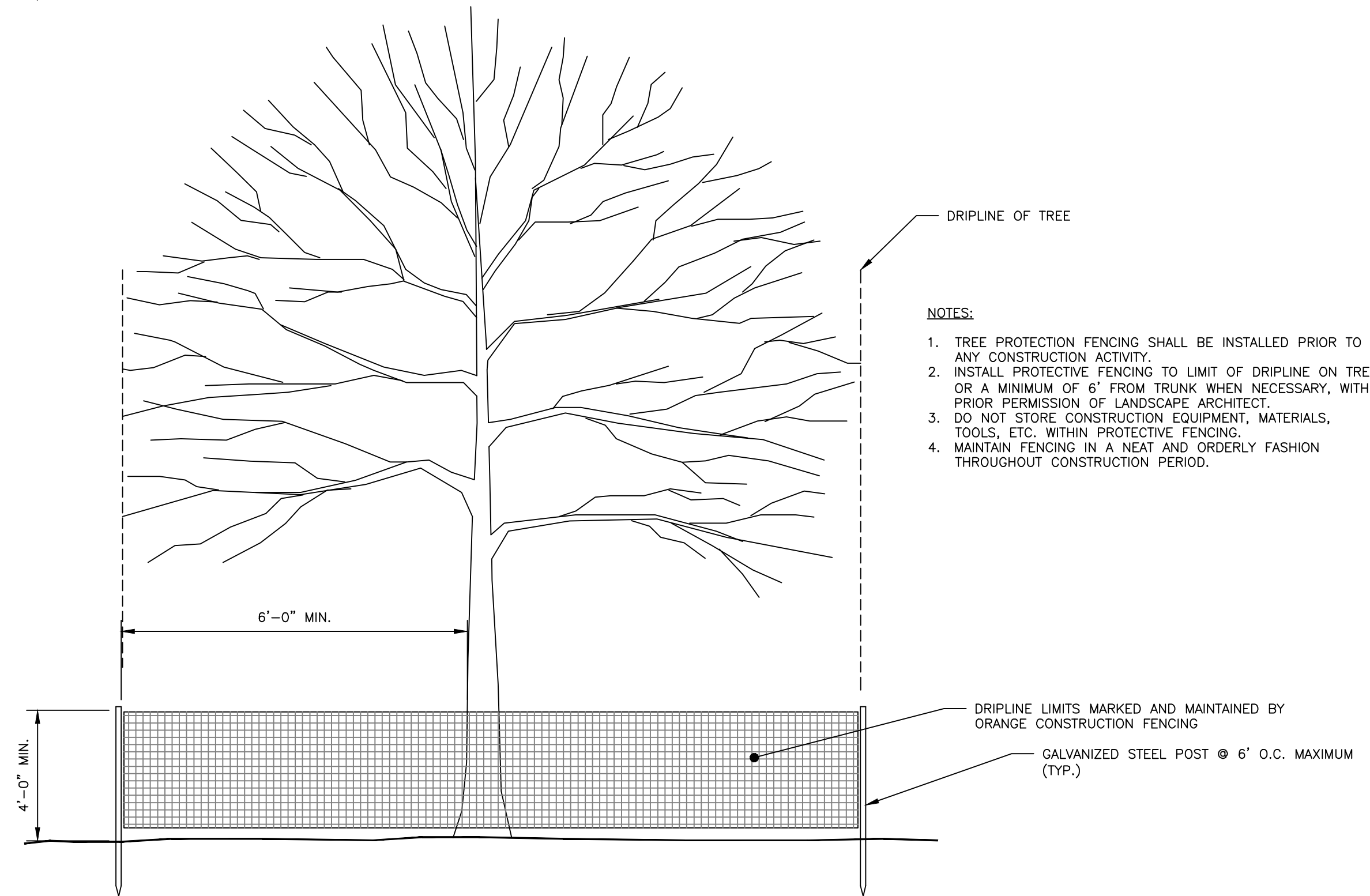
- NOTE:**
1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
 2. CONTRACTOR TO VERIFY EXISTING ROAD BASE AND SUBBASE MATERIALS AND MATCH EXISTING.
 3. PROJECT PROPOSES TO MILL EXISTING PAVEMENT AND INSTALL NEW BITUMINOUS PAVEMENT PER DETAIL. REFER TO APPLICABLE UTILITY CROSS SECTIONS FOR NEW UTILITY INSTALLATION.

THICKNESS OF LAYERS	
STANDARD	LAYERS
1.25"	SURFACE COURSE MDOT 403.09 GRADE C (12.5mm)
2"	BINDER COURSE MDOT 403.09 GRADE B (19mm)
4"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B OR A
18"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

PAVEMENT PROFILE
MAJOR RESIDENTIAL STREETS
NOT TO SCALE



STANDARD PARKING SPACE DIMENSIONS
NOT TO SCALE



- NOTES:**
1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
 2. INSTALL PROTECTIVE FENCING TO LIMIT OF DRIPLINE ON TREE TRUNKS MINIMUM OF 6' FROM TRUNK WHEN NECESSARY, WITH PRIOR PERMISSION OF LANDSCAPE ARCHITECT.
 3. DO NOT STORE CONSTRUCTION EQUIPMENT, MATERIALS, TOOLS, ETC. WITHIN PROTECTIVE FENCING.
 4. MAINTAIN FENCING IN A NEAT AND ORDERLY FASHION THROUGHOUT CONSTRUCTION PERIOD.

TREE PROTECTION DETAIL
NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

[illegible]

SITE DETAILS - 1

PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
- BIRDFEED ME

16 CASCO STREET PORTLAND, MAINE, 04101

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS AUTHORIZED OTHERWISE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: AE 1246 DETAILS

N:	1246
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CALE: AS NOTED

DESIGNED BY: ZMS

RAWN BY: DSH

HECKED BY: PFA



DRAWING NO.

C-40

DRAWING NAME:	SITE DETAILS - 2
PROJECT NAME:	PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDEFORD ME
CLIENT:	1921 PEPPERELL, LLC 16 CASCO STREET PORTLAND, MAINE, 04101

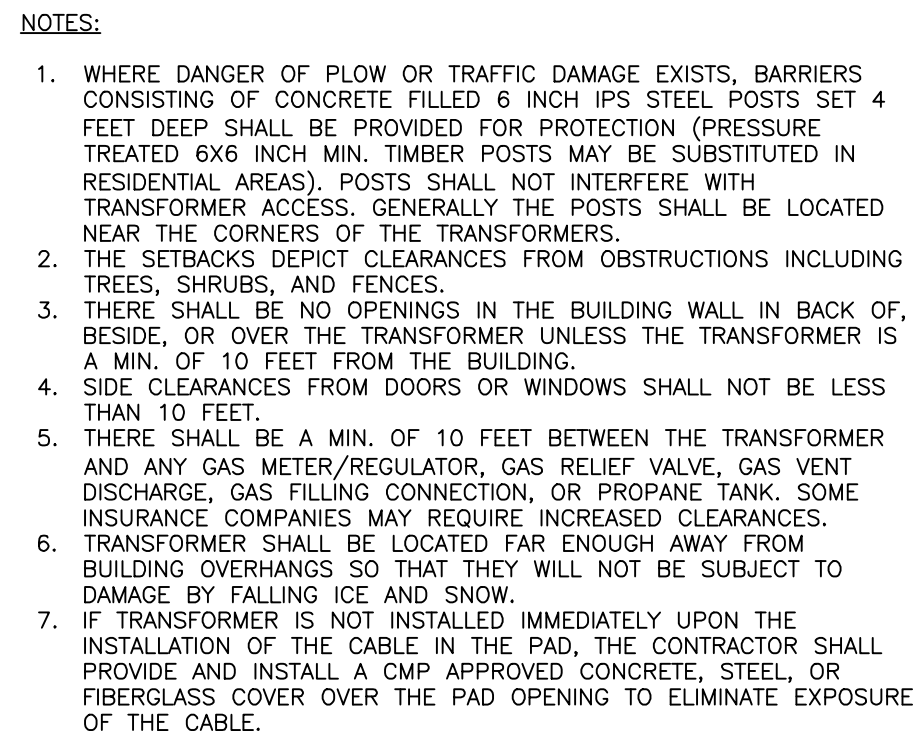
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DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



12/16/04

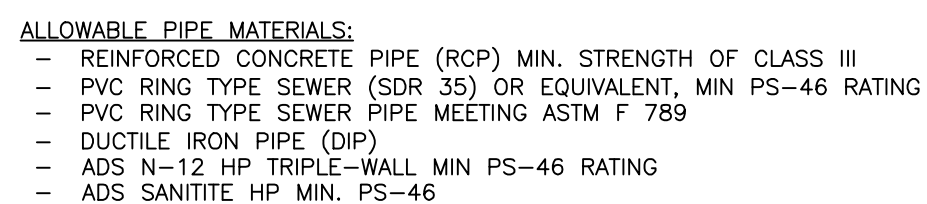
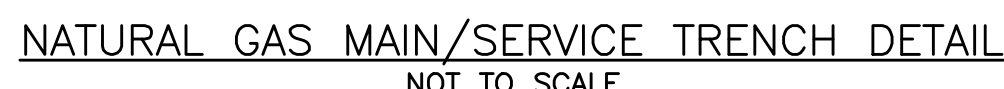
11/11/2016

- Page 370 of 52

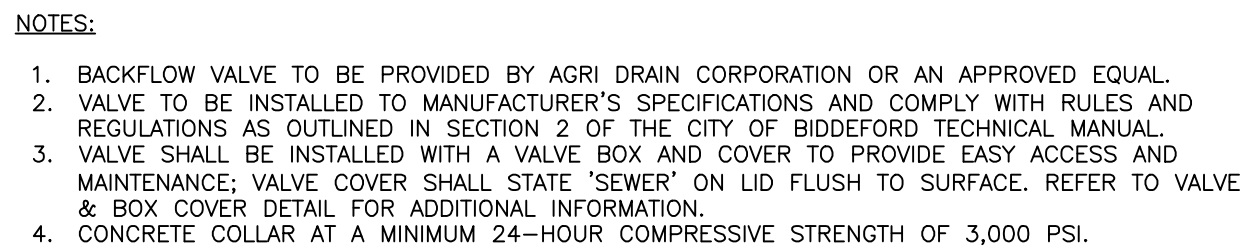


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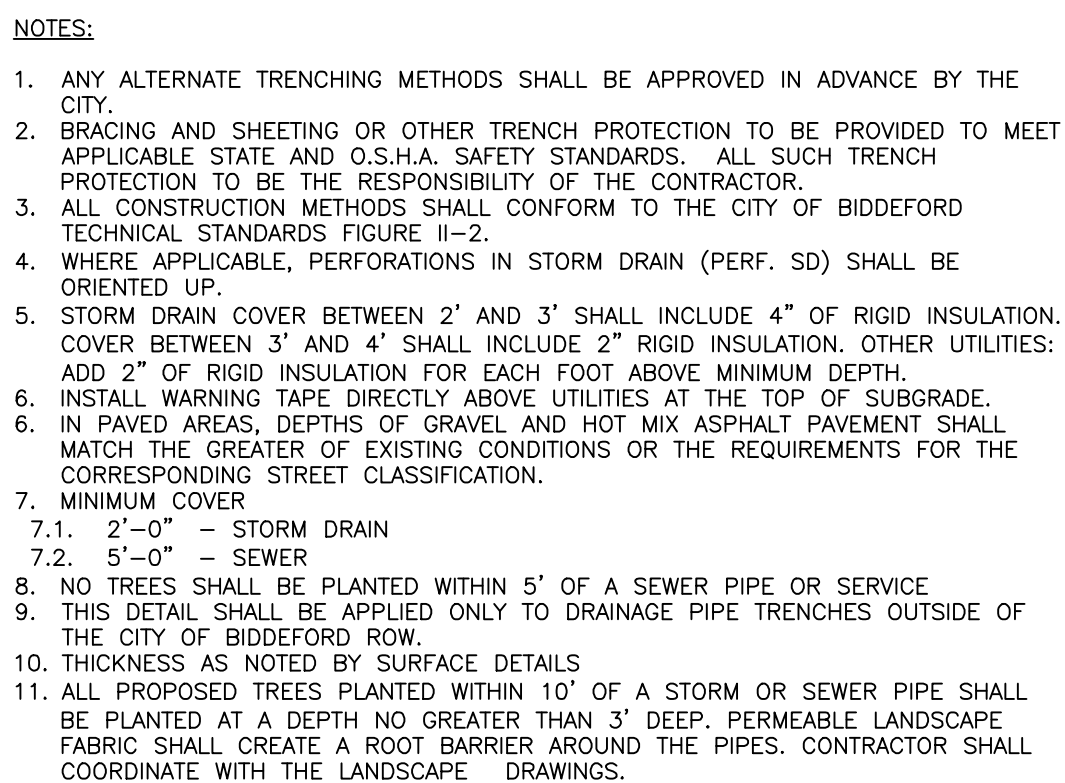
1. INSTALL MAINS WITH A MINIMUM OF 36" OF COVER AND SERVICES WITH A MINIMUM OF 24" OF COVER. EXCEPTIONS MAY BE MADE WITHIN SLATE AND FEDERAL CODES WITH THE PRIOR APPROVAL OF THE OPERATIONS CENTER MANAGER. INSTALL PLASTIC PIPE WITH SLACK SO MATERIAL LOADING OR TRENCH COVER CONSTRUCTION DOES NOT CAUSE THE PIPE TO JOINT. IN JOINT CASES WHERE A STOPPER FITTING OF OTHER NEW MATERIAL IS ADDED TO AN OLDER MAIN SUCH THAT THE MAIN HAS LESS THAN 24" OF COVE, THE CONTRACTOR SHOULD PROVIDE PERMANENT PROTECTION SUCH AS AN ANCHORED STOPPER FITTING. IF THE TRENCH IS DEEPER THAN 24" OF COVER, NOTIFY THE OPERATIONS CENTER MANAGER OR THE DESIGNEE SO THEY CAN REQUEST APPROVAL FROM THE DEPARTMENT OF PUBLIC UTILITIES.
2. PROCEDURE - SEE FIGURE BELOW.
 - 2.1. REMOVE ALL EXCAVATED MATERIAL FROM THE TRENCH WITH PUMPS OR EQUIVALENT
 - 2.2. PLACE A LAYER OF SAND 4" DEEP IN TRENCH BOTTOM BEFORE LAYING THE PIPE IN THE TRENCH. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL OR SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
 - 2.3. FOR PLASTIC PIPE, INSTALL NUMBER 12 AWG SOLDER COPPER WIRE (TRACER WIRE) WITH YELLOW INSULATION JACKET ALONG THE LENGTH OF THE SERVICE. THIS WIRE IS USED TO LOCATE THE PIPE. THE WIRE MAY BE PLACED ABOVE OR ALLOW THE WIRE TO TOUCH THE PLASTIC PIPE. KEEP THE TRACER WIRE AT LEAST 4" AWAY FROM THE PLASTIC PIPE. IF THE INSTALLATION IS TRENCHLESS, THE TRACER WIRE MAY BE LESS THEN 4" AWAY FROM THE PLASTIC PIPE.
 - 2.4. PLACE A MINIMUM OF 6" OF SAND OVER THE PIPE. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
- 2.5. PLACING WARNING TAPE IN THE TRENCH. THE TRENCH SHALL BE MARKED WITH YELLOW TAPE. THE STANDARD WARNING TAPE IS YELLOW, NON-DETECTABLE TAPE, 6" WIDE. PLACE THE RST OF THE TRENCH WITH CLEAN FILL MATERIAL, USING THE SPOIL WHERE SUITABLE AND ACCEPTABLE. IF THE ORIGINAL SPOIL MATERIAL IS NOT SUITABLE FOR USE AS A SUB-BASED MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MATERIAL REQUIRED BY STATE OR LOCAL AGENCIES. REMOVE ALL EXCESS SPOIL IN THE ACCEPTED MANNER.
- 2.7. PROPERLY COMPACT THE TRENCH TO INSURE THE TRENCH WILL NOT SETTLE.
3. SEE STANDARD 10.03 FOR A DESCRIPTION OF SUITABLE MATERIALS FOR PIPE BEDDING AND BACKFILL.



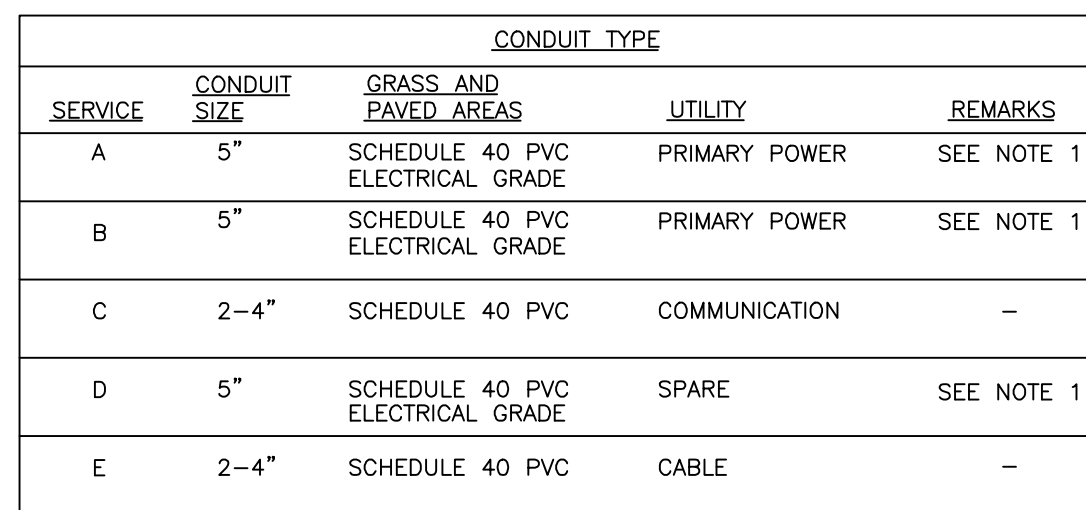
NOT TO SCALE



NOT TO SCALE



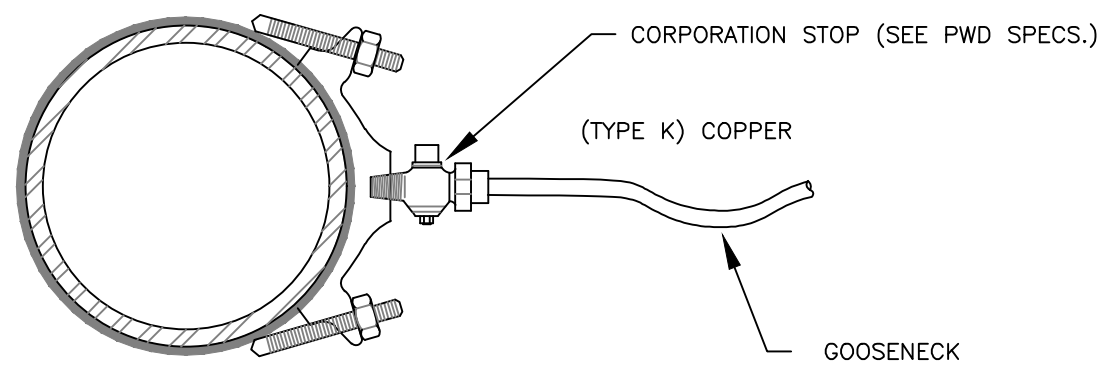
NOT TO SCALE



1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
3. CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.
4. FINAL SIZE OF CONDUITS TO BE SPECIFIED BY MEP, ELECTRICIAN, OR DESIGN/BUILD ELECTRICAL CONTRACTOR.

NOT TO SCALE

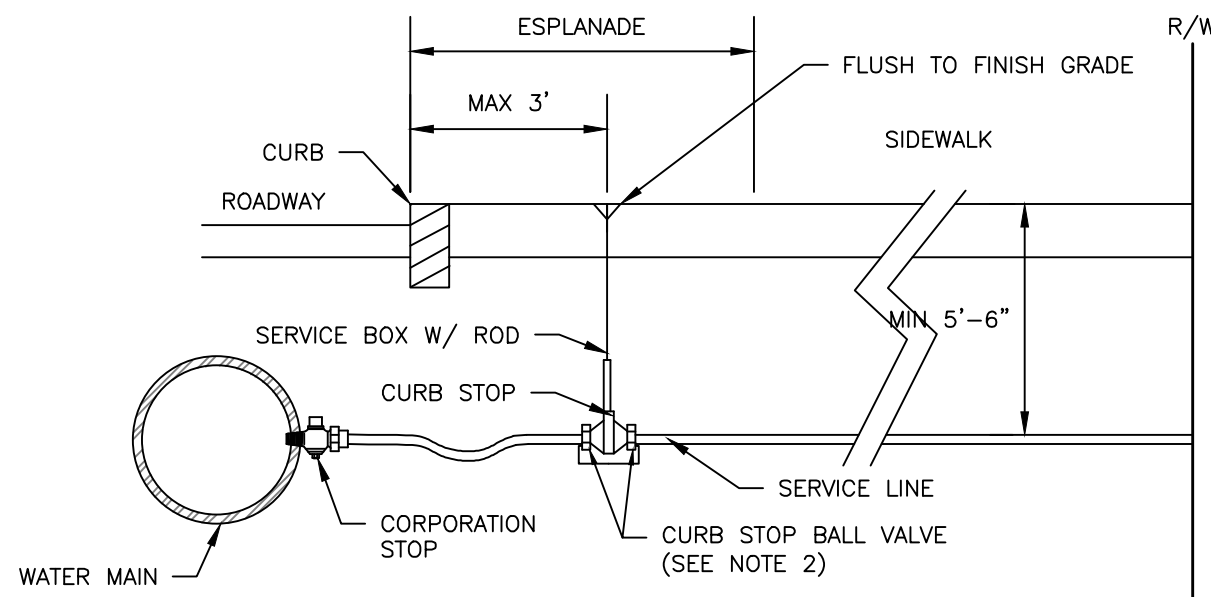




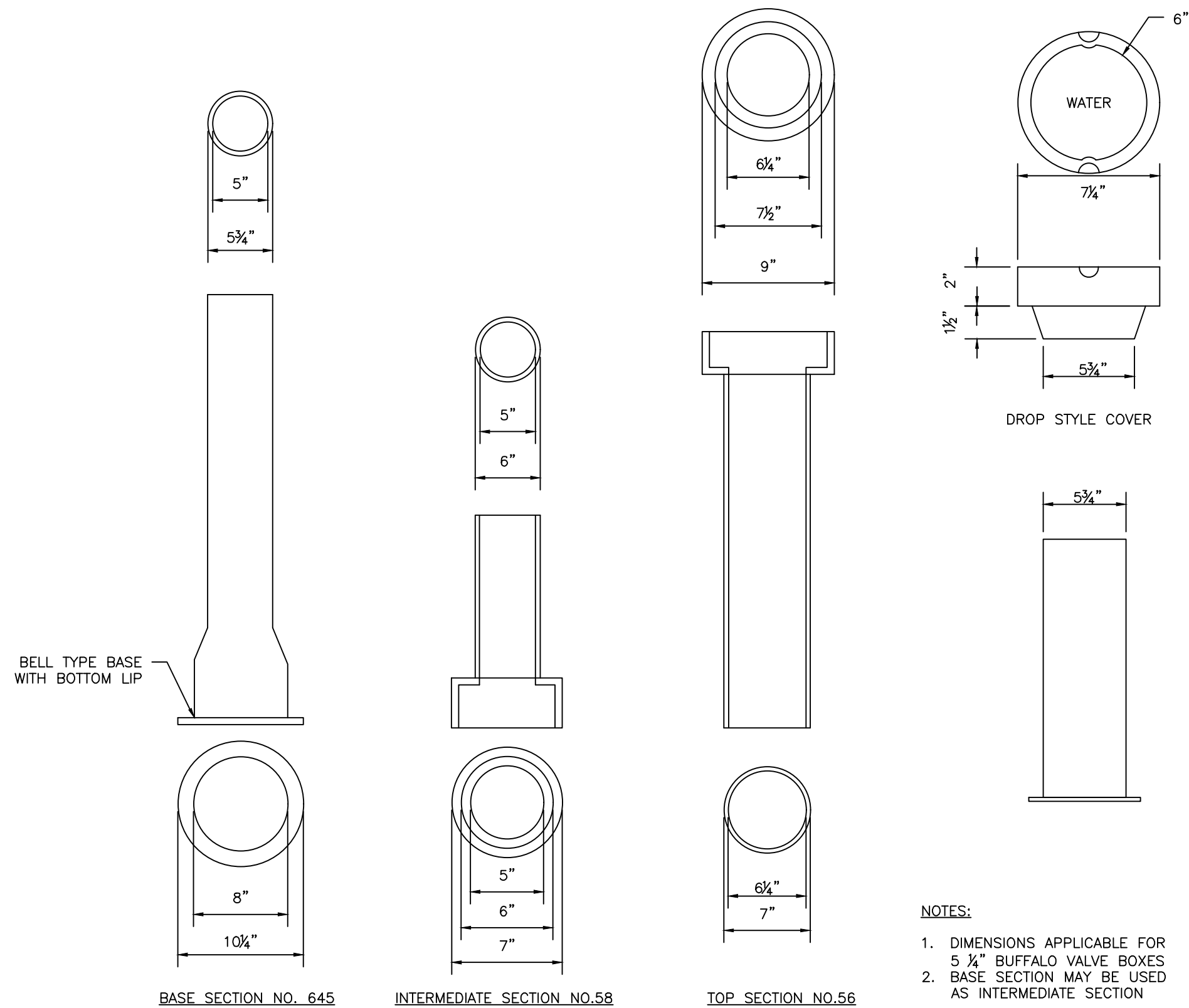
SERVICE SADDLE: 1-1/2" AND 2" C.C. THREAD
NOT TO SCALE

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH MAINE WATER COMPANY SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE PORTLAND WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.
5. CURB STOP TO BE INSTALLED IN PERVIOUS AREAS TO THE GREATEST EXTENT FEASIBLE. FOR LOTS IN WHICH THE CURB STOP MUST BE LOCATED IN A SIDEWALK OR DRIVEWAY, CONTRACTOR TO CONTACT PWD FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
6. CONTRACTOR TO COIL ACCESS PIPE ON PRIVATE PROPERTY PRIOR TO CONNECTION TO HOUSE. ACCESS PIPE TO BE ADEQUATELY MARKED IF BURIED OR PROTECTED IF STORED ABOVE GROUND.



TYPICAL SERVICE CONNECTION
NOT TO SCALE



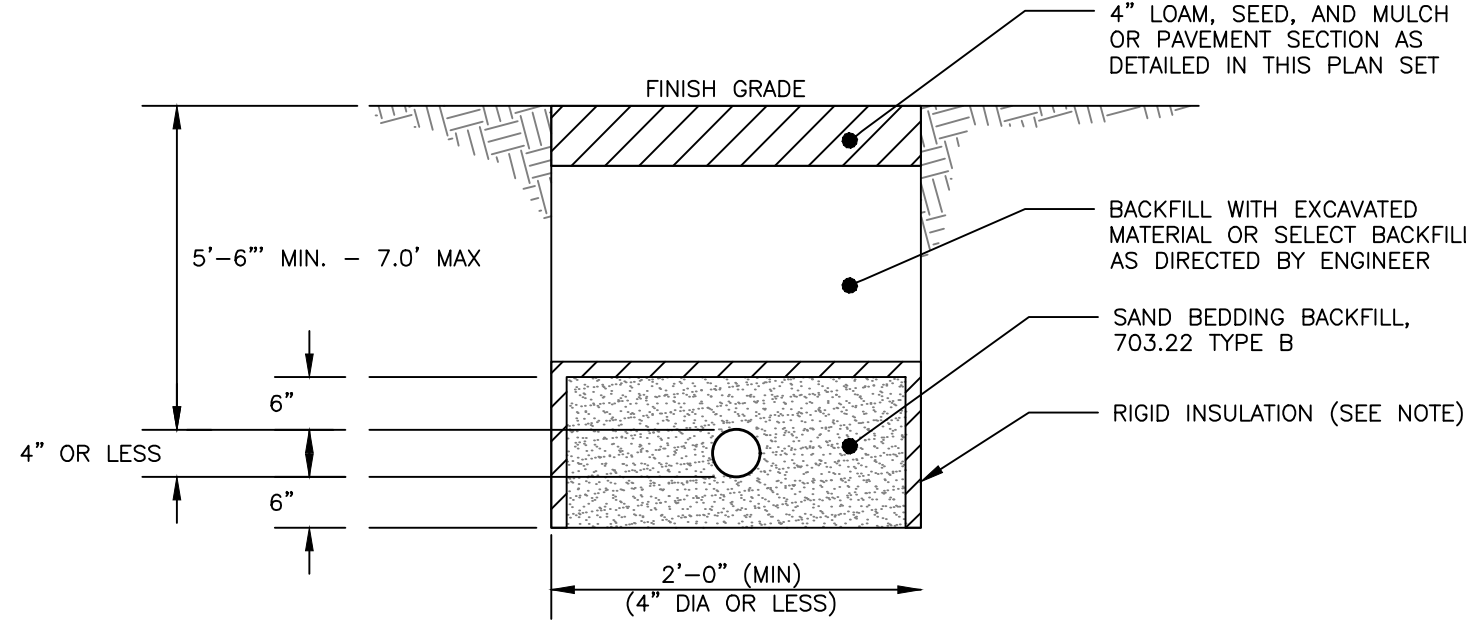
VALVE BOX & COVER
NOT TO SCALE

NOTES:

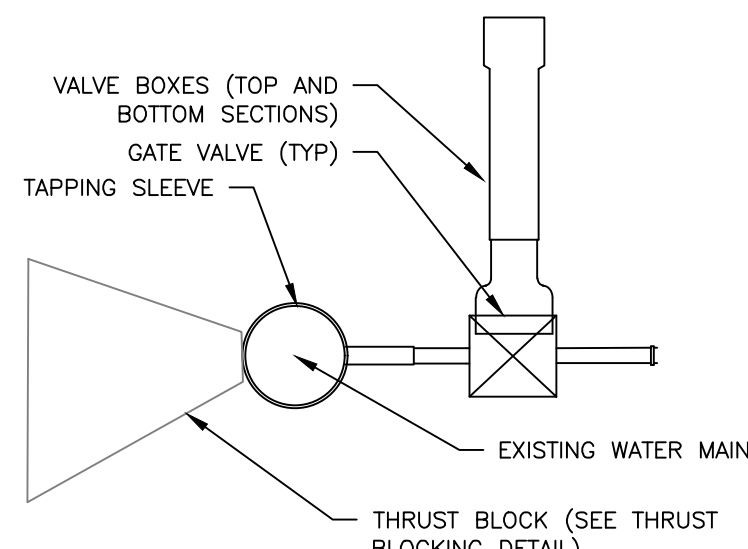
1. DIMENSIONS APPLICABLE FOR 5 1/4" BUFFALO VALVE BOXES
2. BASE SECTION MAY BE USED AS INTERMEDIATE SECTION

NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MAINE WATER COMPANY'S STANDARD DETAILS & SPECIFICATIONS.
2. IF LESS THAN 5'-6" OF COVER IS POSSIBLE ADD TWO LAYERS OF 2-INCH "BLUE DOW" RIGID INSULATION.



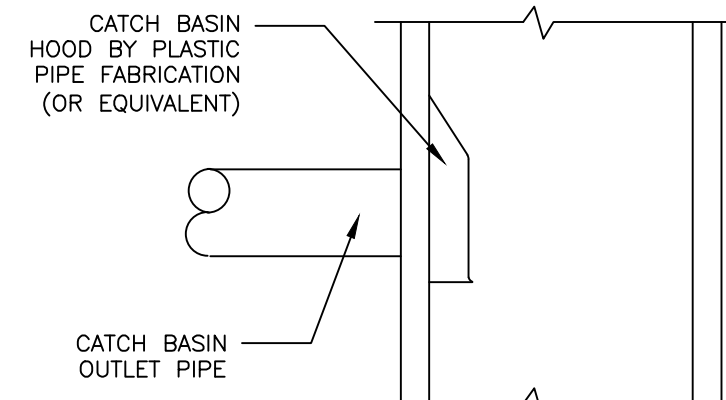
WATER SERVICE TRENCH SECTION DETAIL
NOT TO SCALE



TAPPING SLEEVE AND VALVE
NOT TO SCALE

NOTES:

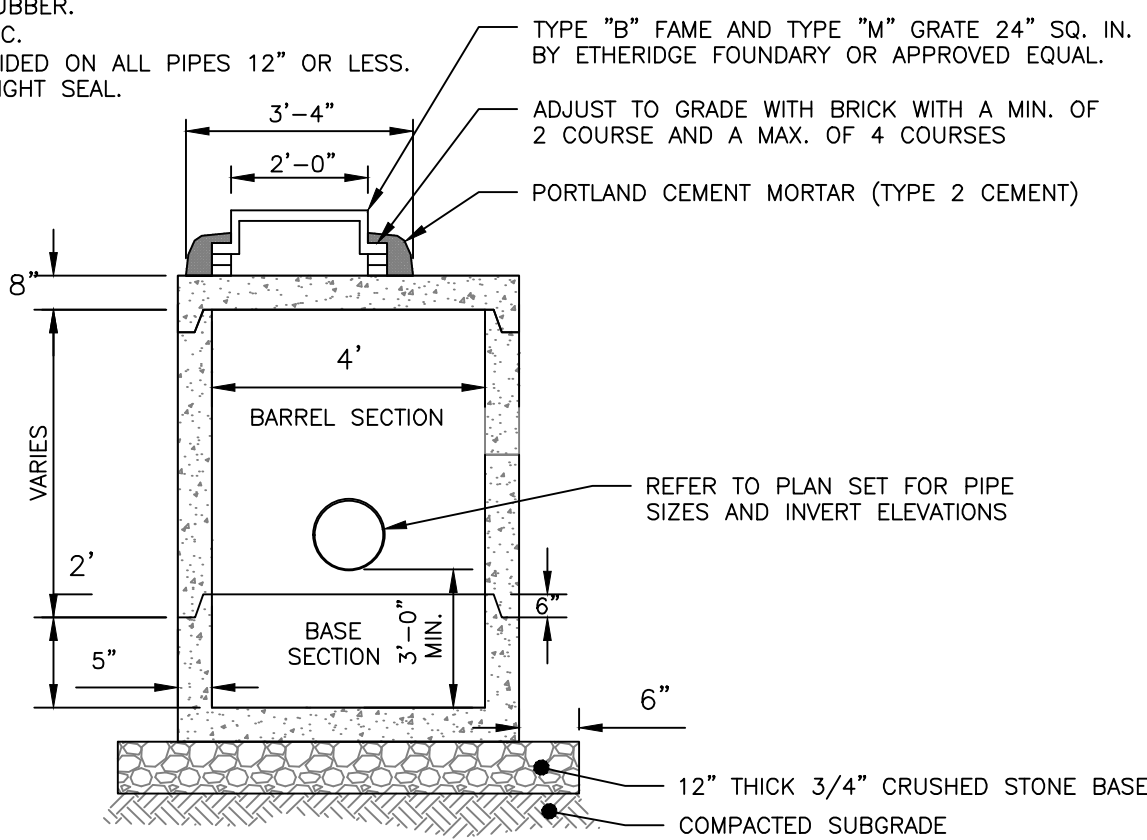
1. INSTALL CATCH BASIN HOODS IN ALL CATCH BASINS WITH A 12" OR GREATER OUTLET PIPE.
2. PREFERRED STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION REQUIREMENTS



CATCH BASIN HOOD DETAIL
NOT TO SCALE

NOTES:

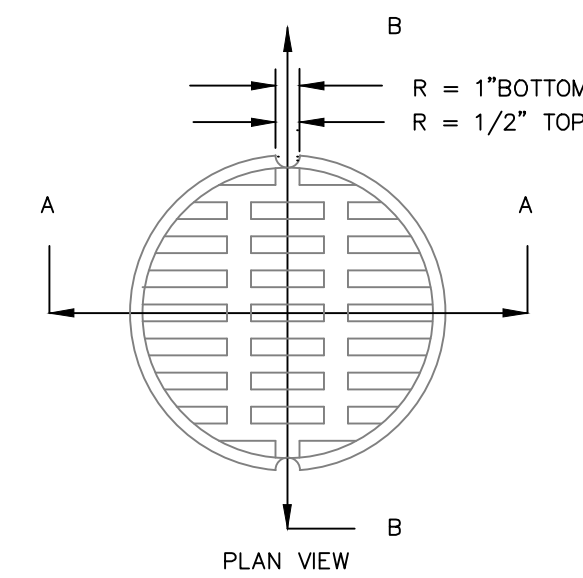
1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF.
5. JOINTS SEALED WITH BUTYL RUBBER.
6. POLYPROPYLENE STEPS 12" O.C.
7. CASCO TRAPS SHALL BE PROVIDED ON ALL PIPES 12" OR LESS.
8. ALL PIPES TO HAVE A WATERTIGHT SEAL.



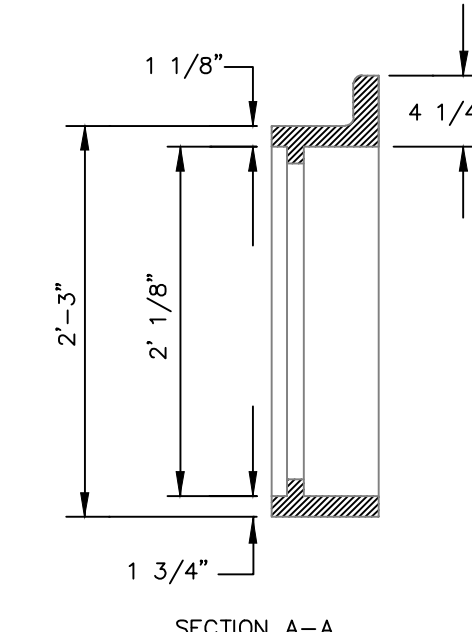
4'-0" PRECAST CATCH BASIN WITH FLATTOP
NOT TO SCALE

NOTES:

1. APPROVED CATCH BASIN FRAMES:
1.1. EAST JORDAN = 7375Z
1.2. NEENAH = R-3248
1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
2.1. EAST JORDAN = 2440M
2.2. NEENAH = R-3248
2.3. OR APPROVED EQUAL



GRATE DETAIL



FRAME DETAIL

CATCH BASIN FRAME & GRATE
NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

UTILITY DETAILS - 2
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDDEFORD ME
1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE: AE_1246_DETAILS
JN: 1246
SCALE: AS NOTED
DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



DRAWING NO.
C-43

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

- 1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
 - STONE SIZE SHALL BE 2-3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 - THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
 - THE ENTRANCES 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 ROADWAYS.
- 1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.
- 1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.
- 1.1.5 MAIN STREET AND THE PEPPERELL CAMPUS SHALL BE SWEEPED TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.
- 1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SIDE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.
- 1.1.7 SILT FENCE STAPLES SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE "TOED" INTO THE GROUND.
- 1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED 1/2 THE DESIGN HEIGHT.
- 1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.
- 1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.
- 1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.
- 1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.
- 1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

- 1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4" OF LOAM AND SHALL BE LIMED, AND MULCHED.
- 1.2.2 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.
- 1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

- 2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

- 3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER-WINTER STABILIZATION, ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

- 4.1 SEDIMENT BARRIERS
 - DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.
- 4.2 MULCHING
 - ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EROSION 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, MULCHING AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.
- 4.3 SOIL STOCKPILING
 - STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR-INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.
- 4.4 SEEDING
 - BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADDED AND EITHER SEEDED AND MOWED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS NOT BEEN LOAMED, FINAL GRADING WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED.
 - DORMANT SEEDING MAY BE PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS./1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.
- 4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS
 - BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:
 - STABILIZE THE SOIL WITH TEMPORARY VEGETATION - BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION.
 - STABILIZE THE SOIL WITH SOD - STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
 - STABILIZE THE SOIL WITH MULCH - BY NOVEMBER 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES

ALL STONE-COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS - BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR UNDERLAY 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.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A "STORM EVENT". A "STORM EVENT" SHALL CONSIST OF 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL - BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM. SEDIMENT BARRIERS SHALL BE 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.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS, WHICH MAY BE REQUIRED TO BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH TRAVELING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE-INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: PETER HEIL, PE
TELEPHONE: (207) 775-2655

QUALIFICATIONS:

- ø MAINE PROFESSIONAL ENGINEERING LICENSE #15318
- ø MAINE DEP CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT
- ø MAINE DEP - CERTIFIED THIRD-PARTY INSPECTOR
- ø CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #7071

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

1. INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
2. INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
3. INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
4. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
5. PRIORITIZE THE DOWNHILL SIDE TO CONTAIN RUNOFF WITHIN THE SITE WHILE PROVIDING AN ENGINEERED OUTLET WITH SILTATION BARRIER TO THE MUNICIPAL STORMWATER SYSTEM WITHIN MAIN STREET.
6. COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
7. COMMENCE INSTALLATION OF UTILITIES.
8. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
9. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
10. COMPLETE REMAINING EARTHWORK OPERATIONS.
11. INSTALL SUB-BASE AND BASE GRAVELS IN PAVED AREAS.
12. INSTALL PAVING, CURBING AND BRICKWORK.
13. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
14. ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
15. TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
16. COMPLETE SITE SIGNAGE AND STRIPING.
17. EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE-VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 SEEDING PLAN

7.1 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.

7.2 SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10-10-10 (N-P205-K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

7.3 SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

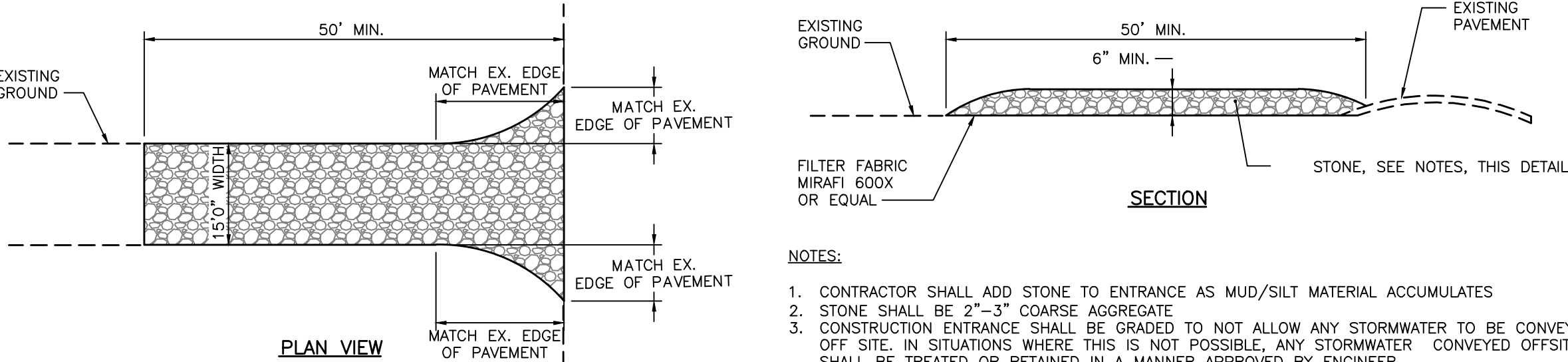
TEMPORARY SEED APPLICATION RATES			PERMANENT SEED APPLICATION RATES	
SEED	LBS / ACRE	RECOMMENDED SEEDING DATES	SEED	LBS / ACRE
WINTER RYE	2.57	8/15 TO 10/1	KENTUCKY BLUEGRASS	20.00
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15	CREeping RED FESCUE	20.00
ANNUAL RYGRASS	0.92	4/1 TO 7/1	PERENNIAL RYGRASS	4.80
SUDANGRASS	0.92	5/15 TO 8/15	TOTAL	44.8 LBS/ACRE
PERENNIAL	0.92	8/15 TO 9/15		
TOTAL	7.17 LBS/ACRE			

7.4 MULCHING

MULCH SHALL BE HARDWOOD AND 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. REFER TO DETAIL FOR MORE INFORMATION.

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.

