

**Town of Kittery
Planning Board Meeting
December 14 2023**

ITEM 5—17 and 25 US Route 236—Major Site Plan — Final Review

Action: Approve plan or continue review. Geoff Aleva, on behalf of owner/applicant 25 & 17 Route 236 LLC, is proposing to develop a 35-unit rooming house and associated parking shared with an existing 7-unit apartment on the properties of 25 and 17 Route 236, Tax Map 21 Lot 20 & Map 20 Lot 12, in the Route 236 Commercial (C-2) Zone.

PROCESS SUMMARY

REQ'D	ACTION	COMMENTS	STATUS
NO	Sketch Plan Acceptance/Approval	8/10/23	Accepted
YES	Planning board determination of completeness	10/26/23	Accepted
NO	Site Visit	11/9/23	Held
YES	Public Hearing	11/16/23	Held
YES	Preliminary Plan Approval	11/16/23	Approved
YES	Final Plan Review and Decision	Scheduled for 12/14/23	TBD
<p style="color: red; text-align: center;">Applicant: Prior to the signing of the approved Plan any Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS. As per Section 16.4.4.L - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.</p>			

OTHER PERMITS AND REQUIREMENTS

- Wetland delineation
- State Fire Marshal NFPA #13 fire protection system approval.
- DEP construction permitting and site review.
- Street naming application through Assessor’s Department

PROJECT INTRODUCTION

This is the final review for a proposed 3-story rooming house that would consist of 61 beds and 35 total units. The development is located on the properties of 17 & 25 Route 236, both of which are non-conforming lots due to road frontage. The proposed rooming house would be located entirely on the property of 17 Route 236, which currently contains woodlands and a shed that would be demolished. The existing apartment and parking lot are located entirely on 25 Route 236. The apartment is a legally non-conforming use in the C-2 zone, meets current parking requirements, and will not be modified as a part of the development. A 420-foot driveway provides access to both lots from route 236, and directly abuts a 1,314 sq ft. wetland on the northwest side of the lot (the bottom left corner of the site plan).

The proposed rooming house would have nine 1-bedroom units and twenty-six 2-bedroom units for a total of 35 rooms. Each floor would have separate bathrooms for men and women, shared living room space, and a shared kitchen. Workers would be charged rent for staying in the rooming house, and a superintendent would live on the site in one of the single bed units, meaning the development meets the definition of a rooming house per §16.3. Parking spaces would connect to the existing parking lot for the apartment. The applicant is proposing a bike storage shed and vanpool service to facilitate alternative methods of travel for the tenants of the rooming house. Existing utilities servicing the apartment would be extended to the proposed development, and the project proposes to utilize existing vegetation to provide screening along Route 236.

On October 26th, the planning board accepted the preliminary site plan application as complete, then scheduled a site walk on November 9th and a public hearing on November 16th. After the public hearing, the planning board approved all requested waivers, and granted preliminary approval, on the condition that the final plan set and photometric plan is reviewed by a third-party engineer before final approval is granted. Review from the third-party engineer is anticipated to be completed on December 11th. Staff suggest the planning board discuss the submitted photometric plan and determine if the plan is ready for final approval.

WAIVERS REQUESTED

The following waivers were approved by the planning board on November 16th:

1. Minimum Parking Standards: the applicant requests to reduce parking minimum requirements from 49 spaces to 37 spaces. The applicant argues current parking requirements do not accurately represent the expected parking demand and proposes a vanpool service and facilities to encourage biking to compensate for reduced parking. **(Approved 4-1-0)**
2. Landscaping of parking requirements: the applicant is requesting a waiver of a landscape strip as the site is screened with an existing tree line and not visible to the surrounding lots. **(Approved 5-0-0)**
3. Landscaping plan modification: the applicant is requesting a waiver from parking lot landscaping requirements, as they believe the site contains adequate screening through existing vegetation that will not be removed as part of the development. **(Approved 5-0-0)**

STAFF COMMENTS

Listed below are additional comments provided by staff in addition to general review of standards:

1. Code Enforcement staff calculated the total sewer connection fee to equal \$25,000, listed below. This is following the assumption that the applicant still intends to provide beds for 60 tenants, as originally stated. Staff suggest a condition of approval on the plan stating the maximum occupancy of the building (exclusive to the superintendent) be set at 60 tenants; if more tenants are housed, staff will need to increase the sewer fee accordingly.
2. At the sketch review, the planning board asked if an elevator was required in the rooming house; this determination is the purview of the State Fire Marshal. The applicant is still waiting for Fire Marshal confirmation regarding the elevator. If the Fire Marshal requires it, the proposed building footprint has adequate space to add an elevator. Installation of an elevator within an already approved building footprint would be the purview of Code Enforcement.
3. Following feedback from the Technical Review Committee, the applicant has added a fire hydrant next to the apartment building in the proposed plan, to provide adequate emergency service access to the entire lot.
4. Under the scope of work on the site plan, there is a note stating the building superintendent will keep a written log of all tenants, which complies with state law.