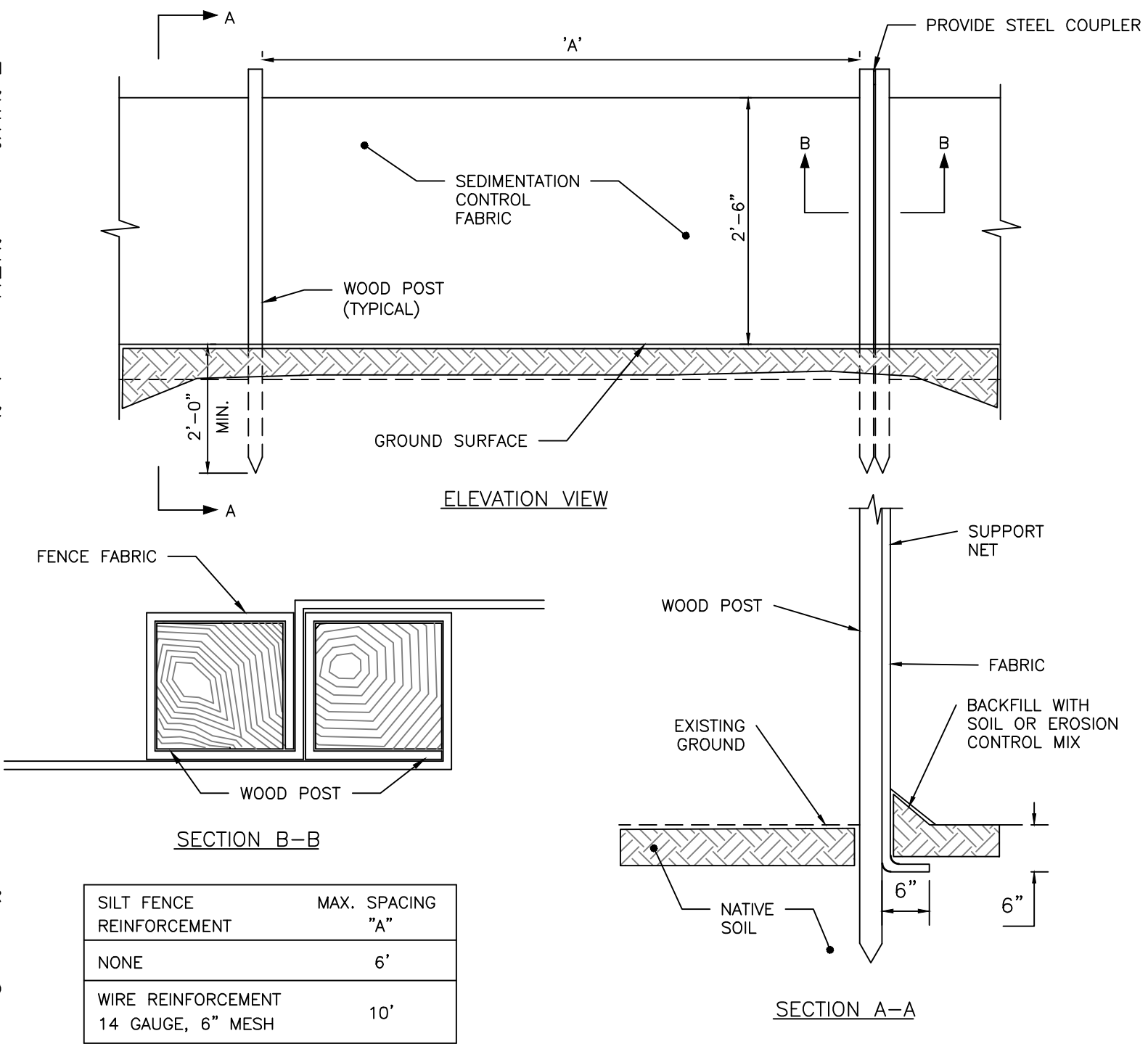


NOTES:

1. CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
2. STONE SHALL BE 2"-3" COARSE AGGREGATE
3. CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
4. WHEN NECESSARY, ON-SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
5. CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT-OF-WAY

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

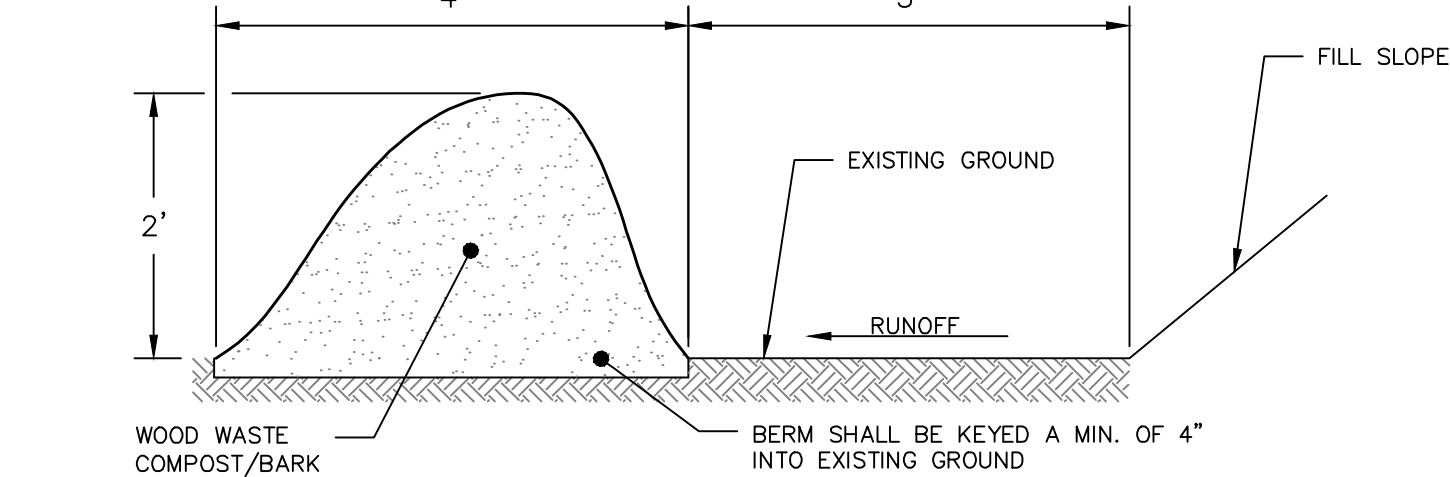


SILTATION FENCE DETAIL

NOT TO SCALE

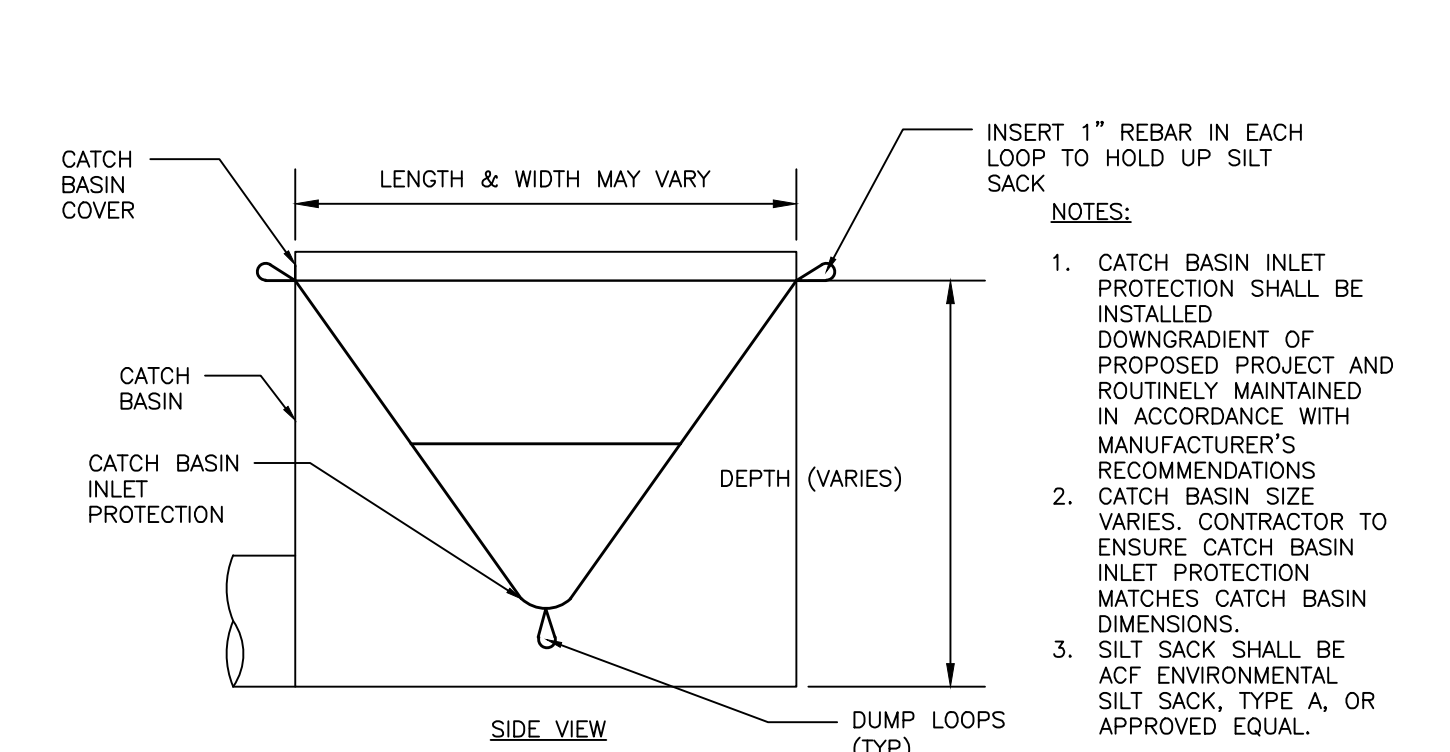
NOTES:

1. THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):
 - 1.1. pH BETWEEN 5.0 - 8.0
 - 1.2. PARTICLE SIZE (BY WEIGHT):
 - 1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
 - 1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
 - 1.3. SOLUBLE SALTS CONTENT < 0.9 MMHOS/CM
 - 1.4. ORGANIC MATTER 20 TO 100%, DRY WEIGHT BASIS
2. THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR. WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.
3. THE BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.



EROSION CONTROL MIX BERM DETAIL

NOT TO SCALE



NOTES:

1. CATCH BASIN INLET PROTECTION SHALL BE INSTALLED DOWNGRADIENT OF PROPOSED PROJECT AND ROUTINELY MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. CATCH BASIN SIZE Varies. CONTRACTOR TO ENSURE CATCH BASIN INLET PROTECTION MATCHES CATCH BASIN DIMENSIONS.
3. SILT SACK SHALL BE ACF ENVIRONMENTAL SILT SACK, TYPE A, OR APPROVED EQUAL.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR

BY

DATE

ATS

PFH

9/26/24

PRELIMINARY

PFH

10/26/24

FINAL

PFH

12/4/24

EROSION & SEDIMENTATION CONTROL NOTES AND DETAILS

PROJECT NAME

PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT

CLIENT

1921 PEPPERELL, LLC

16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.

15318

STATE OF MAINE

REGISTERED PROFESSIONAL ENGINEER

10/26/24

FILE: AE_1246_DETAILS

JN: 1246

SCALE: AS NOTED

DESIGNED BY: ZMS

DRAWN BY: DSH

CHECKED BY: PFH

DRAWING NO.

C-44

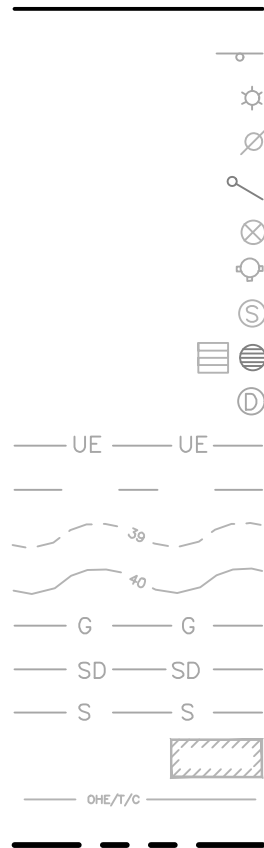
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT

1921 PEPPERELL, LLC
PORTLAND, MAINE

LEGEND

EXISTING

REFER TO THE
EXISTING
CONDITIONS PLAN
FOR ADDITIONAL
INFORMATION



PROPOSED



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- PLAT SUBDIVISION PLAT

EXISTING USE	VACANT MILL BUILDING
PROPOSED USE	APARTMENTS
DRAINAGE WATERSHED	SACO RIVER
MS4 URBANIZED AREA	YES
NEARBY NATURAL RESOURCES	YES (SACO RIVER)
WITHIN 100-YEAR FLOOD ZONE	NO
PUBLIC ROAD PROPOSED	NO
PRIVATE ROAD PROPOSED	NO
PUBLIC SEWER CONNECTION	YES
PUBLIC STORMDRAIN CONNECTION	YES

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

UTILITIES

SEWER:

DEPARTMENT OF PUBLIC WORKS (DPW)
205 MAIN STREET
BIDDEFORD, MAINE 04005
CONTACT: CRAIG CHECKAN, P.E.
(207) 284-9118



WATER:

MAINE WATER COMPANY
93 INDUSTRIAL PARK ROAD
SACO, MAINE 04072
CONTACT: MARCUS KNIPP E.I.T
(207) 282-1543



ELECTRIC:

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: JAY AGRESTE
(207) 207-842-2367



CABLE:

SPECTRUM CABLE
444 PERRY ROAD
BANGOR, MAINE, 04401
CONTACT: STEVEN HOLMES
(207) 631-1618



NATURAL GAS:

UNITIL SERVICE CORP.
376 RIVERSIDE INDUSTRIAL PARKWAY
PORTLAND, MAINE 04103
CONTACT: SCOTT CARPENTER
(207) 541-2543



TELEPHONE:

CONSOLIDATED COMMUNICATIONS
45 FOREST AVENUE
PORTLAND, MAINE 04101
CONTACT: PATRICK MORRISON
(207) 745-9363



PROJECT TEAM

DEVELOPER:

1921 PEPPERELL, LLC
PORTLAND, MAINE
CONTACT: JOSH CUSHMAN
(207) 744-3084 EXT. 317



DEVELOPERS REPRESENTATIVE:

FATHOM COMPANIES
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CONTACT: MARIEKE THORMANN P.E.
(207) 317-2818



CIVIL ENGINEER:

ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: PETER F HEIL, P.E.
(207) 775-2655



ARCHITECTS:

ARCHETYPE ARCHITECTS
PORTLAND, MAINE
CONTACT: BILL HOPKINS
(207) 772-6022



SURVEYOR:

OWEN HASKELL, INC.
FALMOUTH, MAINE
CONTACT: RANDY LOUBIER, PLS
(207) 774-0424



CONSTRUCTION MANAGER:

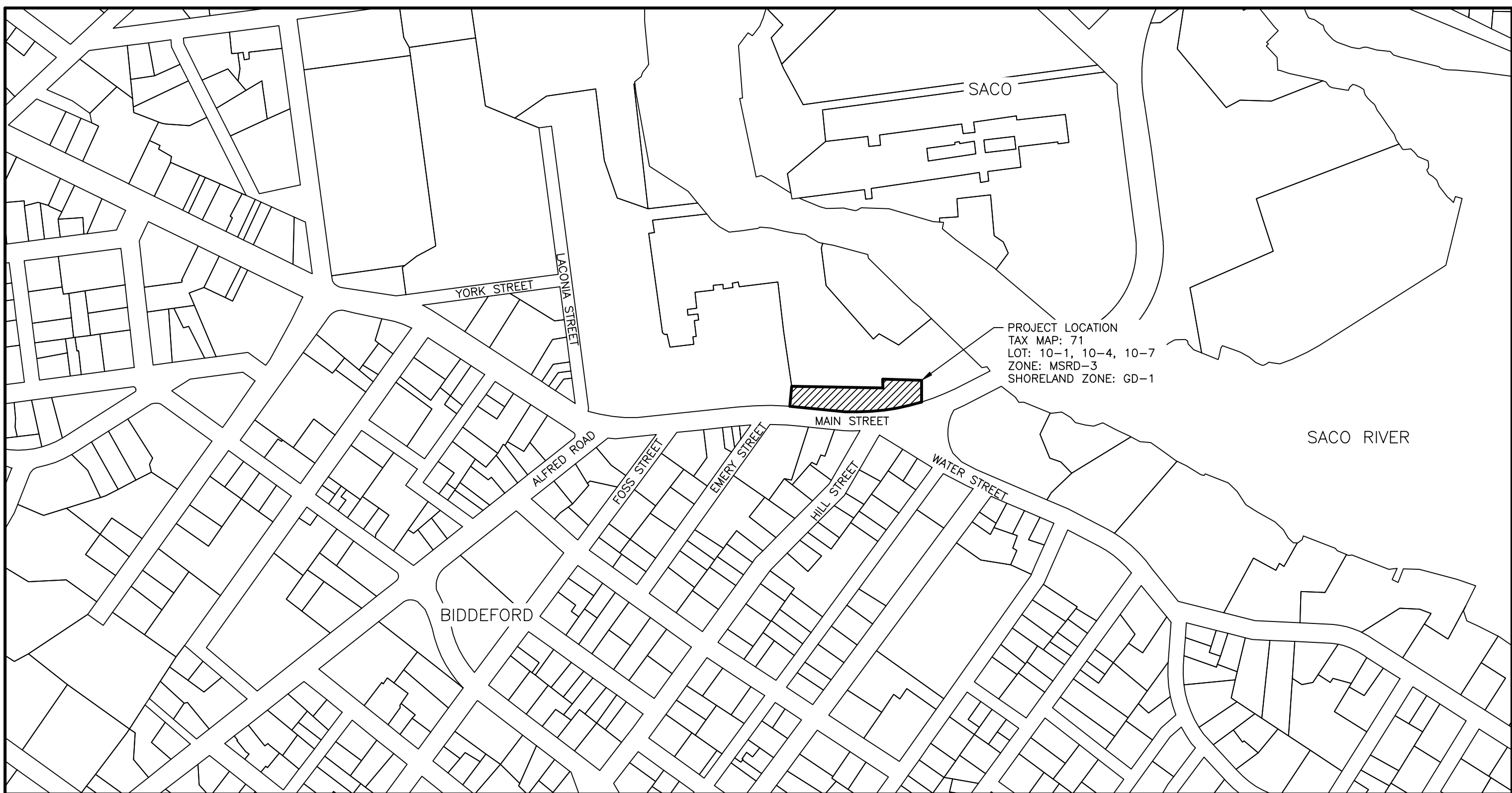
WOODHULL ARCHITECTURE
PORTLAND, MAINE
CONTACT: MICHAEL CLEARY
(207) 502-2555



ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE
CONTACT THE ENGINEER FOR ANY CLARIFICATION

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CAD	COMPUTER AIDED DESIGN
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
HDPE	HIGH DENSITY POLY ETHYLENE
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDEP	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
M.E.P	MECHANICAL, ELECTRICAL, PLUMBING DESIGNER
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
VIF	VERIFY IN FIELD



VICINITY MAP

SCALE: 1:250

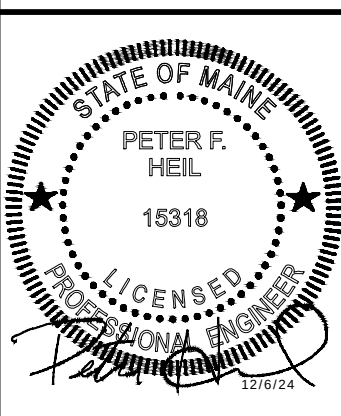
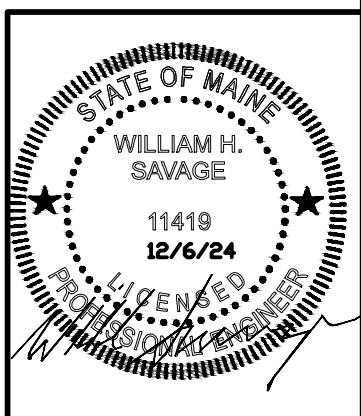
PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
DATE	DATE
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

COVER SHEET & LEGEND	PROJECT NAME	CLIENT
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDDEFORD ME	1921 PEPPERELL, LLC	16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.	ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104	(207) 775-2655

FILE: AE_1246_DETAILS
JN: 1246
SCALE: AS NOTED
DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



DRAWING NO.
C-01

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITIES COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ALL 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 (IF APPLICABLE), 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 BIDDEFORD 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 .DWG FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD CAPABILITY IS NOT AVAILABLE, EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED BOUNDARY & TOPOGRAPHIC SURVEY BY OWEN HASKELL, INC. FOR FATHOM COMPANIES, DATED AUGUST 30, 2024.
8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE 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 BIDDEFORD PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
9. CONSTRUCTION MANAGEMENT PLAN AND SITE LOGISTICS NARRATIVE SHALL BE PREPARED BY THE CONTRACTOR AND SHALL BE REFERRED TO FOR ANTICIPATED PROJECT SCHEDULE AND CLOSURES. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
11. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL BE COMPLETED AT A MINIMUM ADJACENT STRUCTURES. PROVIDE A COPY OF THE SURVEY TO THE OWNER. DOCUMENT WITH PICTURES AT A MINIMUM.
13. THE CONTRACTOR SHALL PROVIDE A GPS MODEL OF THE PROPERTY TO ACORN ENGINEERING, INC. (ACORN).
14. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH THE ENGINEER, ACORN ENGINEERING INC, IF ANY.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES AND SHRUBS ON THE PROJECT WHICH ARE NOT TO BE REMOVED.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING, OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY. REMOVAL OF WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE WARRANTY PERIOD. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO ACORN TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP, ERECTION, AND CONSTRUCTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION FOR ACORN'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 ACORN 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 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. PRIOR TO BACKFILLING, CONCRETE SHALL BE CURED PER STRUCTURAL ENGINEER'S SPECIFICATIONS.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE, IF APPLICABLE.
12. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
13. ACORN BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND SITE OBSERVATION VISITS DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.
14. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBPART P OF 29 CRF PART 1926.650-.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).
15. ALL TRENCH PAVEMENT REPAIR SHALL BE COMPLETED WITH THE USE OF A STREET PAYER WITH A SCREED WIDTH CAPABLE OF SPANNING THE FULL WIDTH OF THE TRENCH UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN.
3. IF NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT ARE NECESSARY, NOTIFY CITY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.

5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- 5.1. 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.
- 5.2. 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.
- 5.3. 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.
- 5.4. SPECIAL INSPECTOR SHALL BE EMPLOYED BY OWNER AND COORDINATED BY THE CONTRACTOR.

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO ITS ORIGINAL LOCATION AND ELEVATION BY A LICENSED PROFESSIONAL LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO ACORN 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 BIDDEFORD, 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 STRUCTURE CORNERS.
6. CONTRACTOR TO ENSURE THAT ACCESS, INCLUDING BUT NOT LIMITED TO WALKWAYS, DRIVEWAYS, AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND AVAILABLE FOR USE AT ALL TIMES.

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF MAJOR SITE PLAN & SUBDIVISION PERMIT FROM THE CITY OF BIDDEFORD, A SACO RIVER CORRIDOR COMMISSION PERMIT APPLICATION, AND A MAINEDEP NATURAL RESOURCE PROTECTION ACT PERMIT BY RULE APPLICATION.
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.
3. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A STREET OPENING PERMIT FROM THE CITY OF BIDDEFORD. ADDITIONALLY, COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS.

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM (MEETS THE REQUIREMENTS WITHIN SECTION 615 OF THE MDOT STANDARD SPECIFICATIONS, MOST RECENT VERSION AND IS FREE OF TRACEABLE AMOUNTS OF CONTAMINANTS) SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY STRIPPED TOPSOIL 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. DEWATERING SHALL INCLUDE TREATMENT OF SILT THROUGH THE USE OF A DIRTBAG BY ACF ENVIRONMENTAL OR APPROVED EQUIVALENT. FLOWS FROM DEWATERING ACTIVITIES SHALL NOT BE DISCHARGED INTO SANITARY SEWERS. SEE BORING LOGS FOR ADDITIONAL INFORMATION.
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 ADJACENT LAND OWNERS. PRIOR TO THE CONTRACTOR PRICING THE WORK, THEY SHALL PROVIDE ACORN WITH 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 MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES WHERE NOT NOTED ON THE GRADING PLAN. SLOPES IDENTIFIED ON THE GRADING PLAN TAKE PRECEDENT. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.
6. CONTRACTOR TO REVIEW EXISTING SOIL CONDITIONS, TEST PITS, AND BORINGS. THERE WILL BE NO ADDITIONAL PAYMENT FOR UNSUITABLE SOILS.
7. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF $N=0.012$ OR LESS.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. NATIVE SOILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, CONTACT ACORN. THE DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.

1. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. ALL ROUTINE WORK ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
3. 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.
4. 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.
5. 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.

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 ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR SHALL 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, PRIOR TO THE ORDERING OF STRUCTURES.
4. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED AND SHOWN TO PASS PRIOR TO 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 5.5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
7. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAINT ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN WITHIN THE PLAN SET.
8. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH THE MAINE WATER COMPANY & CITY OF BIDDEFORD, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
9. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH MAINE WATER COMPANY AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
10. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE MAINE WATER COMPANY SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
12. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
13. COORDINATE EXIT POINT FOR SECONDARY UTILITY SERVICES WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN WITHIN THE UTILITY PLAN.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF BIDDEFORD TECHNICAL MANUAL PRIOR TO ANY WORK.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL AT NO EXTRA EXPENSE TO THE OWNER.
16. ALL UTILITY PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. THERE SHALL BE NO CRESTS OR SAGS PERMITTED IN THE PIPING. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED PIPE LINES SHALL BE SUITABLY RESTRAINED WITH THRUST BLOCKS OR RETAINER GLANDS. RETAINER GLANDS ALLOWED FOR DUCTILE IRON PIPE ONLY. PROVIDE ALL BENDS, HORIZONTAL AND VERTICAL, AS REQUIRED TO MEET THE GRADES AND ALIGNMENTS INDICATED ON THE DRAWINGS.
17. ALL WASTEWATER PIPING, EXCLUDING BUILDING DRAINS, AND ALL PRESSURIZED PIPING, TO INCLUDE WATER MAINS, INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
18. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS AND ADDITIONAL PIPE AS REQUIRED TO ENSURE A COMPLETE AND PROPERLY FUNCTIONING CONNECTION. CONTRACTOR TO VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. ADAPTERS AND FITTINGS ARE INCIDENTAL TO THE PIPE INSTALLATION.
19. WHENEVER POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A WATER LINE CROSSES UNDER THE WASTEWATER LINE, A FULL LENGTH OF WASTEWATER PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
20. THE CONTRACTOR SHALL BE ANTICIPATE THAT THE NATIVE SILT AND CLAY SOILS WILL NOT BE SUITABLE FOR PIPE TRENCH BACKFILL IN PAVED AREAS.
21. GROUNDWATER SHALL BE CONTROLLED TO A LEVEL OF AT LEAST ONE FOOT BELOW SUBGRADE OF THE PIPE OR STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE LOWERED GROUNDWATER LEVEL UNTIL CONSTRUCTION HAS BEEN COMPLETED TO SUCH AN EXTENT THAT THE STRUCTURES OR PIPES WILL NOT BE FLOATED OR OTHERWISE DAMAGED.
22. EXCAVATION TO SUBRADE IN NATIVE SILT AND CLAY SHALL BE COMPLETED WITH A SMOOTH EDGE BUCKET TO MINIMIZE SUBGRADE DISTURBANCE.
23. ALL ADJUSTMENTS TO FINISHED GRADE ARE TO BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONFIRM STRUCTURES THAT REQUIRE ADJUSTMENT WITH THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO ADJUSTING FRAMES.

- ROCK AND CONCRETE FOUNDATIONS
- CONCRETE SLABS
- BITUMINOUS ASPHALT PAVEMENT
- CONCRETE PADS AND BLOCKS
- FENCE POST AND FENCING
- UNDERGROUND UTILITY LINES
- ABOVE AND OR BELOW FUEL OIL AND PROPANE GAS TANKS
- STORM DRAIN PIPES AND APPURTENANCE STRUCTURES
- OTHER TRASH & MISCELLANEOUS SOLID WASTES

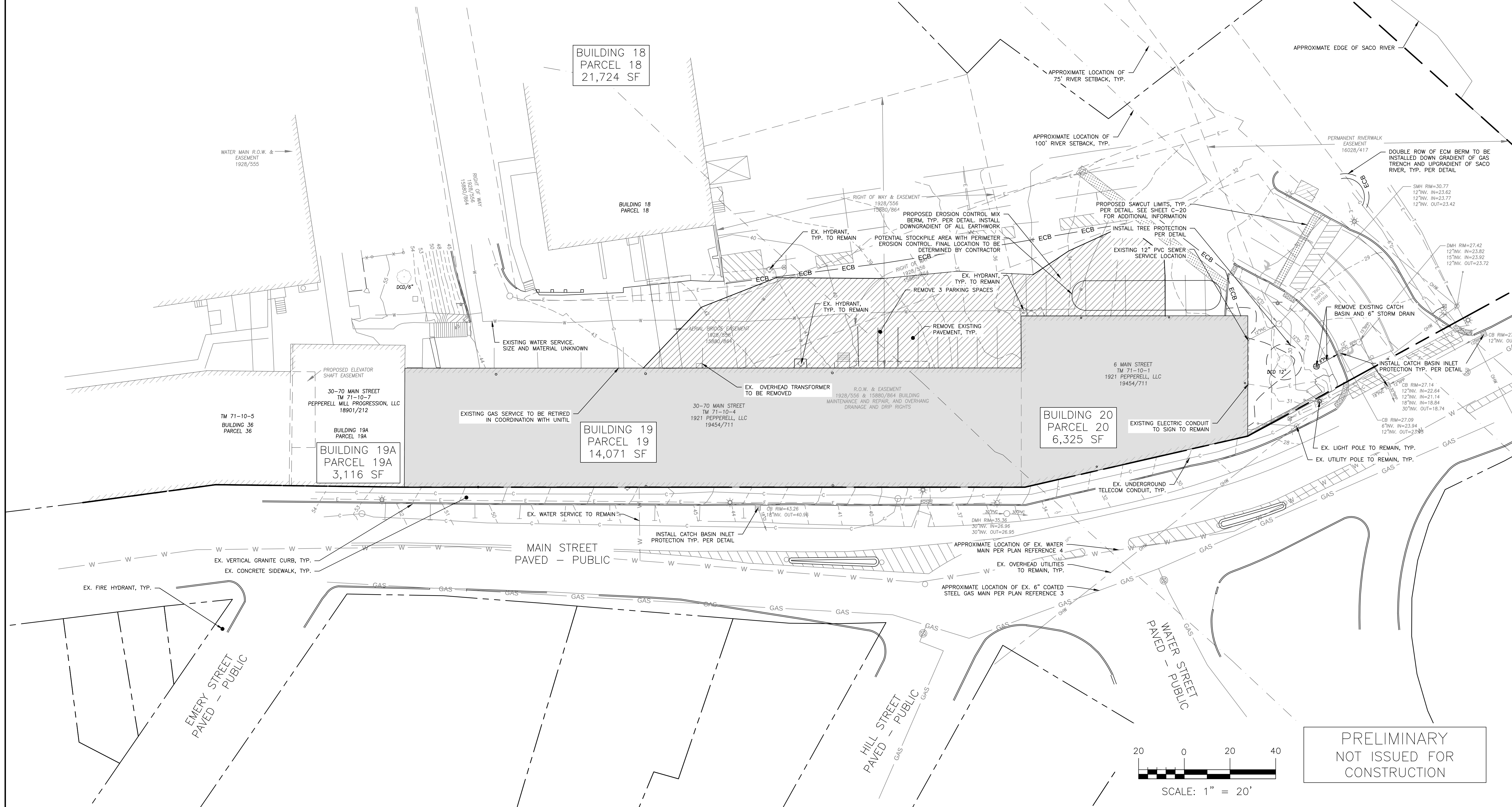
2. THE CONTRACTOR IS ADVISED TO VISIT THE SITE TO CONFIRM DEMOLITION ITEMS SINCE THE LIST IS NOT INCLUSIVE OF THE SITE CONDITIONS WHICH MAY BE ENCOUNTERED
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
4. A PHASE I ENVIRONMENTAL SITE ASSESSMENT FOR THE PEPPERELL MILL CAMPUS HAS BEEN PREPARED BY RANSOM CONSULTING, LLC

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

[illegible]

1. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
2. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
3. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
5. THE CONSTRUCTION SIGNAGE IS TEMPORARY AND SHALL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT LOCATION TO BE ACCEPTED BY THE CITY.
6. PLACE SEDIMENT BARRIERS DIRECTLY ON THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES AND DO NOT NECESSARILY DEPICT THE PHYSICAL LOCATION.
7. DEMOLITION SHALL BE IN ACCORDANCE WITH THE CITY OF CHICAGO'S PLACEMENT OF FIELD INLETS, SLOPE GRADIENT AND ALL NON-STABILIZED SURFACES, PER DETAIL.
8. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO LANDSCAPING, UTILITIES, WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF BIDEFORD REGULATIONS.
9. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR GUARANTEED. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY OF CHICAGO FOR STREET PARKING SPACES DURING THE CONSTRUCTION PERIOD.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW REMOVAL ALONG CONSTRUCTION FENCE AND GATE.
11. CONTRACTOR TO SUBMIT A Dewatering Plan for Review and Approval to the Department of Public Works Prior to the Pre-Construction Meeting, During the Building Permit Application Process, or Prior to Advanced Site Work. Contact the Department of Public Works for Additional Information and Current Regulations.
12. CONTRACTOR TO IMPLEMENT DUST CONTROL MEASURES THROUGHOUT CONSTRUCTION.
13. CONTRACTOR TO PAVE UTILITY TRENCHES (IF ANY) WITHIN THE RIGHT OF WAY WITHIN 3 DAYS OF EXCAVATION OR PRIOR TO ANY RAIN EVENT.

1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, MCDONALD, MILLIGAN INC. DATED APRIL 4, 2020

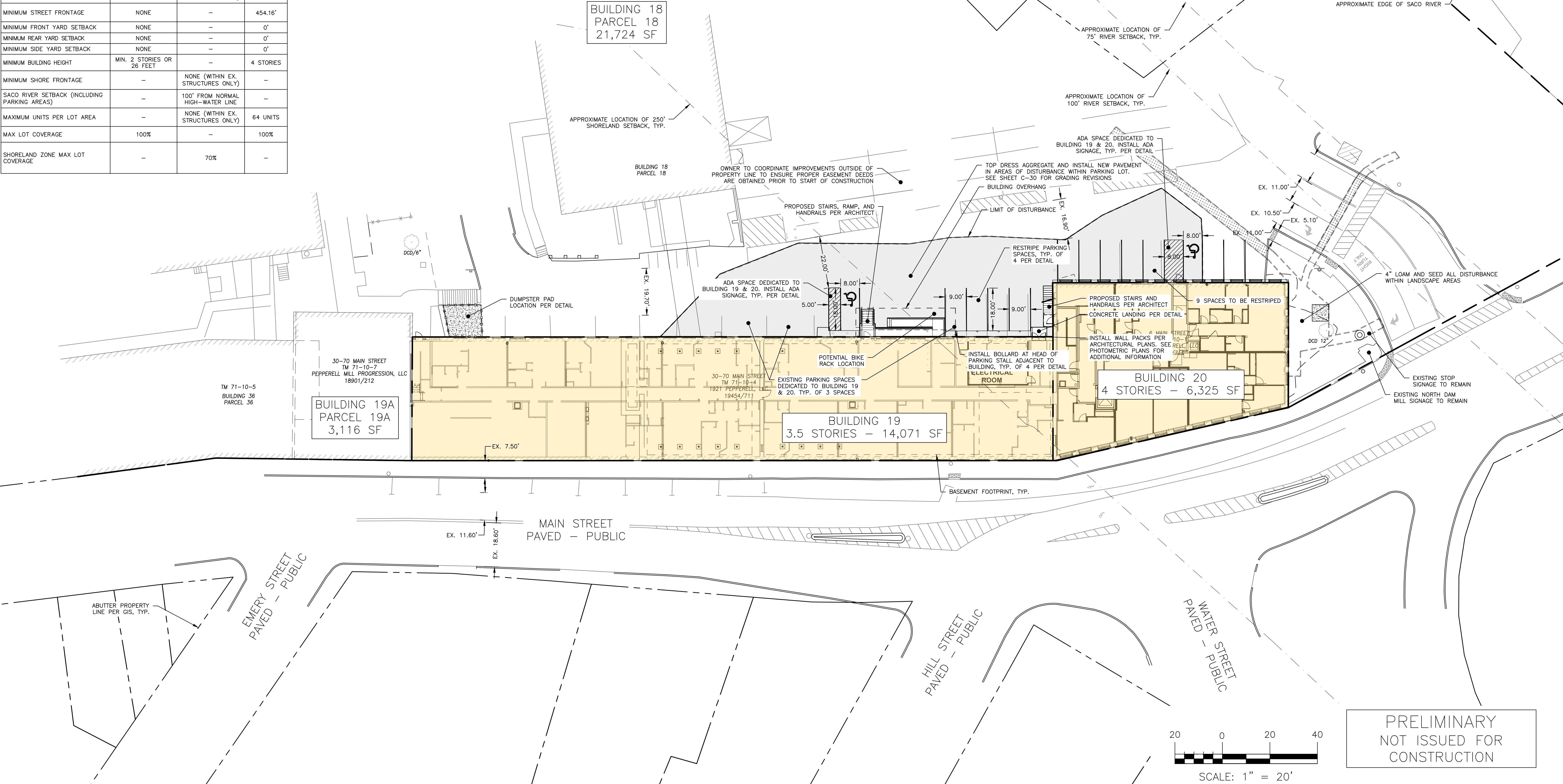
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- GENERAL NOTES:
- ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF BIDDEFORD STANDARDS.
 - ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF BIDDEFORD STANDARDS.
 - ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED 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.
 - ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
 - ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
 - FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

- PLAN REFERENCES:
- BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
 - ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
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PARKING SUMMARY				
USE	UNITS	SPACES REQUIRED	EXISTING	PROPOSED
RESIDENTIAL	64	2 SPACES / DWELLING UNIT* = 97 SPACES**	-	-
MULTIFAMILY DEVELOPMENTS	-	INCREASE OF 5% (OF 97 SPACES) TO ALLOW FOR VISITORS = 5 SPACES	-	-
ADA (8'X18')	-	-	-	2
STANDARD (9'X18')	-	-	-	1
PARALLEL (8'X20')	-	-	-	2
TOTAL SPACES	-	102	-	102***
*1 IF DESIGNED EXCLUSIVELY FOR, AND OCCUPANCY IS RESTRICTED TO, SENIOR HOUSING, STUDIO APARTMENTS AND 1-BEDROOM APARTMENTS. **31 1-BEDROOM UNITS & 33 2-BEDROOM UNITS = (31+66 = 97 SPACES) ***97 PARKING SPACES TO BE REQUESTED FROM THE CITY OF BIDDEFORD PARKING GARAGE TO SATISFY THE PARKING REQUIREMENT				

SPACE AND BULK STANDARDS			
ZONE:	REQUIRED (MSRD3)	REQUIRED (GD-1)	LOT 19 & LOT 20
MINIMUM LOT SIZE	NONE	NONE (WITHIN EX. STRUCTURES ONLY)	20,396 SF
MINIMUM STREET FRONTAGE	NONE	-	454.16'
MINIMUM FRONT YARD SETBACK	NONE	-	0'
MINIMUM REAR YARD SETBACK	NONE	-	0'
MINIMUM SIDE YARD SETBACK	NONE	-	0'
MINIMUM BUILDING HEIGHT	MIN. 2 STORIES OR 26 FEET	-	4 STORIES
MINIMUM SHORE FRONTAGE	-	NONE (WITHIN EX. STRUCTURES ONLY)	-
SACO RIVER SETBACK (INCLUDING PARKING AREAS)	-	100' FROM NORMAL HIGH-WATER LINE	-
MAXIMUM UNITS PER LOT AREA	-	NONE (WITHIN EX. STRUCTURES ONLY)	64 UNITS
MAX LOT COVERAGE	100%	-	100%
SHORELAND ZONE MAX LOT COVERAGE	-	70%	-



ISSUED FOR	BY
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

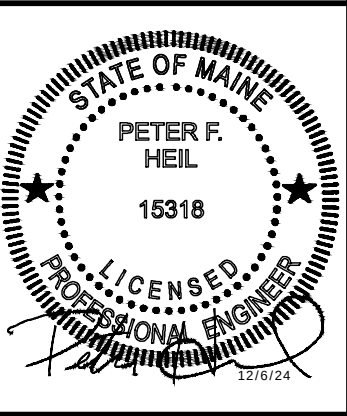
SITE PLAN
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

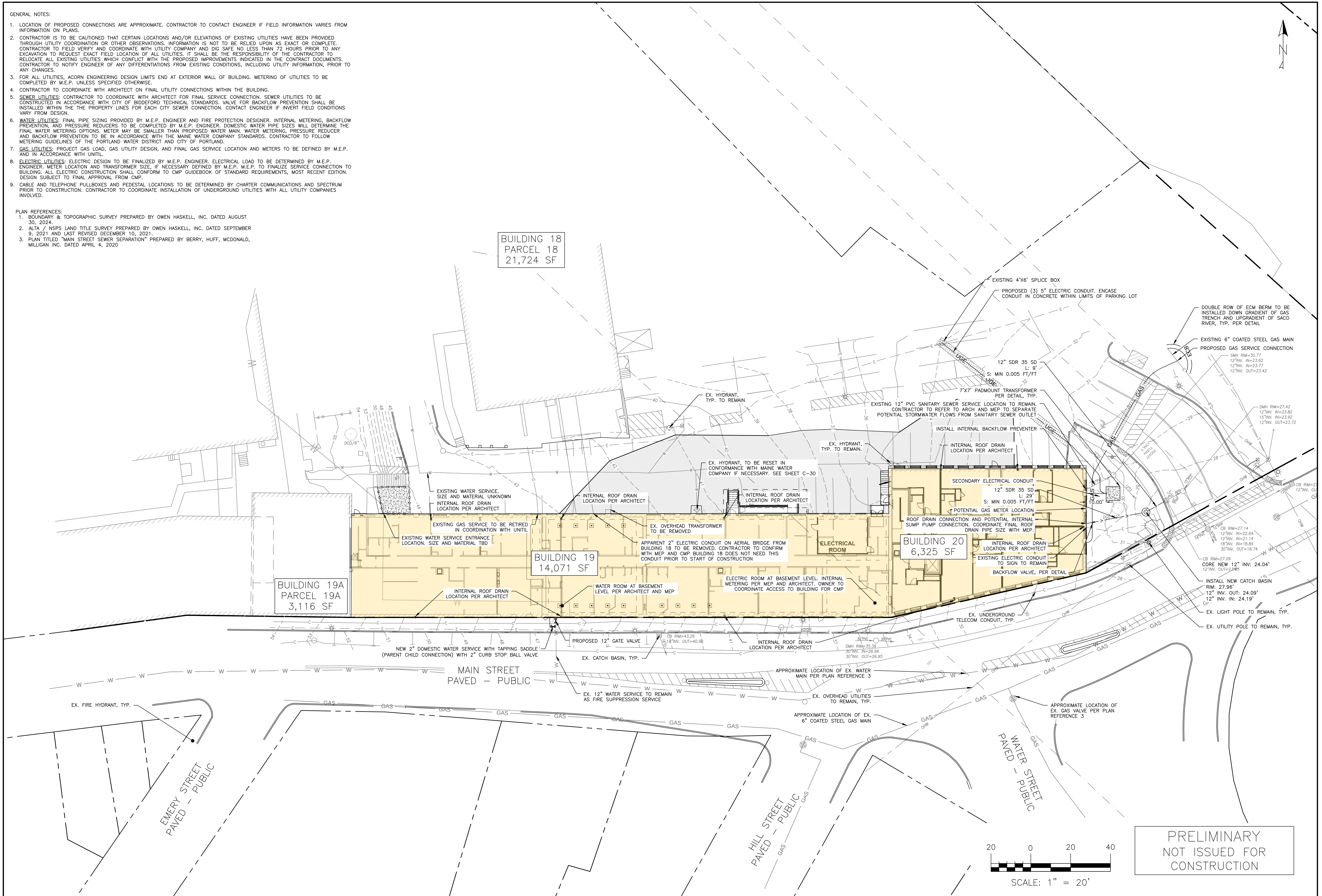
FILE:	AE_1246_SITE
JN:	1246
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	DSH
CHECKED BY:	PFH



DRAWING NO.
C-10

- GENERAL NOTES:
1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
 2. 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 DIG 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 NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
 3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
 4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
 5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BIDEFORD TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
 6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE MAINE WATER COMPANY STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
 7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND IN ACCORDANCE WITH UNIL.
 8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.E.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
 9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND SPECTRUM PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

- PLAN REFERENCES:
1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
 2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
 3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, MCDONALD, MILLIGAN INC. DATED APRIL 4, 2020



ISSUED FOR		BY
ATS	PFH	9/26/24
PRELIMINARY	PFH	10/24/24
FINAL	PFH	12/4/24

UTILITY PLAN	
PROJECT NAME:	PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDEFORD ME
CLIENT:	1921 PEPPERELL, LLC
	16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.	
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED WITHOUT LIABILITY TO ACORN ENGINEERING, INC.	
ACORN ENGINEERING, INC.	PO BOX 3372, PORTLAND MAINE 04104
	(207) 775-2655

FILE: AE_1246_UTILITY	
JN:	1246
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	DSH
CHECKED BY:	PFH

STATE OF MAINE	
PETER F. HEIL	
15318	
LICENSED PROFESSIONAL ENGINEER	

DRAWING NO.	
C-20	

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
2. 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 IS TO PROCEED WITH CAUTION AND COORDINATE WITH CITY OF PORTLAND AND COMPANY 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 NOTIFY ENGINEER OF ANY DIFFERENCES FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
3. FOR ALL UTILITIES, ACONR ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE COMPLETED IN ACCORDANCE WITH CITY OF BIDDIFORD TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL METER AND METERING OPTION. METER MAY BE SMALLER THAN PROPOSED WATER MAIN, WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE MAINE WATER COMPANY STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. ENGINEER AND BIDDIFORD GAS DEPARTMENT.
8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONNECTIONS SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. CONTRACTOR TO OBTAIN ELECTRICAL APPROVAL FROM CMP.
9. CABLE AND TELEPHONE (PULLBOX) AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND SPECTRUM PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

21,724 SF

RAMP WITH HANDRAILS PER ARCHITECT
(DO NOT EXCEED 8.3% SLOPE)

PR. 39.96'±
PR. 40.04'±
PR. 40.04'±
PR. 40.09'±
(7) 6.09" RISERS
PER ARCHITECT
TS: 43.59'
BS: 40.04'
PR. 40.14'±
PR. 40.21'±
PR. 40.25'±
PR. 40.28'±
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS TO RAMP
EX. 42.00'

EX. 44.35'
EX. 44.00'
EX. 44.35'
EX. 44.20'

THRESHOLD: EX. 54.79'

EX. 43.00'

PR. 42.00'

PR. 40.42'±
PR. 40.50'±
PR. 40.23'± (AT PAVEMENT)
PR. 43.59'
EX. THRESHOLD: 43.67'
INSTALL 1/2" LIP: 43.63'

PR. 40.02'±
PR. 40.07'±
PR. 41.63'
PR. 41.68'

PR. 36.15'
ELE TC: 36.53'
BC: 36.16'

EX. THRESHOLD 36.20'
INSTALL 1/2" LIP: 36.16'

HYDRANT TO BE RESET
IN CONFORMANCE WITH
MAINE WATER COMPANY

APPROX. LIMITS OF DISTURBANCE

EX. 38.00'

BUILDING 20
PARCEL 20
6,325 SF

PR. 41.58'
BW: EX. 39.32'±
TW: 41.63'
BW: EX. 39.15'±
TW: 41.68'
BW: EX. 39.20'±

PR. 35.57'

(16) 6" RISERS
PER ARCHITECT
TS: 43.53'
BS: 35.57'

PR. THRESHOLD: 43.57'±
INSTALL 1/2" LIP: 43.53'

THRESHOLD: EX. 32.43'
INSTALL 1/2" LIP: 32.39'

PR. 32.30'
DO NOT EXCEED 2% SLOPE WITHIN ADA
PARKING SPACE AND ACCESS AISLE
EX. 32.05'
EX. 31.36'
PR. 32.17'
EX. 32.22'

TRANSFORMER PAD ELEVATION TO BE SET 6"
ABOVE EXISTING GRADE AT ELEVATION 31.50'±

SMH RIM=30.77
12"IN. IN=23.62
12"IN. IN=23.77
12"IN. OUT=23.42

DMH RIM=27.42
12"IN. IN=23.82
15"IN. IN=23.92
12"IN. OUT=23.72

CB RIM=27.14
12"IN. IN=22.64
12"IN. IN=21.14
18"IN. IN=18.84
30"IN. OUT=18.74

CB RIM=27.09
6"IN. IN=23.94
12"IN. OUT=23.93

BUILDING 19A
PARCEL 19A
3,116 SF

BUILDING 19
14,071 SF

BUILDING 20
6,325 SF

MAIN STREET
PAVED - PUBLIC

EMERY STREET
PAVED - PUBLIC

HILL STREET
PAVED - PUBLIC

WATER STREET
PAVED - PUBLIC

75' RIVER SETBACK, TYP.

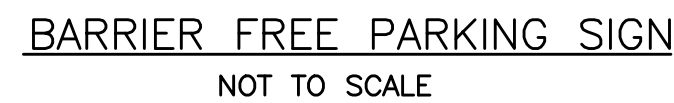
APPROXIMATE LOCATION OF
100' RIVER SETBACK, TYP.

SCALE: 1" = 20'

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

[illegible]

1. ALL ASPECTS OF RESERVED PARKING SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION
2. SIGN SHALL BE CONSTRUCTED AS SIGN R7-8 UNDER THE "PARKING AND STANDING SIGNS AND PLAQUES" (R7 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION. VAN ACCESSIBILITY SHALL BE CONSTRUCTED AS SIGN R7-8a OR R7-8b.
3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



4"Ø X 3'-0" LG. CONCRETE FILLED STEEL BOLLARD SET IN 18"Ø SONO TUBE (3 PLACES) (SEE CONCRETE BOLLARD DETAIL)

16'-0" CONCRETE PAD

6" 4,500 PSI REINFORCED PORTLAND CEMENT CONCRETE SLAB - WWP 6 X 6 1.4W X 1.4W

6" 5'-0" 5'-0" 5'-0" 6"

5" 4'-7" 4'-7" 5"

10'-0" CONCRETE PAD

PITCH' DOWN 3"/FT

5'-0" O.C.

2 X 4 P.T. WOOD BLOCKING

3"Ø SCH 40 GALVANIZED POST W/S-GALV HINGES PER GATE

1"X6" P.T. FENCE PICKETS 55" O.C. ATTACHED TO 2" X 4" PRESSURE TREATED FENCE FRAME W/GALV. NAILS

2" X 4" P.T. CROSS BRACING TOP & BOT.

4" X 4" X 8' LG. PRESSURE TREATED POST (8 PLACES)

2'-3" 10'-6" 2'-3"

6" 6"

18"Ø X 3'-6" DEEP SONO TUBE

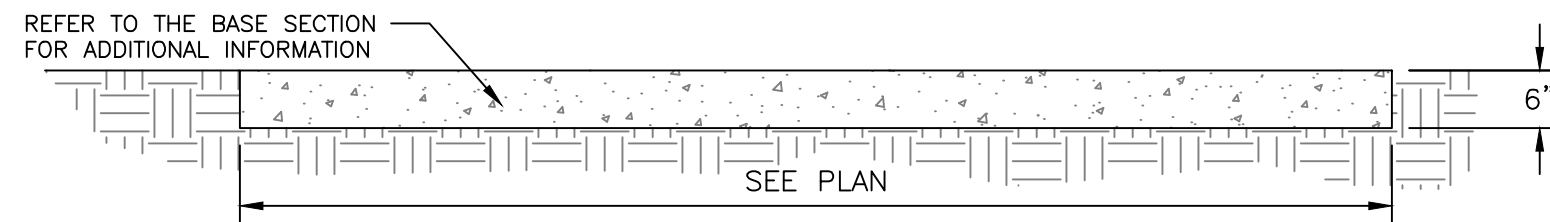
18" LG. CANE BOLT (PROVIDE SLEEVE IN CONC. FOR BOLT)

DUMPSTER ENCLOSURE PLAN AND DETAILS
NOT TO SCALE

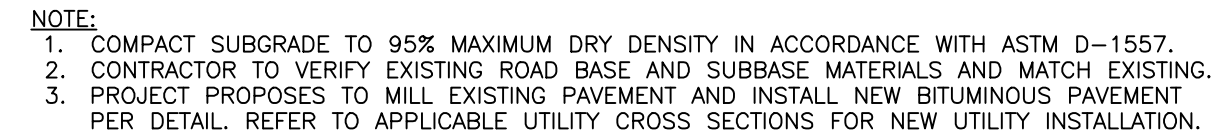
1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. CREATE UNIFORM AND RIGID BUTT JOINT AND APPLY BITUMINOUS TACK COAT AT AN APPLICATION RATE OF 0.10 TO 0.14 GALLONS PER SQUARE YARD PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
2. THE NEW PAVEMENT SECTION SHALL MEET PAVEMENT SECTION DETAIL AT A MINIMUM OR THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



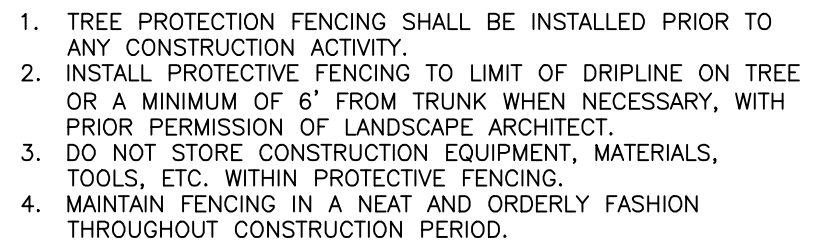
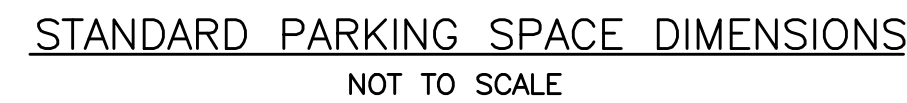
1. PROOFROLL AND COMPACT SUBGRADE
2. COMPACT AGGREGATES TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. FINISH WITH A STIFF, COARSE, FIBER BROOM.
4. REFER TO PLANS FOR DIMENSIONS.



CONCRETE PAD DETAIL
NOT TO SCALE



PAVEMENT PROFILE
MAJOR RESIDENTIAL STREETS
NOT TO SCALE



TREE PROTECTION DETAIL
NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

SITE DETAILS - 1

PROJECT NAME: **PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
- BIDDEFORD ME**

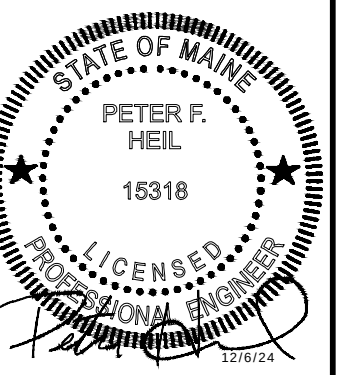
CLIENT: **1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101**

ACORN ENGINEERING, INC. PO BOX 5372, PORTLAND MAINE 04104 (207) 775-2855

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATION, REVISION, OR ADDITION TO THIS PLAN SHALL BE THE SOLE RESPONSIBILITY OF THE USER WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ENGINEERING, INC.

FILE: AE_1246_DETAILS	
IN:	1246
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	DSH
CHECKED BY:	PFH



DRAWING NO.

C-40

[illegible]

1E SITE DETAILS - 2

1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE 04101

DRAWING NAME:

R N
ENGINEERING, INC.

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.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE: AE_1246_DETAILS

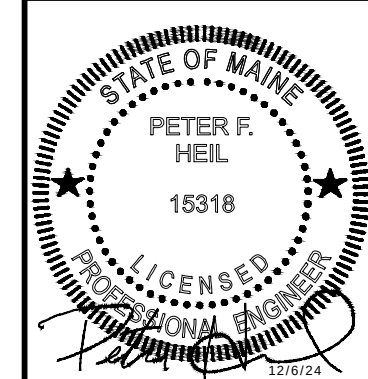
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SCALE: AS NOTED

DESIGNED BY: ZMS

DRAWN BY: DSH

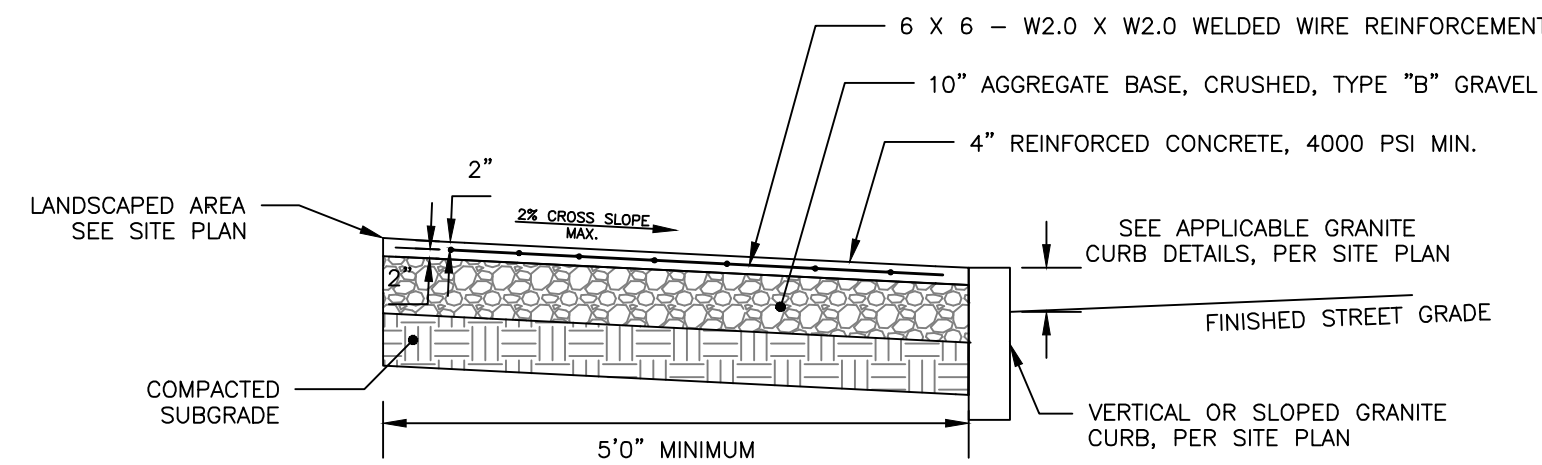
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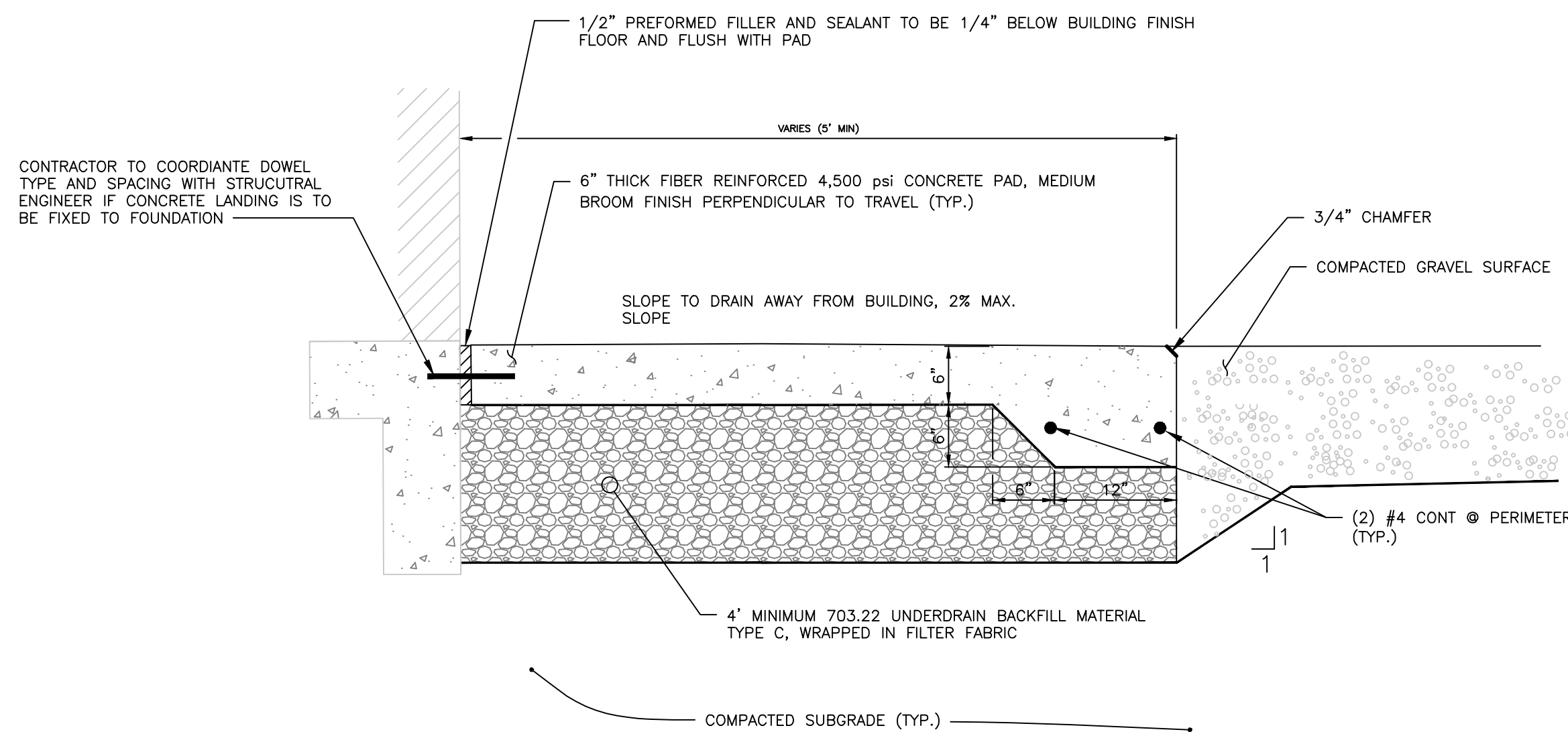
DRAWING NO.

C-41

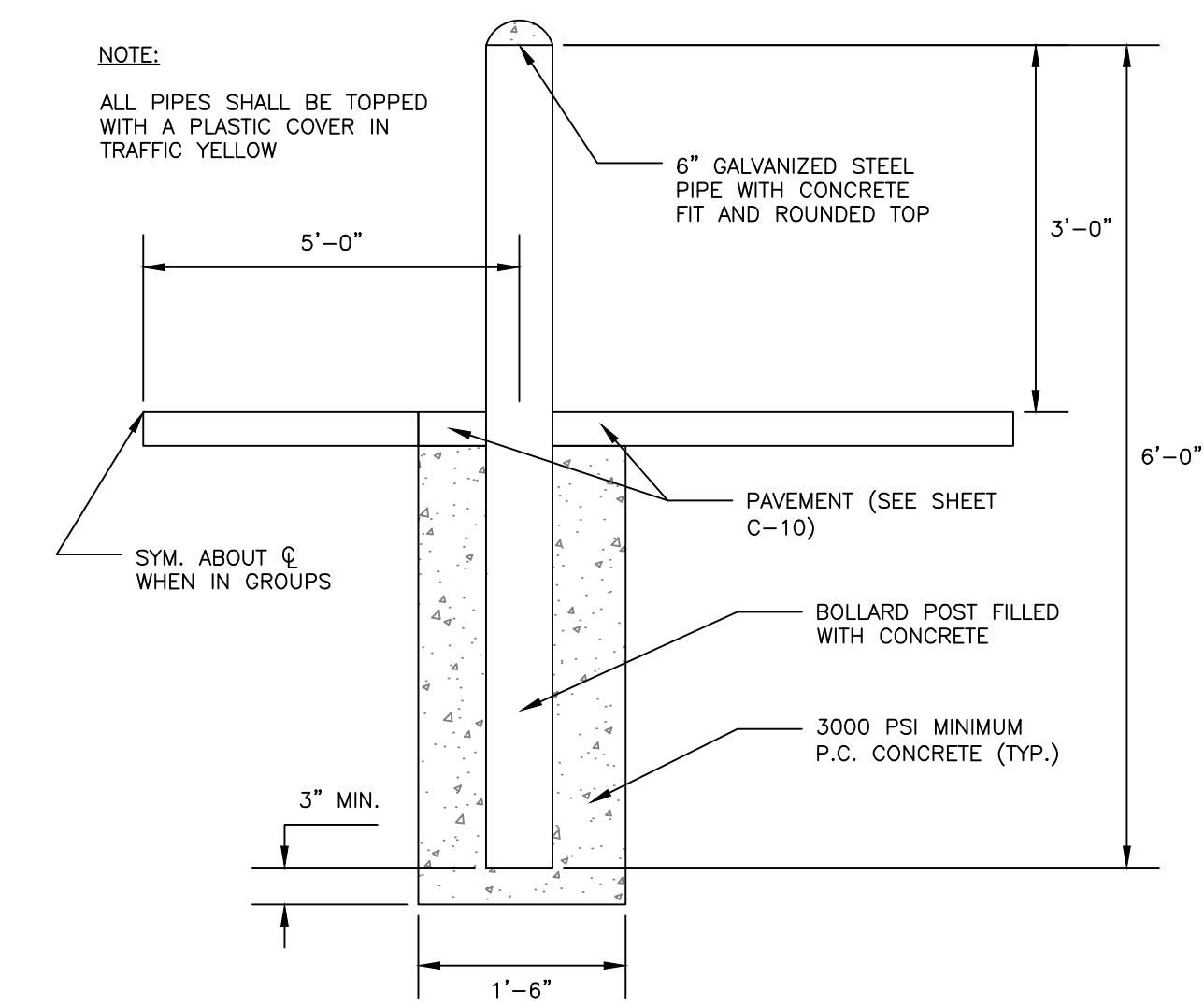
- NOTES:
1. AT MINIMUM, TESTING SHALL CONSIST OF ENTRAINED AIR AND SLUMP TESTS ON SITE PRIOR TO POURING THE CONCRETE. RETAINING WALLS SHALL BE TESTED IN ACCORDANCE WITH ASHITO T152. TEST FIRST TWO LOADS AND EVERY THIRD LOAD THEREAFTER PROVIDED CONSISTENT RESULTS ARE ACHIEVED.
2. WELDED WIRE REINFORCEMENT SHALL BE PLACED 2 INCHES ABOVE THE CRUSHED GRAVEL, AND 2 INCHES BELOW THE FINISHED SURFACE. ALL FINISHED EDGES, EXPANSION JOINTS AND CURBS. ALL FABRIC JOINTS SHALL BE OVERLAPPED A MINIMUM OF 1 FOOT AND BE PROPERLY TIED. IF THE CONTRACTOR ELECTS TO USE REBAR, ONLY 4-GAUGE WILL BE ACCEPTABLE. IF THE CONTRACTOR ELECTS TO USE A PRE-CAST FIBER REINFORCED CONCRETE, A SPECIFICATION SHEET MUST BE SUBMITTED AND PRE-APPROVED BY THE ENGINEER PRIOR TO ITS APPLICATION.
3. SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS NOT TO EXCEED 30 FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/2 INCH IN THICKNESS.
4. WHEN CONSTRUCTED ADJACENT TO A BUILDING, RETAINING WALL OR OTHER FIXED STRUCTURE, A 1 INCH THICK PREFORMED JOINT FILLER SHALL BE USED BETWEEN THE SLAB AND THE STRUCTURE.
5. SIDEWALKS SHALL BE SCORED INTO A SHOCK UNITS OF GREATER THAN 40 SQUARE FEET SHALL BE DIRECTED. THE DEPTH OF THE SCORING SHALL BE AT LEAST ONE QUARTER OF THE THICKNESS OF THE SLAB.
6. ANY MATCHING INTO EXISTING SIDEWALKS SHALL BE DONE SO WITH A CLEAN VERTICAL FACE CONNECTION.
7. THE SURFACE SHALL BE FINISHED TO PRODUCE A BROOMLIKE "BRUSHED" PATTERN. NO PLASTERING OF THE SURFACE WITH MORTAR WILL BE PERMITTED. THE FINISH SHALL RESULT IN A FINISH OF UNIFORMITY OF COLOR AND TEXTURE. THE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4 INCH RADIUS EDGING TOOL.
8. CONCRETE SHALL BE CURED FOR 72 HOURS. CURING SHALL BE BY MEANS OF THOMPSON'S WATER SEAL AS MANUFACTURED BY E.A. THOMPSON CO., INC. OF MEMPHIS, TENNESSEE, BOILED LINSEED OIL, WHITE PIGMENTED FILLER COMPOUND, OR BY OTHER APPROVED METHOD.
9. CONCRETE SIDEWALKS SHALL BE SEALED WITH CONSOLIDOLDEX SALTGUARD WB OR APPROVED EQUAL 28 DAYS AFTER PLACEMENT. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.
10. GENERAL CONTRACTOR TO COLLECT DELIVERY SLIPS AND TRANSFER TO THE OWNER.
11. WHEN PREFORMED JOINT FILLER IS USED, SIDEWALK IS TO BE INSTALLED TO THE DETAIL MUST BE APPROVED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO THE INSTALLATION OF THE DETAIL.



REINFORCED CONCRETE SIDEWALK
NOT TO SCALE

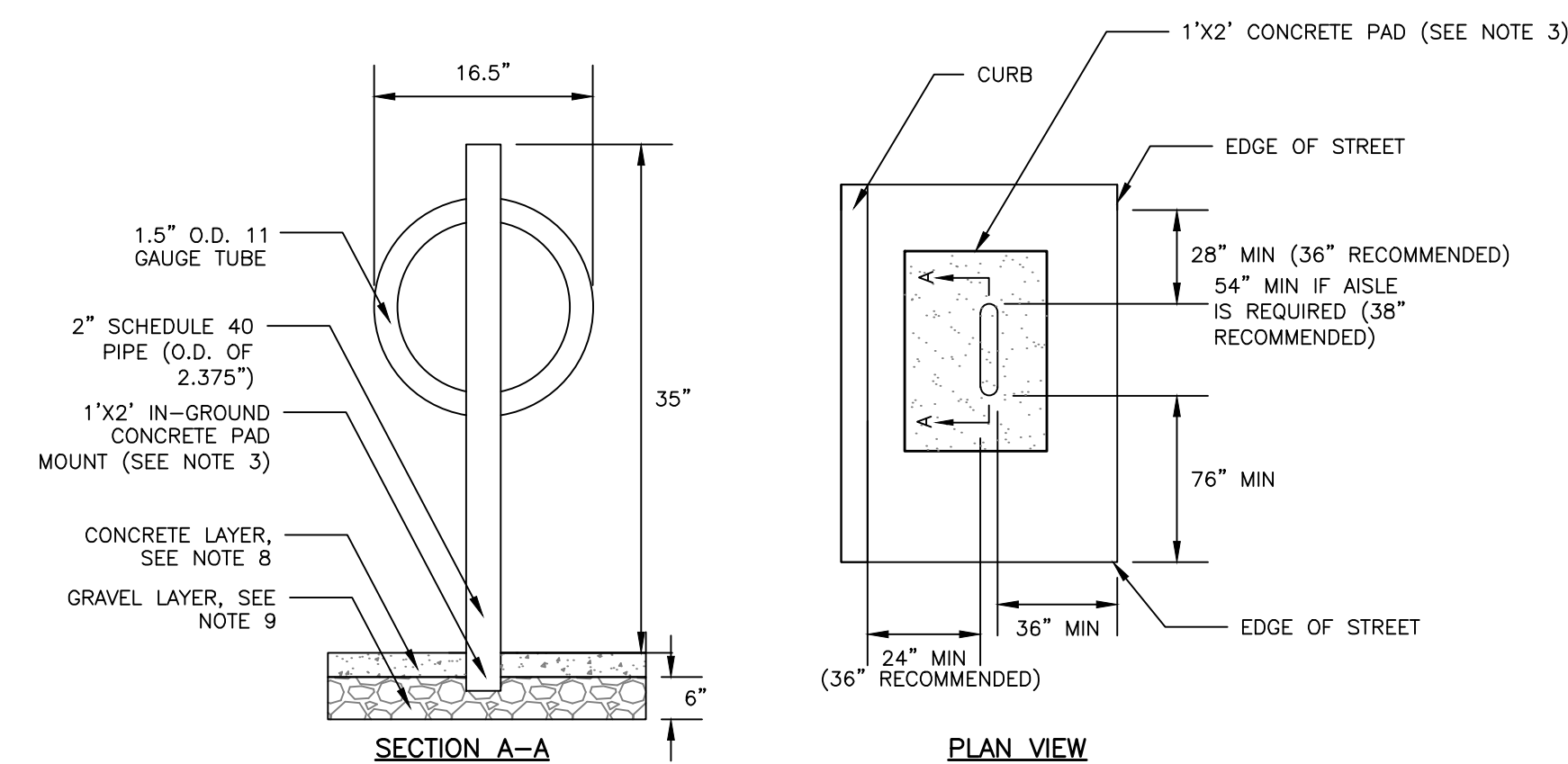


CONCRETE LANDING DETAIL
NOT TO SCALE



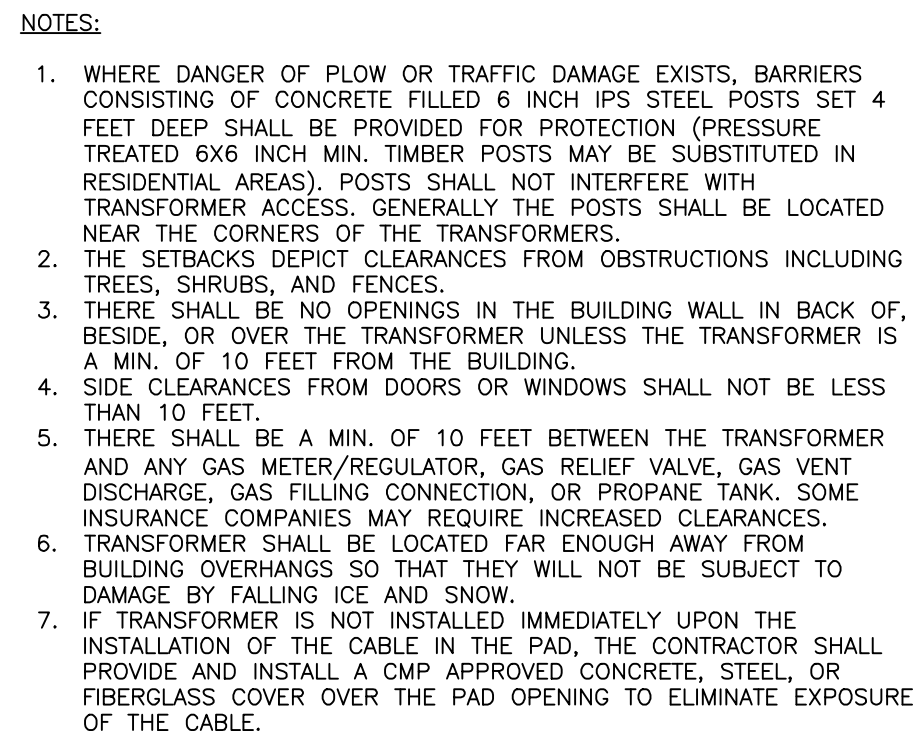
PIPE BOLLARD
NOT TO SCALE

- NOTES:**
1. BICYCLE RACK SHALL BE "DERO BIKE HITCH", AS MANUFACTURED BY DERO BIKE RACKS.
 2. BICYCLE RACK SHALL HAVE CAPACITY FOR TWO BICYCLES.
 3. BICYCLE RACK PARTS SHALL BE OF UNIFORM COLOR AND SHALL BE FINISHED IN ACCORDANCE WITH PRODUCT SPECIFICATION.
 4. BICYCLE RACK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S MOST RECENT INSTALLATION RECOMMENDATIONS, AND SHALL BE INSTALLED WITH AN IN-GROUND MOUNT UNLESS OTHERWISE APPROVED BY ENGINEER.
 5. MINIMUM OFFSETS SHOWN, MANUFACTURER'S RECOMMENDED OFFSETS SHALL BE ENFORCED WHERE POSSIBLE.
 6. MINIMUM DISTANCE BETWEEN BICYCLE RACKS SHALL BE 24". RECOMMENDED DISTANCE BETWEEN BICYCLE RACKS SHALL BE 36".
 7. ALL OFFSETS ARE FROM OUTSIDE EDGES OF ITEMS.
 8. CONCRETE SHALL BE 4000 PSI @28 DAYS. BOTTOM OF CONCRETE SHALL BE AT TOP OF SIDEWALK GRAVEL ELEVATION. DEPTH VARIES APPROX. 4"-7".
 9. CYCLER SHALL BE INSTALLED IN ACCORDANCE WITH CONCRETE SIDEWALK DETAIL, AND SHALL BE MAINTAINED TO 703.06 TYPE B.



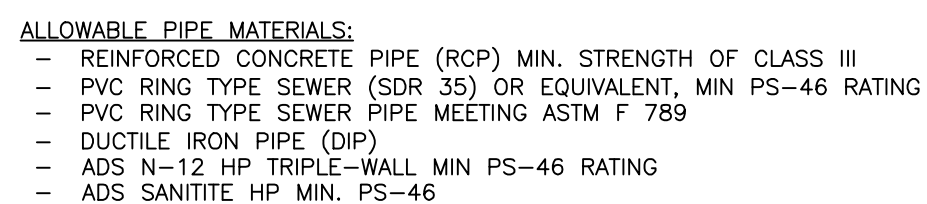
DERO BIKE HITCH
NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

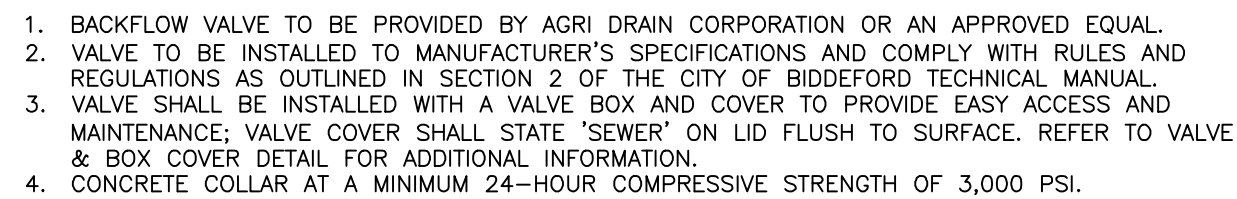


NOT TO SCALE

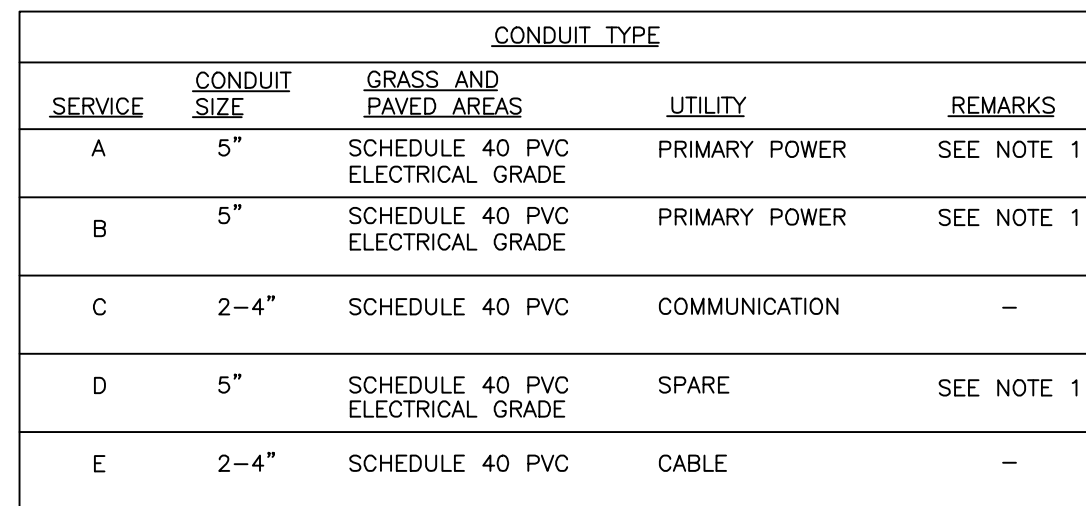
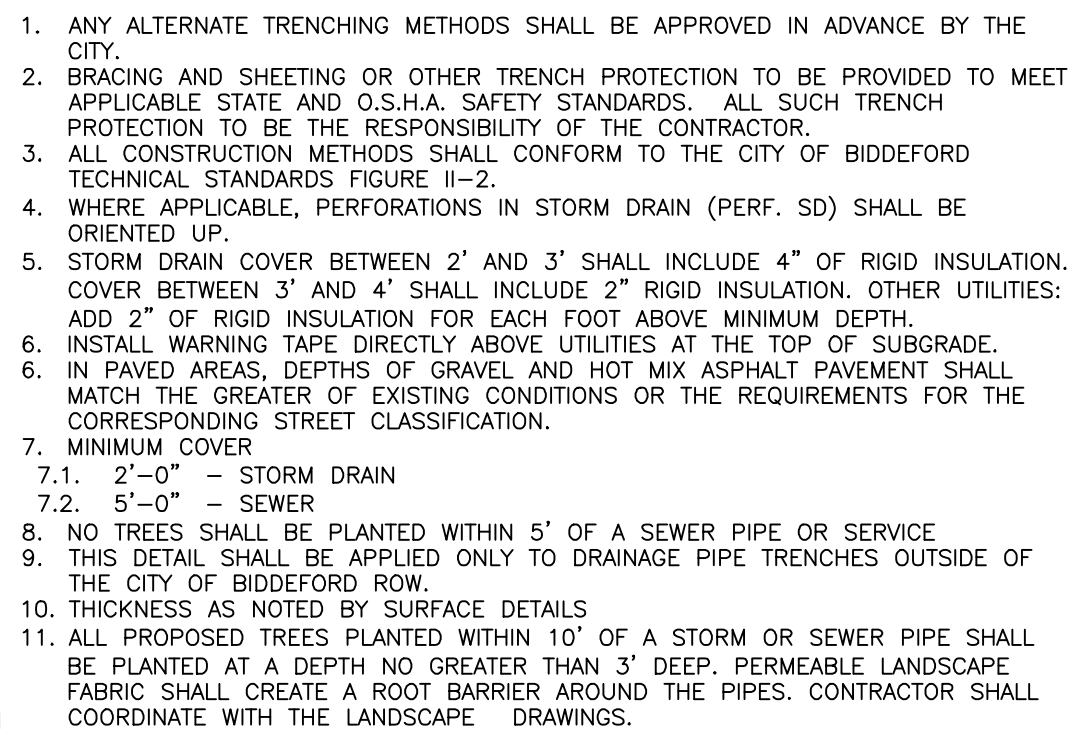
1. INSTALL MAINS WITH A MINIMUM OF 36" OF COVER AND SERVICES WITH A MINIMUM OF 24" OF COVER. EXCEPTIONS MAY BE MADE WITHIN SLATE AND FEDERAL CODES WITH THE PRIOR APPROVAL OF THE OPERATIONS CENTER MANAGER. INSTALL PLASTIC PIPE WITH SLACK SO MATERIAL LOADING OR TRENCH COVER CONSTRUCTION DOES NOT CAUSE THE PIPE TO JOINT IN PLACES WHERE A STOPPER FITTING OF OTHER NEW MATERIAL IS ADDED TO AN OLDER MAIN SUCH THAT THE MAIN HAS LESS THAN 24" OF COVE. THE CONTRACTOR SHOULD PROVIDE PERMANENT PROTECTION SUCH AS CONCRETE OR STEEL PLATE TO PROTECT THE MAIN WITHIN 24" OF COVER. NOTIFY THE OPERATIONS CENTER MANAGER OR THE DESIGNEE SO THEY CAN REQUEST APPROVAL FROM THE DEPARTMENT OF PUBLIC UTILITIES.
2. PROCEDURE - SEE FIGURE BELOW.
 - 2.1. REMOVE ALL EXCAVATED MATERIAL FROM THE TRENCH WITH PUMPS OR EQUIVALENT
 - 2.2. PLACE A LAYER OF SAND 4" DEEP IN TRENCH BOTTOM BEFORE LAYING THE PIPE IN THE TRENCH. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL OR SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
 - 2.3. FOR PLASTIC PIPE, INSTALL NUMBER 12 AWG SOLDER COPPER WIRE (TRACER WIRE) WITH YELLOW INSULATION JACKET ALONG THE LENGTH OF THE SERVICE. THIS WIRE IS USED TO LOCATE THE PIPE. THE WIRE MAY BE RUN OR ALLOW THE WIRE TO TOUCH THE PLASTIC PIPE. KEEP THE TRACER WIRE AT LEAST 4" AWAY FROM THE PLASTIC PIPE. IF THE INSTALLATION IS TRENCHLESS, THE TRACER WIRE MAY BE LESS THEN 4" AWAY FROM THE PLASTIC PIPE.
 - 2.4. PLACE A MINIMUM OF 6" OF SAND OVER THE PIPE. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
- 2.5. PLACING WARNING TAPE IN THE TRENCH. THE TRENCH SHALL BE MARKED WITH YELLOW TAPE. THE STANDARD WARNING TAPE IS YELLOW, NON-DETECTABLE TAPE, 6" WIDE. PLACE THE RST OF THE TRENCH WITH CLEAN FILL MATERIAL, USING THE SPOT WHERE SUITABLE AND ACCEPTABLE. IF THE ORIGINAL SPOIL MATERIAL IS NOT SUITABLE FOR USE AS A SUB-BASED MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MATERIAL REQUIRED BY STATE OR LOCAL AGENCIES. REMOVE ALL EXCESS SPOIL IN THE ACCEPTED MANNER.
- 2.7. PROPERLY COMPACT THE TRENCH TO INSURE THE TRENCH WILL NOT SETTLE.
3. SEE STANDARD 10.03 FOR A DESCRIPTION OF SUITABLE MATERIALS FOR PIPE BEDDING AND BACKFILL.



NOT TO SCALE



NOT TO SCALE

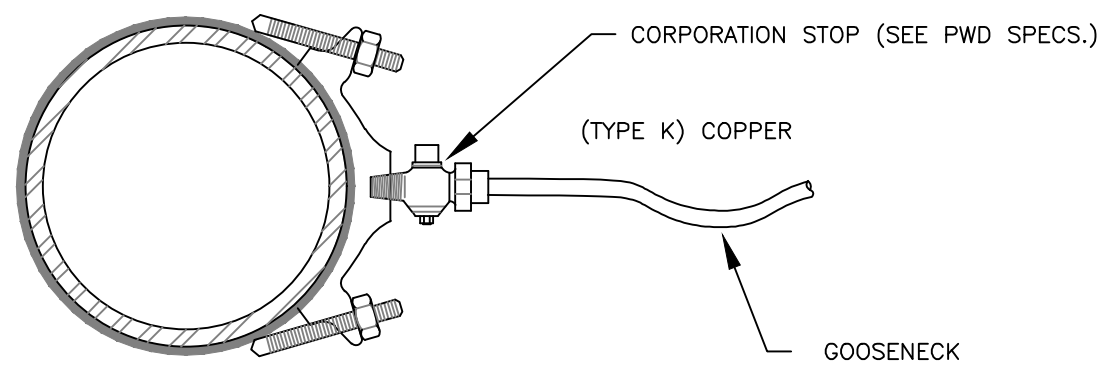


1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
3. CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.
4. FINAL SIZE OF CONDUITS TO BE SPECIFIED BY MEP, ELECTRICIAN, OR DESIGN/BUILD ELECTRICAL CONTRACTOR.

TELEPHONE, AND CABLE

NOT TO SCALE

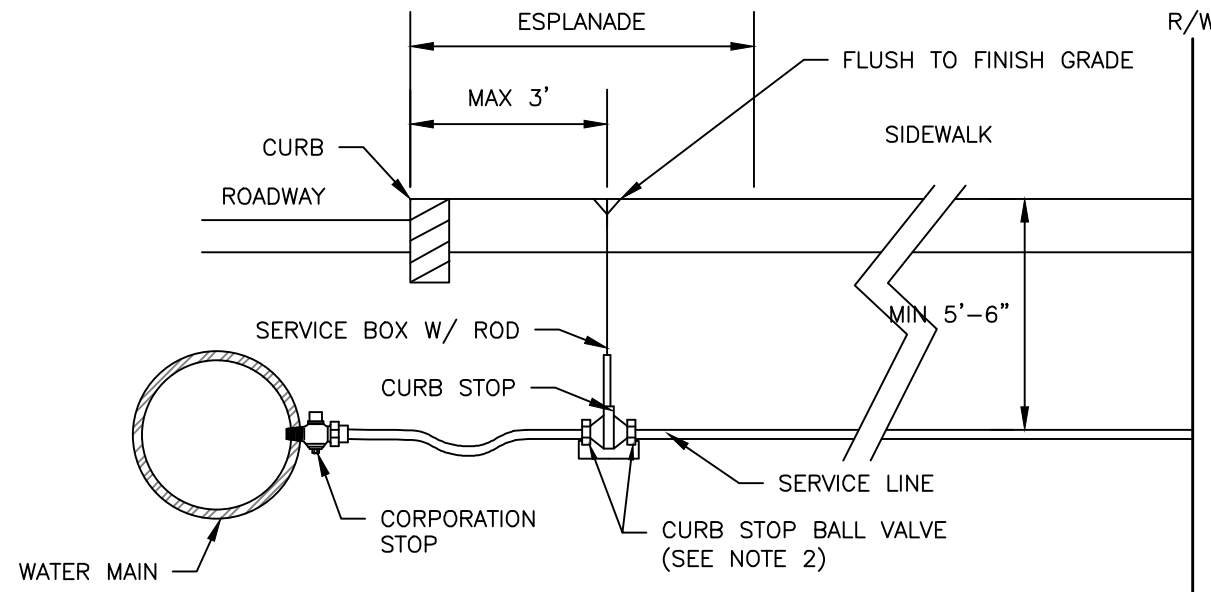




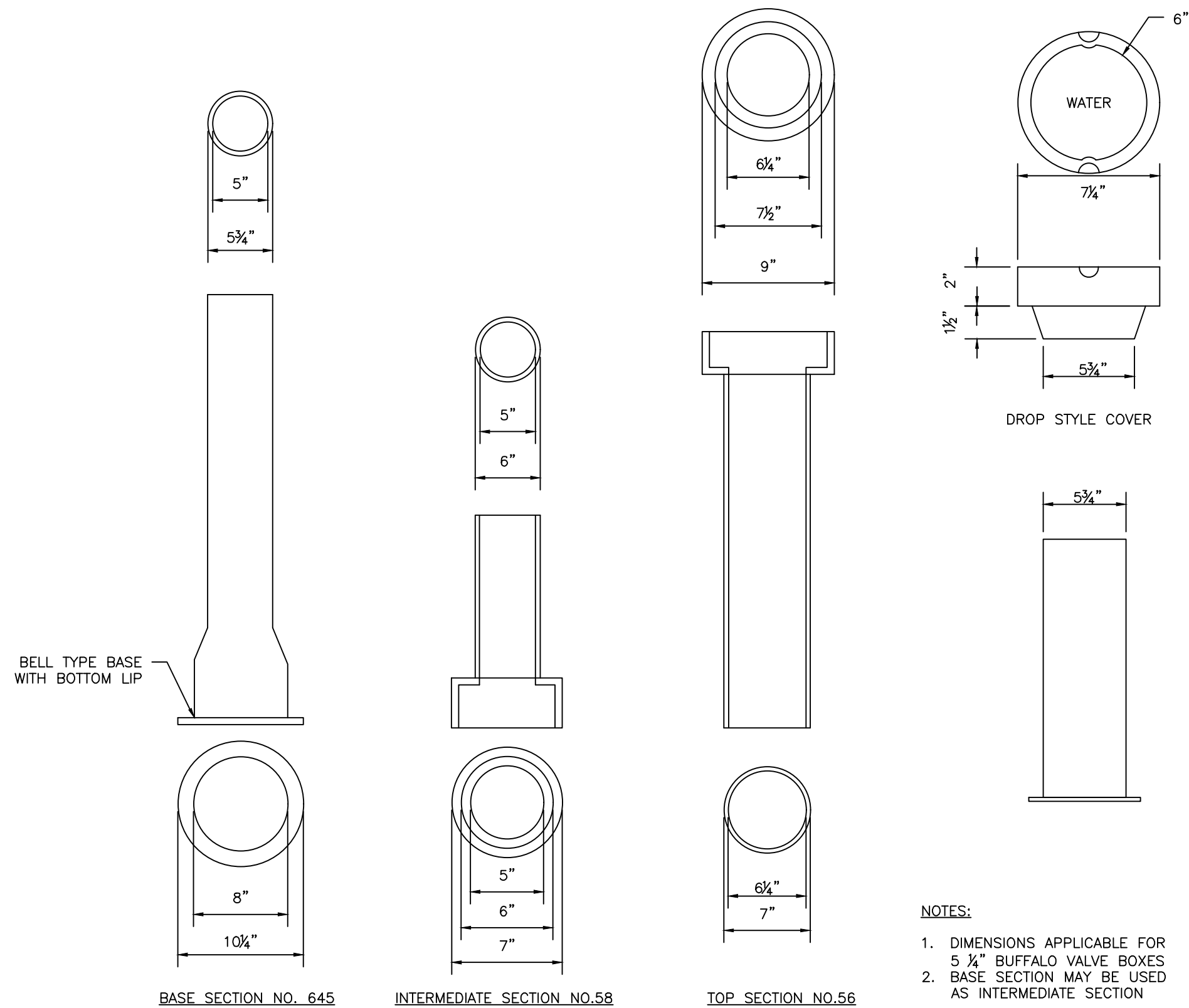
SERVICE SADDLE: 1-1/2" AND 2" C.C. THREAD
NOT TO SCALE

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH MAINE WATER COMPANY SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE PORTLAND WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.
5. CURB STOP TO BE INSTALLED IN PERVIOUS AREAS TO THE GREATEST EXTENT FEASIBLE. FOR LOTS IN WHICH THE CURB STOP MUST BE LOCATED IN A SIDEWALK OR DRIVEWAY, CONTRACTOR TO CONTACT PWD FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
6. CONTRACTOR TO COIL ACCESS PIPE ON PRIVATE PROPERTY PRIOR TO CONNECTION TO HOUSE. ACCESS PIPE TO BE ADEQUATELY MARKED IF BURIED OR PROTECTED IF STORED ABOVE GROUND.



TYPICAL SERVICE CONNECTION
NOT TO SCALE



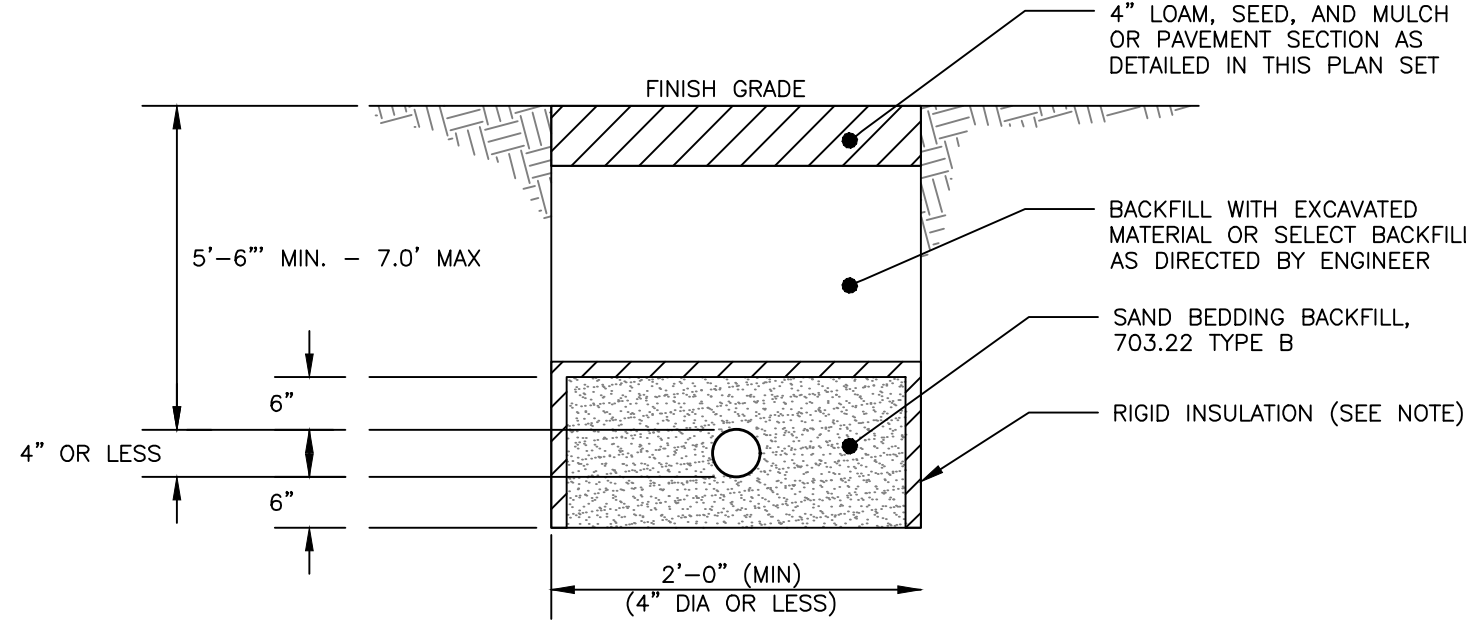
VALVE BOX & COVER
NOT TO SCALE

NOTES:

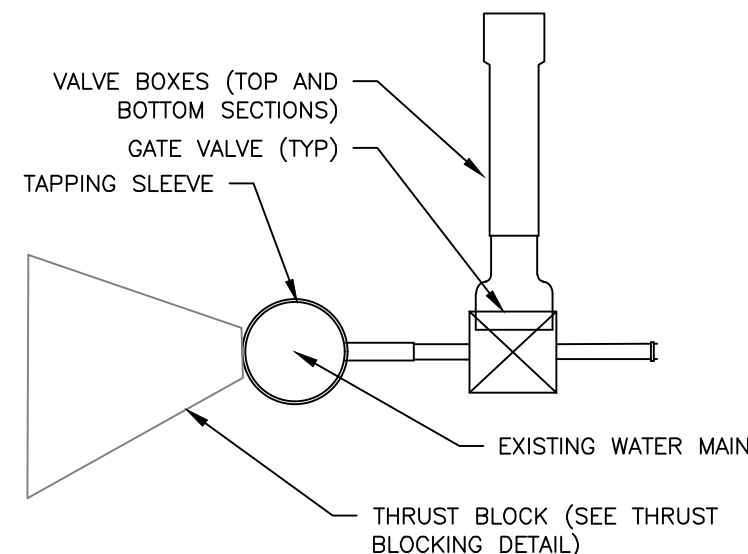
1. DIMENSIONS APPLICABLE FOR 5 1/4" BUFFALO VALVE BOXES
2. BASE SECTION MAY BE USED AS INTERMEDIATE SECTION

NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MAINE WATER COMPANY'S STANDARD DETAILS & SPECIFICATIONS.
2. IF LESS THAN 5'-6" OF COVER IS POSSIBLE ADD TWO LAYERS OF 2-INCH "BLUE DOW" RIGID INSULATION.