PROJECT ANALYSIS

Staff reviewed the application and provided materials and have provided their determination on the requirements and standards below:

Code Ref.	§16.4 Land Use Zone Standards	
	Standard	Determination

§16.4.20.B/C.	Permitted/Special Exception Uses	The proposed use is permitted
§16.4.20.D.(2).(a).	Lot size: 40,000 sq ft. minimum	It appears the standard is satisfied.
§16.4.20.D.(2).(b).	Street frontage: 150 ft minimum	25 Route 236 is a legally nonconforming lot with less than approximately 60 feet of frontage. 17 Route 236 is a legally nonconforming lot with 0 frontage. Merging the two lots will reduce overall nonconformance.
§16.4.20.D.(2).(c).	Front setback: 50 ft minimum	It appears the standard is satisfied.
§16.4.20.D.(2).(d).	Rear and side setbacks: 30 ft minimum NOTE: Except as may be required by the buffer provisions of this title, and where the side and/or rear yards of the proposed nonresidential use abut a residential zone or use; in which case a minimum of 40 feet is required.	It appears the standard is satisfied.
§16.4.20.D.(2).(e).	Building height: 40 ft maximum	It appears the standard is satisfied.
§16.4.20.D.(2).(f).	Imperious surface: 40% maximum	It appears the standard is satisfied.
§16.4.20.D.(2).(g).	Water body setback for water dependent uses: 0 ft minimum	Not applicable.
§16.4.20.D.(2).(i)..	Gasoline sales not located within: <ul style="list-style-type: none"> • 1,000 feet of an existing station or private residence • 150 feet of an existing structure 	Not applicable
§16.4.20.D.(2).(j).	Repair garages not located within 150 feet of a private dwelling or existing structure	Not applicable
§16.4.20.D.(2).(l).	Mixed-use building must have nonresidential uses comprising at least 50% of the street-facing first floor	The proposed development is for a single use. The standard is not applicable.
§16.4.20.D.(2).(m).	Underground utilities are required.	It appears the standard is satisfied.

§16.4.20.D.(3).(a).	New parking must be visually screened through the use of landscaping or fencing from adjacent public streets or residential properties. Parking space dimensions: 19' x 9'	The planning board approved a waiver for these screening requirements.
§16.4.20.D.(3).(b)..	New buildings must follow principles set forth in the Design Handbook	It appears the standard is satisfied.
§16.4.20.D.(3).(c).	Landscaping improvements: <ul style="list-style-type: none"> • Minimum 20 feet vegetated planter strip adjacent to the right of way of public roads. 	The planning board provided a waiver for this vegetation requirement.
§16.4.20.D.(3).(d).	Special situations applying to landscaping standards.	Does not appear applicable.
§16.4.20.D.(3).(e).	Waste storage areas such as dumpsters must be within an enclosure and visually screened by fencing, landscaping, or other treatments.	It appears the standard is satisfied.
§16.4.20.D.(3).(f).	Vehicle and pedestrian circulation standards must meet the general provisions of the Design Handbook.	It appears the standard is satisfied.
Code Ref.	§16.5 Performance Standards	
	Standard	Determination
§16.5.14.B	The creation of new flag-shaped lots is prohibited.	Because 17 Route 236 is a land-locked parcel, merging the two lots together would reduce overall non-conformity by increasing its road frontage from 0 to ~60. 25 Route 236 is an already existing flag-shaped lot, meaning the merging would not increase non-conformity.
§16.5.10	Essential Services	All utilities must be underground. The plan proposes to upgrade a failed culvert in the private driveway. Following feedback from the Fire department, the applicant has added a fire hydrant adjacent to the existing apartment building.