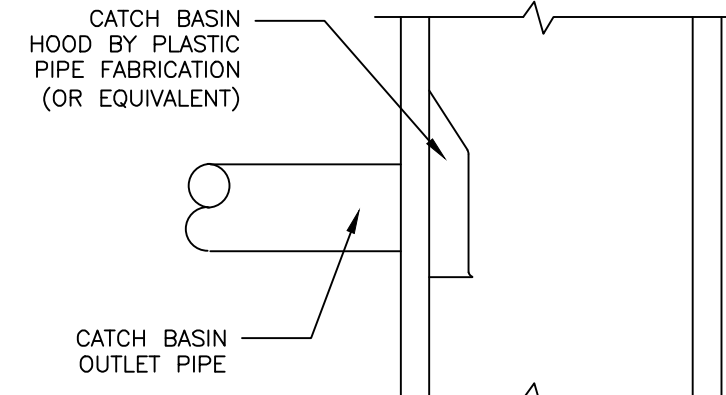
WATER SERVICE TRENCH SECTION DETAIL
NOT TO SCALE



TAPPING SLEEVE AND VALVE
NOT TO SCALE

NOTES:

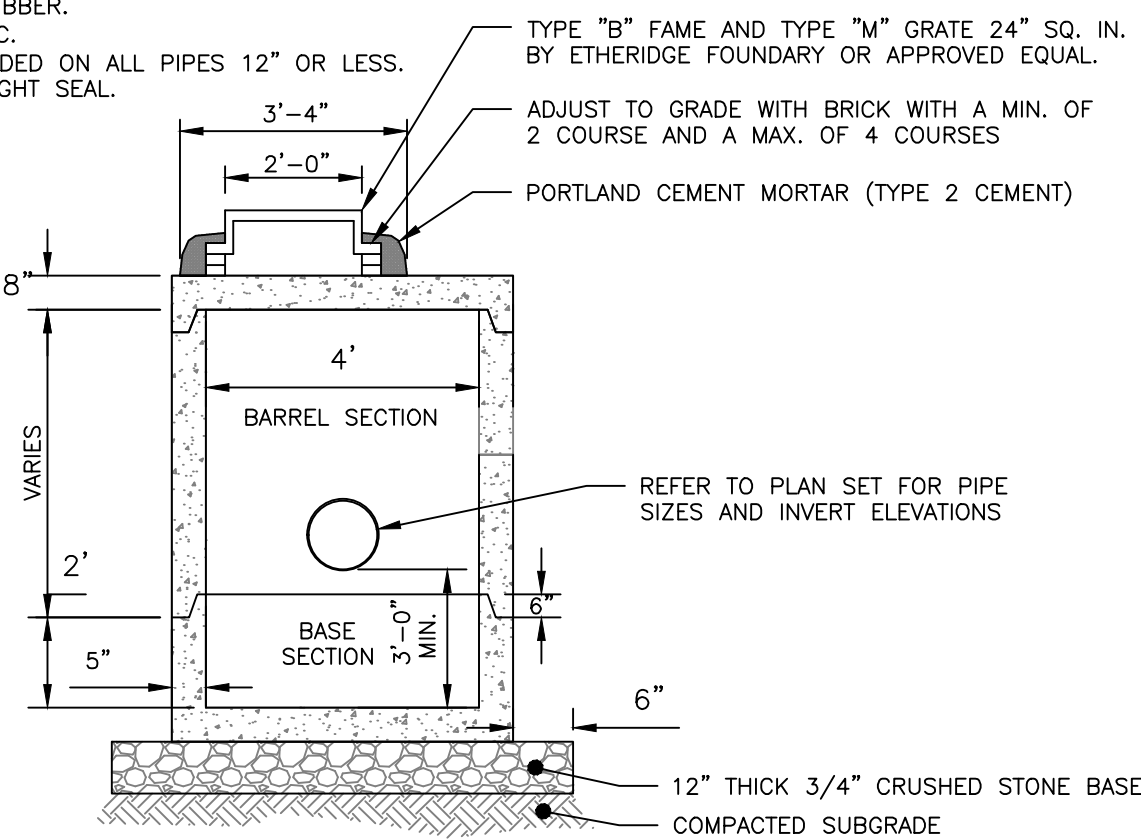
1. INSTALL CATCH BASIN HOODS IN ALL CATCH BASINS WITH A 12" OR GREATER OUTLET PIPE.
2. PREFERRED STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION REQUIREMENTS



CATCH BASIN HOOD DETAIL
NOT TO SCALE

NOTES:

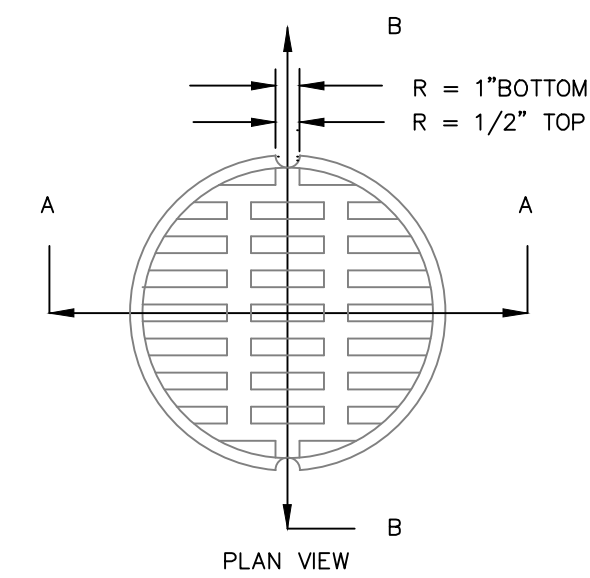
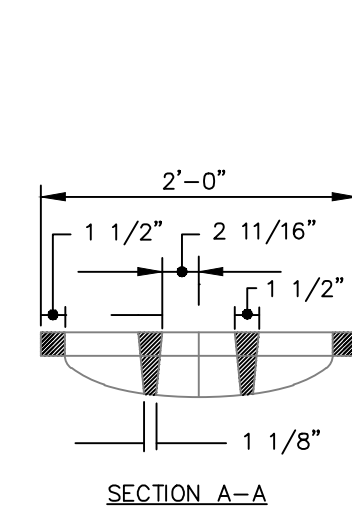
1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF.
5. JOINTS SEALED WITH BUTYL RUBBER.
6. POLYPROPYLENE STEPS 12" O.C.
7. CASCO TRAPS SHALL BE PROVIDED ON ALL PIPES 12" OR LESS.
8. ALL PIPES TO HAVE A WATERTIGHT SEAL.



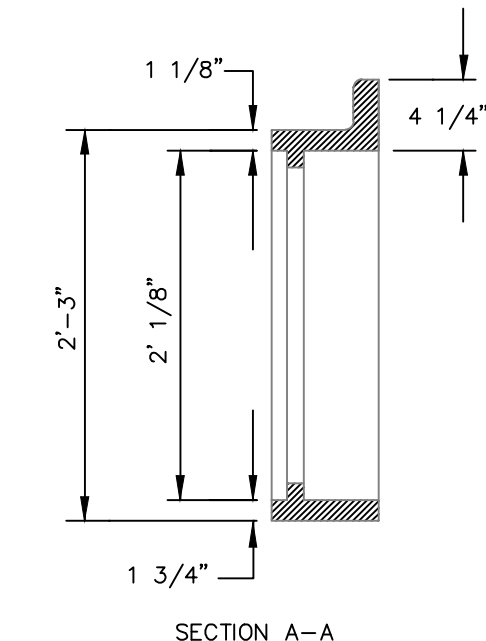
4'-0" PRECAST CATCH BASIN WITH FLATTOP
NOT TO SCALE

NOTES:

1. APPROVED CATCH BASIN FRAMES:
1.1. EAST JORDAN = 7375Z
1.2. NEENAH = R-3248
1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
2.1. EAST JORDAN = 2440M
2.2. NEENAH = R-3248
2.3. OR APPROVED EQUAL

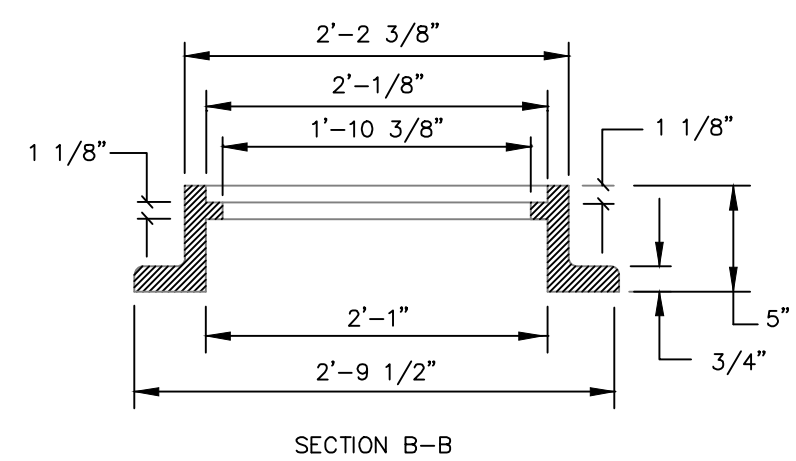
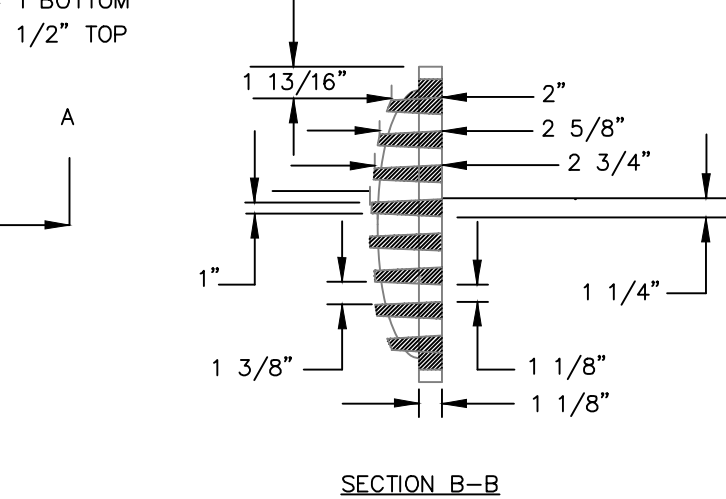


GRATE DETAIL



FRAME DETAIL

CATCH BASIN FRAME & GRATE
NOT TO SCALE



PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
ATS	PFH
PRELIMINARY	PFH
FINAL	PFH

UTILITY DETAILS - 2
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT - BIDFORD ME
1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE: AE_1246_DETAILS
JN: 1246
SCALE: AS NOTED
DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PFH



DRAWING NO.
C-43

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

- 1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
 - STONE SIZE SHALL BE 2-3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 - THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
 - THE ENTRANCE SHALL NOT BE LESS THAN 20 FEET WIDE, HOWEVER NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS. THE LENGTH SHALL NOT BE LESS THAN 50 FEET IN LENGTH.
 - GEOTEXTILE FABRIC (WOVEN OR NON-WOVEN) SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA.
 - THE ENTRANCE/EXIT SHALL BE MAINTAINED TO THE EXTENT THAT IT WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC ROADWAYS.
- 1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.
- 1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.
- 1.1.5 MAIN STREET AND THE PEPPERELL CAMPUS SHALL BE SWEEPED TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.
- 1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SIDE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.
- 1.1.7 SILT FENCE STAPLES SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE "TOED" INTO THE GROUND.
- 1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED 1/2 THE DESIGN HEIGHT.
- 1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.
- 1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.
- 1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.
- 1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.
- 1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

- 1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4" OF LOAM AND SHALL BE LIMED, AND MULCHED.
- 1.2.2 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.
- 1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

- 2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

- 3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER-WINTER STABILIZATION, ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

- 4.1 SEDIMENT BARRIERS
 - DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.
- 4.2 MULCHING
 - ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN 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, MULCHING AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.
- 4.3 SOIL STOCKPILING
 - STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR-INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.
- 4.4 SEEDING
 - BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADUALLY SEEDED AND MOVED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS NOT BEEN LOAMED, FINAL GRADING WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED.
 - DORMANT SEEDING MAY BE PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS./1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.
- 4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS
 - BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:
 - STABILIZE THE SOIL WITH TEMPORARY VEGETATION - BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION.
 - STABILIZE THE SOIL WITH SOD - STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
 - STABILIZE THE SOIL WITH MULCH - BY NOVEMBER 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.
- 4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES
 - ALL STONE-COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:
 - STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS - BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
 - STABILIZE THE SOIL WITH SOD - THE DISTURBED SLOPE SHALL BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
 - STABILIZE THE SOIL WITH EROSION CONTROL MIX - EROSION CONTROL MIX SHALL BE PROPERLY INSTALLED BY NOVEMBER 15TH. THE CONTRACTOR SHALL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 2H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
 - STABILIZE THE SOIL WITH STONE RIPRAP - PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. A REGISTERED PROFESSIONAL ENGINEER SHALL BE HIRED TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A "STORM EVENT". A "STORM EVENT" SHALL CONSIST OF 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL - BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM. SEDIMENT BARRIERS SHALL BE 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.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS, WHICH MAY BE REQUIRED TO PREVENT MUD-TRACKING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE-INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE, WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS. INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: PETER HEIL, PE
TELEPHONE: (207) 775-2655

QUALIFICATIONS:

- ø MAINE PROFESSIONAL ENGINEERING LICENSE #15318
- ø MAINE DEP CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT
- ø MAINE DEP - CERTIFIED THIRD-PARTY INSPECTOR
- ø CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #7071

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

1. INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
2. INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
3. INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
4. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
5. PRIORITIZE THE DOWNHILL SIDE TO CONTAIN RUNOFF WITHIN THE SITE WHILE PROVIDING AN ENGINEERED OUTLET WITH SILTATION BARRIER TO THE MUNICIPAL STORMWATER SYSTEM WITHIN MAIN STREET.
6. COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
7. COMMENCE INSTALLATION OF UTILITIES.
8. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
9. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
10. COMPLETE REMAINING EARTHWORK OPERATIONS.
11. INSTALL SUB-BASE AND BASE GRAVELS IN PAVED AREAS.
12. INSTALL PAVING, CURBING AND BRICKWORK.
13. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
14. ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
15. TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
16. COMPLETE SITE SIGNAGE AND STRIPING.
17. EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE-VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 SEEDING PLAN

7.1 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.

7.2 SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10-10-10 (N-P205-K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

7.3 SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

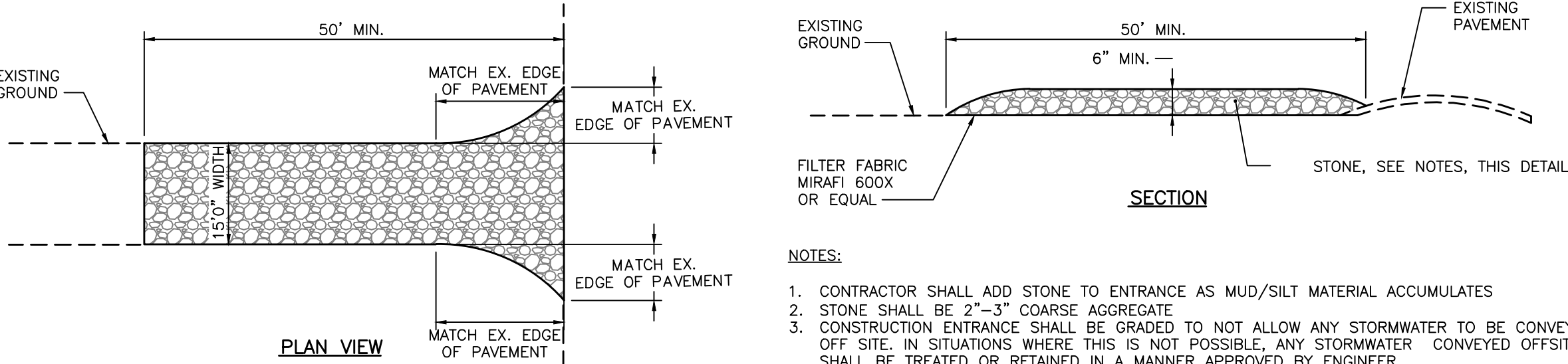
TEMPORARY SEED APPLICATION RATES			PERMANENT SEED APPLICATION RATES	
SEED	LBS / ACRE	RECOMMENDED SEEDING DATES	SEED	LBS / ACRE
WINTER RYE	2.57	8/15 TO 10/1	KENTUCKY BLUEGRASS	20.00
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15	CREeping RED FESCUE	20.00
ANNUAL RYGRASS	0.92	4/1 TO 7/1	PERENNIAL RYGRASS	4.80
SUDANGRASS	0.92	5/15 TO 8/15	TOTAL	44.8 LBS/ACRE
PERENNIAL	0.92	8/15 TO 9/15		
TOTAL	7.17 LBS/ACRE			

7.4 MULCHING

MULCH SHALL BE HARDWOOD AND 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. REFER TO DETAIL FOR MORE INFORMATION.

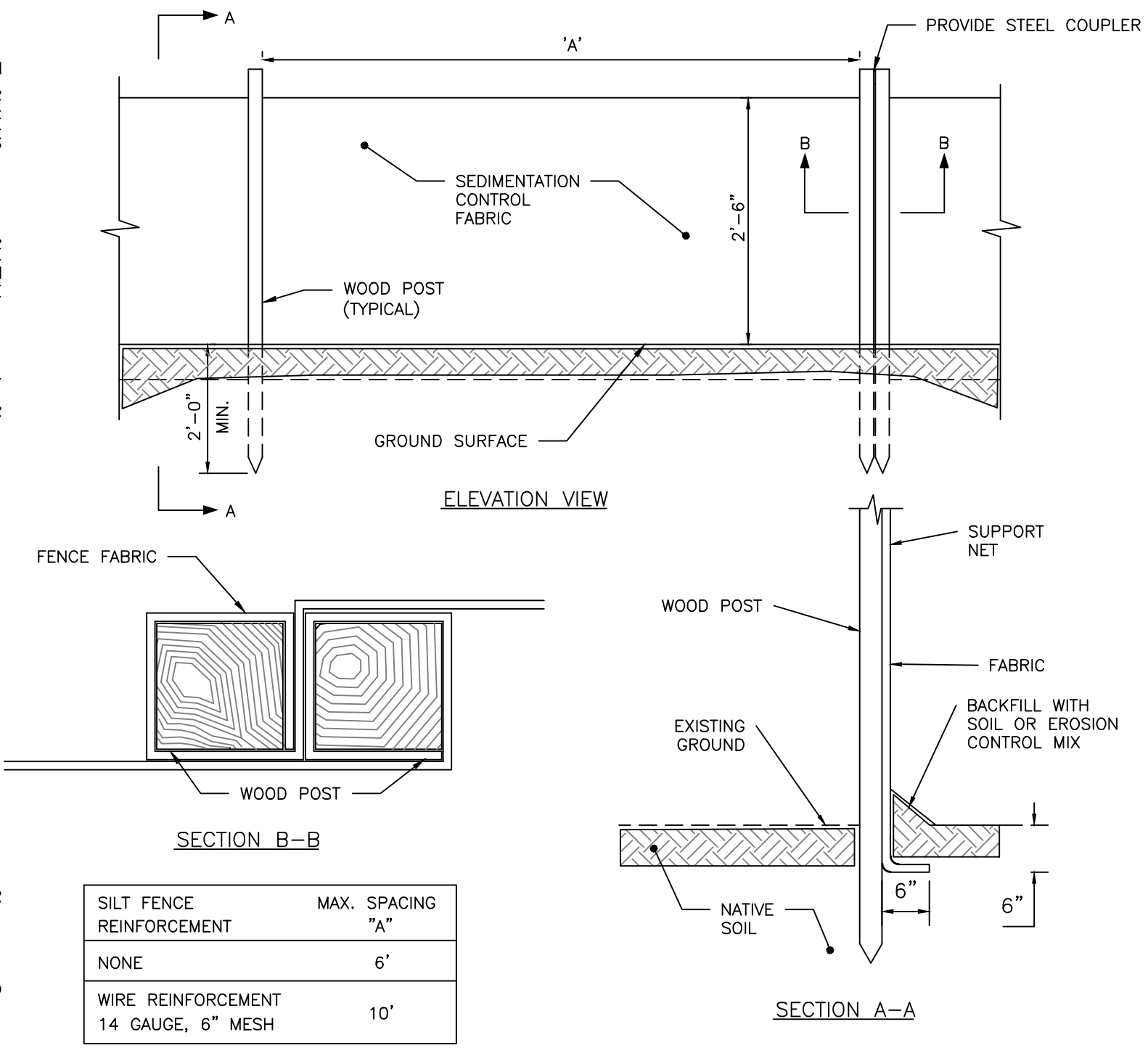
8.0 CONCLUSION

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.



STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

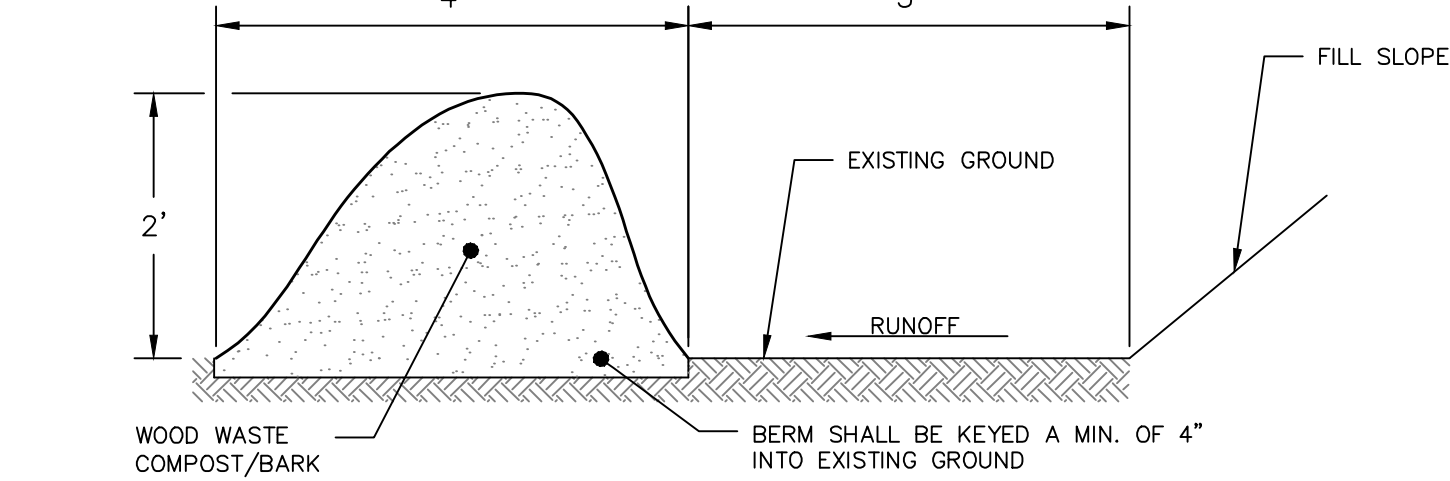


SILTATION FENCE DETAIL

NOT TO SCALE

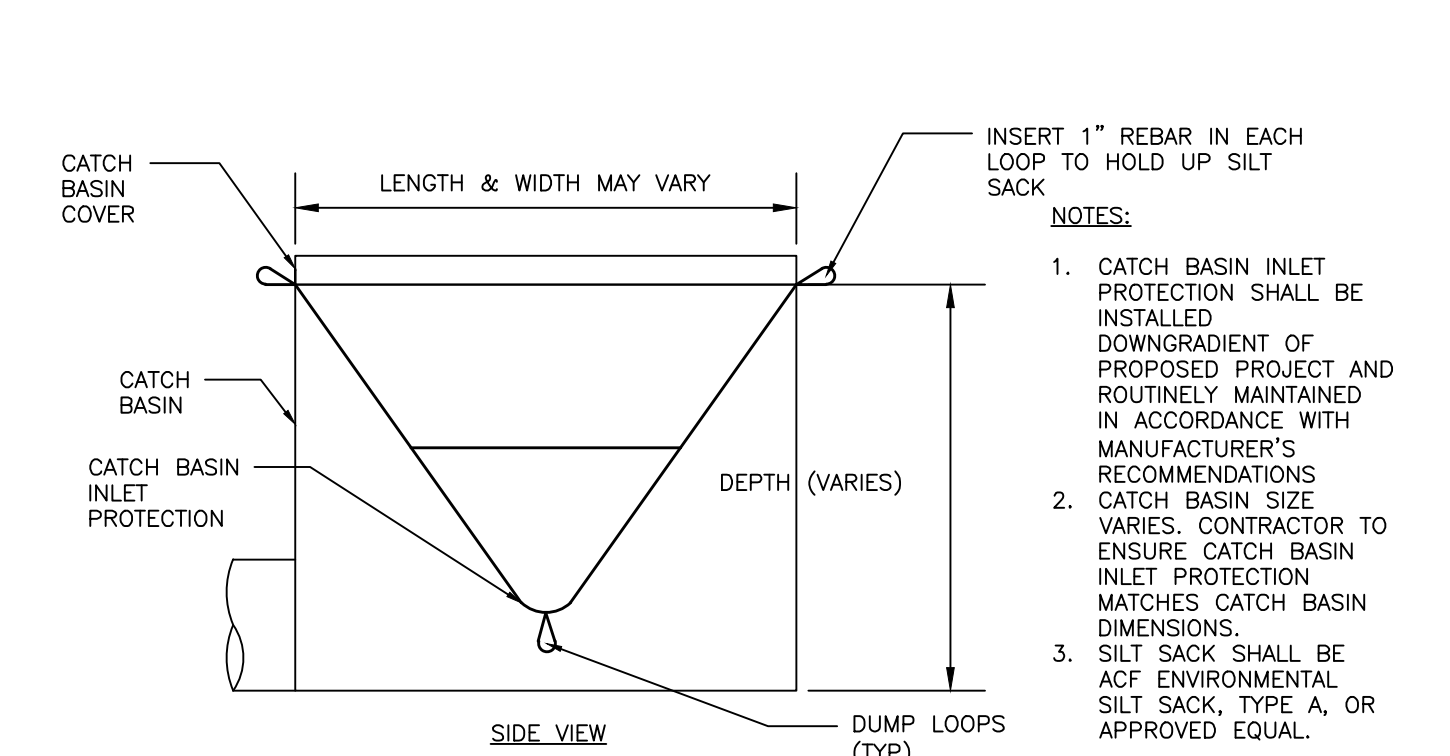
NOTES:

1. THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):
 - 1.1. pH BETWEEN 5.0 - 8.0
 - 1.2. PARTICLE SIZE (BY WEIGHT):
 - 1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
 - 1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
 - 1.3. SOLUBLE SALTS CONTENT < 4.0 MMHOS/CM
 - 1.4. ORGANIC MATTER 20 TO 100%, DRY WEIGHT BASIS
2. THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR, WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.
3. THE BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.



EROSION CONTROL MIX BERM DETAIL

NOT TO SCALE



CATCH BASIN INLET PROTECTION

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
2. STONE SHALL BE 2"-3" COARSE AGGREGATE
3. CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
4. WHEN NECESSARY, ON-SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
5. CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT-OF-WAY

PRELIMINARY

NOT ISSUED FOR

CONSTRUCTION

ISSUED FOR	BY
ATS	PPH
PRELIMINARY	PPH
FINAL	PPH

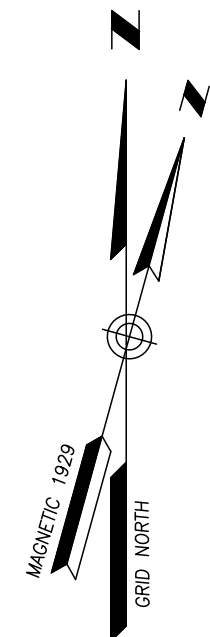
EROSION & SEDIMENTATION CONTROL NOTES AND DETAILS
PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND, MAINE 04104
(207) 775-2655

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DESIGNED BY: ZMS
DRAWN BY: DSH
CHECKED BY: PPH

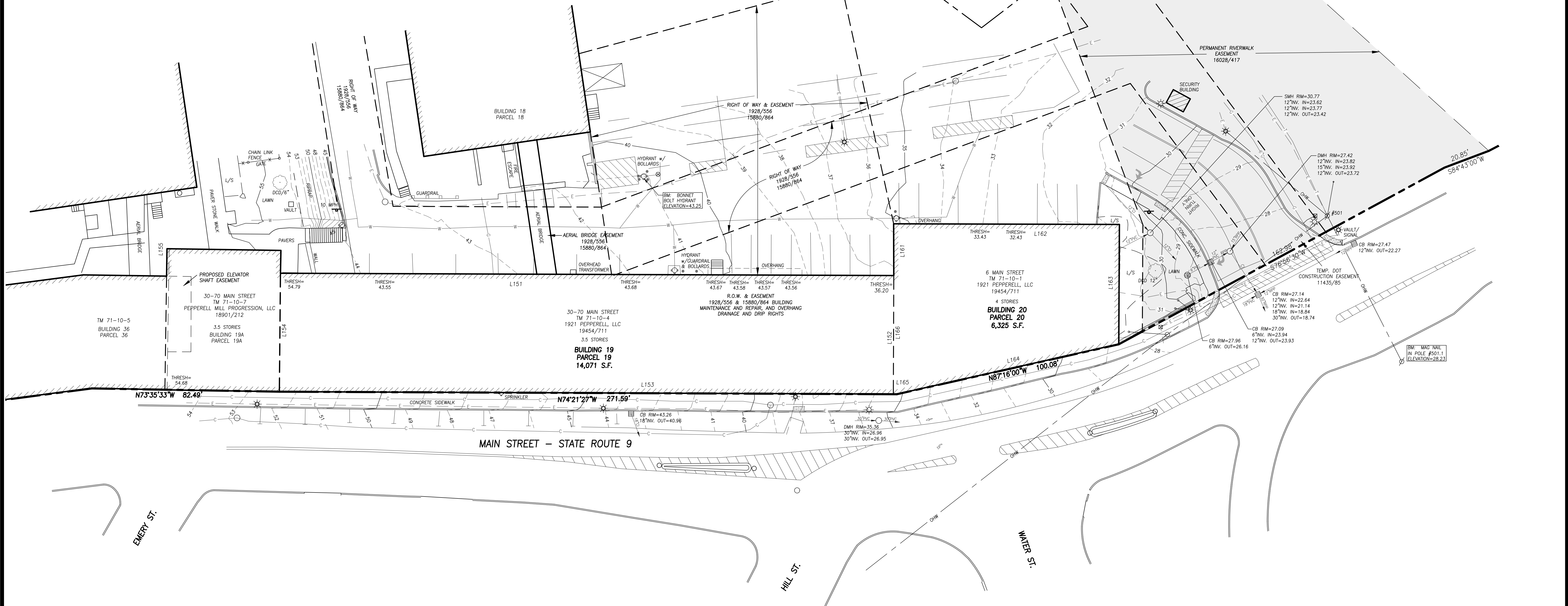
PETER F. HEIL
15318
REGISTERED PROFESSIONAL ENGINEER

DRAWING NO.
C-44



LEGEND

- | | | | |
|--|------------------------|--|--------------------|
| | UTILITY POLE | | FENCE |
| | MANHOLE | | CURB |
| | ELECTRIC BOX/METER | | OVERHEAD WIRES |
| | SIGN | | UNDERGROUND POWER |
| | CATCH BASIN | | WATER LINE |
| | HYDRANT | | GAS LINE |
| | WATER VALVE OR SHUTOFF | | TELEPHONE |
| | LIGHT POLE | | COMMUNICATION LINE |
| | DECIDUOUS TREE | | 1' CONTOUR |
| | LANDSCAPED AREA | | |
| | CONC. | | |
| | THRESH | | |



BUILDING 19 - PARCEL 19 14,071 S.F.		
LINE	BEARING	DISTANCE
L151	S74°22'43"E	269.77'
L152	S15°13'54"W	52.12'
L153	N74°22'15"W	270.42'
L154	N15°56'38"E	52.08'

BUILDING 20 - PARCEL 20 6,325 S.F.		
LINE	BEARING	DISTANCE
L161	N15°13'54"E	22.75'
L162	S74°25'56"E	99.31'
L163	S15°42'59"W	52.89'
L164	N87°17'16"W	100.07'
L165	N74°22'15"W	1.17'
L166	N15°13'54"E	52.12'

SCALE: 1" = 20'

PLAN REFERENCES

- "PLAN SHOWING AN ALTA/ACSM LAND TITLE SURVEY MADE FOR WEST POINT PEPPERELL, INC., BIDDEFORD, MAINE" OCTOBER 27, 1989, REVISED DECEMBER 14, 1990 BY DOW & COULOMBE, INC.
- "ALTA/ACSM LAND TITLE SURVEY (URBAN) MADE FOR SUNBEAM PRODUCTS, INC." DATED MARCH 4, 1999, REVISED MARCH 24, 1999, BY DOW & COULOMBE, INC.
- "COMPOSITE PLAN OF LAND MADE FOR NORTH DAM, LLC AND THE MILLS AT PEPPERELL, LLC" DATED MAY 23, 2011 REVISED FEBRUARY 12, 2014 BY DOW & COULOMBE, INC.
- "FUNCTIONAL SUBDIVISION, THE MILLS AT PEPPERELL, MAINE STREET AND YORK STREET, BIDDEFORD, MAINE MADE FOR RECORD OWNER PRESIDUM GROUP, LLC" DATED DEC. 2, 2021 BY OWEN HASKELL, INC.
- "ALTA/NSPS LAND TITLE SURVEY, THE MILLS AT PEPPERELL, 2 & 6 MAIN STREET, 32-40 MAIN STREET & 44-50 LACONIA STREET, 12 YORK STREET, 1-15 YORK STREET AND 10 WEST POINT LANE, BIDDEFORD, YORK COUNTY, MAINE MADE FOR RECORD OWNER PEPPERELL MILL PROGRESSION, LLC & PEPPERELL MILL DEVELOPMENT, LLC" SEPTEMBER 9, 2021, REVISED DECEMBER 10, 2021 BY OWEN HASKELL, INC.

UTILITY NOTE

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

GENERAL NOTES

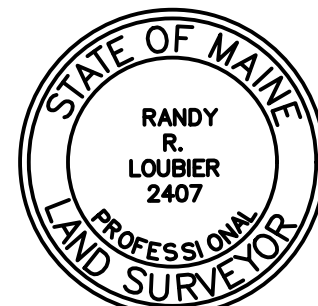
- BEARINGS ARE MAGNETIC 1929 BASED ON MARKERS FOUND AS SHOWN ON PLAN REFERENCE 1.
- THE PROPERTY IS BENEFITED BY AND SUBJECT TO THE EASEMENTS, COVENANTS AND RESTRICTIONS SET FORTH IN THE MASTER DECLARATION.
- COMMON AREA TO BE OWNED BY PEPPERELL MILL PROGRESSION, LLC.
- PARCEL 20 IS SUBJECT TO EXCEPTIONS, RESERVATIONS, RESTRICTIONS, EASEMENTS AND CONDITIONS SET FORTH IN THE QUITCLAIM WITH COVENANT DEED FROM THE MILLS AT PEPPERELL, LLC TO NORTH DAM, LLC DATED DECEMBER 6, 2012 AND RECORDED IN BOOK 16478, PAGE 953

CERTIFICATE

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

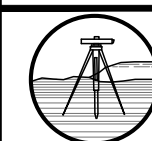
8/30/2024
DATE

Randy R. Louhier
RANDY R. LOUBIER, PLS #2407



Boundary & Topographic Survey

At
Building 19 & 20 - Pepperell Mill
Main Street, Biddeford, Maine
Made for
Fathom Companies
80 Exchange St., Suite 400, Portland, Maine



OWEN HASKELL, INC.

PROFESSIONAL LAND SURVEYORS

390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL: 207-774-0424

DRAWN BY: JLW	DATE: AUGUST 30, 2024	JOB NO.: 2024-200 B-Y
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF BIDEFORD STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF BIDEFORD STANDARDS
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. 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.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

1. BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY OWEN HASKELL, INC. DATED AUGUST 30, 2024.
2. ALTA / NSPS LAND TITLE SURVEY PREPARED BY OWEN HASKELL, INC. DATED SEPTEMBER 9, 2021 AND LAST REVISED DECEMBER 10, 2021.
3. PLAN TITLED "MAIN STREET SEWER SEPARATION" PREPARED BY BERRY, HUFF, MCDONALD, MILLIGAN INC. DATED APRIL 4, 2020

USE	UNITS	SPACES REQUIRED	EXISTING	PROPOSED
RESIDENTIAL	64	2 SPACES / DWELLING UNIT* = 97 SPACES**	-	-
MULTIFAMILY DEVELOPMENTS	-	INCREASE OF 5% (OF 97 SPACES) TO ALLOW FOR VISITORS = 5 SPACES	-	-
ADA (8'x18')	-	-	-	2
STANDARD (9'x18')	-	-	-	1
PARALLEL (8'x20')	-	-	-	2
TOTAL SPACES	-	102	-	102***

*1 IF DESIGNED EXCLUSIVELY FOR, AND OCCUPANCY IS RESTRICTED TO, SENIOR HOUSING, STUDIO APARTMENTS AND 1-BEDROOM APARTMENTS.
 **31 1-BEDROOM UNITS & 33 2-BEDROOM UNITS = (31+66 = 97 SPACES)
 ***97 PARKING SPACES TO BE REQUESTED FROM THE CITY OF BIDDEFORD PARKING GARAGE TO SATISFY THE PARKING REQUIREMENT

RANDY R. LOUBIER, MAINE P.L.S. #2407
OWEN HASKELL, INC.

SURVEYOR
OWEN HASKELL, INC.
CONTACT: RANDY LOUBIER, P.L.S.
390 U.S RT 1, SUITE 10
FALMOUTH, ME 04105

[illegible]

ATTEST: _____
REGISTER

1. RIGHT OF WAY AND EASEMENT AS RECORDED IN BOOK 1928, PAGE 556.
2. RIGHT OF WAY EASEMENT AS RECORDED IN BOOK 15880, PAGE 864.
3. PERMANENT RIVERWALK EASEMENT AS RECORDED IN BOOK 17028, PAGE 417.
4. AMENDMENT AND RESTATED DECLARATION OF COVENANTS, CONDITIONS, EASEMENTS, AND RESTRICTIONS OF PEPPERELL MILL MASTER ASSOCIATION AS RECORDED IN BOOK 19264, PAGE 833.
5. EASEMENT DEED AND AGREEMENT AS RECORDED IN BOOK 19455, PAGE 626.

PROPOSED:

1. TBD

1. WAIVER TO BE EXEMPT FROM STORMWATER STANDARDS IN PART III - ARTICLE XI - SECTION 5.B.1 DRAINAGE

PARCEL 20 BOUNDARY		
LINE	BEARING	DISTANCE
L5	S89°46'41"E	1.53'
L6	N77°18'18"E	100.07'
L7	N0°18'34"E	52.59'
L8	N89°50'02"W	99.31'
L9	S0°10'31"E	22.75'
L10	S0°13'19"W	52.11'

1. PRIOR TO ANY GROUND DISTURBANCE/SITE WORK THE FOLLOWING MUST BE COMPLETED:
 - 1.1. THE APPLICANT MUST PROVIDE THE CITY WITH A MAINE DEP PERMIT.
 - 1.2. PLEASE PROVIDE THE CITY WITH A SALT MANAGEMENT PLAN
 - 1.3. A SEWER IMPACT FEE TO BE DETERMINED BY THE ENGINEERING DEPARTMENT WITH THE CITY.
 - 1.4. AN ALTA SURVEY OR LOT SPLIT PLAN SHOWING THE FULL EXTENT OF DEVELOPMENT, INCLUDING THE END OF THE CITY'S PROPERTY; CLARIFY ON THE PLANS THE ACQUISITION INTENT FOR THE CITY'S REAR LOT, PROVIDE FORMAL DOCUMENTATION FROM THE CITY
 - 1.5. PLEASE PROVIDE THE CITY WITH AS-BUILT PLANS OF THE REDEVELOPMENT.
 - 1.6. A PRE-CONSTRUCTION MEETING WITH ALL THE CONTRACTORS NEEDS TO BE HELD WITH THE ENGINEERING DEPARTMENT TO DISCUSS INSPECTION REQUIREMENTS.
 - 1.7. EROSION CONTROL/SITE STABILIZATION DURING AN AMOUNT TO BE DETERMINED BY THE PLANNING DEPARTMENT MUST BE SUBMITTED.
 - 1.8. THE APPLICANT MUST SUBMIT DIGITALLY A RECORDED COPY OF THE SUBMISSION PLAN TO THE PLANNING DEPARTMENT.
 - 1.9. BEST MANAGEMENT PRACTICES SHALL BE ADHERED TO DURING ALL GROUND DISTURBANCE OPERATIONS.
 - 1.10. PLEASE PROVIDE THE CITY WITH INDIVIDUALLY NAMED PDFS OF EACH DRAWING (NOT A COMBINED PDF SET). INDIVIDUAL DRAWING PDF NAMING FORMAT: PROJECT/SHEETSET_NAME_INDIVIDUAL DRAWING NAME.PDF
 - 1.11. ALL PROJECT DOCUMENTS MUST BE SUBMITTED IN A DIGITAL AND PRINTABLE APPLICATIONS, REPRESENTATIVE NARRATIVE, COORDINATE DATUM, AND SCALE.
 - 1.12. FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY AND PROPOSED DESIGN LINEWORK), ALL DRAWINGS & CAD REFERENCE FILES MUST BE TO SCALE AND WITHIN THE FOLLOWING COORDINATE SYSTEMS: MAINE STATE PLANE NAD83 (HORIZONTAL DATUM) & NAVD83 (VERTICAL DATUM).
2. PERFORMANCE GUARANTEE (ACCEPTABLE TO THE ENGINEERING OFFICE) IN THE AMOUNT OF 150% OF THE REMAINING IMPROVEMENTS (AMOUNT TO BE DETERMINED BY THE PLANNING DEPARTMENT) SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT.
 - 2.1. PRIOR TO COMMENCING ANY WORK IN THE CITY RIGHT-OF-WAY THE APPLICANT MUST OBTAIN A ROAD-OPENING PERMIT FROM THE PUBLIC WORKS DEPARTMENT.
 - 2.2. ALL EROSION AND SEDIMENT CONTROL MEASURES NEED TO BE INSTALLED. THE APPLICANT SHALL NOTIFY THE ENGINEERING DEPARTMENT ONCE INSTALLED SO THAT STAFF MAY INSPECT SAID INSTALLATION, AS NECESSARY.
 - 2.3. THE APPLICANT SHALL OBTAIN ALL OTHER PERTINENT LOCAL, STATE AND FEDERAL PERMITS, LICENSES, AND INSURANCE SUCH AS BLASTING, BUILDING, ELECTRICAL, PLUMBING, ETC., PRIOR TO COMMENCING BUSINESS, UNLESS AUTHORITY ISSUING SAID PERMIT ALLOWS FOR SUCH.
3. ONCE COMPLETED, AS-BUILT DRAWINGS OF THE SITE SHALL BE PROVIDED TO THE PLANNING DEPARTMENT. THE PROJECT ENGINEER SHALL CERTIFY THAT THE PROJECT HAS BEEN COMPLETED AS PER THE APPROVED PLANS OR SHALL NOTE ANY DEVIATIONS FROM THE APPROVED PLANS ON THE AS-BUILT DRAWINGS. ACCEPTANCE OF THE ROAD WILL NOT BE CONSIDERED WITHOUT THE CITY HAVING BEEN PROVIDED ACCEPTABLE AS-BUILTS AND PROJECT ENGINEER CERTIFICATION OF THE COMPLETENESS OF THE PROJECT.
4. STANDARD CONDITIONS OF APPROVAL

DRAWING NAME: SUBDIVISION PLAT

PROJECT NAME: PEPPERELL MILL - BUILDINGS 19 & 20 REDEVELOPMENT
- BIDDEFORD ME

CLIENT: 1921 PEPPERELL, LLC
16 CASCO STREET PORTLAND, MAINE, 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

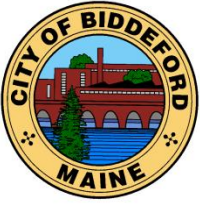
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALLEGATIONS, ACTIONS OR DAMAGES OF ANY KIND SHALL BE THE SOLE RESPONSIBILITY OF THE USER WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ENGINEERING, INC.

STATE OF MAINE
PETER F. HEIL
15318
LICENSED
PROFESSIONAL ENGINEER
12/6/24

DRAWING NO.

PLAT



CITY OF BIDDEFORD

Planning and Development Department

Adi Iriqat
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
adi.iriqat@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: Adi Iriqat, Assistant City Planner

DATE: December 31, 2024

RE: **2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 zone.**

MEETING DATE: January 15, 2025, at 6:00 PM

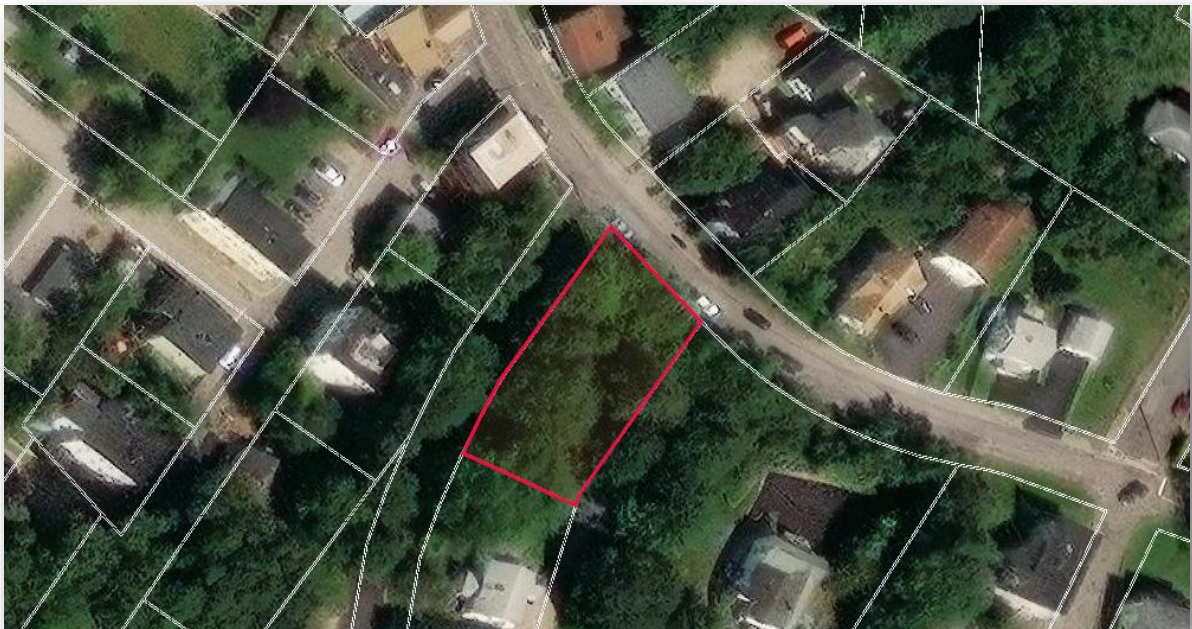
1) INTRODUCTION

This application was first before the Planning Board as a Sketch Plan Review on June 7th, 2023. As this sketch plan was previously reviewed over a year ago, the application was brought back to the Board as a sketch. Following sketch approval on June 26, 2024, the application is being returned as a Preliminary Plan. The Applicant, Diversacorp Holdings LLC, proposes constructing four (4) in-line residential condominium units and associated driveways at 20 Clifford Street (Tax Map 39, Lots 301-1 and 304). Access to all driveways would be via Tibbets Avenue, and addressing will also be off Tibbets Avenue. The project will be served by public sewer (Tibbets) and public water (Clifford).



20 Clifford Street – 4 Lot Condominium Development off Tibbets Avenue

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.



20 Clifford Street – 4steep slopes / highly vegetated property



20 Clifford Street – Image of Tibbets Avenue and Clifford Street Intersection

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

2) PROJECT DATA/INFORMATION

1.	Applicant:	Diversacorp Holdings, LLC 5 Stone Pony Circle Saco, ME 04072
2.	Owner of Property:	Same as Applicant
3.	Agent:	Austin Fagan, BH2M 380 B Main Street Gorham, ME 04038 (207) 839-2771
4.	Engineer:	Same as Agent
5.	Project Location:	20 Clifford Street
6.	Project Tax Map #/Lot #:	Tax Map 39, Lot 303-1 & 304
7.	Lot Size:	18,054 sf
8.	Base Zoning:	R2
9.	Overlay Zoning:	N/A
10.	Existing Use:	Undeveloped
11.	Proposed Use:	Four (4) single-family units 24'x34'
12.	Approvals Required:	Minor subdivision, Site Plan
13.	Uses in the Vicinity:	Multifamily residential, Single Family Residential
14.	Number of Lots in Subdivision:	2
15.	Minimum Lot Size Required:	20,000 sf
	Provided:	18,054 sf
	Proposed:	4500 sf per unit (4 units x 4500= 18,054 sf)
16.	Frontage Required:	45'
	Existing:	N/A
	Proposed:	N/A
17.	Front Setback Required:	25'
	Existing:	0'
	Proposed:	N/A
18.	Side Setback Required:	5'
	Existing:	0'
	Proposed:	N/A
19.	Rear Setback Required:	5'
	Existing:	0'
	Proposed:	N/A
20.	Height Requirements:	35 feet or 3 stories
	Provided:	0'
21.	Water Supply:	Public Water
22.	Sewage Disposal:	Public Sewer
23.	Solid Waste Disposal:	Public Trash
24.	Fire Protection:	City of Biddeford

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

25.	Floodplain Status:	N/A
26.	Wetland/Surface Water Impacts:	N/A
27.	Soil Study Provided:	See Appendix B Soils Report in the 2024-12 10 Stormwater Report
28.	Parking Spaces Required:	N/A
29.	Parking Spaces Provided (total):	N/A
30.	Ownership of Road:	Clifford is a Public Street
31.	Impervious Surface Area:	6,580 SF Change
32.	Total Disturbed Area:	17, 678 SF
33.	Waivers Needed:	N/A
34.	Waivers Granted:	N/A
35.	Variances Needed for Approval:	None
36.	Other Permits Obtained:	N/A
37.	Other Non-City Permits Required:	None
38.	Fees Paid:	Yes
39.	Planning Board Review History:	Sketch: Jun 7, 2023; June 26, 2024. Prelim: Jan 15, 2025.

3) Existing Conditions

The subject property is currently vacant and undeveloped. Its lot is between 16,552 and 18,054 sf, or 0.38 and 0.41 acres, in the R2 District. The property includes an existing house and a garage, as shown on the existing Conditions Plan Sheet 2.

4) Proposed Project

Diversacorp Holdings LLC proposes constructing a 4-unit condominium on a 0.64-acre parcel at the corner of Clifford Street and Tibbetts Avenue in Biddeford (Map 39, Lots 303-1 & 304).

The scope of work includes but is not limited to:

- Construction of a 4-unit residential building, each unit being 24'X34', 816 sf (3,264 SF)
- Construction of paved parking areas
- Extension of municipal utilities for water, sewer, electrical, and communications
- Construction of stormwater management facilities.

The proposed infrastructure improvements will create approximately 6,580 sf of impervious area and 11,098 sf of landscaped area, totaling 17,678 sf of developed area for the project.

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

5) Review Process

Per the City Ordinance, this application is subject to Land Development Regulations, Article XI (Site Plan Review), and Subdivision Review (Chapter § 66-39). Subdivision applications generally follow a three-tier approval process, beginning with a Sketch Plan review, a Preliminary Plan review, and a Final Plan approval.

6) STAFF REVIEW

- **APPLICATION COMPLETENESS:** The applicant has submitted a complete application featuring all required elements as specified under Section 66-35 (Required Information for Final Plan Submissions). As part of the staff's review comments, we have identified aspects of the plan submission that need to be revised or clarified, which we suggest being made a condition of approval.
- **ZONING:** The proposed uses are permitted within the R-2 Zone. Similarly, concerning applicable dimensional requirements, the project would comply with all relevant requirements, including building height, setback, frontage, and lot coverage requirements.
- **REVIEW STANDARDS:** Staff finds the application to satisfy City subdivision and site plan requirements. The primary site details, such as roadways, building envelopes, tree clearing areas, parking, landscaping, designs, and locations, have been finalized, so the plan being reviewed by the Board is what will be constructed on the face of the earth.
- Maine DEP Stormwater Permit: The project requires a Maine DEP Stormwater Permit.
- **WAIVERS:** No waivers were requested as part of this project.
- **DEPARTMENTAL REVIEW COMMENTS:**
 - A. Fire Department:
Addressed
 - B. Engineering Department:
 - i) The proposed 12ft retaining wall shall be structurally engineered and verified for structural stability.
 - C. Planning Department:

The final submission must include Homeowner's Association (HOA) Documents and be made available for review and approval by the City Planner. Once approved, the documents shall be registered at the York County Registry of Deeds.

 - i) The final submission must include a landscape plan. Since the site is fully vegetated, the applicant should clarify how many trees on the parcel will be removed and how that may impact erosion.
 - ii) Additionally, planning staff noted that although the property address is 20 Clifford Street, driveway access for all four units will be on Tibbetts Ave. When heading into the final approval process, the applicant should address how the addressing will be handled.

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

iii) Condominium documents shall be submitted with the final application and must include annual maintenance of the stormwater facilities.

D. Codes Department:
Addressed

7) STAFF RECOMMENDATION

Staff supports the proposed subdivision and recommends that the Board approves the proposed preliminary subdivision plans. Sample motions are provided below:

8) SAMPLE MOTIONS

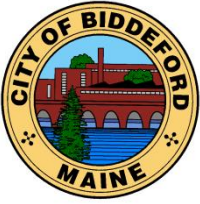
A. **Motion to Approve** Case #2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC (Tax Map 39, Lots 301-1 & 304), in the Residential-2 Zoning District with the adoption of the attached Findings of Fact (FOF) and recommended Conditions of Approval (COA) as written.

B. **Motion to Table** Case #2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC (Tax Map 39, Lots 301-1 & 304), in the Residential-2 Zoning District, for the following reasons:

- 1) _____
- 2) _____
- 3) _____

C. **Motion to Deny** Case #2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC (Tax Map 39, Lots 301-1 & 304), in the Residential-2 Zoning District, for the following reasons:

- 1) _____
- 2) _____
- 3) _____



CITY OF BIDDEFORD

Planning and Development Department

Adi Iriqat
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

adi.iriqat@biddefordmaine.org

FINDINGS OF FACT AND CONCLUSIONS OF LAW

**Diversacorp Holdings LLC
Site Plan & Subdivision
20 Clifford Street (Tax Map 39, Lot 301-1 & 304)
January 15, 2025**

RE: 2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 zone.

Under the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning Board makes the following Findings of Fact and Conclusions of Law:

1. PROJECT DATA/INFORMATION

**1. Applicant: Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, ME
04072**

2. Owner of Property: Same as Applicant

**3. Agent: Austin Fagan, BH2M
380 B Main Street
Gorham, ME 04038
(207) 839-2771**

4. Engineer: Same as Agent

5. Project Location: 20 Clifford Street

6. Project Tax Map #/Lot #: Tax Map 39, Lot 303-1 & 304

7. Lot Size: 18,054 sf

8. Base Zoning: R2

9. Overlay Zoning: N/A

10. Existing Use: Undeveloped

11. Proposed Use: Four (4) single-family units 24'x34'

12. Approvals Required: Minor subdivision, Site Plan

13. Uses in the Vicinity: Multifamily residential, Single Family Residential

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

14.	Number of Lots in Subdivision:	2
15.	Minimum Lot Size Required: Provided: Proposed:	20,000 sf 18,054 sf 4500 sf per unit (4 units x 4500= 18,054 sf)
16.	Frontage Required: Existing: Proposed:	45' N/A N/A
17.	Front Setback Required: Existing: Proposed:	25' 0' N/A
18.	Side Setback Required: Existing: Proposed:	5' 0' N/A
19.	Rear Setback Required: Existing: Proposed:	5' 0' N/A
20.	Height Requirements: Provided:	35 feet or 3 stories 0'
21.	Water Supply:	Public Water
22.	Sewage Disposal:	Public Sewer
23.	Solid Waste Disposal:	Public Trash
24.	Fire Protection:	City of Biddeford
25.	Floodplain Status:	N/A
26.	Wetland/Surface Water Impacts:	N/A
27.	Soil Study Provided:	See Appendix B Soils Report in the 2024-12-10 Stormwater Report
28.	Parking Spaces Required:	N/A
29.	Parking Spaces Provided (total):	N/A
30.	Ownership of Road:	Clifford is a Public Street
31.	Impervious Surface Area:	6,580 SF Change
32.	Total Disturbed Area:	17, 678 SF
33.	Waivers Needed:	N/A
34.	Waivers Granted:	N/A
35.	Variances Needed for Approval:	None
36.	Other Permits Obtained:	N/A
37.	Other Non-City Permits Required:	None
38.	Fees Paid:	Yes
39.	Planning Board Review History:	Sketch: Jun 7, 2023; June 26, 2024. Prelim: Jan 15, 2025.

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

2. CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws.
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes.
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties.
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development.
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes.
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion.
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion.
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal.
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal.
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan.
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal.
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements.
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination.
14. Adequate provision has been made to control erosion or sedimentation.
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems.

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

16. The proposed water supply would meet the demands of the proposed use for fire protection purposes.
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law.
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal.
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

3. APPROVAL GRANTED:

Based on the evidence and conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report. Under the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has approved the application of Subdivision & Site Plan Review. Herby approves the proposed construction of four (4) residential units located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) for Diversacorp Holdings LLC and approves the recommended Findings of Fact (FOF) with the following Conditions of Approval (COA):

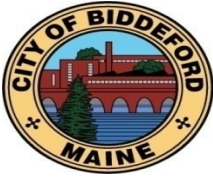
1. Standard Conditions of Approval apply.
2. Before scheduling the required Pre-construction meeting, the Applicant shall make any required changes to the project Civil Plans for the review and approval of the Public Works Director.
3. **The final submission must include Homeowner's Association (HOA) Documents** and be made available for review and approval by the City Planner. Once approved, the documents shall be registered at the York County Registry of Deeds.
 - i) The final submission must include a landscape plan. Since the site is fully vegetated, the applicant should clarify how many trees on the parcel will be removed and how that may impact erosion.
 - ii) Additionally, planning staff noted that although the property address is 20 Clifford Street, driveway access for all four units will be on Tibbetts Ave. When heading into the final approval process, the applicant should address how the addressing will be handled.
 - iii) Condominium documents shall be submitted with the final application and must include annual maintenance of the stormwater facilities.
4. **Bonding and Inspection Fees:** Bonding and inspection fees shall be established **before the Pre-construction meeting**.
5. **Modifications to Approved Development Plans:** The project shall be constructed according to the approved development plans. The applicant must submit a letter requesting a "Minor Modification" to the approved development plans if any changes are needed. The applicant must properly justify the reasons for those deviations. The narrative shall include the current approved plans and the proposed modifications, which the City Planner shall approve in writing before construction. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board.

2023.31 Site Plan and Subdivision Application for Diversacorp Holdings LLC to construct four (4) residential condominium units. The property is located at 20 Clifford Street (Tax Map 39, Lots 301-1 & 304) in the Residential-2 Zone.

6. Once the As-Built drawings are submitted to the Planning Department (clearly identifying what deviations and variances were installed based on the approved permit drawings), the City Engineering Department will conduct an inspection. The “as-built Checklist” shall be submitted for review and approval for any performance guarantee release.
7. As-built drawings and CAD Files must be submitted to the Planning & Engineering Departments **before a ‘Site Punchlist Inspection’ and any bond release.**
8. York County Recorded Drawings: The applicant must submit copies of York County Registry of Deed drawings to the Planning & Engineering Department before issuing the Building Permit.
9. Sewer Permits must be finalized and paid before a Building Permit is issued; payment coordination will go through the Engineering Department.
10. Required Inspections:
 - i. **Erosion & Sediment Control Inspections**
 1. It needs to be completed by a city-approved third-party Inspector and paid by the Applicant via the inspection fee escrow held by the city.
 2. Initial, monthly, and final inspections.
 3. At a minimum, The City’s Engineering Department shall be notified for an initial E&S inspection before breaking ground.
 - ii. **Right-of-way Inspections**
 1. Needs to be completed by the City Engineering Department.
 2. For all public road, storm, and sewer connections.
 3. **Private right-of-way inspections:** The design engineer shall complete private right-of-way/road and utility inspections and certify that they have been constructed as approved before the full or partial release of established bonding.
 - iii. **Stormwater BMP Installation Inspections**
 1. Needs to be completed by the design engineer.
 2. Confirming stormwater facilities installed correctly per design.
 3. Inspection reports need to be submitted to the Engineering Department.
 - iv. **Post-construction BMP Maintenance Annual Inspections**
 1. Needs to be completed annually by the design engineer or 3rd party inspector.
 2. Needs to assess the current condition of each BMP, what repairs are needed, and confirm ongoing maintenance has occurred.
 3. Upon completing each inspection, copies of all inspection reports must be submitted to the Engineering Department.

Alexa Plotkin, Planning Board Chair

Date

**City of Biddeford – Planning Department****Planning Board Application**

P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:

☐ Shoreland Zoning Permit ☒ Site Plan Review ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision ☐ Private Way
☐ Other: _____

Applicant Information:

Name: Diversacorp Holdings, LLC
 Mailing Address: 5 Stone Pony Circle, Saco, ME
 Telephone: (207) 286-6210
 Email: natelibbymasonry@yahoo.com
 What is your legal interest in the property?
☒ Owner ☐ Potential Buyer with Contract ☐ Lease/Rental Agreement

Owner's Information:

Name: Same as applicant
 Mailing Address: _____
 Telephone: _____
 Email: _____

Agent's Information:

Name: Austin Fagan- BH2M
 Mailing Address: 380B Main Street, Gorham, ME 04038
 Telephone: (207) 839-2771
 Email: afagan@bh2m.com

Engineer/Surveyor's Information:

Name: Austin G. Fagan, P.E # 16523
 Mailing Address: 380B Main Street, Gorham, ME 04038
 Telephone: (207) 839-2771
 Email: afagan@bh2m.com

Project Location and Lot Information:

Street Address: 20 Clifford Street Drainage Watershed: Saco River
Tax Map: 39 Lot: 303-1 & 304
Current Zoning: R2 Shoreland Zoning: N/A
 Size of Lot: 18,054 () acres (X)s.f. Lot Frontage: _____
 Existing Use of Property: The property is undeveloped.

Property currently serviced by:

☒ City Road ☒ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road ☐ Septic System ☐ Private Well ☐ Private Hauler

Slope Conditions in Area of Construction (if applicable):

☐ Flat (0-3% slope) ☐ Rolling (3-8% slope) ☒ Hilly (8-15% slope) ☒ Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ☐ (Yes) ☒ (No) if yes attach information

Is the project within the 100-year floodplain? ☐ (Yes) ☒ (No) if yes attach information

Do you plan to bring fill onto the lot? ☐ (Yes) ☒ (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

The applicant is proposing to construct 4 units, each being 24'x34' with associated driveways and patios.

Property to be Serviced by:

☒ City Road ☒ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road ☐ Septic System ☐ Private Well ☐ Private Hauler

Limits of Disturbance: 17,678 () acres (☒s.f.

Net change in impervious cover: 6,580 () acres (☒s.f.

Is this project part of a larger project? ☐ (Yes) ☒ (No)

Is the project proposing a new Private or Public Road? ☐ (Yes, Private) ☐ (Yes, Public) ☒ (No)

Is this project within the Urbanized Area/MS4 (see [City Drainage Map](#)) ☒ (Yes) ☐ (No)

Is the project proposing any Stormwater facilities/BMPs? ☒ (Yes) ☐ (No)

Will a Traffic Movement Permit (TMP) be required?: ☐ (Yes) ☒ (No)

If in a Shoreland Zone:

Percent of residential lot coverage (Max 20%): N/A

Percent of structure expansion (Max 30%): N/A

If Subdivision Review, number of lots proposed: N/A

If a Private Way is proposed, number of lots served: N/A

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: 3,264 sf

Total new square feet paving/parking: 3,316 sf

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

- A. Letters of Approval
 - ☒ Fire Department – Contact Chief or Deputy Chief – 282-9986
 - ☒ Ability to Serve for Water Service – Maine Water – 282-1543
 - ☒ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
 - ☒ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127
- B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.
- C. Photographs of Site.
- D. Architectural renderings/drawings of proposed buildings, as required.
- E. Engineering Plans, as required.
- F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- \$75 Nonrefundable Administration Fee is required for every application.
- Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: ☐ (Yes) ☒ (No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: Austin G. Fagan - Agent

Date 12-26-2024

Signature of Property Owner: _____

Date _____

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- *Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVIDUAL DRAWING NAME.pdf'*

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- *All drawings & CAD reference files must be to-scale and within the following coordinate systems:*

- *MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)*

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

CITY OF BIDDEFORD - SITE PLAN APPLICATION DRAWING CHECKLIST

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant for any Site Plan submittal to the Planr
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have ac
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non
4. Items in **BLACK** are required for 'Preliminary Site Plan' approval & 'Final Site Plan' approval.
5. Items in **BLUE** are only required for 'Final Site Plan' approval.

SUBMITTAL REQUIREMENT	
ITEM NUMBER	DESCRIPTION
1	GENERAL PLAN REQUIREMENTS
A	Drawing specific legends (linetypes, hatches, etc.)
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)
C	North arrows, standard engineering scale viewports, dated revision blocks
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)
2	COVER SHEET
A	Project Name & Property Address
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)
C	Site Location Map
D	Sheet Set List of Drawings
E	Tax Map and Lot ID
F	Zoning & Shoreland Zone Information
G	Existing Use Description
H	Proposed Use Description
I	Required Waiver/Variations (Yes/No); if yes, plan must clearly list waivers/variances requesting
J	Name of Drainage Watershed
K	Within the MS4 Urbanized Area (Yes/No)
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)
M	Within the 100-year Flood Zone (Yes/No)
N	Public Road Proposed (Yes/No)
O	Private Road Proposed (Yes/No)
P	Public Sewer Connection (Yes/No); if yes, need to include a proposed sewer flow calculation per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)
Q	Public Storm Drain Connection (Yes/No)
R	Limits of Disturbance in acres
S	Pervious Land Cover square footage, existing and proposed
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed
U	Building Roof square footage, existing and proposed
V	Assigned Planning Board Number

W	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)
3	EXISTING CONDITIONS PLAN
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)
B	Survey Benchmark Locations (with XYZ Coordinates annotated)
C	Property & Right-of-Way Lines
D	Boundary line information (bearings, distances, etc.)
E	Property pin and monumentation locations
F	Existing easements with proper ownership identified
G	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)
H	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
I	100-year Flood Zone Limits & Elevation
J	USDA-NRCS Soil Boundaries and Labels
K	Existing contours with adequate contour labelling; minimum 1' contour interval
L	Existing building FFEs annotated
M	Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs
N	Existing buildings & structures
O	Existing pavement areas & number of parking spaces
P	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces
Q	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)
R	Existing signage and striping
S	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)
T	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)
U	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)
V	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation
W	Location of any borings, drinking wells, and monitoring wells
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN
A	Limits-of-disturbance outlined and acreage annotated
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
C	100-year Flood Zone Limits
D	Callout existing site features to be demolished/removed/replaced
E	Callout existing utilities to be demolished/removed/abandoned-in-place
F	Hatch existing buildings and pavement to be removed
G	Construction Entrance location(s)
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)
I	Stockpile and staging area(s) identified (with proper perimeter control)
J	Inlet protection location(s)
K	Note requiring contractor to implement dust control measures throughout construction
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing
N	If large development is proposed with an extensive underground stormwater conveyance network, show sediment trap/basin location(s) needed for constructability/phasing; provide sizing calculations
5	SITE PLAN/SUBDIVISION PLAN

	A Partial Site Plans needed for any viewport scale greater than 1"=20'
	B Existing property and right-of-way lines
	C Proposed subdivision lot lines and labels
	D Required Zoning Setbacks shown with dimensions and annotation
	E Bulk requirement summary table (zoning/parking calculations)
	F Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
	G 100-year Flood Zone Limits
	H Proposed building outlines, door entrances and loading docks
	I Proposed building labels
	J Proposed road extents; provide clear annotation if roads will be public or private
	K Proposed parking and accessible parking locations; annotate parking space counts
	L Proposed signage, parking striping, and traffic striping
	M Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed
	N Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)
	O Separate hatching for buildings, sidewalks, pavement, landscaping
	P Proposed landscaping; detailed landscaping design should be on separate plans
	Q Designated snow storage areas
	R Proposed dumpster locations and trash removal access
	S Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks
	T Radial dimensions for all curbs, landscaped islands, sidewalks
	U Road centerline stationing shown, labelled every 0+50' with curve data
	V If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
	W If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
	X Planning Board signature block for final recording
6	GRADING PLAN
	A Partial Grading Plans needed for any viewport greater than 1"=20'
	B Limits-of-disturbance outlined and acreage annotated
	C Proposed Building Labels with Individual Finished Floor Elevations (FFE's)
	D Existing contours with adequate contour labelling, screened; minimum 1' contour interval
	E Proposed contours with adequate contour labelling; minimum 1' contour interval
	F Detailed grading for all ditches, swales, outfalls, and riprap
	G All proposed contours tie-into existing contours at limits-of-disturbance outline
	H Existing spot elevations for all asphalt and curb tie-in locations
	I Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
	J 100-year Flood Zone Limits
	K Proposed spot elevations for all important roadway geometric points and/or on a 50' maximum interval: low/high points, PC/PT, road centerline, edge-of-asphalt
	L Proposed spot elevations for all curblines (bottom/top-of-curb) and sidewalks
	M Proposed spot elevations for all parking and drive aisle geometry points
	N Proposed spot elevations for all building corners and door-entry locations
	O Proposed retaining wall/loading dock elevations (bottom/top of wall)
	P Proposed spot elevations for all ADA ramp/landing/parking stall geometry points
	Q Proposed % slope arrows for all ADA parking spaces and sidewalks
	R Proposed longitudinal % slope arrows for drainage ditch centerlines
	S Proposed % slope arrows for roads, parking areas, and landscape tie-in areas

T	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)
7	ROAD PROFILES (if public/private road proposed)
A	Existing surface; dashed and screened
B	Proposed surface; continuous and bold
C	Corresponding centerline stationing and curve data annotation
D	Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)
E	Horizontal and vertical scale bars
F	Clear annotation if proposed road will be public or private
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
8	UTILITY PLAN
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)
F	Proposed storm culverts, outfalls, and riprap locations and sizes
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
I	Flow directional arrows for storm & sewer pipes
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)
K	All storm drains must be sized to convey the 25-year storm
L	Sewer force main sizes and invert elevations
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)
N	Grease trap & oil-water separator locations, sizes, elevations
O	Water, gas, electric, and telecom sizes labelled
9	UTILITY PROFILES
A	Utility profiles for all gravity storm drains and sewer pipes, including all laterals, catch basins, culverts, and outfalls; profiles preferred to be aligned on the pipe centerline (not superimposed on the road centerline)
B	Existing surface; dashed and screened
C	Proposed surface; continuous and bold
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated
H	Known ledge or groundwater elevations

	I For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified
	J For storm outfalls, include riprap sizing and grading extents
	K Horizontal and vertical scale bars
10	DETAILS
	A Road section detail, including pavement & gravel depths
	B Sidewalk, paver, crosswalk, and any other pavement section details
	C Pavement sawcut detail
	D Utility trench/backfill detail
	E All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.
	F Signage, striping, and ADA details
	G E&S notes and details; only show applicable/proposed measures
	H Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)
	I Storm outfall & riprap details
	J Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes
	K Pump station, grease trap, and oil-water separator details
	L Conduit section details
	M Miscellaneous details (as needed)
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS
	A As required by ordinance; at a minimum: locations, counts, and species/models must be identified
	B Landscaping & lighting details
12	DOCUMENTS/REPORTS/CALCULATIONS
	A On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction
	B Predevelopment & Post-development Drainage Area Maps, including: i. Subdrainage areas delineated and labeled ii. Points of Interest/Analysis shown and labeled iii. Hatching for different land cover areas (impervious, pervious, gravel) iv. Time of concentration (Tc) paths & durations v. Four City-standardized stormwater summary tables
	C An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)
	D A Performance Guarantee Cost Estimate utilizing Planning's template
	E For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)
	F 25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches) via the rational method; starting tailwater conditions/documentation must be clearly identified

G	If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies
H	Sizing calculations for any SWM water quality BMP or detention facility
I	A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: i. Annual maintenance requirements ii. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed iii. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership
J	Salt Management Plan
K	Sewer pump station sizing calculations
L	Sewer pump station maintenance plan
M	Grease trap sizing calculations
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals

LAST REVISED: 05/17/23

ning Department.
dequate reasoning to justify t
n-acceptable reasoning will be

INFORMATION PROVIDED (YES/NO)
Yes
Yes
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Yes

Yes
Yes
Yes
No
No
No
No
No
No

their absence.
e rejected.

APPLICANT RESPONSE
REASON NOT PROVIDED/COMMENT
See plan set
See existing Conditiona Plan
None Requested
See stormwater report
See stormwater report
None onsite
Not in flood zone
No Road Proposed
No Road Proposed
See stormwater report
See stormwater report
See application
See application

None onsite
None onsite
See stormwater sheets
No existing buildings onsite
No existing buildings onsite
None onsite
None onsite
None onsite
None onsite
See stormwater report
None onsite
None onsite
None onsite
No construction entrance
None proposed
Trucks likely to remain on paved surfaces due to area of site
No groundwater expected. See S.W. Cole borings

None onsite
None onsite
None proposed
Private units
None proposed
None proposed
Snow storage in green space
None proposed
No roads
No roads
No roads
See application
None onsite
None onsite
No roads
Private units
Private units
See grading
See grading

No roads proposed
No roads proposed
No roads proposed
No roads proposed
No roads proposed
No roads proposed
No roads proposed
No roads proposed
None proposed
None proposed
See design plans
Sewer and water to be set per utility company requirements. Test pits required for existing elevations.
Utilities to be set per utility company requirements
See test pits

Residential units
None proposed
None proposed
None proposed
None proposed
None required

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT

20 Clifford Street

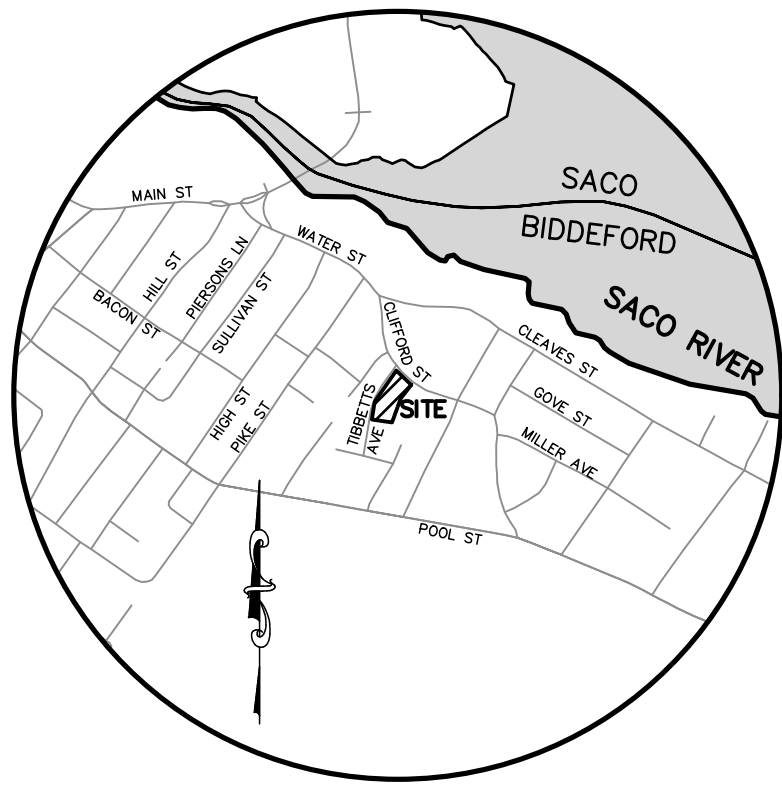
Diversacorp Holdings LLC

Preliminary

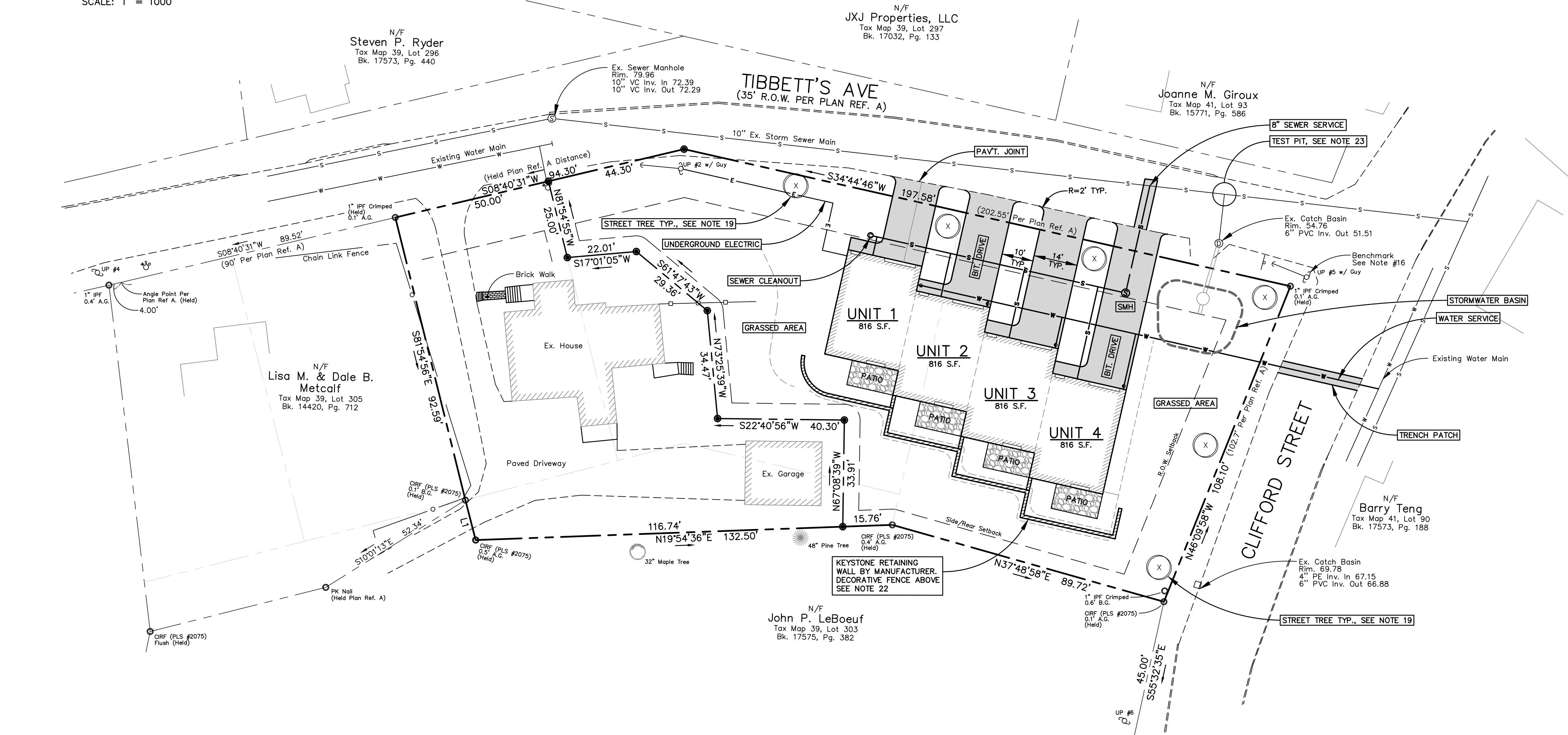
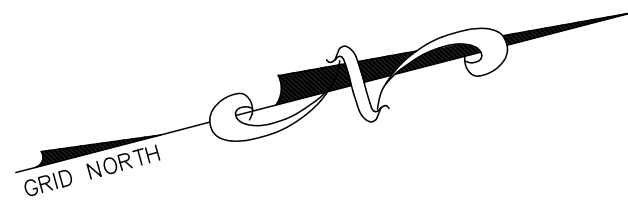
1/6/2025

CITY REVIEW RESPONSE

COMMENT	
---------	--



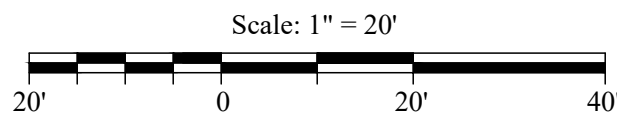
LOCATION MAP
SCALE: 1" = 1000'



SANITARY SEWER
SMH — RIM 59.0
INV. IN 54.0
INV. OUT 53.9
CLEANOUT — INV. 62.0

SYMBOL	DESCRIPTION
●	CAPPED IRON ROD TO BE SET #2190
○ IRF / IRF	IRON ROD/PIPE FOUND
○ CRF	#5 IRON ROD FOUND W/ CAP
○	UTILITY POLE
→	GUY WIRE
→	ABOVE GROUND/BELOW GROUND
A.G./B.G.	NOW OR FORMERLY
N/F	WATER SHUTOFF VALVE
□	CATCH BASIN
⊙	DRAIN MANHOLE
⊙	SEWER MANHOLE
⊙	CLEANOUT MANHOLE
—	SIGN
.....	SILT FENCE
---	PROPERTY LINE
---	ABUTTER PROPERTY LINE
---	EXISTING EDGE OF PAVEMENT

LINE DATA
L1 — S82°24'29"E 13.12'



- NOTES:
- OWNERS/APPLICANT: DIVERSACORP HOLDINGS, LLC
5 STONE PONY CIRCLE
SACO, MAINE
 - ENGINEER: AUSTIN FAGAN, PE#16523
BH2M
380B MAIN STREET
GORHAM, ME 04038
 - SURVEYOR: ROBERT C. LIBBY JR., PLS #2190
BH2M
 - DEED REFERENCE: BK. 19016, PG. 347
 - TAX MAP REFERENCE: MAP 39, LOTS 303-1 AND 304
 - ZONING: RESIDENTIAL 2 (R2)
 - PROJECT AREA: 27,953 S.F.
 - PROPOSED USE: 4 UNIT CONDOMINIUM
 - MINIMUM STANDARDS: MIN. LOT SIZE/S.F. PER UNIT - 4,500 S.F.
MIN. FRONTAGE - 45'
MIN. SETBACKS - 15' FROM R.O.W. (PER SURROUNDING PROPERTY AVERAGE SETBACKS)
5' SIDE AND REAR
MAX. BUILDING HEIGHT - 3 STORIES OR 35'
 - SEWER SERVICE: PUBLIC
 - WATER SERVICE: PUBLIC
 - ELECTRIC/TELEPHONE: UNDERGROUND
 - PARKING: REQUIRED - 8 (2 PER UNIT)
PROPOSED - 10 (4 GARAGE)
 - PLAN REFERENCES: A. SUNRISE HEIGHTS, BIDDEFORD, ME. PROPERTY OF OSCAR PARENT, DATED NOV. 1922, BY LIBBY & JOHNSON, ENGINEERS, RECORDED IN THE Y.C.R.D., IN PLAN BOOK 9, PAGE 11.
B. BOUNDARY SURVEY & DIVISION, DATED OCT. 2020 FOR JOHN LEBOEUF, BY R.W. EATON ASSOC., JOB NUMBER 878.
 - COORDINATES: BEARINGS REFER TO GRID NORTH (NAD83), MAINE STATE PLANE COORDINATES ME W-1802.
 - BENCHMARK: NAIL SET IN UTILITY POLE #5
EL. 55.18
 - COORDINATE INSPECTION OF TAPPING PROCEDURE, PRESSURE TESTING AND COORDINATION OF DOMESTIC AND FIRE SERVICES WITH THE MAINE WATER COMPANY.
 - EXISTING UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING DIG SAFE AND VERIFYING LOCATIONS PRIOR TO START OF CONSTRUCTION.
 - STREET TREES SHALL BE A COMBINATION OF RED OAK AND WHITE OAK, 2 1/2" MIN. CALIPER. SPECIES SHALL BE PLANTED IN AN ALTERNATING PATTERN AS SHOWN.
 - KEYSTONE RETAINING WALL SHALL BE DESIGNED BY PROFESSIONAL ENGINEER AND SUBMITTED TO THE CITY OF SACO PLANNING DEPARTMENT PRIOR TO INSTALLATION.
 - ROOF RUNOFF SHALL BE DIRECTED TO A GUTTER SYSTEM THAT DISCHARGES TO THE CURTAIN DRAIN AT THE BACK OF UNITS 2-4. GUTTERS FROM UNIT 1 SHALL DISCHARGE TO ITS SOUTHERN SIDE.
 - SPECIFICATIONS OF DECORATIVE FENCE ALONG TOP OF KEYSTONE WALL SHALL BE SUBMITTED TO CODE ENFORCEMENT FOR APPROVAL PRIOR TO INSTALLATION.
 - IF TEST PIT RESULTS INDICATE A DEPTH THAT WILL ALLOW FOR A LOWER STORMDRAIN OUTFALL CONNECTION FROM OUTLET CONTROL STRUCTURE, THE EXISTING CATCH MAY BE REPLACED TO PROVIDE ADDITIONAL DEPTH TO STORMDRAIN PIPES. APPLICANT SHALL WORK WITH PUBLIC WORKS AT TIME OF CONSTRUCTION TO REVIEW REPLACEMENT.

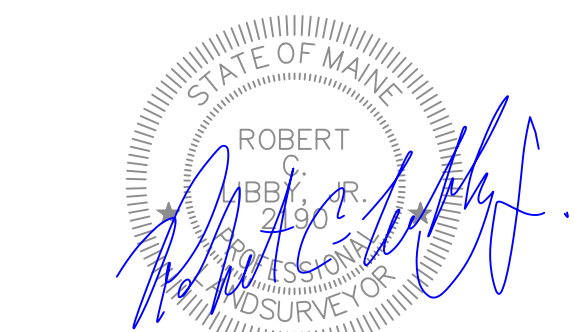
I CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS TECHNICAL STANDARDS OF PRACTICE FOR A STANDARD BOUNDARY SURVEY WITH THE FOLLOWING EXCEPTIONS:

1. NO SURVEYORS REPORT

PLAN REVIEWED AND APPROVED BY THE CITY OF BIDDEFORD PLANNING BOARD.

DATE

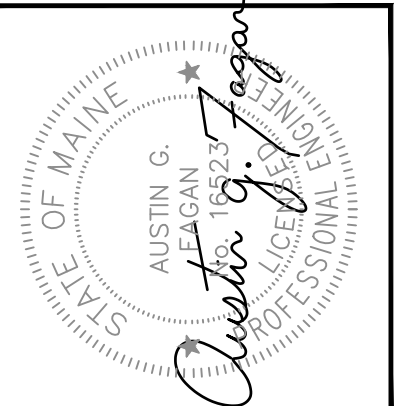
CHAIR



ROBERT C. LIBBY JR.

PLS #2190

NO.	DATE	REVISION	DESCRIPTION
1	4/25/24	Submitted To City of Biddeford for Review	
2	8/15/24	Rev'd. Per Peer and Staff Review	
3	10/23/24	Rev'd. Per Peer and Staff Review	
4	12/3/24	Rev'd. Per Meeting w/ City Engineer	
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BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street
Gorham, Maine 04038
Tel: (207) 839-2771
www.bh2m.com

FOR
Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

SITE PLAN

4-UNIT CONDOMINIUM

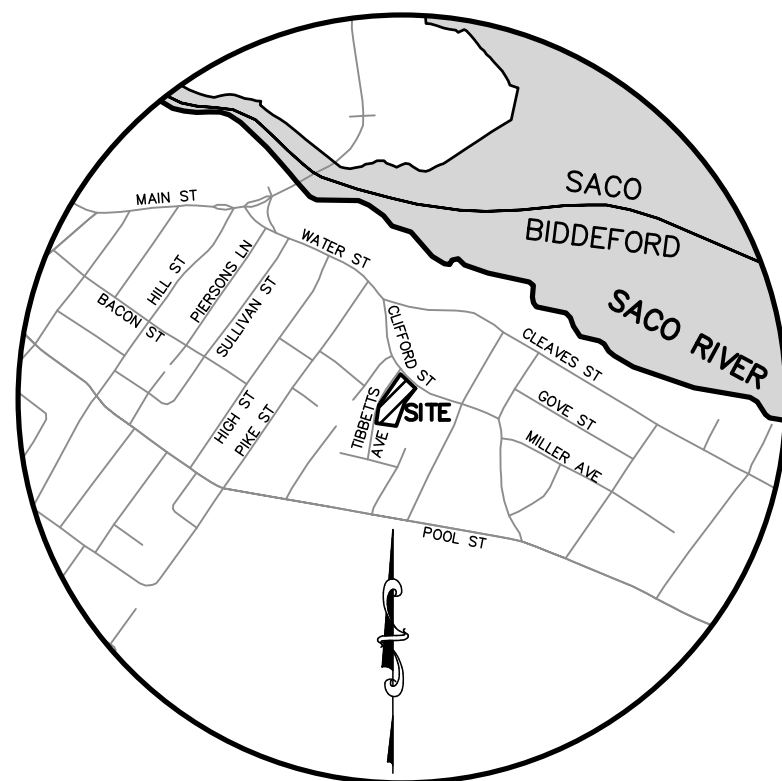
20 CLIFFORD STREET
BIDDEFORD, MAINE

DESIGNED	DATE
W. Pelkey	April 2023
DRAWN	SCALE
Dept.	1" = 20'
CHECKED	JOB. NO.
A. Fagan	22079

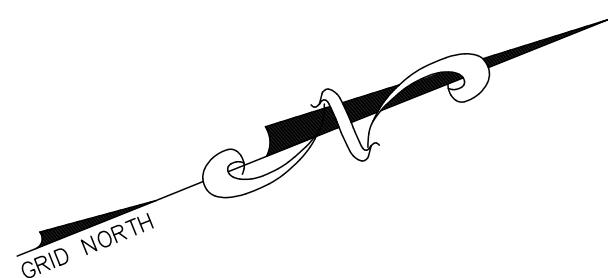
SHEET

1

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LOCATION MAP
SCALE: 1" = 1000'



PINETTE AVE

N/F
Jacquelyn H. Murphy
Tax Map 39, Lot 295
Bk. 17836, Pg. 312

N/F
Steven P. Ryder
Tax Map 39, Lot 296
Bk. 17573, Pg. 440

N/F
JXJ Properties, LLC
Tax Map 39, Lot 297
Bk. 17032, Pg. 133

N/F
Joanne M. Giroux
Tax Map 41, Lot 93
Bk. 15771, Pg. 586

N/F
Lisa M. & Dale B. Metcalf
Tax Map 39, Lot 305
Bk. 14420, Pg. 712

N/F
Robert J. Como
Tax Map 39, Lot 306
Bk. 16881, Pg. 502

N/F
John P. LeBoeuf
Tax Map 39, Lot 303
Bk. 17575, Pg. 382

- NOTES
- OWNER: DIVERSACORP HOLDINGS, LLC
5 STONE PONY CIRCLE
SACO, ME 04072
 - SURVEYOR: ROBERT LIBBY, JR. PLS #2190
BOUNDARY AND TOPOGRAPHY
BH2M
380B MAIN STREET
GORHAM, MAINE
 - DEED REFERENCE: BK. 19016, PG. 347
 - TAX MAP REFERENCE: MAP 39, LOT 304
MAP 39, LOT 303-1
 - ZONING: RESIDENTIAL 2 (R2)
MIN. LOT SIZE - 4,500 S.F.
MIN. FRONTAGE - 45'
SETBACKS - 15' FRONT (PER CEO FROM
EX. AREA BUILDINGS), 5' SIDE AND REAR
 - PARCEL AREA: 18,054 S.F.
 - COORDINATES: BEARINGS REFER TO GRID NORTH (NAD83),
MAINE STATE PLANE COORDINATES (ME
W-1802) USING A BRX7 ROVER.
 - BENCHMARK: NAIL SET IN UTILITY POLE #5
EL. 55.18 (NAVD88)
 - PLAN REFERENCES: A. "SUNRISE HEIGHTS, BIDDEFORD ME.,
PROPERTY OF OSCAR PARENT" DATED
NOVEMBER 1922, MADE BY LIBBY &
JOHNSON, ENGINEERS, RECORDED IN
THE Y.C.R.D. IN PLAN BOOK 9, PAGE
11.
B. "BOUNDARY SURVEY & DIVISION"
DATED OCTOBER 2020, MADE FOR
JOHN LEBOEUF, MADE BY R.W. EATON
ASSOCIATES, JOB NUMBER 878.

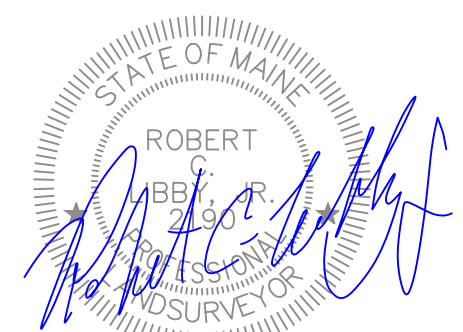
SYMBOL	DESCRIPTION
●	CAPPED IRON ROD TO BE SET #2190
○	IRON ROD/PIPE FOUND
○	#5 IRON ROD FOUND W/ CAP
○	UTILITY POLE
○	ABOVE GROUND/BELOW GROUND
○	NOW OR FORMERLY
○	WATER SHUTOFF VALVE
○	CATCH BASIN
○	DRAIN MANHOLE
○	SEWER MANHOLE
○	SIGN
---	PROPERTY LINE
---	ADJUTTER PROPERTY LINE
---	MAJOR CONTOUR LINE
---	MINOR CONTOUR LINE
---	EXISTING EDGE OF PAVEMENT

LINE DATA
L1 - S82°24'29"E 13.12'

Scale: 1" = 20'

I CERTIFY THAT THIS SURVEY CONFORMS
TO THE MAINE BOARD OF LICENSURE
FOR PROFESSIONAL LAND SURVEYORS
TECHNICAL STANDARDS OF PRACTICE FOR
A STANDARD BOUNDARY SURVEY WITH
THE FOLLOWING EXCEPTIONS:

- NO SURVEYORS REPORT



ROBERT C. LIBBY JR. PLS #2190

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4	12/3/24	Rev'd. Per Meeting w/ City Engineer
5	12/17/24	Rev'd. Per City Engineer Comments

BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street
Gorham, Maine 04038
Tel: (207) 839-2771
www.bh2m.com

FOR
Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

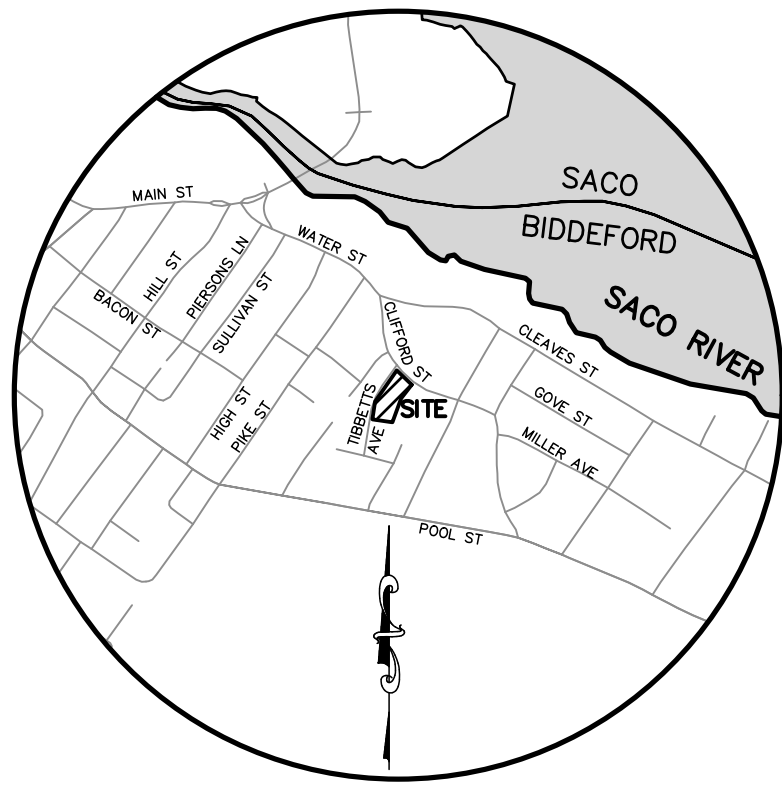
EXISTING CONDITIONS

LAND OF
DIVERSACORP HOLDINGS, LLC
TIBBETTS AVE
BIDDEFORD, MAINE

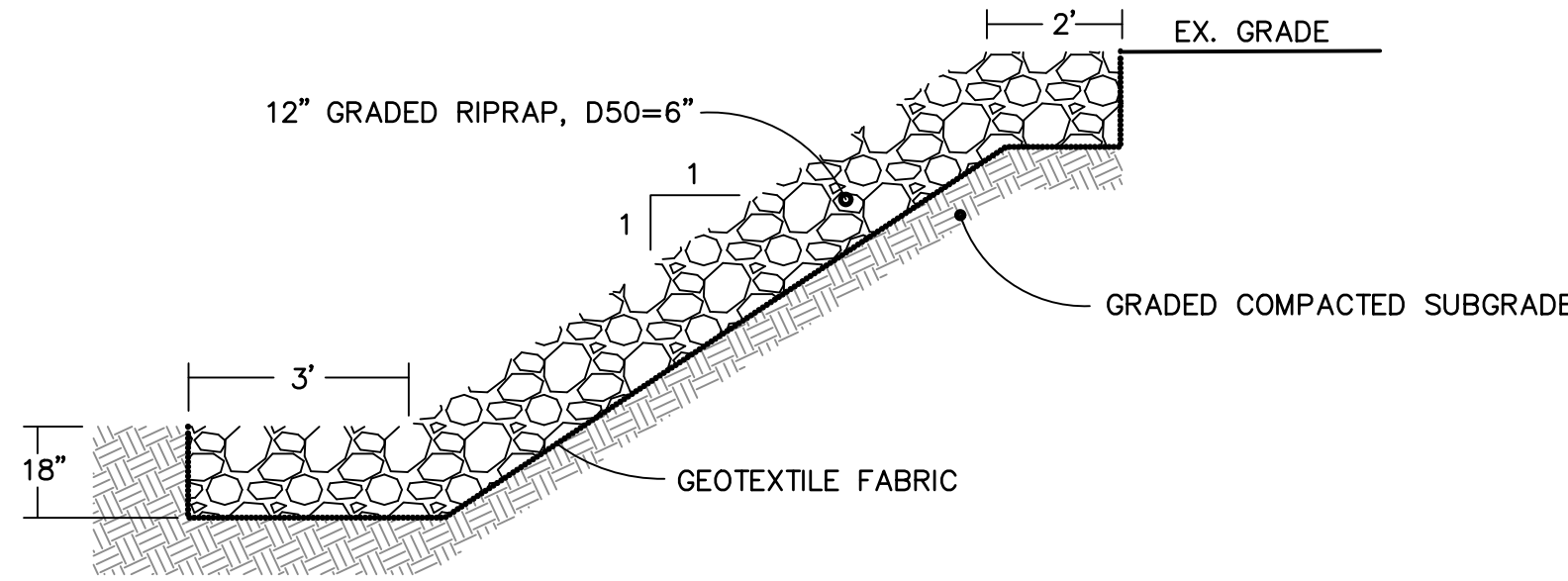
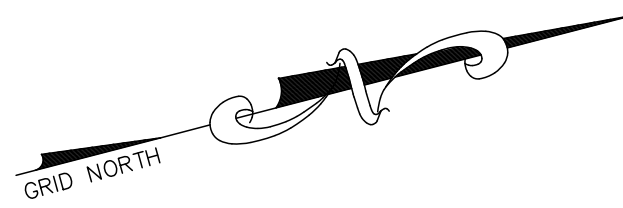
DESIGNED W. Pelkey	DATE April 2022
DRAWN W. Pelkey	SCALE 1" = 20'
CHECKED R. Libby, Jr.	JOB. NO. 22079