§16.5.25	Sprinkler Systems are required in all buildings of three or more stories.	Sprinkler systems must meet NFPA standards.
§16.5.27	Street Standards: sidewalks are required along the entire Old Post Road ROW	The only frontage to Route 236 is through the private driveway. Per the definition of a driveway in 16.3 , it is too short to be considered a right-of-way.
§16.5.30	All wetlands of 501 sq ft.or greater trigger setbacks for certain uses	The driveway is within a 30-foot setback for a wetland identified in the southwest corner. The driveway is legally non-conforming and will not be expanded in any way as a part of this development.
§16.7.11.F.(e).	A minimum of 49 parking spaces are required: <ul style="list-style-type: none"> • 14 spaces for the existing 7-room apartment (2 spaces per apartment) • 35 spaces for the new rooming house (1 space per room) 	The applicant requested a waiver to allow for 37 parking spaces, which was approved by the planning board. The plan appears to meet ADA space requirements
§13.1.6.5/§13.1.6.6	Sewer impact fees: \$25,000 Special sewer entrance fees: \$0 (tie-in to existing line) Total fee: \$25,000	Fee will be collected before issuance of a building permit
Code Ref.	§16.7.10 Preliminary Site Plan Requirements	
	Standard	Determination
§16.7.10.C.(4).(a-i).	<ul style="list-style-type: none"> • Paper plan sheets no smaller than 11” x 17” • Scale of drawing no greater than 1 inch = 30 feet • Code block in right-hand corner • Standard boundary survey of existing conditions • Compass with arrow pointing true north • Locus map of property • Vicinity map and aerial photograph • Surveyed acreage of parcel(s), rights-of-way, wetlands, and amount of street frontage 	Provided

	<ul style="list-style-type: none"> Names and addresses of owners of record abutting property 	
§16.7.10.C.(4).(j).	Existing conditions survey including all identified structures, natural resources, rights-of-way, and utilities located on and within 100 feet of the property.	Provided
§16.7.10.C.(4).(k).	<ul style="list-style-type: none"> Proposed development area including: Location and detail of proposed structures and signs Proposed utilities including power, water, and sewer. Sewage facilities type and placement. Domestic water source Lot lines, rights-of-way, and street alignments Road and other paved area plans Existing and proposed setbacks Storage areas for waste or hazardous materials Topographic contours of existing contours and finished grade elevations Locations and dimensions of artificial features such as pedestrian ways, sidewalks, curb cuts, driveways, fences, retaining walls, 	Provided
§16.7.10.C.(4).(l).	Natural features or site elements to be preserved.	Provided
§16.7.10.C.(4).(m).	Identified property encumbrances.	Provided
§16.7.10.C.(4).(n).	Kittery Water District approval letter.	Provided
§16.7.10.C.(4).(o).	Erosion and sedimentation control plan.	Provided
§16.7.10.C.(4).(p).	Stormwater management plan and drainage analysis.	Provided
§16.7.10.C.(4).(q).	Soil survey.	Provided
§16.7.10.C.(4).(r).	Vehicular traffic report.	Provided
§16.7.10.C.(4).(s).	Traffic impact analysis.	Neither proposed number of parking spaces nor estimated trip generation trigger requirements for a traffic impact analysis.
§16.7.10.C.(4).(t).	Test pit analysis.	Not applicable
§16.7.10.C.(4).(u).	Approval letter from Town sewage.	Provided
§16.7.10.C.(4).(v).	Evaluation of development by Technical Review Committee department heads.	Provided

79 §16.7.10.C.(4).(w).

Additional submissions as required.

None identified at this time

80 **DISCUSSION, NEXT STEPS, AND RECOMMENDATIONS**

81 The purpose of final review is to allow the applicant to address any final outstanding issues that must be addressed before
82 planning board approval can be granted. The applicant has confirmed adequate space in the current building footprint to
83 provide an elevator if required by the State Fire Marshal. The applicant has received all requested waivers and provided the
84 required photometric plan. Staff believe the application is ready to receive final approval, on the condition that any issues
85 identified by the peer review expected on 12/11/23 be addressed in the final draft of the plan set to be signed by the planning
86 board chair.

87
88 **RECOMMENDED MOTIONS**

89 Below are recommended motions for the Board's use and consideration:

90 ***Motion to conditionally approve the application***

91 Move to approve (with conditions listed above) the final site plan by Geoff Aleva, on behalf of owner/applicant 25 & 17
92 Route 236 LLC.
93

Kittery Planning Board
Findings of Fact
For 17 & 25 Route 236
Site Plan Review

DRAFT
M 21 L 20 & M20 L12

Note: This approval by the Planning Board constitutes an agreement between the Town and the Developer incorporating the Development plan and supporting documentation, the Findings of Fact, and all waivers and/or conditions approved and required by the Planning Board.