SHEET
2

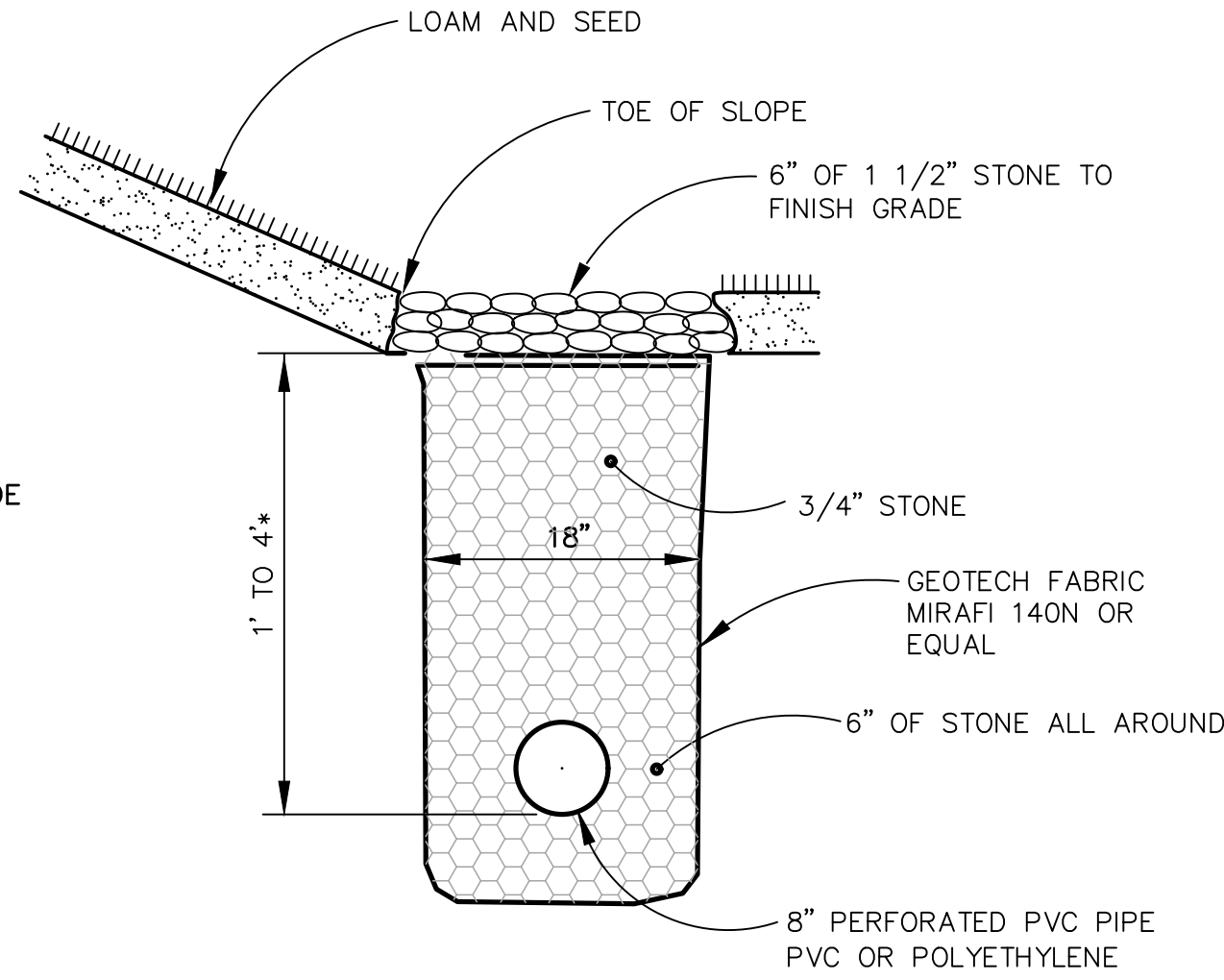
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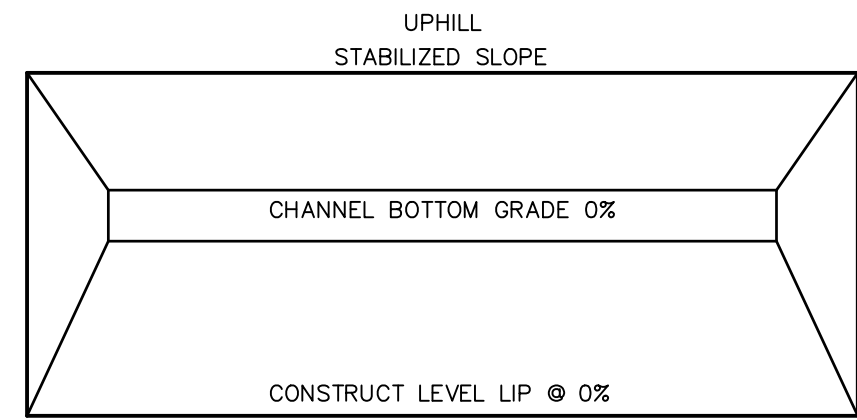
LOCATION MAP
SCALE: 1" = 1000'



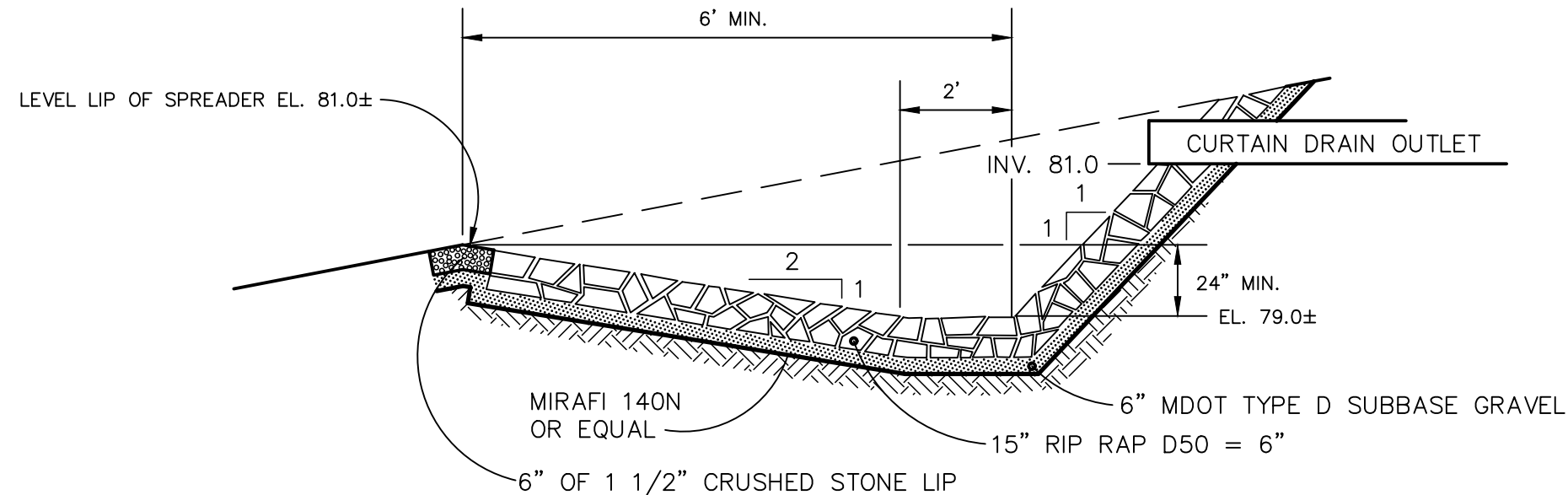
RIPRAP SIDESLOPE
NTS



CURTAIN DRAIN
NTS



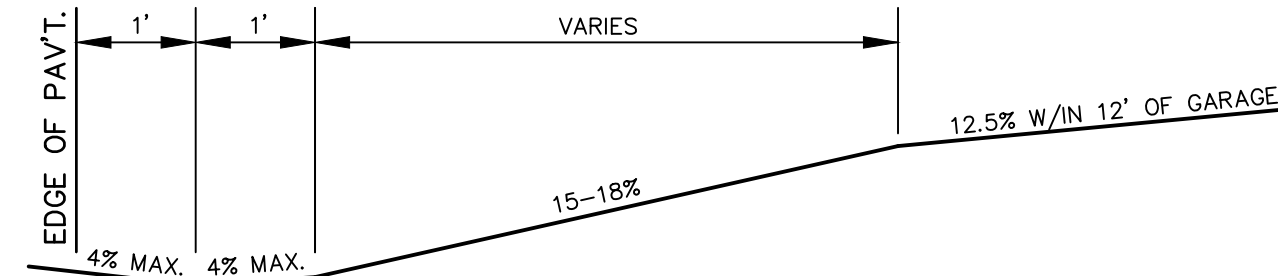
PLAN



SECTION

- NOTES:
1. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT ON FILL)
 2. CONSTRUCT LEVEL LIP ON 0% GRADE TO INSURE UNIFORM SPREADING OF SEDIMENT-FREE RUNOFF (CONVERTING CHANNEL FLOW TO SHEET FLOW)

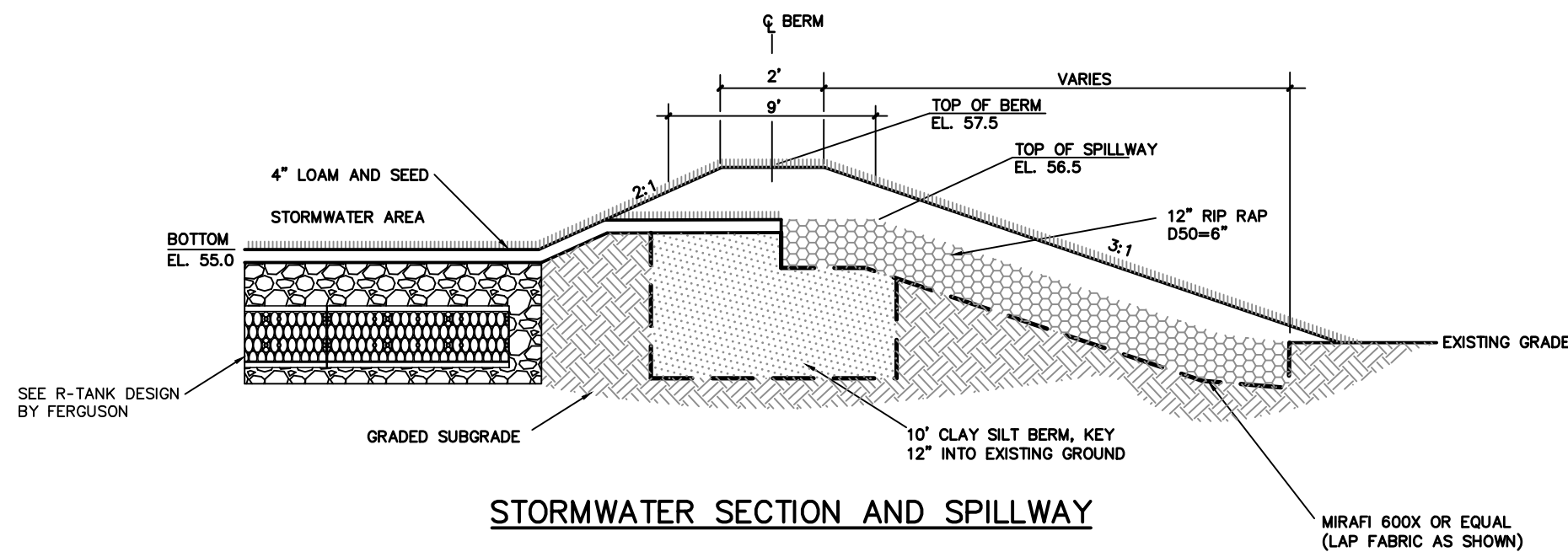
LEVEL SPREADER DETAIL
NTS



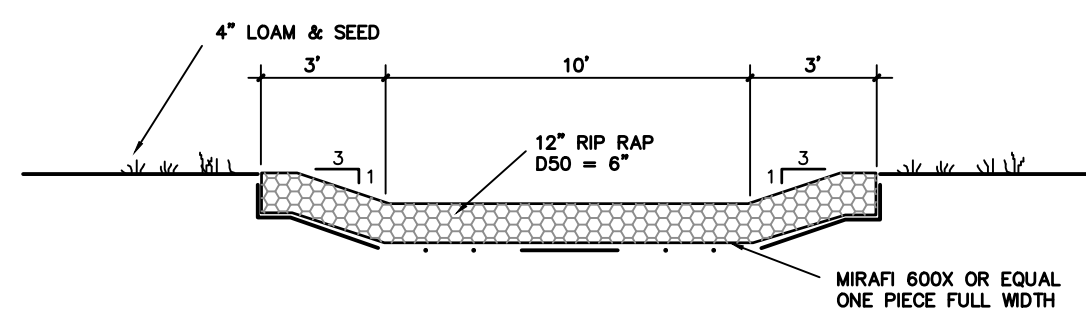
DRIVEWAY SECTION

- GENERAL NOTES:
1. THE FIRST 3' SHOWN AS PAW/T SHALL BE PAVED ONLY WHEN ABUTTING A PAVED AREA.
 2. ALL RESIDENTIAL 10% & OVER SHALL BE PAVED.

DRIVES ON
NON-SIDEWALK SECTIONS
NTS



STORMWATER SECTION AND SPILLWAY



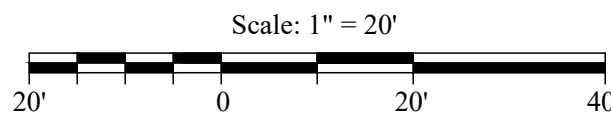
SPILLWAY TRANSVERSE SECTION

STORMWATER BASIN
NTS

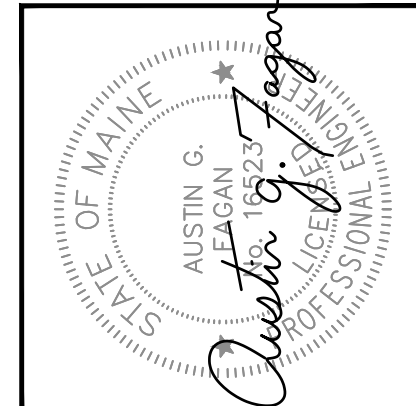
SYMBOL	DESCRIPTION
●	CAPPED IRON ROD TO BE SET #2190
○	IRON ROD/PIPE FOUND
○	#5 IRON ROD FOUND W/ CAP
○	UTILITY POLE
→	GUY WIRE
→	ABOVE GROUND/BELOW GROUND
→	NOW OR FORMERLY
→	WATER SHUTOFF VALVE
→	CATCH BASIN
→	DRAIN MANHOLE
→	SEWER MANHOLE
→	CLEANOUT MANHOLE
→	SIGN
→	SILT FENCE
→	PROPERTY LINE
→	ABUTTER PROPERTY LINE
→	EXISTING EDGE OF PAVEMENT

STORMDRAIN STRUCTURES
RIM 55.00
OCS 12" INV. OUT w/ 6" ORIFICE 51.70
12" INV. IN 51.70

STORMDRAIN PIPES
P1 - 12" S.D., L=18', S=0.005'/FT.
P2 - 12" S.D., L=3', S=0.007'/FT.



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FOR
Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

SITE GRADING

4-UNIT CONDOMINIUM

20 CLIFFORD STREET
BIDDEFORD, MAINE

DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE 1" = 20'
CHECKED A. Fagan	JOB. NO. 22079

SHEET
3

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PAVEMENT JOINT DETAIL

TYPICAL DRIVEWAY PAVEMENT

TRENCH PATCH
N.T.S.

PRECAST CONCRETE C.B.
OUTLET CONTROL STRUCTURE
N.I.S.

PIPE DIAMETERS MAY VARY, SEE TYPICAL PIPE TRENCH
DETAIL.

WHERE 30° MINIMUM ANGLE BETWEEN SEWER CONNECTION
AT THE SEWER MAIN AND THE VERTICAL CANNOT BE
MAINTAINED, PROVIDE A PRECAST SEWER CHIMNEY

IF 2x4 STAKE IS CUT OFF FLUSH OR SLIGHTLY BELOW GRADE, PROVIDE MIN. OF 2 16d GALV. SPIKES DRIVEN INTO TOP OF STAKE TO PROVIDE METAL DETECTABILITY

- NOTES:
1. Trench width shown is payment width for rockexcavation & replacement of unsuitable material.
 2. Do not mechanically compact directly over flexible pipe (e.g. PVC, Polyethylene)
 3. Concrete pipe shall have sand bedding.

TRENCH DETAIL
NTS

WATER THROUGH EARTH TRENCH

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

NOTE: SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR "GOOSENECK" IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND "GIVE" TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSION AND/OR CONTRACTION (SEE DETAILS).

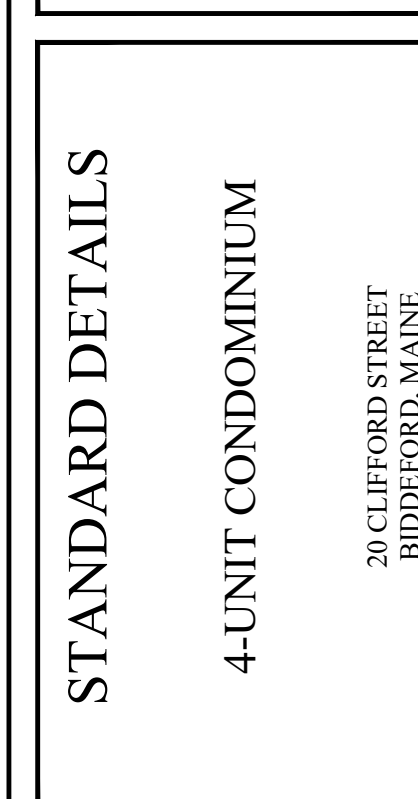
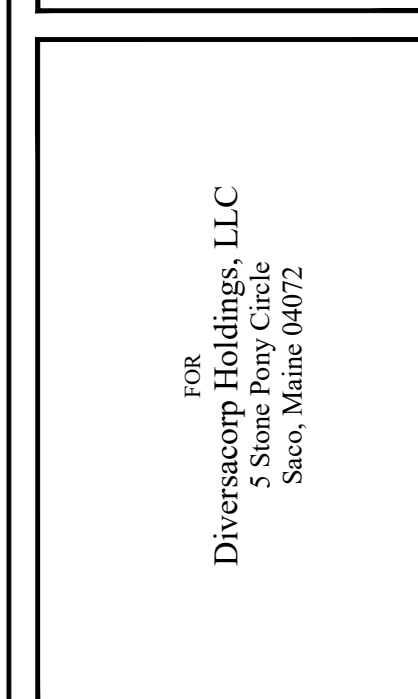
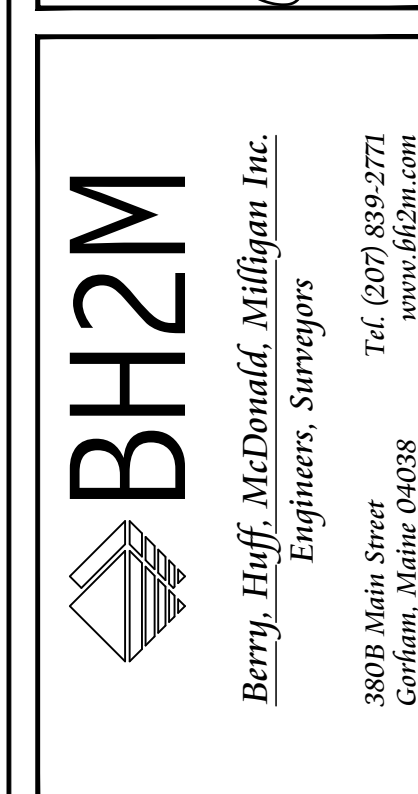
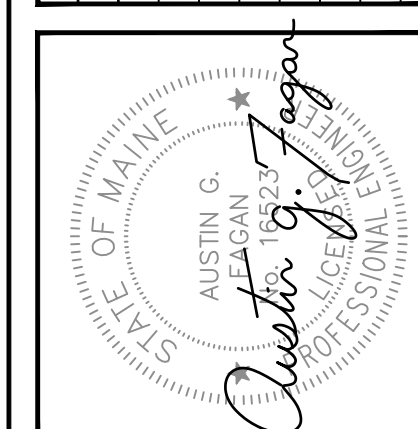
SEWER CLEANOUT
N.T.S.

PRECAST CONCRETE
SANITARY SEWER MANHOLE
N.T.S.

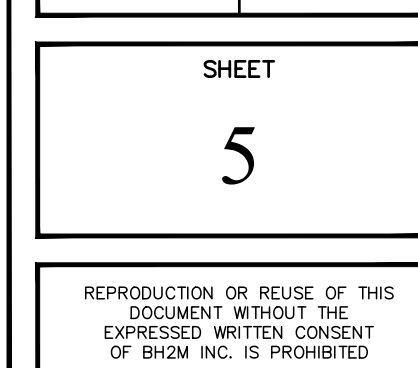
WATER THROUGH
LEDGE TRENCH
N.T.S.

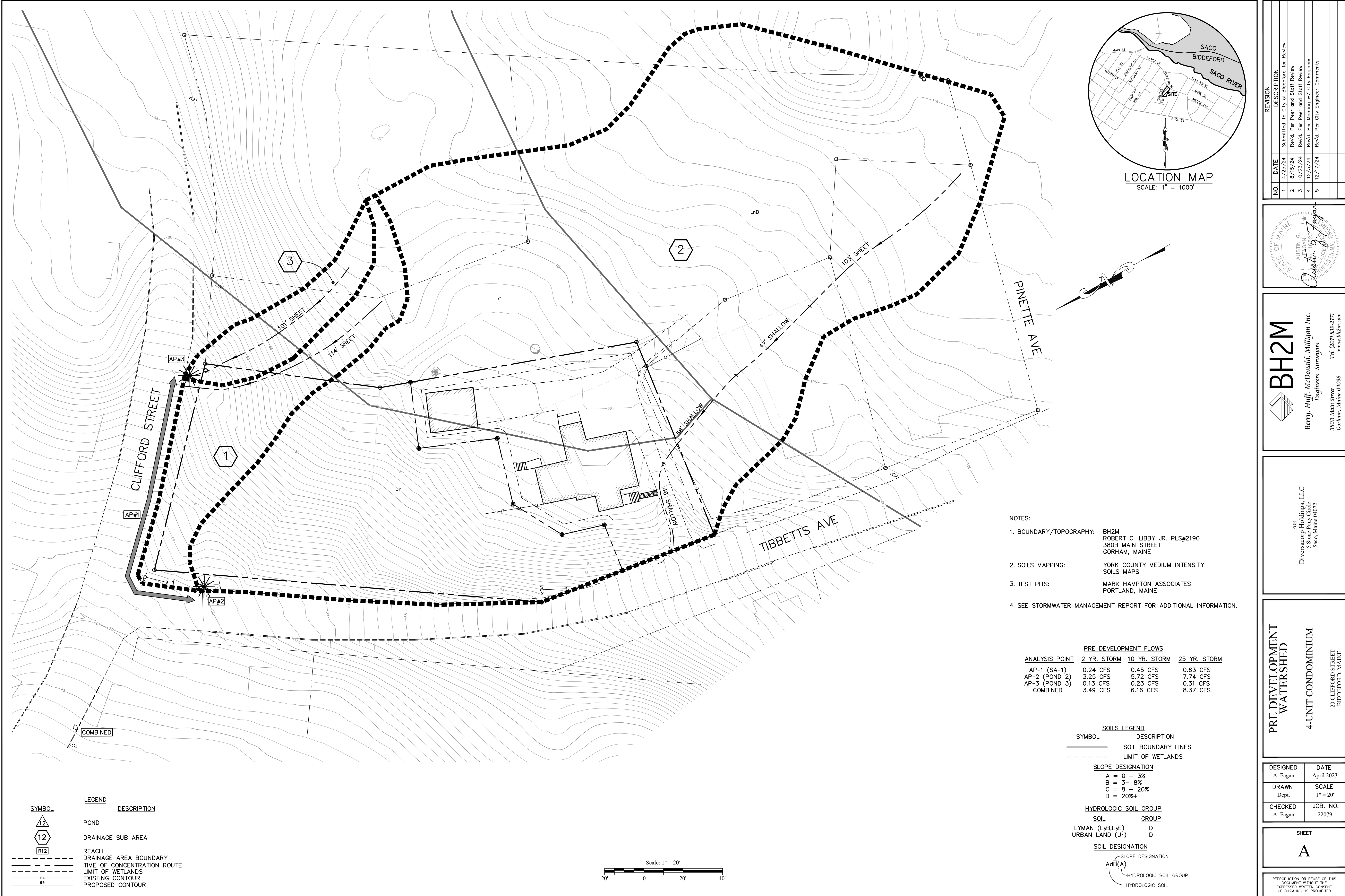
TYPICAL SERVICE CONNECTION

REVISION		
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DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE 1" = 20'
CHECKED A. Fagan	JOB. NO. 22079





- NOTES:
1. BOUNDARY/TOPOGRAPHY: BH2M
ROBERT C. LIBBY JR. PLS#2190
380B MAIN STREET
GORHAM, MAINE
 2. SOILS MAPPING: YORK COUNTY MEDIUM INTENSITY
SOILS MAPS
 3. TEST PITS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE
 4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

PRE DEVELOPMENT FLOWS			
ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1 (SA-1)	0.24 CFS	0.45 CFS	0.63 CFS
AP-2 (POND 2)	3.25 CFS	5.72 CFS	7.74 CFS
AP-3 (POND 3)	0.13 CFS	0.23 CFS	0.31 CFS
COMBINED	3.49 CFS	6.16 CFS	8.37 CFS

SOILS LEGEND

SYMBOL	DESCRIPTION
---	SOIL BOUNDARY LINES
---	LIMIT OF WETLANDS

SLOPE DESIGNATION

A = 0 - 3%
B = 3 - 8%
C = 8 - 20%
D = 20%+

HYDROLOGIC SOIL GROUP

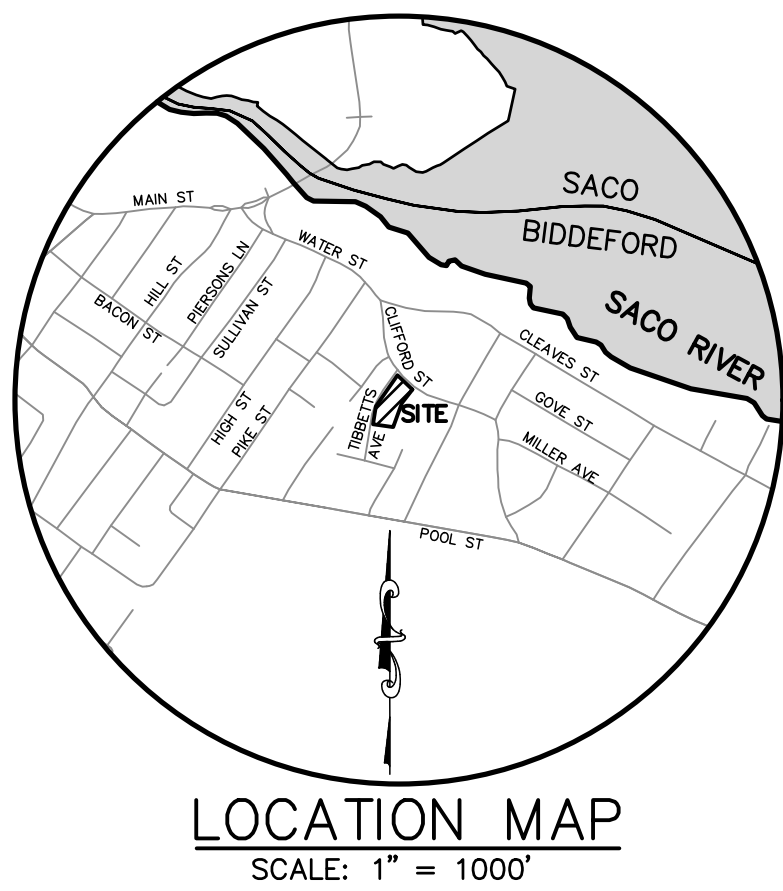
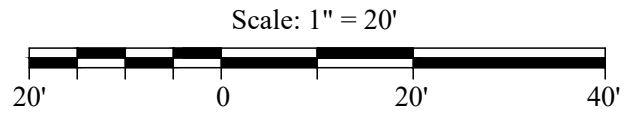
SOIL	GROUP
LYMAN (LyB, LyE)	D
URBAN LAND (Ur)	D

SOIL DESIGNATION

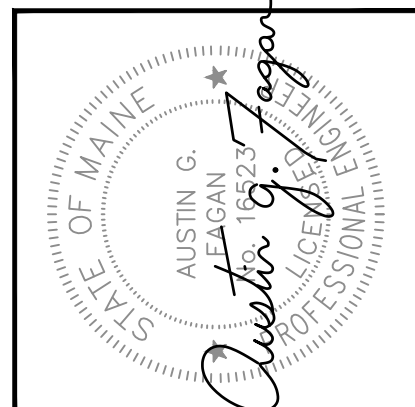
AdB(A)
SLOPE DESIGNATION
HYDROLOGIC SOIL GROUP
HYDROLOGIC SOIL

LEGEND

SYMBOL	DESCRIPTION
△	POND
12	DRAINAGE SUB AREA
R12	REACH DRAINAGE AREA BOUNDARY
---	TIME OF CONCENTRATION ROUTE
---	LIMIT OF WETLANDS
---	EXISTING CONTOUR
---	PROPOSED CONTOUR



NO.	DATE	REVISION	DESCRIPTION
1	4/25/24		Submitted To City of Biddeford for Review
2	8/15/24		Rev'd. Per Peer and Staff Review
3	10/23/24		Rev'd. Per Peer and Staff Review
4	12/3/24		Rev'd. Per Meeting w/ City Engineer
5	12/17/24		Rev'd. Per City Engineer Comments



BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street
Gorham, Maine 04038

Tel: (207) 839-2771
www.bh2m.com

FOR

Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

PRE DEVELOPMENT WATERSHED

4-UNIT CONDOMINIUM

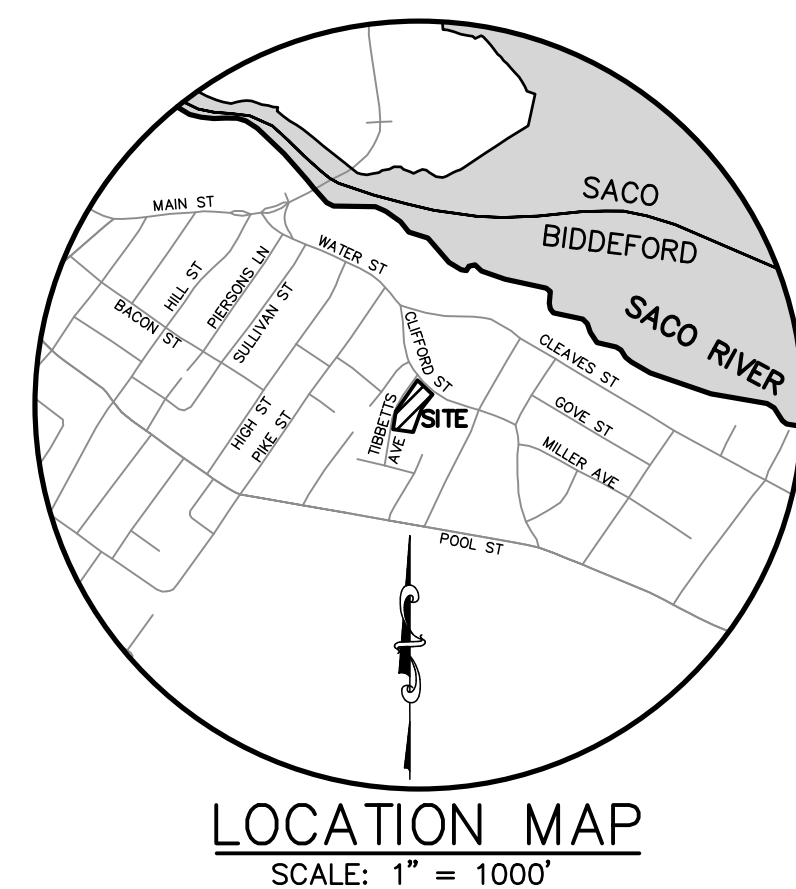
20 CLIFFORD STREET
BIDDEFORD, MAINE

DESIGNED A. Fagan	DATE April 2023
DRAWN Dept.	SCALE 1" = 20'
CHECKED A. Fagan	JOB. NO. 22079

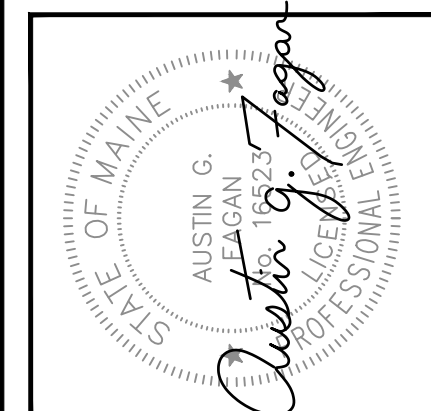
SHEET

A

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REVISION	
NO.	DATE DESCRIPTION
1	4/25/24 Submitted To City of Eldersford for Review
2	8/15/24 Rev'd. Per Peer and Staff Review
3	10/23/24 Rev'd. Per Peer and Staff Review
4	12/15/24 Rev'd. Per Meeting w/ City Engineer
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 **BH2M**

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3801 Main Street
Gorham, Maine 04038

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www.bh2m.com

FOR
Diversacorp Holdings, LLC
3 Stone Pony Circle
Saco, Maine 04072

POST DEVELOPMENT
WATERSHED

4-UNIT CONDOMINIUM

20 CLIFFORD STREET
BIDDEFORD, MAINE

DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE 1" = 20'
CHECKED A. Fagan	JOB. NO. 22079

SHEET

B

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NOTES:

1. BOUNDARY/TOPOGRAPHY: BH2M
ROBERT C. LIBBY JR. PLS#2190
380B MAIN STREET
GORHAM, MAINE
2. SOILS MAPPING: YORK COUNTY MEDIUM INTENSITY
SOILS MAPS
3. TEST PITS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE
4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

POST DEVELOPMENT FLOWS				
FLOW RATE = POST (PRE)				
ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM	
AP-1	0.22 (0.24) CFS	0.40 (0.45) CFS	0.54 (0.63) CFS	
AP-2 (POND 2)	3.23 (3.25) CFS	5.52 (5.72) CFS	6.93 (7.74) CFS	
AP-3 (POND 3)	0.13 (0.13) CFS	0.23 (0.23) CFS	0.31 (0.31) CFS	
COMBINED	3.44 (3.49) CFS	5.92 (6.16) CFS	7.47 (8.37) CFS	

SOILS LEGEND	
SYMBOL	DESCRIPTION
—————	SOIL BOUNDARY LINES
- - - - -	LIMIT OF WETLANDS

SLOPE DESIGNATION

A	=	0 – 3%
B	=	3– 8%
C	=	8 – 20%
D	=	20%+

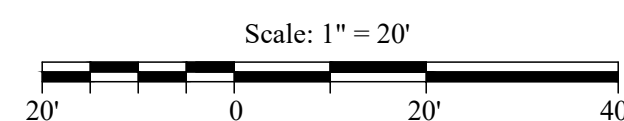
HYDROLOGIC SOIL GROUP	
SOIL	GROUP
RYMAN (LyB, LyE)	D
URBAN LAND (Ur)	D

The diagram shows the components of the soil designation **AdB(A)**. The letters **A** and **B** are enclosed in boxes. A curved line connects the box **A** to the label "HYDROLOGIC SOIL". Another curved line connects the box **B** to the label "HYDROLOGIC SOIL GROUP". A straight line connects the box **A** to the label "SLOPE DESIGNATION".

<u>SYMBOL</u>	<u>DESCRIPTION</u>
	POND
	DRAINAGE SUB AREA
	REACH
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
	LIMIT OF WETLANDS
	EXISTING CONTOUR
	PROPOSED CONTOUR

Tc SUMMARY
(FOR THOSE NOT LABELED ON THE PLAN)

<u>SUBCATCHMENT</u>	<u>Tc ROUTE</u>
SA-2	6 MIN. DIRECT ENTRY
SA-2A	6 MIN. DIRECT ENTRY
SA-2C	6 MIN. DIRECT ENTRY





DATE	INITIALS	DESCRIPTIONS



R-Tank
MODULAR STORMWATER STORAGE SYSTEM

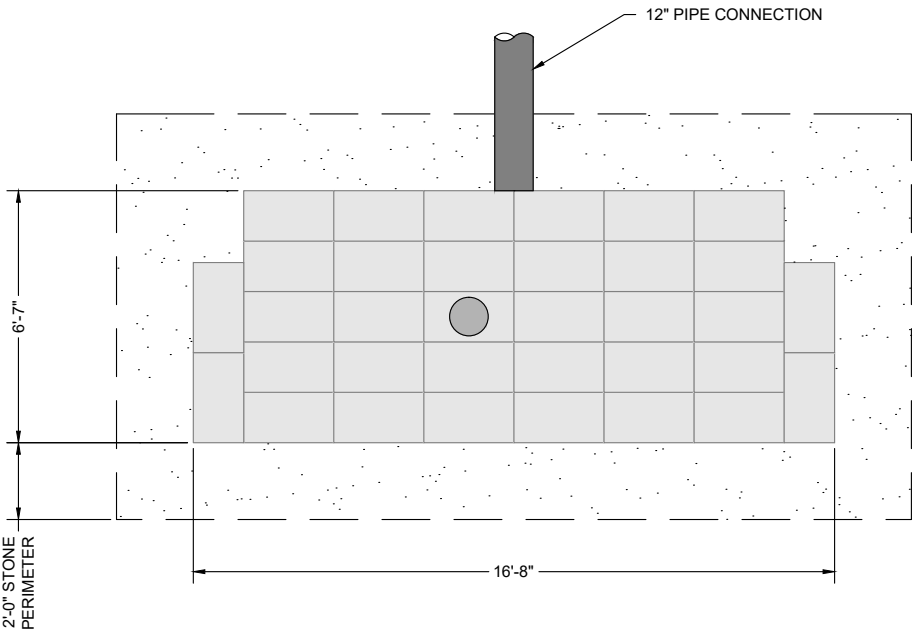
0 30' 60'

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

SYSTEM OVERLAY
4-UNIT CONDOMINIUM
BIDDEFORD, ME

DRAWN BY BMK
DATE 12/16/2024
SHEET NO. 1 of 6

R-TANK QUANTITIES	
TRAFFIC LOAD	NON-TRAFFIC
# OF HD SINGLE+MINI R-TANKS	34
TOTAL SYSTEM STORAGE (EXCLUDING BASE STONE)	358 CF
R-TANK STORAGE VOLUME	215 CF
STONE STORAGE VOLUME (40% VOID RATIO)	142 CF
STONE BED FOOTPRINT	219 SF
STONE QUANTITY	15 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	41 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	83 SY
INSPECTION PORTS (12")	1
GEOTEXTILE PIPE BOOTS (12")	1
R-TANK ELEVATIONS	
DESCRIPTION	ELEVATION
BASE INV.	51.45
TANK INV.	51.70
TOP OF TANK	53.87
TOP STONE INV.	54.37
MIN. ALLOW. FINAL GRADE	54.87
MAX. ALLOW. FINAL GRADE	60.86
LEGEND	
R-TANK HD SINGLE+MINI UNITS	
INSPECTION PORT	
PIPE CONNECTION	
EXCAVATION PERIMETER	
PERIMETER BACKFILL	
NOTES & DISCLAIMERS	
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. 2. BACKFILL, GEOTEXTILE, AND/OR LINER QUANTITIES ARE APPROXIMATIONS BASED ON DIMENSIONS SHOWN. 3. PRE-TREATMENT DEVICES ARE RECOMMENDED UP-STREAM OF ALL INFLOW CONNECTIONS. LEAF GUARDS SHOULD BE INSTALLED ON ANY DOWNSPOUT CONNECTIONS. CONTRACTOR AND ENGINEER ARE RESPONSIBLE ON ENSURING THE LAST UP-STREAM STRUCTURE IS ADEQUATE TO CONTAIN THE NECESSARY TREATMENT DEVICE. 4. CONSULTANT DRAWINGS ARE BEING RELIED UPON AS BEING ACCURATE IN DEPICTING SITE CONDITIONS, THAT THEY SATISFY ANY LOCAL BUILDING CODE REQUIREMENTS, AND THAT THEY ACCURATELY DEPICT SUBSURFACE CONDITIONS. 5. FERGUSON SUPPLIES THE PRODUCTS ONLY AND TAKES NO RESPONSIBILITY FOR INSTALLATION AND HAS NO ROLE IN THE INSTALLATION OF THE PRODUCTS. 6. R-TANK SYSTEMS ARE NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS, RETAINING WALLS, ETC. THEREFORE, THE ENGINEER OF RECORD MUST COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN FOUNDATION DESIGN.	



DATE	INITIALS	DESCRIPTIONS



DISTRIBUTED BY:



R-Tank

MODULAR STORMWATER STORAGE SYSTEM



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SYSTEM LAYOUT

4-UNIT CONDOMINIUM

BIDDEFORD, ME

DRAWN BY

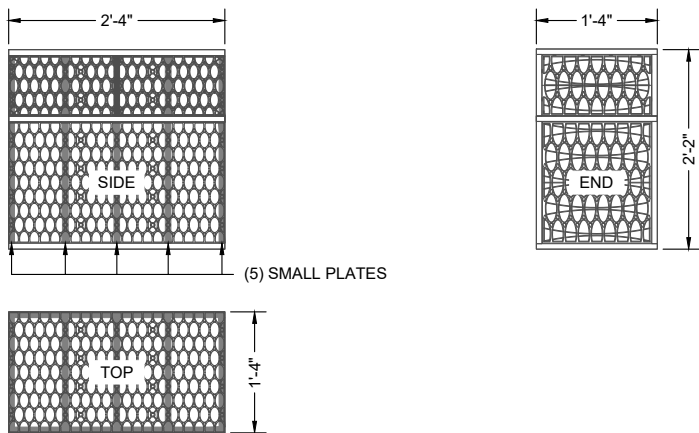
BMK

DATE

12/16/2024

SHEET NO.

2 of 6



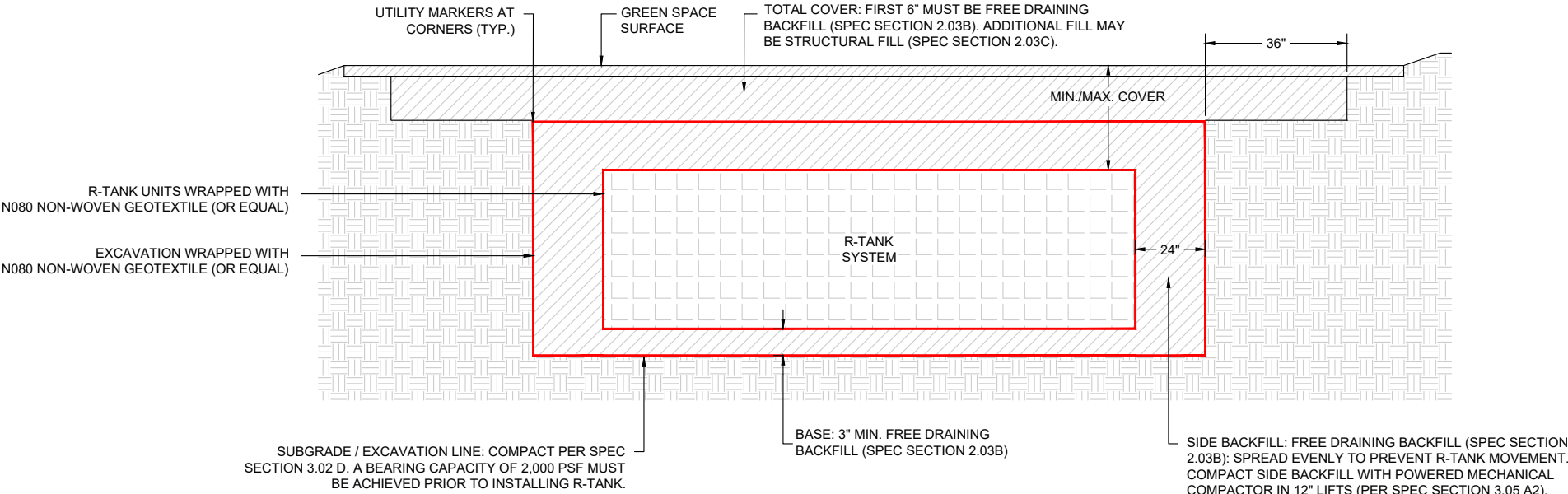
MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM) WIDTH = 15.75 IN. (400 MM) HEIGHT = 25.98 IN. (660 MM) TANK VOLUME = 6.67 CF STORAGE VOLUME = 6.33 CF VOID INTERNAL VOLUME: 95% VOID SURFACE AREA: 90%	LOAD RATING: 33.4 PSI, (MODULE ONLY) HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS MATERIAL: 100% RECYCLED POLYPROPYLENE SMALL PLATES REQUIRED: 5/SEGMENT, 10/MODULE
--	---

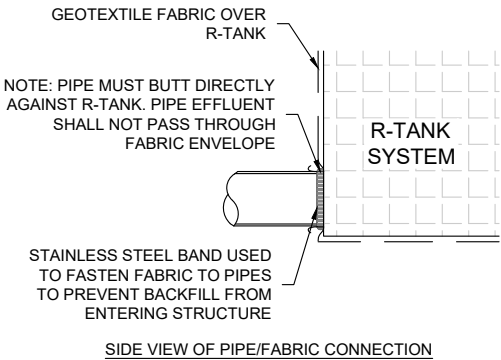
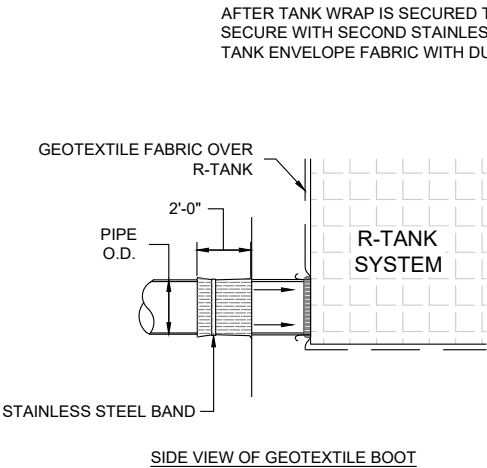
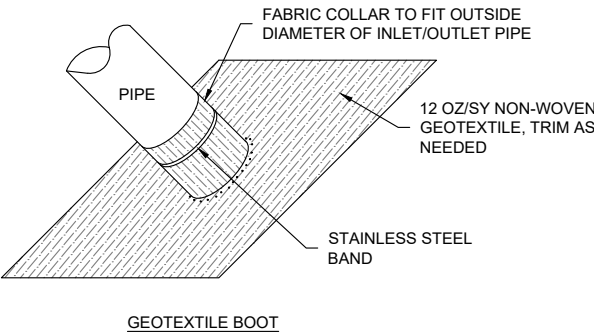
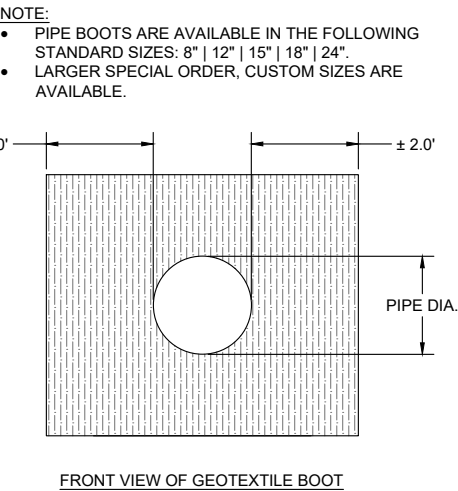
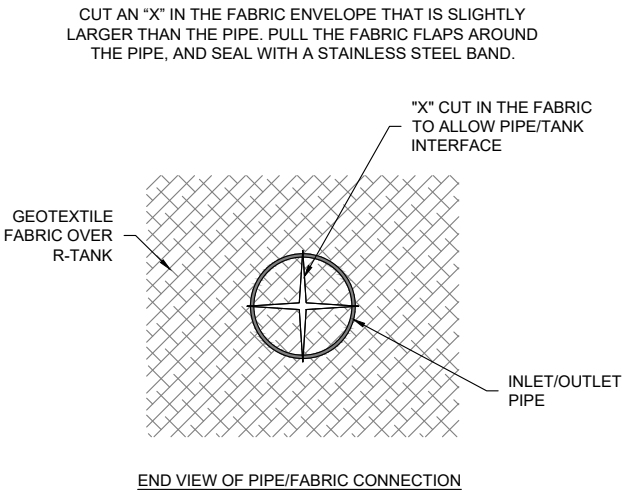
SINGLE + MINI R-TANK^{HD} - MODULE DETAIL

R-TANK UNIT LOAD RATING					
UNIT TYPE	COMPRESSION STRENGTH	NON-VEHICULAR MIN. COVER*	HS-20 MIN. COVER*	HS-25 MIN. COVER*	MAX. COVER*
HD	33.4 PSI	12"	20"	24"	6.99'
* MINIMUM AND MAXIMUM COVER ARE MEASURED FROM THE TOP OF THE R-TANK UNIT TO THE TOP OF THE FINISHED SURFACE.					

- NOTES:
1. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 2. FOR INFILTRATION APPLICATIONS, UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK FOOTPRINT. THE ENGINEER OF RECORD IS RESPONSIBLE FOR ASSESSING THE BEARING CAPACITY OF THE SUBGRADE, AND BASE.
 3. FOR INSTALLATIONS IN LANDSCAPED AREAS, THE INSTALLATION OF TREES IS PROHIBITED ABOVE THE R-TANK UNITS. PLEASE CONTACT YOUR LOCAL FERGUSON WATERWORKS REPRESENTATIVE FOR MORE INFORMATION.
 4. THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD MUST COORDINATE WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.



R-TANK SECTION VIEW

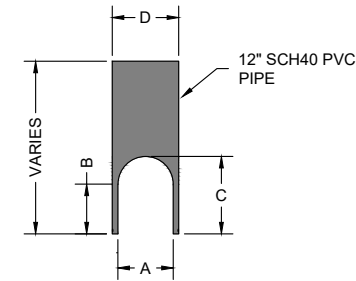


R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

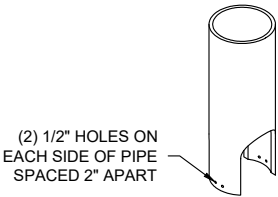
DATE	INITIALS	DESCRIPTIONS			DISTRIBUTED BY:	R-Tank MODULAR STORMWATER STORAGE SYSTEM	SYSTEM DETAILS 4-UNIT CONDOMINIUM BIDDEFORD, ME	DRAWN BY BMK
								DATE 12/16/2024
						SHEET NO. 3 of 6		
						THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.		

- NOTES
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION AND PERFORM ROUTINE MAINTENANCE.
 2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
 3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
 4. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.

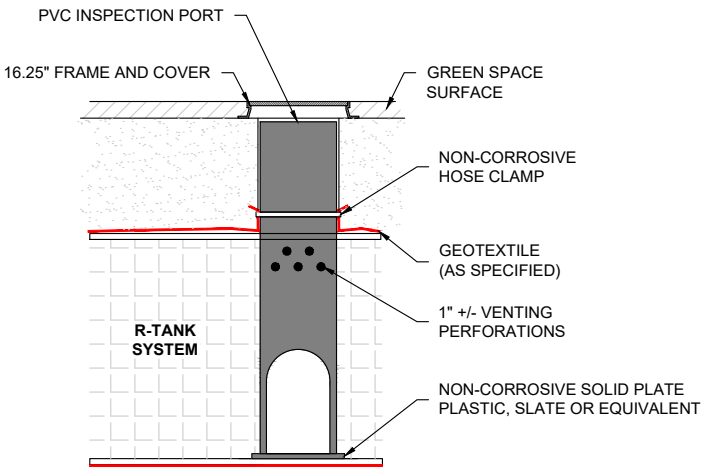
R-TANK INSPECTION PORT DIMENSIONS				
UNIT TYPE	DOGHOUSE BOTTOM WIDTH ("A")	DOGHOUSE VERTICAL LENGTH ("B")*	DOGHOUSE OPENING HEIGHT ("C")	PORT DIAMETER ("D")
HD	10"	9"	14"	12"
SD	10"	3"	8"	12"
UD	8"	7"	12"	10"
XD	10"	VARIES**	VARIES**	12"
* PORTS ARE SUPPLIED WITH A STANDARD DOGHOUSE LENGTH OF 9". THE OPENING LENGTH SHALL BE REDUCED IN THE FIELD TO CORRESPOND WITH THE SPECIFIED PRODUCT TYPE.				
** VERTICAL HEIGHTS VARY BASED ON THE STACKING HEIGHT OF THE XD SYSTEM. THE TOP OF ANY OPENING SHOULD NOT EXCEED THE TOP OF THE STACK HEIGHT.				



FRONT VIEW OF INSPECTION PORT



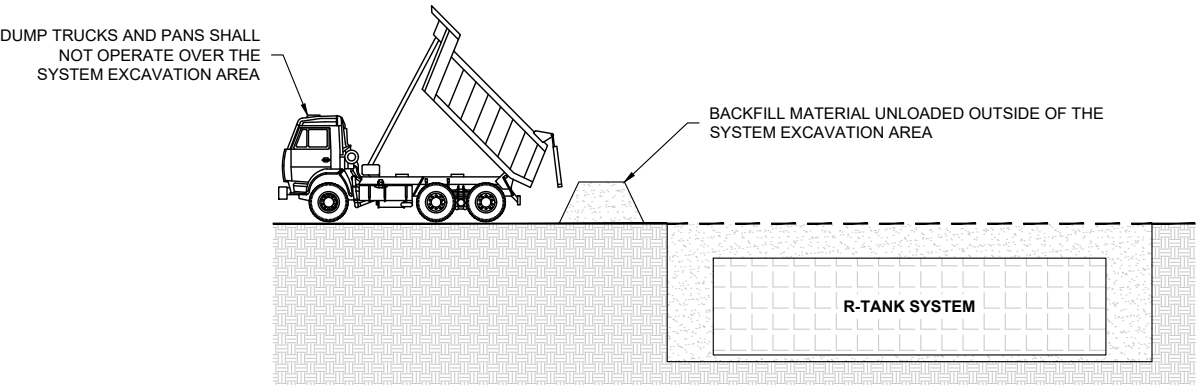
ISOMETRIC PORT



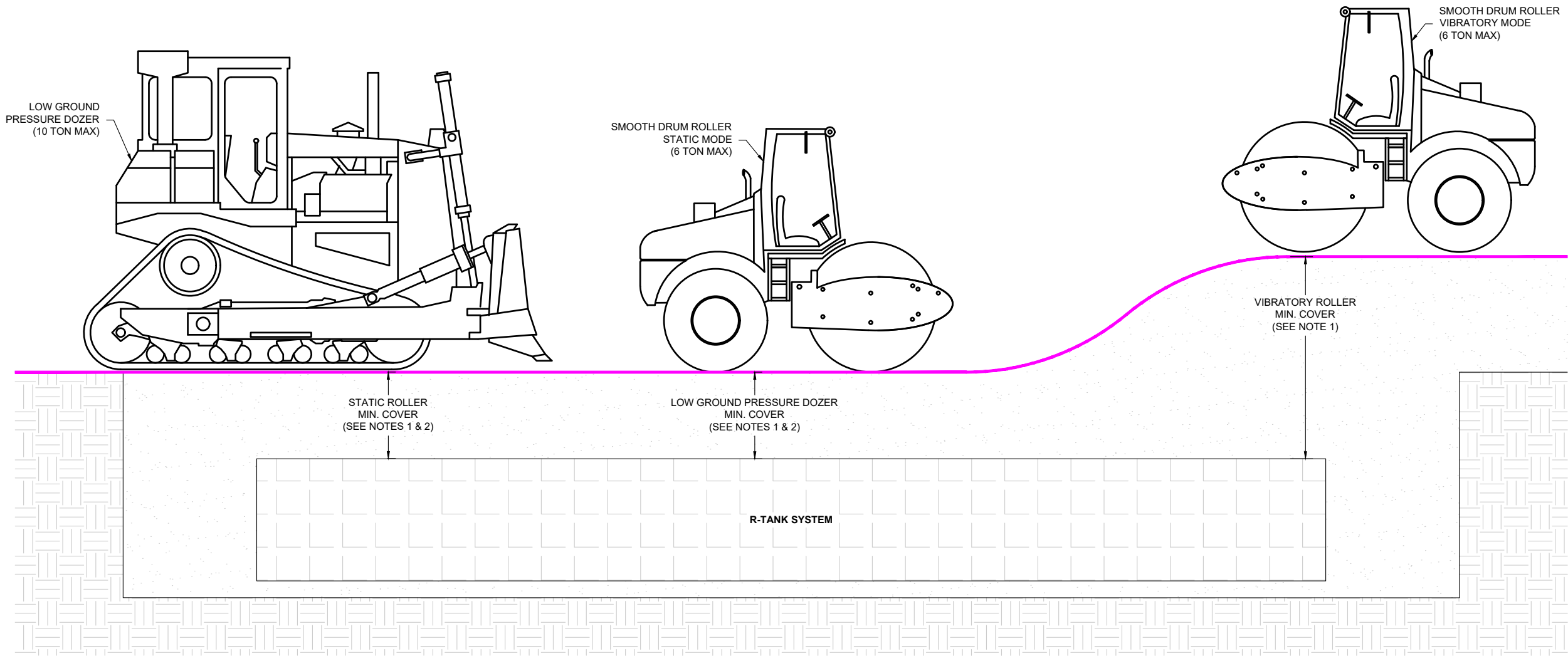
R-TANK TYPICAL NON-VEHICULAR LOAD RATED INSPECTION PORT

DATE	INITIALS	DESCRIPTIONS		DISTRIBUTED BY: 	R-Tank MODULAR STORMWATER STORAGE SYSTEM	SYSTEM DETAILS 4-UNIT CONDOMINIUM BIDDEFORD, ME	DRAWN BY BMK
					DATE 12/16/2024		
					SHEET NO. 4 of 6		
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R-TANK CONSTRUCTION EQUIPMENT RECOMMENDATIONS				
UNIT TYPE	COMPRESSION STRENGTH	10 TON LOW GROUND PRESSURE DOZER MIN. COVER	6 TON SMOOTH DRUM STATIC ROLLER MIN. COVER	6 TON SMOOTH DRUM VIBRATORY ROLLER MIN. COVER
HD	33.4 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 1)
SD	42.9 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 1)
NOTES: 1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B1) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. SPEC SECTION 3.05 A5 2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. SPEC SECTION 3.05 A5 3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. SPEC SECTION 3.05 A5 4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). SPEC SECTION 3.05 B 5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.				



DUMP TRUCK DETAIL



R-TANK HD OR SD CONSTRUCTION EQUIPMENT COVER DETAIL - GREEN SPACE

DATE	INITIALS	DESCRIPTIONS		DISTRIBUTED BY: 	R-Tank MODULAR STORMWATER STORAGE SYSTEM	CONSTRUCTION EQUIPMENT COVER DETAIL 4-UNIT CONDOMINIUM BIDDEFORD, ME	DRAWN BY BMK
							DATE 12/16/2024
							SHEET NO. 5 of 6
							THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK INCLUDED

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-Tank system and all related products per the manufacturer's installation guidelines.
- C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.02 QUALITY CONTROL

- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate knowledge and experience in the installation of subsurface storage system. A pre-installation conference shall be performed per section 1.05.
- C. Installation Personnel: Performed only by skilled workers with experience in bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.03 SUBMITTALS

- A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
- Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
 - Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.05 PREINSTALLATION CONFERENCE.

- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.06 PROJECT CONDITIONS

- A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
- B. Protect adjacent work from damage during R-Tank system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system.
- D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS

- A. R-Tank - Injection molded plastic tank plates assembled to form a modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank ^{HD} VALUE	R-Tank ^{SD} VALUE	R-Tank ^{UD} VALUE	R-Tank ^{XD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	90%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	33.4 psi	42.9 psi	134.2 psi	240.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	22.4 psi	28.9 psi	N/A	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	20"	18"	12" (STONE BACKFILL)	6"
HS-25 Minimum Cover	Cover required to support HS-25 loads	24"	19"	15" (STONE BACKFILL)	6"
Maximum Cover	Maximum allowable cover depth	< 7 feet	< 10 feet	5 feet	16.7 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf	7.55 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	N/A	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 to 185° F

- C. Supplier: Ferguson Waterworks; visit www.fergusongss.com for more information.

2.02 GEOSYNTHETICS

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
- Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile.
 - Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS

- A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
- Traffic Applications - Free draining material shall be used adjacent to and above the R-Tank system.
 - For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System). For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more.
 - Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
 - Non-Vehicular Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
- C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS

- A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

- A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
- Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
 - Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
- If unsuitable soils are encountered or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
 - If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
 - Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

- A. Where a geotextile wrap is specified, install the specified fabric along the excavated surfaces while removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
- Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
 - Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
- For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
 - For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS

- A. Backfill and fill with recommended materials as follows:
- Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
 - Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
 - Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
 - No compaction equipment is permissible to operate directly on the R-Tank modules.
 - Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
 - Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
 - Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
 - If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
 - Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
 - Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
- C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
- C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

DATE	INITIALS	DESCRIPTIONS			DISTRIBUTED BY:	R-Tank MODULAR STORMWATER STORAGE SYSTEM	R-TANK SPECIFICATION 4-UNIT CONDOMINIUM BIDDEFORD, ME	DRAWN BY BMK
								DATE 12/16/2024
								SHEET NO. 6 of 6
								THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

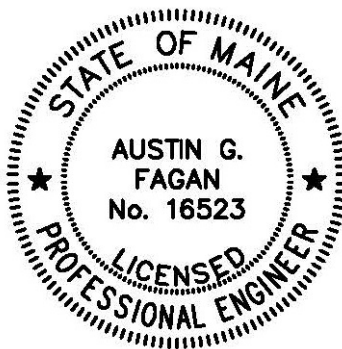
STORMWATER MANAGEMENT REPORT

**4 Unit Condominium
Tebbetts Ave.
Biddeford, Maine**

Submitted by:

**Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072**

Prepared by:



Date:
December 2024

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APPENDIX C	PRE DEVELOPMENT CALCULATIONS
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1.0 **INTRODUCTION**

Diversacorp Holdings LLC is proposing to construct a 4-unit condominium on a 0.64 acre parcel located at the corner of Clifford Street and Tibbetts Avenue in Biddeford (Map 39, Lots 303-1 & 304).

The scope of work includes but is not limited to:

- Construction of 4-unit residential building
- Construction of paved parking areas
- Extension of municipal utilities for water, sewer, electrical and communications
- Construction of stormwater management facilities

The proposed infrastructure improvements will create approximately 6,580 sf of impervious area and 11,098 sf of landscaped area totaling 17,678 sf of developed area for the project.

In accordance with the City of Biddeford code requirements, the Stormwater Management Plan has been prepared to satisfy the requirements of the Maine Department of Environmental Protections “Stormwater Management Rules” Chapters 500, 501 and 502 as well as the most recent version of the “Maine Stormwater Best Management Practices Manual”. Per the post construction stormwater discharge management standards of the city code, the proposed project will need to meet quality and quantity standards of Chapter 500, requiring meeting the Basic, General, and Flooding Standards.

1.1 **OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION**

Hydrologic Analysis: The pre and post development conditions have been modeled using modeling software (Hydrocad Version 10) which is based upon the methodology contained within the USDA Soil Conservation Service Technical Release 55. Type III 24-hour storm distributions for York County were used for the analysis. The following frequencies and 24-hour rainfall depths were used for the analysis:

Return Period	24-Hour Rainfall Depth
2-Year Storm	3.30 inches
10-Year Storm	4.90 inches
25-Year Storm	6.20 inches

Soils: The soils boundaries used for the stormwater analysis were digitized from the Natural Resource Conservation Service (NRCS), web soil survey website. The source of the data is the York County Soil Survey (Class D). Refer to the following for additional documentation regarding the soils used for modeling:

- Appendix B of this Report
- Pre and Post Development Watershed Plans (Sheets A and B)

Soil Map Unit	Unit Description	Hydrologic Soil Group
LnB	Lyman Loam, 3-8% slopes	D
LyC, LyE	Lyman-Rock outcrop complex, 8-80% slopes	D
Ur	Urban Land	D*

* Assume D soil

Boundary Survey: Field survey by BH2M

Topography: Onsite: On Ground Topography by BH2M
 Offsite: LIDAR data from the Maine Office of GIS

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at three Analysis Points as described below:

Analysis Point #1

Description: Sheet flow from subject and upstream properties to Clifford Street and Tibbetts Ave.

Pre-Development Tributary Drainage Area: 6,425 sf

Post Development Tributary Drainage Area: 5,053 sf

Analysis Point #2

Description: Flow to side inlet catch basin in Tibbetts Ave.

Pre-Development Tributary Drainage Area: 68,046 sf

Post Development Tributary Drainage Area: 69,418 sf

Analysis Point #3

Description: Flow to catch basin in Clifford Street.

Pre-Development Tributary Drainage Area: 2,695 sf

Post Development Tributary Drainage Area: 2,695 sf

Cumulative

As part of this review, the combined flows from analysis points 1 & 2 have been analyzed to determine what the effects of the development will be on the downstream closed drainage system. This has been done to verify that the project will not create adverse impacts to the downstream stormwater infrastructure.

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on sheet 2 and sheet A of the accompanying plans. The project is located at the corner of Clifford Street and Tibbetts Avenue in Biddeford and is bounded by residential properties. The parcel lies within the watershed of the Saco River.

The watershed that was analyzed for this project is approximately 1.77 acres. The analysis points are located along the western boundary of the parcel and are described in Section 1.2 of this report.

The Pre Development Stormwater plans are included as Sheet A of the accompanying plans and the Calculations are attached as Appendix B.

The Pre Development Watershed Model predicts the following peak flow rates:

Pre-Development Peak Flows (cu. Ft./sec)			
Analysis Point	2-Year	10-Year	25-Year
AP-1	0.24	0.45	0.63
AP-2	3.25	5.72	7.74
AP-3	0.13	0.23	0.31
Combined	3.49	6.16	8.37

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include development of a residential building, parking, and stormwater BMP's. Below is a summary of the proposed impervious area for full build-out of the project.

Proposed Impervious Area	=	6,580 sf
<u>Proposed Lawn Area</u>	=	<u>11,098 sf</u>
Proposed Developed Area	=	17,678 sf

The Post Development Drainage Plan is included as Sheet B of the accompanying plan set and the Calculations are attached as Appendix D.

The Post-Development watershed model predicts the following peak flow rates:

Post-Development Peak Flows (cu. Ft./sec)			
Analysis Point	2-Year	10-Year	25-Year
AP-1	0.22	0.40	0.54
AP-2	3.23	5.52	6.93
AP-3	0.13	0.23	0.31
Combined	3.44	5.92	7.47

1.5 **BASIC STANDARDS**

The proposed project is required to meet the Basic Standards. To meet the Basic Standards the project design must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C of 06-096 Chapter 500 are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

The proposed project will provide temporary (during construction) BMP's and post-construction BMP's. Refer to Sheet 4 of the project plans for erosion and sedimentation control narratives and details. The project requirements for inspection and maintenance during construction and post-construction are described in the Erosion and Sedimentation Control - Inspection and Maintenance Plan found in Appendix E of this Report. The housekeeping standards can also be found in the Inspection and Maintenance Plan.

1.6 **GENERAL STANDARDS**

To meet the general standards, the project design must demonstrate that the stormwater management system includes treatment measures that will provide pollutant removal or treatment and mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms and potential temperature impacts. This must be achieved by providing treatment of no less than 95% of the impervious area and no less than 80% of the developed area.

This project is not required to meet the General Standards.

1.7 **PHOSPHORUS STANDARD**

The proposed project is located in the Saco River watershed. The proposed project is not located within the direct watershed of a lake or lake most-at-risk listed in 06-096 Chapter 502. The Phosphorus Standard does not apply to this project.

1.8 URBAN IMPAIRED STREAM STANDARD

The proposed project is located in the Saco River watershed. Saco River is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is required to meet the Flooding Standards. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

- a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.
- b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.
- c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.
- d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year return periods. Refer to Appendix B for the Pre Development model and Appendix C for Post Development model.

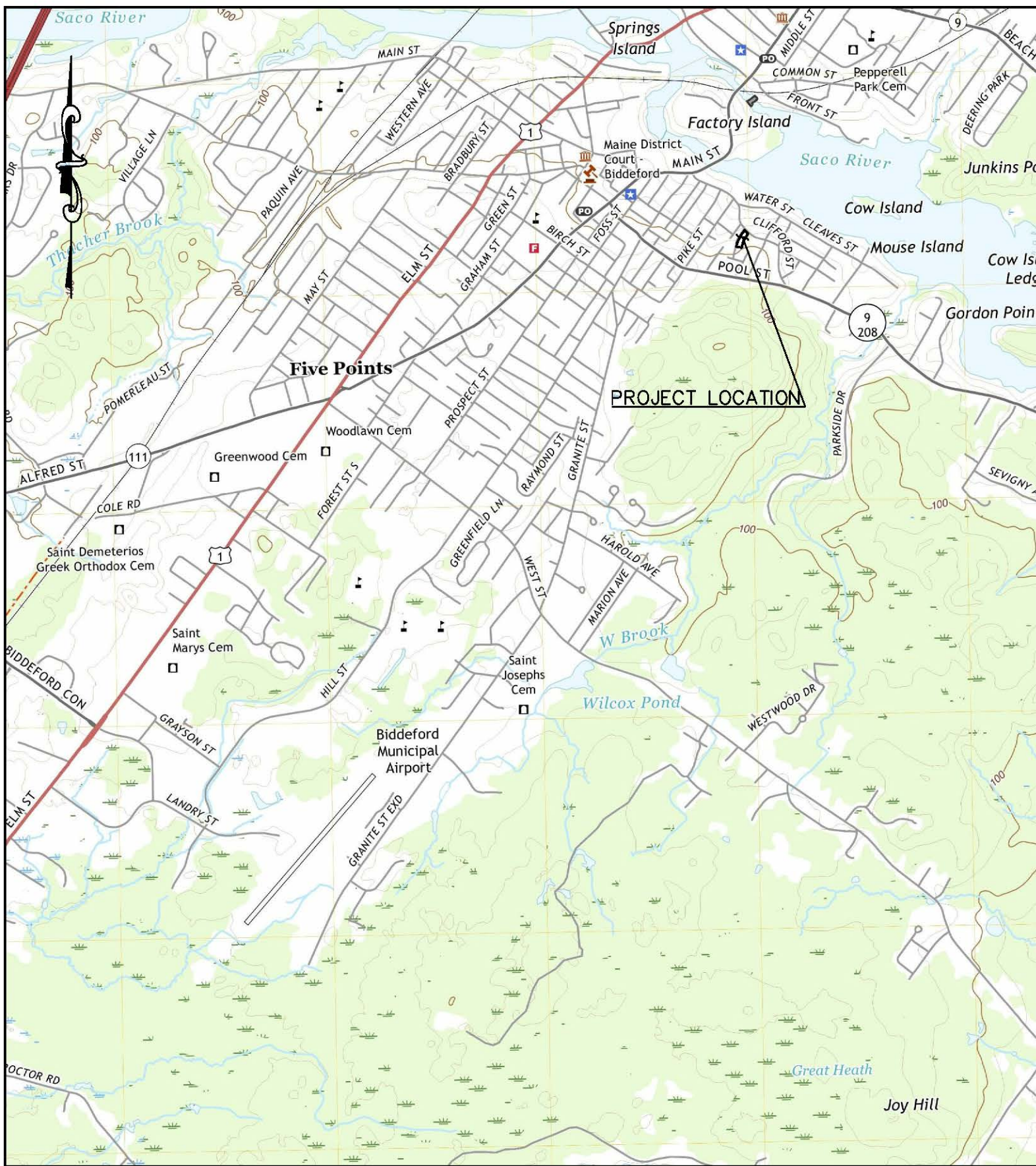
Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	0.24	0.22	0.45	0.40	0.63	0.54
AP-2	3.25	3.23	5.72	5.52	7.74	6.93
AP-3	0.13	0.13	0.23	0.23	0.31	0.31
Combined	3.49	3.44	6.16	5.92	8.37	7.47

As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site are less than or equal to the peak flows of stormwater prior to undertaking the project.

1.10 CLOSURE

The proposed stormwater management facilities have been designed to mitigate stormwater impacts associated with development of the proposed project. In accordance with City of Biddeford code requirements of meeting “quality and quantity standards of Chapter 500”, the proposed stormwater management facilities have been designed to meet the Basic, and Flooding Standards.

Appendix A
Figures



REFERENCES:

1. USGS QUADRANGLE BIDDEFORD, ME 2021

Scale: 1" = 2000'

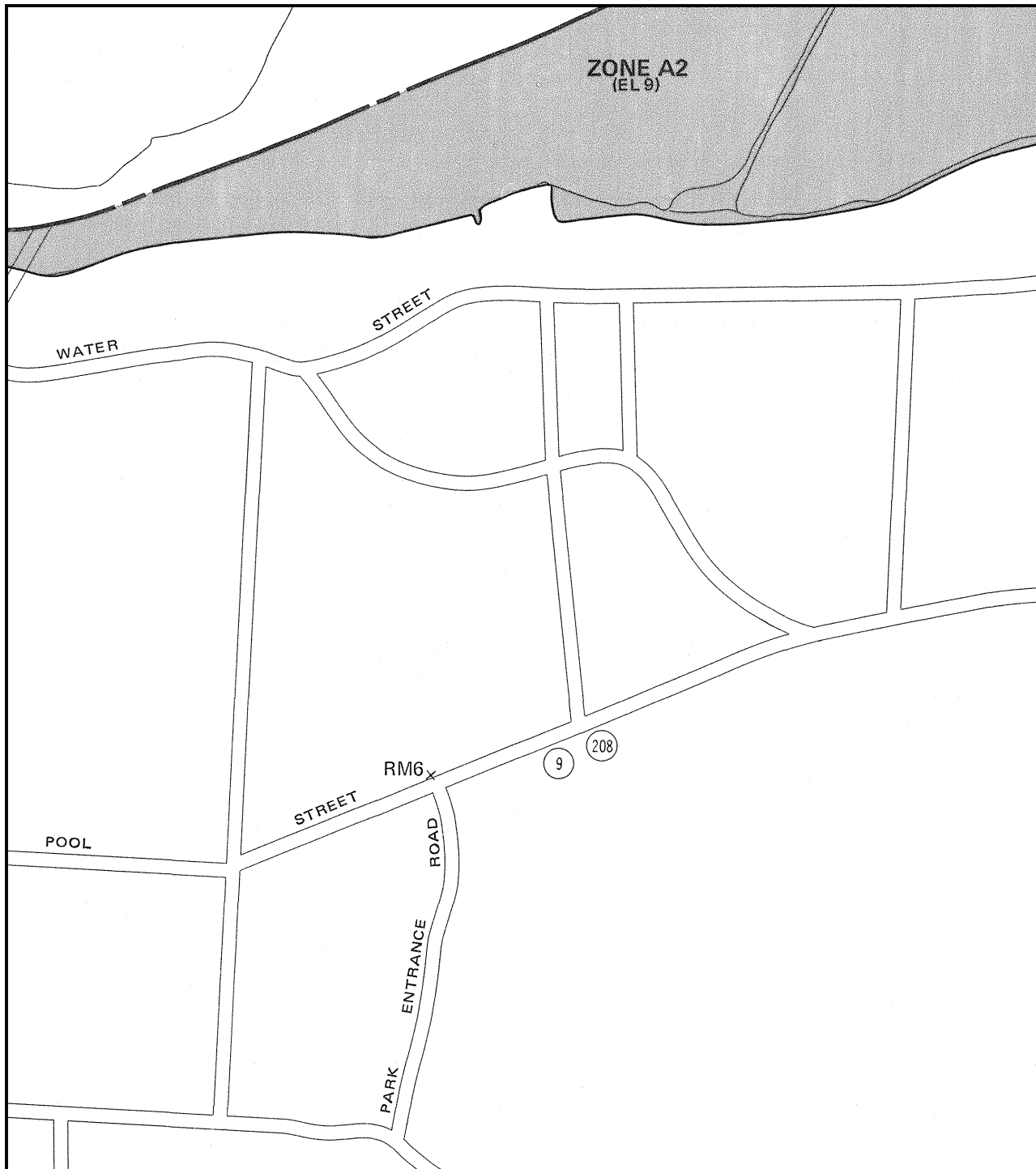


BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street
Gorham, Maine 04038

Tel. (207) 839-2771
Fax (207) 839-8250



Program, at (800) 638-6620.



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
BIDDEFORD,
MAINE
YORK COUNTY

PANEL 4 OF 11
(SEE MAP INDEX FOR PANELS NOT PRINTED)

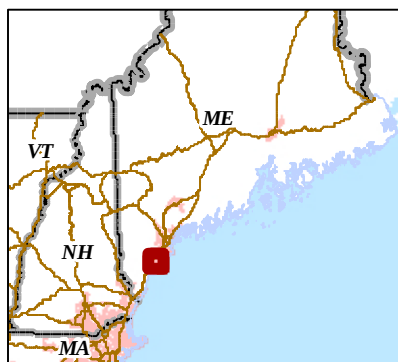
COMMUNITY-PANEL NUMBER
230145 0004 B

EFFECTIVE DATE:
MAY 15, 1984



Federal Emergency Management Agency

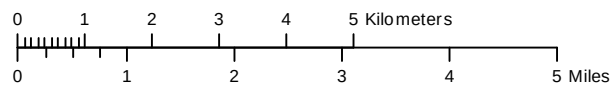
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



NPDES Phase II Stormwater Program Automatically Designated MS4 Areas

Biddeford ME

 Regulated Area (2000 + 2010 Urbanized Area)

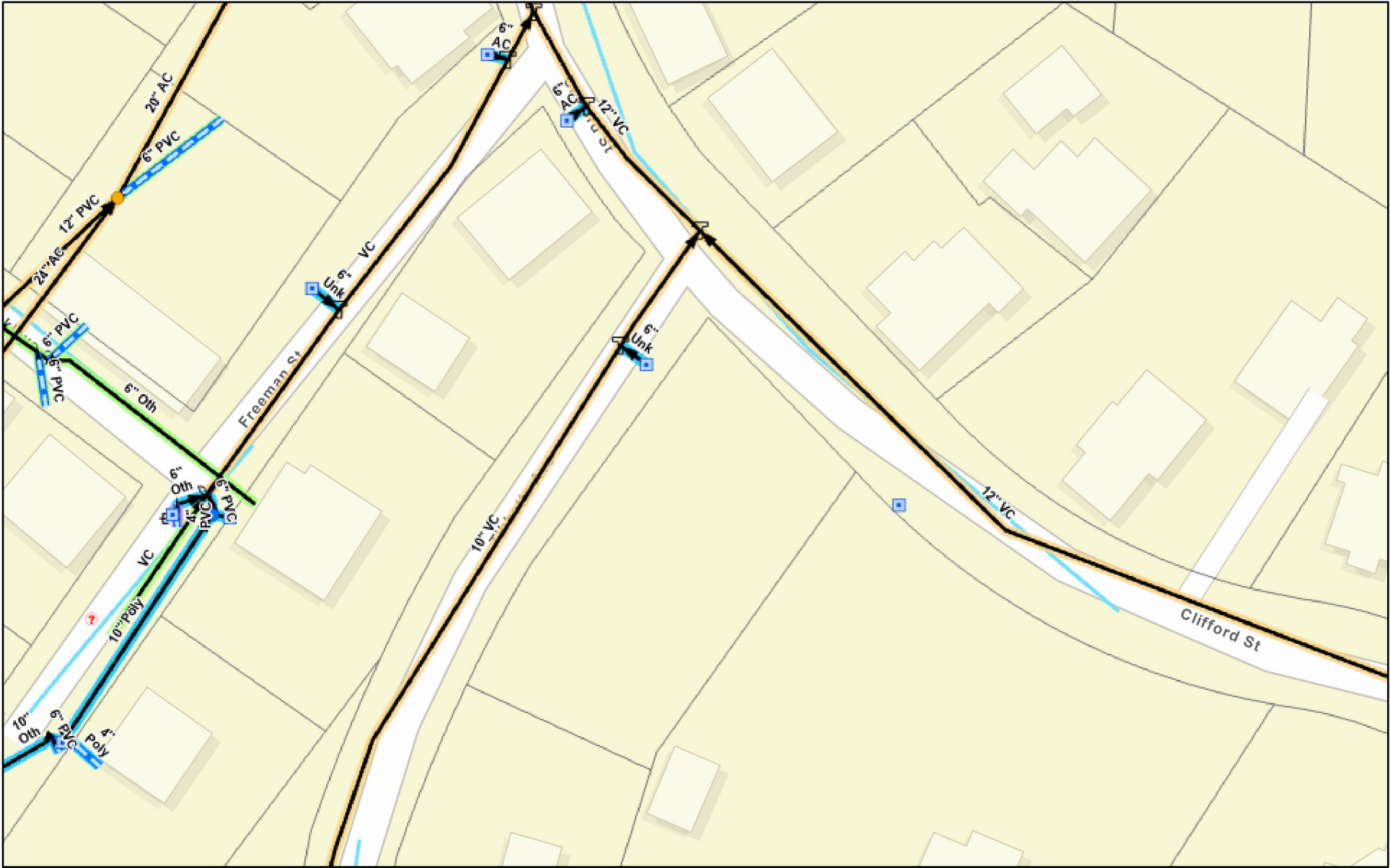


Town Population: 21 057
Regulated Population: 17 187
(Populations estimated from 2010 Census)

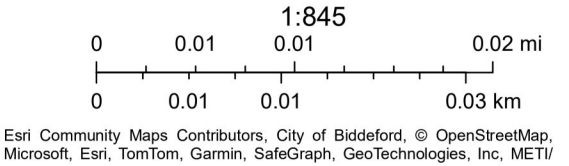


Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2010 Microsoft Corporation
and its data suppliers

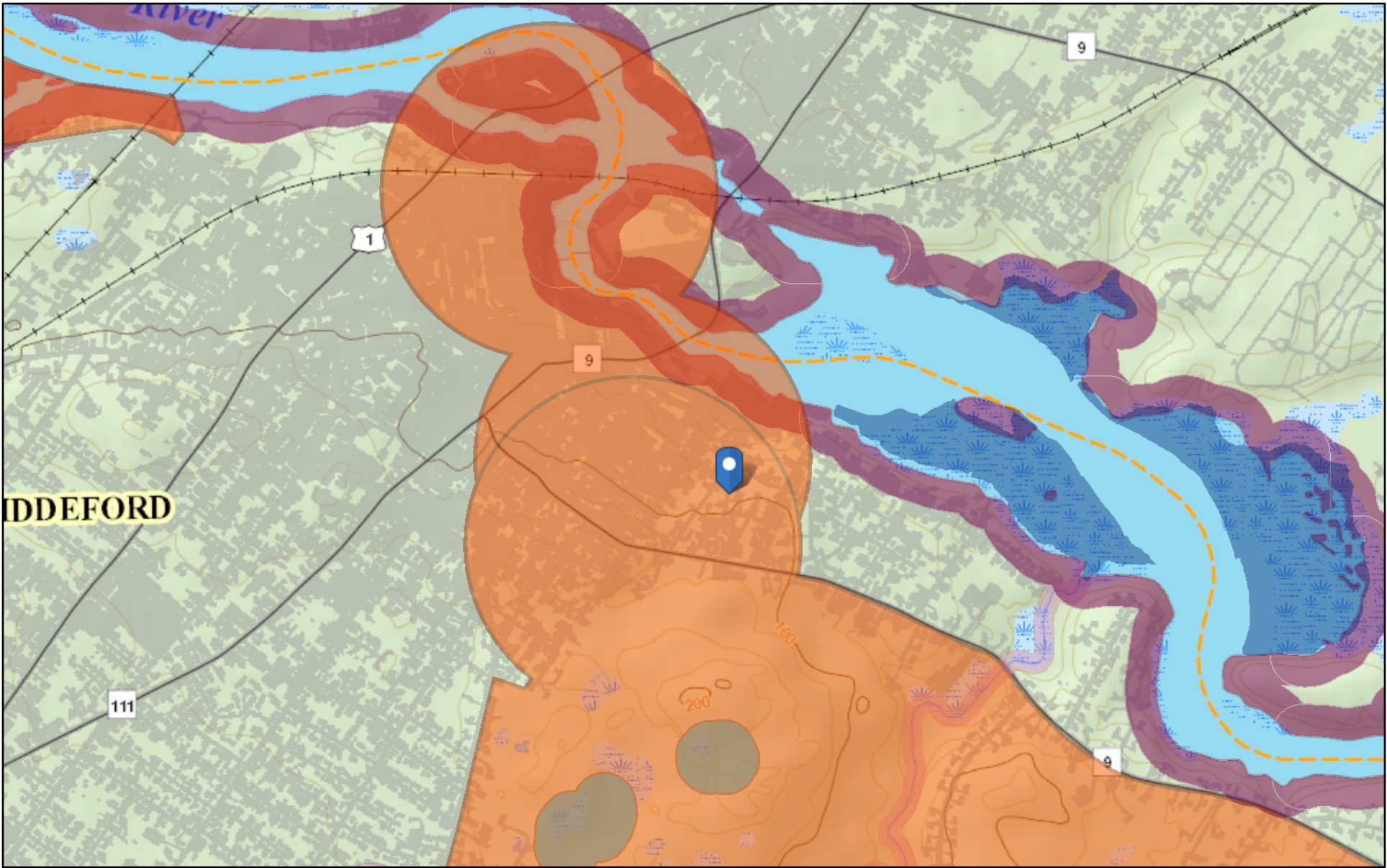
Biddeford Official Sewer Map



4/17/2024

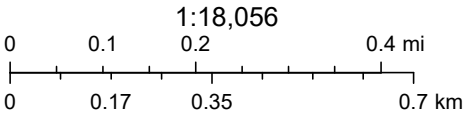


Beginning With Habitat



April 9, 2024

- | | | |
|---|--|---|
| Shellfish Beds | Shorebird Habitat | Significant Vernal Pools |
| Stream Buffer (75 feet) | Seabird Nesting Island | Deer Wintering Areas |
| Great Ponds, Rivers and Coastal Buffer (250 feet) | Tidal Waterfowl / Wading Bird Habitat | Essential Wildlife Habitats |
| Atlantic Salmon Habitat | Inland Waterfowl / Wading Bird Habitat | Endangered, Threatened, and Special Concern Species |

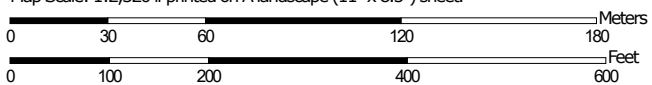


Appendix B
Soils Report

Hydrologic Soil Group—York County, Maine



Map Scale: 1:2,320 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
 Survey Area Data: Version 22, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	6.3	58.7%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	0.0	0.0%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	D	1.6	14.8%
Ur	Urban land		2.8	26.5%
Totals for Area of Interest			10.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

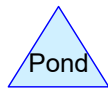
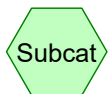
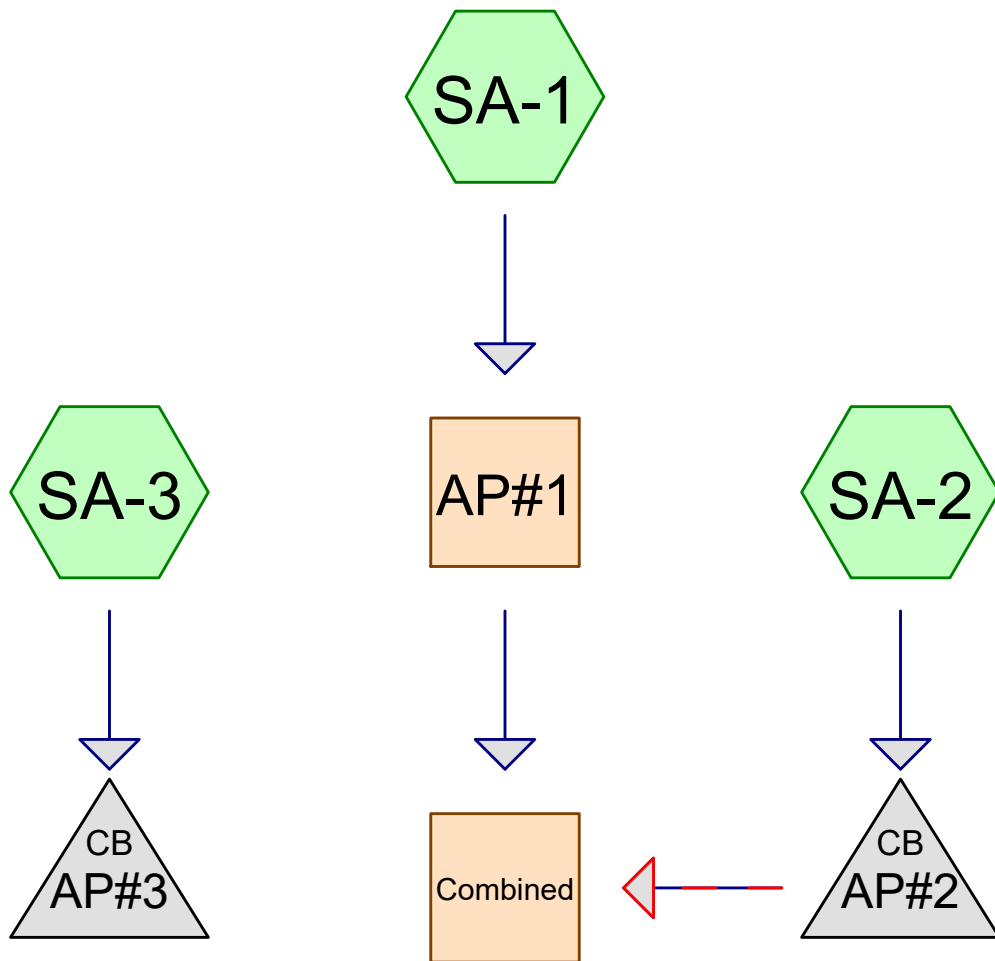
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C
Pre-Development Calculations



Routing Diagram for Pre Development - Tibbetts (Update 3)

Prepared by HP Inc., Printed 12/10/2024

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Pre Development - Tibbetts (Update 3)

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.082	87	1/4 acre lots, 38% imp, HSG D (SA-1, SA-2, SA-3)
0.145	80	>75% Grass cover, Good, HSG D (SA-1, SA-2, SA-3)
0.107	98	Existing Impervious (SA-2)
0.438	77	Woods, Good, HSG D (SA-1, SA-2, SA-3)
1.771	85	TOTAL AREA

Pre Development - Tibbetts (Update 3)*Type III 24-hr 2-Year Storm Event Rainfall=3.30"*

Prepared by HP Inc.

Printed 12/10/2024

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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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach AP#1:

Inflow=0.24 cfs 0.018 af
Outflow=0.24 cfs 0.018 af

Pond AP#2:

Peak Elev=55.19' Inflow=3.25 cfs 0.224 af
Primary=1.75 cfs 0.206 af Secondary=1.50 cfs 0.018 af Outflow=3.25 cfs 0.224 af

Pond AP#3:

Peak Elev=67.15' Inflow=0.13 cfs 0.009 af
6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.13 cfs 0.009 af

Reach Combined: Downstream CB

Inflow=3.49 cfs 0.241 af
Outflow=3.49 cfs 0.241 af

Subcatchment SA-1:

Runoff Area=6,425 sf 12.12% Impervious Runoff Depth>1.43"
Flow Length=114' Slope=0.2630 '/' Tc=8.4 min CN=81 Runoff=0.24 cfs 0.018 af

Subcatchment SA-2:

Runoff Area=68,046 sf 30.68% Impervious Runoff Depth>1.72"
Flow Length=276' Tc=6.7 min CN=85 Runoff=3.25 cfs 0.224 af

Subcatchment SA-3:

Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>1.80"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.13 cfs 0.009 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.251 af Average Runoff Depth = 1.70"
70.77% Pervious = 1.254 ac 29.23% Impervious = 0.518 ac

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach AP#1: Inflow=0.45 cfs 0.033 af
Outflow=0.45 cfs 0.033 af

Pond AP#2: Peak Elev=55.58' Inflow=5.72 cfs 0.401 af
Primary=1.85 cfs 0.327 af Secondary=3.87 cfs 0.073 af Outflow=5.72 cfs 0.401 af

Pond AP#3: Peak Elev=67.25' Inflow=0.23 cfs 0.016 af
6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.23 cfs 0.016 af

Reach Combined: Downstream CB Inflow=6.16 cfs 0.434 af
Outflow=6.16 cfs 0.434 af

Subcatchment SA-1: Runoff Area=6,425 sf 12.12% Impervious Runoff Depth>2.71"
Flow Length=114' Slope=0.2630 '/' Tc=8.4 min CN=81 Runoff=0.45 cfs 0.033 af

Subcatchment SA-2: Runoff Area=68,046 sf 30.68% Impervious Runoff Depth>3.08"
Flow Length=276' Tc=6.7 min CN=85 Runoff=5.72 cfs 0.401 af

Subcatchment SA-3: Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>3.17"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.23 cfs 0.016 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.450 af Average Runoff Depth = 3.05"
70.77% Pervious = 1.254 ac 29.23% Impervious = 0.518 ac

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach AP#1: Inflow=0.63 cfs 0.047 af
Outflow=0.63 cfs 0.047 af

Pond AP#2: Peak Elev=55.82' Inflow=7.74 cfs 0.551 af
Primary=1.91 cfs 0.418 af Secondary=5.84 cfs 0.133 af Outflow=7.74 cfs 0.551 af

Pond AP#3: Peak Elev=67.32' Inflow=0.31 cfs 0.022 af
6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.31 cfs 0.022 af

Reach Combined: Downstream CB Inflow=8.37 cfs 0.598 af
Outflow=8.37 cfs 0.598 af

Subcatchment SA-1: Runoff Area=6,425 sf 12.12% Impervious Runoff Depth>3.82"
Flow Length=114' Slope=0.2630 '/' Tc=8.4 min CN=81 Runoff=0.63 cfs 0.047 af

Subcatchment SA-2: Runoff Area=68,046 sf 30.68% Impervious Runoff Depth>4.23"
Flow Length=276' Tc=6.7 min CN=85 Runoff=7.74 cfs 0.551 af

Subcatchment SA-3: Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>4.34"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.31 cfs 0.022 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.620 af Average Runoff Depth = 4.20"
70.77% Pervious = 1.254 ac 29.23% Impervious = 0.518 ac

Summary for Reach AP#1:

Inflow Area = 0.147 ac, 12.12% Impervious, Inflow Depth > 3.82" for 25-Year Storm Event event
 Inflow = 0.63 cfs @ 12.12 hrs, Volume= 0.047 af
 Outflow = 0.63 cfs @ 12.12 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond AP#2:

Inflow Area = 1.562 ac, 30.68% Impervious, Inflow Depth > 4.23" for 25-Year Storm Event event
 Inflow = 7.74 cfs @ 12.10 hrs, Volume= 0.551 af
 Outflow = 7.74 cfs @ 12.10 hrs, Volume= 0.551 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.91 cfs @ 12.10 hrs, Volume= 0.418 af
 Secondary = 5.84 cfs @ 12.10 hrs, Volume= 0.133 af

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

Peak Elev= 55.82' @ 12.10 hrs

Flood Elev= 54.76'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.51'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.51' / 51.46' S= 0.0050 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Secondary	54.76'	2.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.90 cfs @ 12.10 hrs HW=55.82' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.90 cfs @ 9.70 fps)

Secondary OutFlow Max=5.79 cfs @ 12.10 hrs HW=55.82' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.79 cfs @ 2.74 fps)

Summary for Pond AP#3:

Inflow Area = 0.062 ac, 33.54% Impervious, Inflow Depth > 4.34" for 25-Year Storm Event event
 Inflow = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af
 Outflow = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af

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

Peak Elev= 67.32' @ 12.10 hrs

Flood Elev= 69.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 66.88' / 66.83' S= 0.0050 '/' Cc= 0.900
 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.31 cfs @ 12.10 hrs HW=67.32' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.31 cfs @ 2.24 fps)

Summary for Reach Combined: Downstream CB

Inflow Area = 1.710 ac, 29.08% Impervious, Inflow Depth > 4.20" for 25-Year Storm Event event
 Inflow = 8.37 cfs @ 12.10 hrs, Volume= 0.598 af
 Outflow = 8.37 cfs @ 12.10 hrs, Volume= 0.598 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment SA-1:

Runoff = 0.63 cfs @ 12.12 hrs, Volume= 0.047 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
3,426	77	Woods, Good, HSG D
949	80	>75% Grass cover, Good, HSG D
2,050	87	1/4 acre lots, 38% imp, HSG D
6,425	81	Weighted Average
5,646		87.88% Pervious Area
779		12.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	114	0.2630	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.30"

Summary for Subcatchment SA-2:

Runoff = 7.74 cfs @ 12.10 hrs, Volume= 0.551 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
42,709	87	1/4 acre lots, 38% imp, HSG D
* 4,645	98	Existing Impervious
5,253	80	>75% Grass cover, Good, HSG D
15,439	77	Woods, Good, HSG D
68,046	85	Weighted Average
47,172		69.32% Pervious Area
20,874		30.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	103	0.0680	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
0.1	47	0.0850	5.92		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	58	0.1400	2.62		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	68	0.2200	9.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.7	276	Total			

Summary for Subcatchment SA-3:

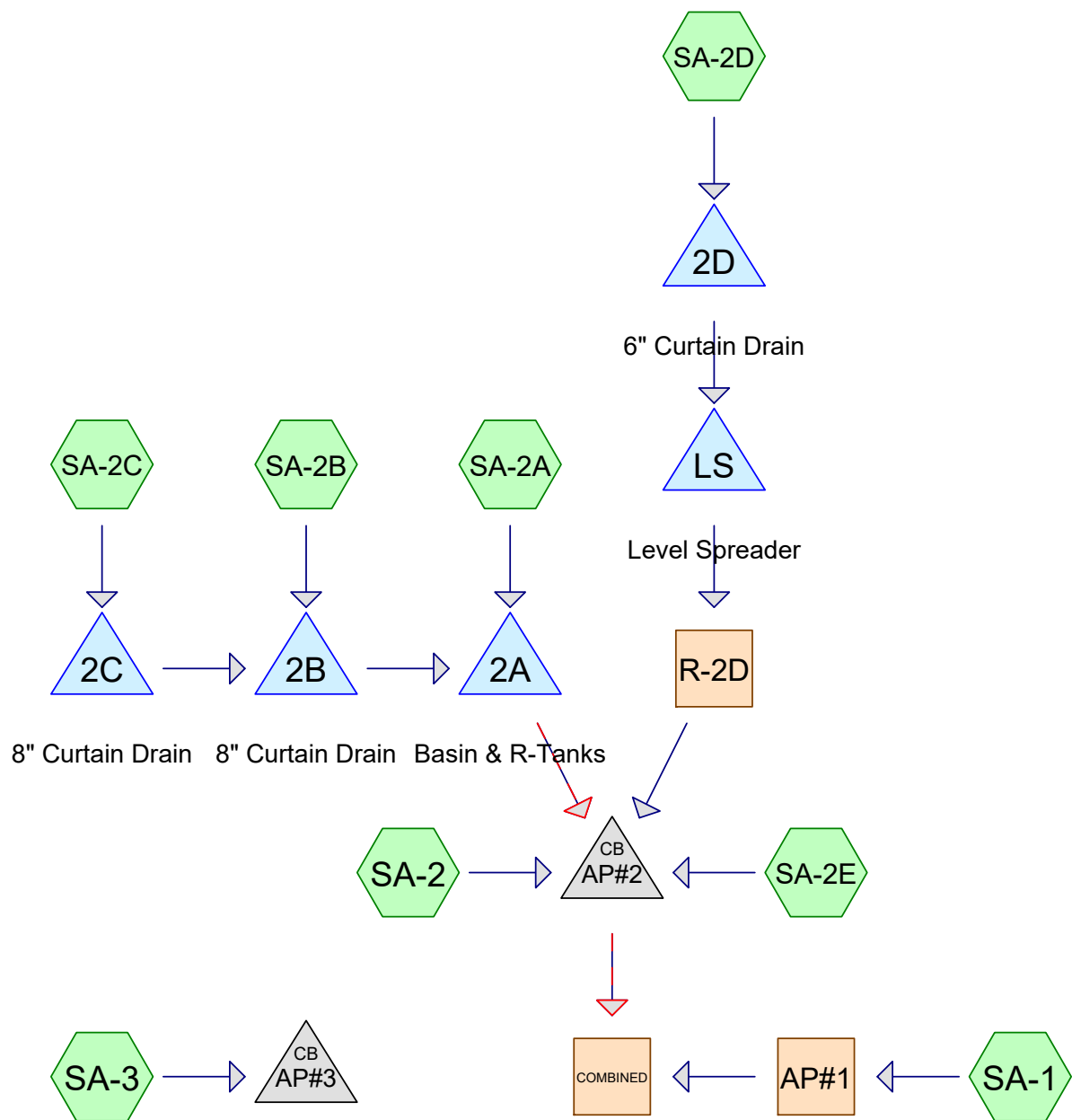
Runoff = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
216	77	Woods, Good, HSG D
100	80	>75% Grass cover, Good, HSG D
2,379	87	1/4 acre lots, 38% imp, HSG D
2,695	86	Weighted Average
1,791		66.46% Pervious Area
904		33.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	101	0.3000	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.30"

Appendix D
Post Development Calculations



Routing Diagram for Post Development - Tibbetts (Update 3)

Prepared by HP Inc., Printed 12/18/2024

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Post Development - Tibbetts (Update 3)

Prepared by HP Inc.

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.082	87	1/4 acre lots, 38% imp, HSG D (SA-1, SA-2B, SA-2D, SA-2E, SA-3)
0.147	80	>75% Grass cover, Good, HSG D (SA-1, SA-2, SA-2B, SA-2D, SA-2E, SA-3)
0.107	98	Existing Impervious (SA-2B, SA-2D, SA-2E)
0.255	80	Proposed Grass (D) (SA-1, SA-2, SA-2A, SA-2B, SA-2C, SA-2D, SA-2E)
0.151	98	Proposed Impervious (SA-2, SA-2A, SA-2C, SA-2E)
0.030	77	Woods, Good, HSG D (SA-2E, SA-3)
1.771	87	TOTAL AREA

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2A: Basin & R-Tanks Peak Elev=53.36' Storage=258 cf Inflow=1.33 cfs 0.096 af
 Primary=1.13 cfs 0.096 af Secondary=0.00 cfs 0.000 af Outflow=1.13 cfs 0.096 af

Pond 2B: 8" Curtain Drain Peak Elev=70.89' Storage=95 cf Inflow=1.31 cfs 0.091 af
 8.0" Round Culvert n=0.012 L=65.0' S=0.1692 '/' Outflow=1.26 cfs 0.091 af

Pond 2C: 8" Curtain Drain Peak Elev=70.35' Storage=27 cf Inflow=0.25 cfs 0.018 af
 8.0" Round Culvert n=0.012 L=1.0' S=0.0000 '/' Outflow=0.24 cfs 0.018 af

Pond 2D: 6" Curtain Drain Peak Elev=86.29' Storage=23 cf Inflow=0.22 cfs 0.015 af
 6.0" Round Culvert n=0.012 L=50.0' S=0.1000 '/' Outflow=0.22 cfs 0.015 af

Reach AP#1: Inflow=0.22 cfs 0.015 af
 Outflow=0.22 cfs 0.015 af

Pond AP#2: Peak Elev=55.19' Inflow=3.23 cfs 0.247 af
 Primary=1.75 cfs 0.226 af Secondary=1.48 cfs 0.022 af Outflow=3.23 cfs 0.247 af

Pond AP#3: Peak Elev=67.15' Inflow=0.13 cfs 0.009 af
 6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.13 cfs 0.009 af

Reach COMBINED: Inflow=3.44 cfs 0.263 af
 Outflow=3.44 cfs 0.263 af

Pond LS: Level Spreader Peak Elev=81.03' Storage=162 cf Inflow=0.22 cfs 0.015 af
 Outflow=0.30 cfs 0.011 af

Reach R-2D: Avg. Flow Depth=0.05' Max Vel=4.80 fps Inflow=0.30 cfs 0.011 af
 n=0.012 L=152.0' S=0.1118 '/' Capacity=13.50 cfs Outflow=0.21 cfs 0.011 af

Subcatchment SA-1: Runoff Area=5,053 sf 15.57% Impervious Runoff Depth>1.57"
 Flow Length=114' Tc=7.2 min CN=83 Runoff=0.22 cfs 0.015 af

Subcatchment SA-2: Runoff Area=765 sf 54.38% Impervious Runoff Depth>2.13"
 Tc=6.0 min CN=90 Runoff=0.04 cfs 0.003 af

Subcatchment SA-2A: Runoff Area=1,815 sf 8.82% Impervious Runoff Depth>1.50"
 Tc=6.0 min CN=82 Runoff=0.08 cfs 0.005 af

Subcatchment SA-2B: Runoff Area=20,369 sf 35.46% Impervious Runoff Depth>1.88"
 Flow Length=257' Tc=6.0 min CN=87 Runoff=1.07 cfs 0.073 af

Subcatchment SA-2C: Runoff Area=3,464 sf 94.57% Impervious Runoff Depth>2.78"
 Tc=6.0 min CN=97 Runoff=0.25 cfs 0.018 af

Subcatchment SA-2D: Runoff Area=4,794 sf 24.79% Impervious Runoff Depth>1.64"
 Flow Length=66' Slope=0.1500 '/' Tc=6.0 min CN=84 Runoff=0.22 cfs 0.015 af

Subcatchment SA-2E: Runoff Area=38,208 sf 39.73% Impervious Runoff Depth>1.87"
Flow Length=276' Tc=6.7 min CN=87 Runoff=1.98 cfs 0.137 af

Subcatchment SA-3: Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>1.80"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.13 cfs 0.009 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.276 af Average Runoff Depth = 1.87"
62.24% Pervious = 1.103 ac 37.76% Impervious = 0.669 ac

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2A: Basin & R-Tanks Peak Elev=55.45' Storage=475 cf Inflow=2.17 cfs 0.165 af
 Primary=1.77 cfs 0.164 af Secondary=0.00 cfs 0.000 af Outflow=1.77 cfs 0.164 af

Pond 2B: 8" Curtain Drain Peak Elev=71.79' Storage=190 cf Inflow=2.19 cfs 0.156 af
 8.0" Round Culvert n=0.012 L=65.0' S=0.1692 '/' Outflow=2.03 cfs 0.155 af

Pond 2C: 8" Curtain Drain Peak Elev=70.44' Storage=34 cf Inflow=0.37 cfs 0.028 af
 8.0" Round Culvert n=0.012 L=1.0' S=0.0000 '/' Outflow=0.37 cfs 0.028 af

Pond 2D: 6" Curtain Drain Peak Elev=86.42' Storage=33 cf Inflow=0.40 cfs 0.027 af
 6.0" Round Culvert n=0.012 L=50.0' S=0.1000 '/' Outflow=0.39 cfs 0.027 af

Reach AP#1: Inflow=0.40 cfs 0.028 af
 Outflow=0.40 cfs 0.028 af

Pond AP#2: Peak Elev=55.55' Inflow=5.52 cfs 0.432 af
 Primary=1.84 cfs 0.348 af Secondary=3.68 cfs 0.084 af Outflow=5.52 cfs 0.432 af

Pond AP#3: Peak Elev=67.25' Inflow=0.23 cfs 0.016 af
 6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.23 cfs 0.016 af

Reach COMBINED: Inflow=5.92 cfs 0.460 af
 Outflow=5.92 cfs 0.460 af

Pond LS: Level Spreader Peak Elev=81.03' Storage=162 cf Inflow=0.39 cfs 0.027 af
 Outflow=0.38 cfs 0.024 af

Reach R-2D: Avg. Flow Depth=0.06' Max Vel=5.96 fps Inflow=0.38 cfs 0.024 af
 n=0.012 L=152.0' S=0.1118 '/' Capacity=13.50 cfs Outflow=0.38 cfs 0.024 af

Subcatchment SA-1: Runoff Area=5,053 sf 15.57% Impervious Runoff Depth>2.89"
 Flow Length=114' Tc=7.2 min CN=83 Runoff=0.40 cfs 0.028 af

Subcatchment SA-2: Runoff Area=765 sf 54.38% Impervious Runoff Depth>3.57"
 Tc=6.0 min CN=90 Runoff=0.07 cfs 0.005 af

Subcatchment SA-2A: Runoff Area=1,815 sf 8.82% Impervious Runoff Depth>2.80"
 Tc=6.0 min CN=82 Runoff=0.14 cfs 0.010 af

Subcatchment SA-2B: Runoff Area=20,369 sf 35.46% Impervious Runoff Depth>3.27"
 Flow Length=257' Tc=6.0 min CN=87 Runoff=1.83 cfs 0.127 af

Subcatchment SA-2C: Runoff Area=3,464 sf 94.57% Impervious Runoff Depth>4.25"
 Tc=6.0 min CN=97 Runoff=0.37 cfs 0.028 af

Subcatchment SA-2D: Runoff Area=4,794 sf 24.79% Impervious Runoff Depth>2.98"
 Flow Length=66' Slope=0.1500 '/' Tc=6.0 min CN=84 Runoff=0.40 cfs 0.027 af

Subcatchment SA-2E: Runoff Area=38,208 sf 39.73% Impervious Runoff Depth>3.27"
Flow Length=276' Tc=6.7 min CN=87 Runoff=3.38 cfs 0.239 af

Subcatchment SA-3: Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>3.17"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.23 cfs 0.016 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.481 af Average Runoff Depth = 3.26"
62.24% Pervious = 1.103 ac 37.76% Impervious = 0.669 ac

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2A: Basin & R-Tanks Peak Elev=56.39' Storage=810 cf Inflow=2.80 cfs 0.223 af
 Primary=1.99 cfs 0.222 af Secondary=0.00 cfs 0.000 af Outflow=1.99 cfs 0.222 af

Pond 2B: 8" Curtain Drain Peak Elev=72.77' Storage=293 cf Inflow=2.91 cfs 0.209 af
 8.0" Round Culvert n=0.012 L=65.0' S=0.1692 '/' Outflow=2.63 cfs 0.209 af

Pond 2C: 8" Curtain Drain Peak Elev=70.50' Storage=39 cf Inflow=0.47 cfs 0.036 af
 8.0" Round Culvert n=0.012 L=1.0' S=0.0000 '/' Outflow=0.47 cfs 0.036 af

Pond 2D: 6" Curtain Drain Peak Elev=86.56' Storage=43 cf Inflow=0.54 cfs 0.038 af
 6.0" Round Culvert n=0.012 L=50.0' S=0.1000 '/' Outflow=0.52 cfs 0.038 af

Reach AP#1: Inflow=0.54 cfs 0.039 af
 Outflow=0.54 cfs 0.039 af

Pond AP#2: Peak Elev=55.73' Inflow=6.93 cfs 0.588 af
 Primary=1.88 cfs 0.442 af Secondary=5.04 cfs 0.146 af Outflow=6.93 cfs 0.588 af

Pond AP#3: Peak Elev=67.32' Inflow=0.31 cfs 0.022 af
 6.0" Round Culvert n=0.012 L=10.0' S=0.0050 '/' Outflow=0.31 cfs 0.022 af

Reach COMBINED: Inflow=7.47 cfs 0.627 af
 Outflow=7.47 cfs 0.627 af

Pond LS: Level Spreader Peak Elev=81.04' Storage=162 cf Inflow=0.52 cfs 0.038 af
 Outflow=0.52 cfs 0.034 af

Reach R-2D: Avg. Flow Depth=0.07' Max Vel=6.60 fps Inflow=0.52 cfs 0.034 af
 n=0.012 L=152.0' S=0.1118 '/' Capacity=13.50 cfs Outflow=0.52 cfs 0.034 af

Subcatchment SA-1: Runoff Area=5,053 sf 15.57% Impervious Runoff Depth>4.02"
 Flow Length=114' Tc=7.2 min CN=83 Runoff=0.54 cfs 0.039 af

Subcatchment SA-2: Runoff Area=765 sf 54.38% Impervious Runoff Depth>4.76"
 Tc=6.0 min CN=90 Runoff=0.10 cfs 0.007 af

Subcatchment SA-2A: Runoff Area=1,815 sf 8.82% Impervious Runoff Depth>3.92"
 Tc=6.0 min CN=82 Runoff=0.20 cfs 0.014 af

Subcatchment SA-2B: Runoff Area=20,369 sf 35.46% Impervious Runoff Depth>4.45"
 Flow Length=257' Tc=6.0 min CN=87 Runoff=2.45 cfs 0.173 af

Subcatchment SA-2C: Runoff Area=3,464 sf 94.57% Impervious Runoff Depth>5.44"
 Tc=6.0 min CN=97 Runoff=0.47 cfs 0.036 af

Subcatchment SA-2D: Runoff Area=4,794 sf 24.79% Impervious Runoff Depth>4.13"
 Flow Length=66' Slope=0.1500 '/' Tc=6.0 min CN=84 Runoff=0.54 cfs 0.038 af

Subcatchment SA-2E: Runoff Area=38,208 sf 39.73% Impervious Runoff Depth>4.45"
Flow Length=276' Tc=6.7 min CN=87 Runoff=4.51 cfs 0.325 af

Subcatchment SA-3: Runoff Area=2,695 sf 33.54% Impervious Runoff Depth>4.34"
Flow Length=101' Slope=0.3000 '/' Tc=7.2 min CN=86 Runoff=0.31 cfs 0.022 af

Total Runoff Area = 1.771 ac Runoff Volume = 0.654 af Average Runoff Depth = 4.43"
62.24% Pervious = 1.103 ac 37.76% Impervious = 0.669 ac

Summary for Pond 2A: Basin & R-Tanks

Inflow Area = 0.589 ac, 41.56% Impervious, Inflow Depth > 4.54" for 25-Year Storm Event event
 Inflow = 2.80 cfs @ 12.13 hrs, Volume= 0.223 af
 Outflow = 1.99 cfs @ 12.24 hrs, Volume= 0.222 af, Atten= 29%, Lag= 6.6 min
 Primary = 1.99 cfs @ 12.24 hrs, Volume= 0.222 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 56.39' @ 12.24 hrs Surf.Area= 426 sf Storage= 810 cf
 Flood Elev= 57.50' Surf.Area= 610 sf Storage= 1,382 cf

Plug-Flow detention time= 5.4 min calculated for 0.221 af (99% of inflow)
 Center-of-Mass det. time= 4.1 min (765.7 - 761.6)

Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	1,025 cf	Basin (Prismatic) Listed below (Recalc)
#2	51.70'	215 cf	R-Tanks Listed below
#3	51.45'	142 cf	R-Tank Stone Envelope Listed below
		1,382 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	232	0	0
56.00	365	299	299
57.00	522	444	742
57.50	610	283	1,025

Elevation (feet)	Cum.Store (cubic-feet)
51.70	0
53.87	215

Elevation (feet)	Cum.Store (cubic-feet)
51.45	0
54.37	142

Device	Routing	Invert	Outlet Devices
#1	Primary	51.70'	12.0" Round Culvert L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.70' / 51.61' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	51.70'	6.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	56.50'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.99 cfs @ 12.24 hrs HW=56.37' (Free Discharge)

↑**1=Culvert** (Passes 1.99 cfs of 7.72 cfs potential flow)

↑**2=Orifice/Grate** (Orifice Controls 1.99 cfs @ 10.13 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=51.45' (Free Discharge)

↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2B: 8" Curtain Drain

Inflow Area = 0.547 ac, 44.05% Impervious, Inflow Depth > 4.59" for 25-Year Storm Event event
 Inflow = 2.91 cfs @ 12.09 hrs, Volume= 0.209 af
 Outflow = 2.63 cfs @ 12.13 hrs, Volume= 0.209 af, Atten= 10%, Lag= 2.3 min
 Primary = 2.63 cfs @ 12.13 hrs, Volume= 0.209 af

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

Peak Elev= 72.77' @ 12.13 hrs Surf.Area= 264 sf Storage= 293 cf

Flood Elev= 80.00' Surf.Area= 264 sf Storage= 1,057 cf

Plug-Flow detention time= 2.3 min calculated for 0.209 af (100% of inflow)

Center-of-Mass det. time= 1.6 min (760.7 - 759.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	69.99'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.99	264	0.0	0	0
70.00	264	40.0	1	1
71.00	264	40.0	106	107
72.00	264	40.0	106	212
80.00	264	40.0	845	1,057
80.01	264	100.0	3	1,060

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	8.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.00' / 59.00' S= 0.1692 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=2.58 cfs @ 12.13 hrs HW=72.68' (Free Discharge)

↑**1=Culvert** (Inlet Controls 2.58 cfs @ 7.38 fps)

Summary for Pond 2C: 8" Curtain Drain

Inflow Area = 0.080 ac, 94.57% Impervious, Inflow Depth > 5.44" for 25-Year Storm Event event
 Inflow = 0.47 cfs @ 12.09 hrs, Volume= 0.036 af
 Outflow = 0.47 cfs @ 12.10 hrs, Volume= 0.036 af, Atten= 1%, Lag= 0.9 min
 Primary = 0.47 cfs @ 12.10 hrs, Volume= 0.036 af

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

Peak Elev= 70.50' @ 12.10 hrs Surf.Area= 188 sf Storage= 39 cf
 Flood Elev= 72.00' Surf.Area= 188 sf Storage= 151 cf

Plug-Flow detention time= 5.0 min calculated for 0.036 af (99% of inflow)
 Center-of-Mass det. time= 3.3 min (739.7 - 736.4)

Volume	Invert	Avail.Storage	Storage Description	
#1	69.99'	153 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.99	188	0.0	0	0
70.00	188	40.0	1	1
71.00	188	40.0	75	76
72.00	188	40.0	75	151
72.01	188	100.0	2	153

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	8.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.00' / 70.00' S= 0.0000 ' / Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.47 cfs @ 12.10 hrs HW=70.50' (Free Discharge)
 1=Culvert (Barrel Controls 0.47 cfs @ 2.29 fps)

Summary for Pond 2D: 6" Curtain Drain

Inflow Area = 0.110 ac, 24.79% Impervious, Inflow Depth > 4.13" for 25-Year Storm Event event
 Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af
 Outflow = 0.52 cfs @ 12.11 hrs, Volume= 0.038 af, Atten= 4%, Lag= 1.2 min
 Primary = 0.52 cfs @ 12.11 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 86.56' @ 12.11 hrs Surf.Area= 188 sf Storage= 43 cf
 Flood Elev= 89.00' Surf.Area= 188 sf Storage= 226 cf

Plug-Flow detention time= 3.6 min calculated for 0.038 af (99% of inflow)
 Center-of-Mass det. time= 2.4 min (773.0 - 770.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	228 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	188	0.0	0	0
86.00	188	40.0	1	1
89.00	188	40.0	226	226
89.01	188	100.0	2	228

Device	Routing	Invert	Outlet Devices
#1	Primary	86.00'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.00' / 81.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.51 cfs @ 12.11 hrs HW=86.55' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.51 cfs @ 2.62 fps)

Summary for Reach AP#1:

Inflow Area = 0.116 ac, 15.57% Impervious, Inflow Depth > 4.02" for 25-Year Storm Event event
 Inflow = 0.54 cfs @ 12.10 hrs, Volume= 0.039 af
 Outflow = 0.54 cfs @ 12.10 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond AP#2:

Inflow Area = 1.594 ac, 39.54% Impervious, Inflow Depth > 4.43" for 25-Year Storm Event event
 Inflow = 6.93 cfs @ 12.10 hrs, Volume= 0.588 af
 Outflow = 6.93 cfs @ 12.10 hrs, Volume= 0.588 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.88 cfs @ 12.10 hrs, Volume= 0.442 af
 Secondary = 5.04 cfs @ 12.10 hrs, Volume= 0.146 af

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

Peak Elev= 55.73' @ 12.10 hrs

Flood Elev= 54.76'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.51'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.51' / 51.46' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Secondary	54.76'	2.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.88 cfs @ 12.10 hrs HW=55.72' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.88 cfs @ 9.58 fps)

Secondary OutFlow Max=5.00 cfs @ 12.10 hrs HW=55.72' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.00 cfs @ 2.60 fps)

Summary for Pond AP#3:

Inflow Area = 0.062 ac, 33.54% Impervious, Inflow Depth > 4.34" for 25-Year Storm Event event
 Inflow = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af
 Outflow = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 67.32' @ 12.10 hrs
 Flood Elev= 69.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 66.88' / 66.83' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.31 cfs @ 12.10 hrs HW=67.32' (Free Discharge)
 1=Culvert (Barrel Controls 0.31 cfs @ 2.24 fps)

Summary for Reach COMBINED:

Inflow Area = 1.710 ac, 37.91% Impervious, Inflow Depth > 4.40" for 25-Year Storm Event event
 Inflow = 7.47 cfs @ 12.10 hrs, Volume= 0.627 af
 Outflow = 7.47 cfs @ 12.10 hrs, Volume= 0.627 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond LS: Level Spreader

Inflow Area = 0.110 ac, 24.79% Impervious, Inflow Depth > 4.12" for 25-Year Storm Event event
 Inflow = 0.52 cfs @ 12.11 hrs, Volume= 0.038 af
 Outflow = 0.52 cfs @ 12.11 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.52 cfs @ 12.11 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 81.04' @ 12.11 hrs Surf.Area= 148 sf Storage= 162 cf

Plug-Flow detention time= 52.1 min calculated for 0.034 af (90% of inflow)
 Center-of-Mass det. time= 20.6 min (793.7 - 773.0)

Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	162 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.00	24	0	0
80.00	76	50	50
81.00	148	112	162

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	25.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.51 cfs @ 12.11 hrs HW=81.04' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.51 cfs @ 0.53 fps)

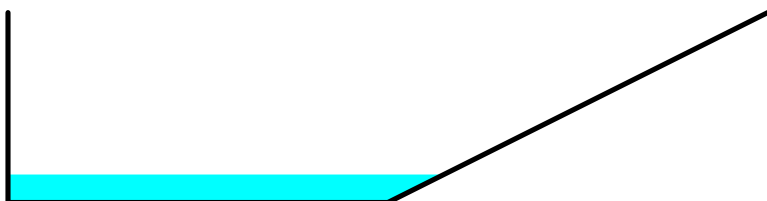
Summary for Reach R-2D:

Inflow Area = 0.110 ac, 24.79% Impervious, Inflow Depth > 3.71" for 25-Year Storm Event event
 Inflow = 0.52 cfs @ 12.11 hrs, Volume= 0.034 af
 Outflow = 0.52 cfs @ 12.12 hrs, Volume= 0.034 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.60 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.29 fps, Avg. Travel Time= 1.1 min

Peak Storage= 12 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.07'
 Bank-Full Depth= 0.50' Flow Area= 0.8 sf, Capacity= 13.50 cfs

1.00' x 0.50' deep channel, n= 0.012
 Side Slope Z-value= 0.0 2.0 '/' Top Width= 2.00'
 Length= 152.0' Slope= 0.1118 '/'
 Inlet Invert= 72.00', Outlet Invert= 55.00'



Summary for Subcatchment SA-1:

Runoff = 0.54 cfs @ 12.10 hrs, Volume= 0.039 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	2,033	80	Proposed Grass (D)
	950	80	>75% Grass cover, Good, HSG D
	2,070	87	1/4 acre lots, 38% imp, HSG D
	5,053	83	Weighted Average
	4,266		84.43% Pervious Area
	787		15.57% Impervious Area

Post Development - Tibbetts (Update 3) Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	64	0.2500	0.20		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.30"
1.8	50	0.3200	0.46		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
7.2	114	Total			

Summary for Subcatchment SA-2:

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	416	98	Proposed Impervious
*	172	80	Proposed Grass (D)
	177	80	>75% Grass cover, Good, HSG D
	765	90	Weighted Average
	349		45.62% Pervious Area
	416		54.38% Impervious Area

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

Summary for Subcatchment SA-2A:

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	160	98	Proposed Impervious
*	1,655	80	Proposed Grass (D)
	1,815	82	Weighted Average
	1,655		91.18% Pervious Area
	160		8.82% Impervious Area

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

Summary for Subcatchment SA-2B:

Runoff = 2.45 cfs @ 12.09 hrs, Volume= 0.173 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	813	98	Existing Impervious
	16,867	87	1/4 acre lots, 38% imp, HSG D
*	1,709	80	Proposed Grass (D)
	980	80	>75% Grass cover, Good, HSG D
	20,369	87	Weighted Average
	13,147		64.54% Pervious Area
	7,222		35.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	66	0.0450	1.78		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.30"
4.0	84	0.1300	0.35		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
0.8	107	0.1100	2.32		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.4	257	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment SA-2C:

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	3,276	98	Proposed Impervious
*	188	80	Proposed Grass (D)
	3,464	97	Weighted Average
	188		5.43% Pervious Area
	3,276		94.57% Impervious Area

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

Summary for Subcatchment SA-2D:

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Post Development - Tibbetts (Update 3) Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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	Area (sf)	CN	Description
*	1,119	98	Existing Impervious
*	1,755	80	Proposed Grass (D)
	1,737	80	>75% Grass cover, Good, HSG D
	183	87	1/4 acre lots, 38% imp, HSG D
	4,794	84	Weighted Average
	3,605		75.21% Pervious Area
	1,189		24.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	66	0.1500	0.36		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
3.1	66	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment SA-2E:

Runoff = 4.51 cfs @ 12.10 hrs, Volume= 0.325 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	2,725	98	Proposed Impervious
*	2,713	98	Existing Impervious
*	3,586	80	Proposed Grass (D)
	25,639	87	1/4 acre lots, 38% imp, HSG D
	2,475	80	>75% Grass cover, Good, HSG D
	1,070	77	Woods, Good, HSG D
	38,208	87	Weighted Average
	23,027		60.27% Pervious Area
	15,181		39.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	103	0.0680	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
0.1	47	0.0850	5.92		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	58	0.1400	2.62		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	68	0.2200	9.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.7	276	Total			

Summary for Subcatchment SA-3:

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
216	77	Woods, Good, HSG D
100	80	>75% Grass cover, Good, HSG D
2,379	87	1/4 acre lots, 38% imp, HSG D
2,695	86	Weighted Average
1,791		66.46% Pervious Area
904		33.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	101	0.3000	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.30"

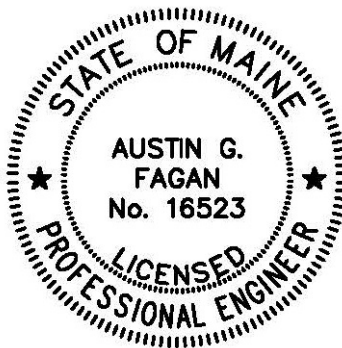
**EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN**

**4 Unit Condominium
Tebbetts Ave.
Biddeford, Maine**

Submitted by:

**Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072**

Prepared by:



Date:
April 2024

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1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the Diversacorp Holdings, LLC Project. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management, and the City of Biddeford Post-Construction Stormwater Management Ordinance

1.1 PROJECT DESCRIPTION

Diversacorp Holdings LLC is proposing to construct a 4-unit condominium on a 0.64 acre parcel located at the corner of Clifford Street and Tibbetts Avenue in Biddeford (Map 39, Lots 303-1 & 304).

The scope of work includes but is not limited to:

- Construction of 4-unit residential building
- Construction of paved parking areas
- Extension of municipal utilities for water, sewer, electrical and communications
- Construction of stormwater management facilities

1.2 REQUIRED PERMITS

The following is a list of Municipal, State, and Federal permits that are required for the Project:

Municipal

City of Biddeford Site Plan Permit

State of Maine

None

Federal

None

1.3 **REFERENCES**

This plan has been developed in accordance with the following:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
<http://legislature.maine.gov/statutes/38/title38sec420-C.html>
<http://legislature.maine.gov/statutes/38/title38sec420-D.html>
- 06-096 Chapter 500 – Stormwater Management
<http://www.maine.gov/sos/cec/rules/06/096/096c500.docx>
- General Permit – Construction Activity
Maine Pollutant Discharge Elimination System (MPDES)
<https://www.maine.gov/dep/land/stormwater/construction.html>
- Maine Erosion and Sediment Control Best Management Practices (BMPs)
Manual for Designers and Engineers
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf
- Maine Erosion and Sediment Control Practices Field Guide for Contractors
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf
- MaineDOT Best Management Practices for Erosion and Sedimentation Control
<https://www.maine.gov/mdot/env/documents/bmp/BMP2008full.pdf>

1.4 **RESPONSIBLE PARTIES**

Preparer/Design Engineer:

Austin Fagan, PE
BH2M
380B Main Street
Gorham, ME 04038
(207) 839-2771

Developer/Applicant:

Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

Site Contractor:

Owner:

Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

Post Construction Stormwater Inspector:

Austin Fagan, PE
BH2M
380B Main Street
Gorham, ME 04038
(207) 839-2771

Stormwater Maintenance:

During Construction:

Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

Post Construction:

During construction, the Developer/Applicant or their representatives will be responsible for implementing the erosion and sediment control BMP's as well routine inspections and maintenance of the BMP's.

Post-construction stormwater BMP inspection, and maintenance will be the responsibility of the owner or their representatives until a Home Owners Association (HOA) or maintenance agreement is established. Once the HOA or maintenance agreement is established, responsibility for Post Construction operations and maintenance will be split between owners.

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix D shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be

completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.

3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action taken was and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that will require routine inspection and maintenance:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Construction Limit Barrier Fence
- Temporary Sediment Trap
- Temporary Grass/Stone Lined Swale
- Snow Storage Areas
- Drain Manholes
- Sediment Forebays
- Pipe Outlets
- Level Spreader
- Curtain Drains

Winter Construction

Winter construction is any construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

1. Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
3. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.
4. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (1 inch in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an

appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

- b) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (1 inch in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.
- c) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.
- d) Inspect catch basins and drain manholes annually and clean out either when the sump is half full or when sediment is within one foot of the invert of the outlet pipe. Clean-out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil- absorptive pads).
- e) Inspect at least once per year, each detention basin, including the embankments, vegetation, drain piping, and overflow spillway. Remove and dispose of accumulated sediments in the filter. If needed, rehabilitate any clogged surface linings, and flush underdrain piping.
- f) Inspect level spreaders in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, and outlet, and repair any erosion damage at the inlet and outlet.
- g) Inspect curtain drains in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, and outlet, and repair any erosion damage at the inlet and outlet. If stone becomes clogged with sediment or debris, it should be removed and replaced with clean stone to ensure proper drainage.

2. Regular maintenance

1. Clear accumulations of winter sand in parking lots and along roadways 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. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded

material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.

3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

4. The site-specific post-construction BMP's for the project include the following:

- Curtain Drains
- Level Spreader
- Storm Drain System
- Snow storage areas
- Rip rap inlet and outlet aprons
- Sediment forebay
- Pipe outlets
- Detention basin

1.7 **RECERTIFICATION OF STORMWATER MANAGEMENT SYSTEMS**

As required by the City's MS4 program the Owner/Applicant is required to enter into a Maintenance Agreement with the City of Biddeford. The Maintenance Agreement requires that annual inspections and periodic maintenance be performed on the post-construction BMP's. The Owner must retain a qualified post-construction stormwater inspector to inspect and certify the post-construction BMP's. Refer to Appendix E

for the Annual Post-Construction BMP Certification Form to be prepared and submitted to the City of Biddeford on or by **March 1st** of each year.

The general inspection and maintenance requirements include but are not limited to the following:

1. Identification and repair of erosion problems: All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
2. Inspection and repair of stormwater control system: All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
3. Maintenance: The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

Note: Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

1.8 **SITE-SPECIFIC BMP MAINTENANCE AND ANNUAL REPORTING REQUIREMENTS**

The City of Biddeford is a regulated community under the National Pollutant Discharge Elimination System (NPDES) MS4 Program. Below is a site-specific of list BMP's implemented for the Project as well as their ID, discharge location, and inspection and certification requirements.

Table 1 - Post-Construction BMP Designation Table

Post-Const. BMP ID	Type of Post-Const. BMP	Discharge Location	MS4 (YES/NO)	Inspection Frequency	Post-Const. Certification Requirement	Post-Const. Responsibility
BMP-A	Vegetated Areas	N/A	N/A	N/A	N/A	Owners
BMP-B	Stormdrain System	Detention Basin	Yes	Annual	Annual Report	Owners
BMP-C	Detention Basin	Stormdrain System	Yes	Biannual	Annual Report	Owners
BMP-D	Level Spreader	Vegetated Slope	Yes	Biannual	Annual Report	Owners
BMP-E	Curtain Drains	Det. Basin & Lev. Spr.	Yes	Biannual	Annual Report	Owners

1.9 HOUSEKEEPING

The following performance standards shall apply:

1. Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop and implement as necessary appropriate spill prevention, containment, and response planning measures.

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

<http://www.maine.gov/dep/spills/emergspillresp/>

2. Groundwater protection: 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. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area or provide for treatment within the infiltration area in order to

prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust: 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, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately, no less than once a week, and prior to significant storm events. Operations during dry months that experience fugitive dust

problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Take care in sourcing water. Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials: Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post- construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering: Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, 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. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

6. Authorized non-stormwater discharges: Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
 - a) Discharges from firefighting activity;
 - b) Fire hydrant flushings;
 - c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - d) Dust control runoff in accordance with permit conditions;
 - e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - g) Uncontaminated air conditioning or compressor condensate;
 - h) Uncontaminated groundwater or spring water;
 - i) Foundation or footer drain-water where flows are not contaminated;
 - j) Uncontaminated excavation dewatering;
 - k) Potable water sources including waterline flushings; and
 - l) Landscape irrigation.
7. Unauthorized non-stormwater discharges: The Department’s approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department’s approval does not authorize discharges of the following:
 - a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - c) Soaps, solvents, or detergents used in vehicle and equipment washing; and

- d) Toxic or hazardous substances from a spill or other release.
8. Additional requirements: Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL						
General Information:						
Site Name:		Date:		Inspected by:		
Owner:						
Retained 3PI:		Last Rain Date:		Amount:		
Reason for Inspection:		Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:						
Photos:						
	YES/NO/NA	COMMENTS				
1. Is an Erosion and Sediment Control Plan available?						
ESC plan on-site and followed						
Other:						
2. Are all erosion control practices installed properly, maintained and functioning?						
Disturbed areas stable						
Concentrated flow inlet/outlet protection						
All areas at final grade						
Disturbed dormant areas stabilized						
Access roads and parking						
Hillsides and stockpiles						
Other:						
3. Are all sedimentation control practices installed properly, maintained and functioning?						
Construction entrance						
Sedimentation basins/traps/diversions						
Perimeter controls						
Check dams						
Other:						
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?						
Sedimentation/erosion in ditches						
Tracked Sediment or dust at exits						
Hazardous material storage and spill control practices						
Waste management (concrete, hazardous material, etc.)						
Other:						
5. Violation, Corrective Actions, Recommendations						
Sediment discharged from site?						
Corrective action required?						
Site compliant with all permits?						
Notice of violation or stop work order issued?						
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)						

Appendix C
Post-Construction Inspection Forms

4-Unit Condominium Post-Construction Inspection Form (Ditches, Swales and Open Stormwater Channels)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Obstructions, sediment or debris noticeable in ditch line?					
Mowing required?					
Woody vegetation apparent in ditches?					
Side slopes stable? Signs of slumping?					
Rip rap stable? Underlying filter fabric visible?					
Additional Comments:					

4-Unit Condominium Post-Construction Inspection Form (Vegetated Area)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
All slopes and embankments well vegetated? Signs of sparse growth?					
Rill erosion apparent in vegetated areas?					
Downs slope of level spreaders/ditch turnouts stable?					
Mowing of vegetated areas appropriate?					
Additional Comments:					

4-Unit Condominium Post-Construction Inspection Form (Storm Drain System including culverts)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?						
Flow obstructions present?						
Erosion apparent at culvert inlet/outlet?						
Accumulated debris around catch basin grate?						
Accumulated debris in catch basin sump?						
Floating debris or oils found in catch basins?						
Additional Comments:						

4-Unit Condominium Post-Construction Inspection Form (Detention Basin)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
Embankment showing signs of settlement, slope erosion, piping, or slumping?						
Woody vegetation growing in embankment?						
Debris accumulated at trash racks?						
Outlet control structure operating as intended? Orifice clear of debris?						
Accumulated sediment in forebay?						
Emergency spillway stable? Dislodged rip rap?						
Internal outlet control structure free of debris?						
Sediment accumulating in basin bottom? Dredging needed?						
Additional Comments:						

Sumter Landing Subdivision Post-Construction Inspection Form (Curtain Drains)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Debris apparent on stone trench?					
Vegetation established in stone?					
Basin draining within 48 hours?					
Silt accumulated upstream of stone bed?					
Signs of overtopping or downstream erosion?					
Outlet free of debris? Rip rap stable?					
Additional Comments:					

4-Unit Condominium Post-Construction Inspection Form (Buffers/Level Spreaders)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Erosion or concentrated flows evident?					
Downgradient of level spreaders stable?					
Level spreaders built along contour?					
Evidence of accumulated sediment in level spreader trough?					
Buffer monumentation visible?					
Evidence of buffer vegetation removal or frequent mowing?					
Temporary or permanent structures within the buffer?					
Evidence of motorized vehicles operating in buffer?					
Trash, debris, or waste within buffer area?					
Additional level spreader needed to distribute concentrated flows in buffer?					
Additional Comments:					

Appendix D
Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized—channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April 15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Mow non-wooded buffers no shorter than six inches and less than three times per year
		Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
		Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
PROPRIETARY DEVICES	As specified by manufacturer	Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
OTHER PRACTICES	As specified for devices	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
		Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

ENVIRONMENT

34 Attachment 2

City of Biddeford

Appendix 1

**Annual Stormwater Management Facilities Certification (to be sent to City's
Enforcement Authority)
[Amended 6-20-2023 by Ord. No. 2023.61¹]**

- I, _____ (print or type name), certify the following:
1. I am making this Annual Stormwater Management Facilities Certification for the following property:
_____ (print or type name of subdivision, condominium or other
development) located at _____ (print or type address), (the
"Property");
 2. The owner, operator, tenant, lessee or homeowners' association of the Property is: _____
(name(s) of owner, operator, tenant, lessee, homeowners' association or other party having control
over the Property);
 3. I am (check one)
 - a. _____ the owner, operator, tenant, lessee or president of the homeowners' association and have
hired a Qualified Post Construction Stormwater Inspector; or
 - b. _____ am a Qualified Post-Construction Stormwater Inspector hired by the person identified in
item two of this form;
 4. I have knowledge of erosion and stormwater control and have reviewed the approved Post-
Construction Stormwater Management Plan for the Property;
 5. On _____, 20 _____, I inspected or had inspected by a Qualified Post-Construction
Stormwater Inspector, the Stormwater Management Facilities, including but not limited to parking
areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures required
by the approved Post-Construction Stormwater Management Plan for the Property;
 6. I have attached a copy of the Annual Inspection Report. At the time of the inspection (check one and
complete any required information):
 - a. The Stormwater Management Facilities were adequately maintained and functioning as
intended; or
 - b. The Stormwater Management Facilities required maintenance, which was completed within the
required sixty-day time period, and were functioning as intended after maintenance was
completed; or
 - c. The Stormwater Management Facilities required maintenance which was not completed within
the required sixty-day time period. (Attach additional sheets as necessary to describe the
maintenance required, proposed schedule for completion, and an appropriate contact person.
The City will contact them to confirm or adjust the schedule to complete the maintenance and
any needed further course of action. You will be required to show proof of final maintenance.)

¹ Editor's Note: This ordinance also repealed former Appendix 1, Maintenance Agreement for
Stormwater Management Facilities, and redesignated former Appendix 2 as Appendix 1.

BIDDEFORD CODE

Date: _____, 20.

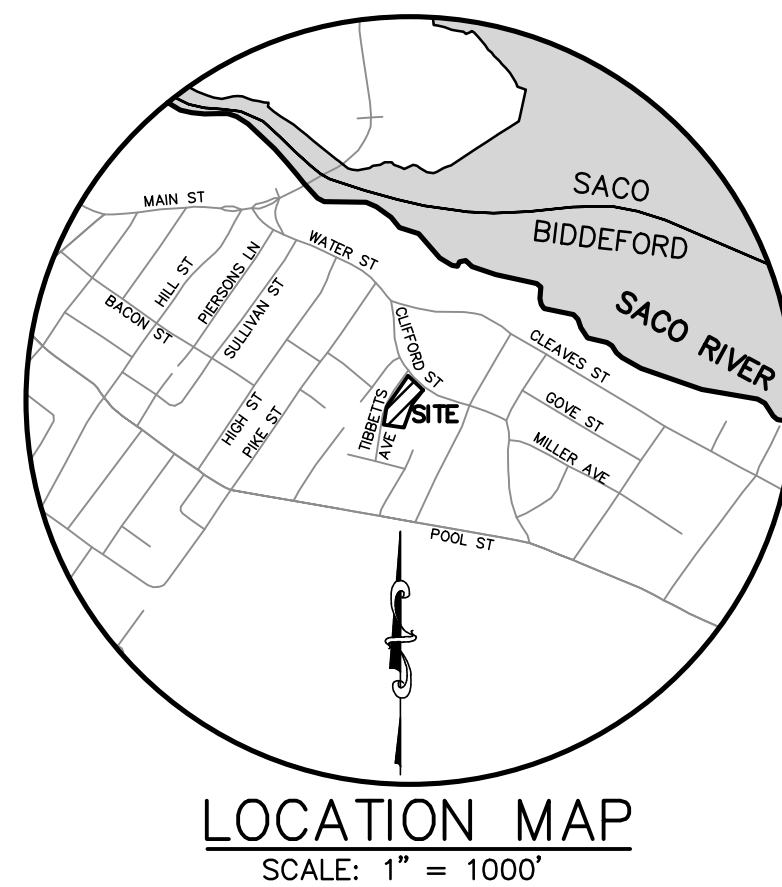
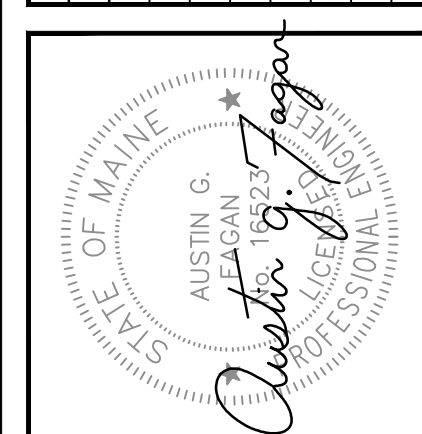
By: _____

Signature

Print Name

Mail this certification to the City's Enforcement Authority at the following address [to be completed by the municipality]: _____

Appendix F
Stormwater Report Narrative

[illegible]

 **BH2M**

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

3808 Main Street
Gordonsville, VA 04938
Tel. (207) 839-2771
voice.bh2m.com

FOR
Diversacorp Holdings, LLC
5 Stone Pony Circle
Saco, Maine 04072

POST DEVELOPMENT
WATERSHED

4-UNIT CONDOMINIUM

20 CLIFFORD STREET
BIDDEFORD, MAINE

DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE 1" = 20'
CHECKED A. Fagan	JOB. NO. 22079

SHEET

B

REPRODUCTION OR REUSE OF THIS
DOCUMENT WITHOUT THE
EXPRESSED WRITTEN CONSENT
OF BH2M INC. IS PROHIBITED

NOTES:

1. BOUNDARY/TOPOGRAPHY: BH2M
ROBERT C. LIBBY JR. PLS#2190
380B MAIN STREET
GORHAM, MAINE
2. SOILS MAPPING: YORK COUNTY MEDIUM INTENSITY
SOILS MAPS
3. TEST PITS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE
4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION

POST DEVELOPMENT FLOWS				
FLOW RATE = POST (PRE)				
ANALYSIS POINT	2_YR. STORM	10_YR. STORM	25_YR. STORM	
AP-1	2.47 (3.39) CFS	4.23 (5.97) CFS	6.49 (8.08) CFS	
AP-2 (POND 2)	0.97 (0.11) CFS *	2.05 (0.21) CFS *	3.01 (0.30) CFS	
AP-3 (POND 3)	0.13 (0.13) CFS	0.23 (0.23) CFS	0.31 (0.31) CFS	
COMBINED	3.54 (3.62) CFS	5.53 (6.39) CFS	8.58 (8.67) CFS	

SOILS LEGEND	
SYMBOL	DESCRIPTION
—————	SOIL BOUNDARY LINES
-----	LIMIT OF WETLANDS

SLOPE DESIGNATION

A	=	0 - 3%
B	=	3- 8%
C	=	8 - 20%
D	=	20%+

HYDROLOGIC SOIL GROUP

SOIL	GROUP
LYMAN (LyB, LyE)	D
URBAN LAND (Ur)	D

SOIL DESIGNATION

The diagram illustrates the relationship between three terms: "SLOPE DESIGNATION", "HYDROLOGIC SOIL GROUP", and "HYDROLOGIC SOIL". "SLOPE DESIGNATION" is at the top, with a bracket pointing to "AdB(A)". "AdB(A)" is in the middle, with a bracket pointing to "HYDROLOGIC SOIL GROUP". "HYDROLOGIC SOIL GROUP" is at the bottom, with a bracket pointing to "HYDROLOGIC SOIL".

<u>SYMBOL</u>	<u>LEGEND</u>	<u>DESCRIPTION</u>
	POND	
	DRAINAGE	SUB AREA
	REACH	
	DRAINAGE AREA BOUNDARY	
	TIME OF CONCENTRATION ROUTE	
	LIMIT	OF WETLANDS
	EXISTING CONTOUR	
	PROPOSED CONTOUR	

Tc SUMMARY
(FOR THOSE NOT LABELED ON THE PLAN)

<u>SUBCATCHMENT</u>	<u>Tc ROUTE</u>
SA-2	6 MIN. DIRECT ENTRY
SA-2A	6 MIN. DIRECT ENTRY
SA-2C	6 MIN. DIRECT ENTRY