WHEREAS: Geoff Aleva, on behalf of owner/applicant 25 & 17 Route 236 LLC, is proposing to develop a 35-unit rooming house and associated parking shared with an existing 7-unit apartment on the properties of 25 and 17 Route 236, Tax Map 21 Lot 20 & Map 20 Lot 12, in the Route 236 Commercial (C-2) Zone.

Pursuant to the Plan Review meetings conducted by the Planning Board as noted in the Plan Review Notes dated 12/24/23

REQ'D	ACTION	COMMENTS	STATUS
NO	Sketch Plan	8/10/23	Accepted
YES	Completeness/Acceptance	10/26/23	Accepted
NO	Site Visit	11/9/23	Held
YES	Public Hearing	11/16/23	Held
YES	Preliminary Plan Approval	11/16/23	Approved
YES	Final Plan Review and Decision	12/14/23	Approved

Pursuant to the application and plan and other documents considered to be a part of a plan review decision by the Planning Board in this Finding of Fact consisting of the following (hereinafter the "Plan"):

1. Final Site Plan application received 11/27/23 by Geoffrey Aleva of Civil Consultants
2. Stormwater Management Report received 11/27/23 by Geoffrey Aleva of Civil Consultants

NOW THEREFORE, based on the entire record before the Planning Board and pursuant to the applicable standards in the Land Use and Development Code, the Planning Board makes the following factual findings and conclusions:

Chapter 16.7 GENERAL DEVELOPMENT REQUIREMENTS

16.7.10.D.(5).(b). Findings of Fact

Action by the Board shall be based upon findings of fact which certify or waive compliance with all the required standards of this title, and which certify that the development satisfies the following requirements:

[1] Development Conforms to Local Ordinances.

Standard: *The proposed development conforms to a duly adopted comprehensive plan as per adopted provisions in the Town Code, zoning ordinance, subdivision regulation or ordinance, development plan or land use plan, if any. In making this determination, the municipal reviewing authority may interpret these ordinances and plans.*

Finding: The proposed development conforms to Title 16 as the proposed rooming house meets all zoning and performance standards except where modified by the planning board. All existing nonconforming uses on the property are not modified as part of the proposal in a way that would increase their nonconformance.

Conclusion: This standard appears to be met.

Vote of _ in favor _ against _ abstaining

[2] Water Supply Sufficient.

Standard: *The proposed development has sufficient water available for the reasonably foreseeable needs of the development.*

Finding: The proposed development has received confirmation from the Kittery Water District that sufficient water capacity exists to service the new building and relevant fire suppression systems, including the proposed fire hydrant on the property.

Conclusion: This standard appears to be met.

Vote of _ in favor _ against _ abstaining

[3] Sewage Disposal Adequate.

Standard: *The proposed development will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services if they are utilized.*

Finding: The proposed development has received confirmation from the Town's Wastewater Department confirming sufficient capacity for all anticipated wastewater needs.

Conclusion: This standard appears to be met.

Vote of _ in favor _ against _ abstaining

[4] Stormwater Managed.

Standard: *The proposed development will provide for adequate stormwater management.*

Finding: The proposed development necessitated a stormwater management system which was reviewed by the Town's peer review engineering firm and found to be satisfactory.

Conclusion: This standard appears to be met.

Vote of _ in favor _ against _ abstaining

[5] Traffic Managed.

Standard: *The proposed development will:*

[a] Not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed; and

[b] Provide adequate traffic circulation, both on-site and off-site.

Finding: The proposed development will not cause unreasonable congestion and unsafe conditions onto public ways and provides for adequate on-and off-site traffic circulation. By proposing a vanpool and rideshare service for tenants of the proposed rooming house, the applicant further decreases anticipated traffic generation to and from the property.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[6] Parking and Loading.

Standard: *Provisions have been made for safe internal vehicular circulation, loading and service areas, and parking associated with the proposed development.*

Finding: The proposed development shows that internal vehicular circulation will be safe and adequate loading and service areas are provided. The planning board has granted a modification to reduce the minimum number of parking spaces required. The provided rideshare services and storage area to facilitate anticipated biking ensure the parking provided is sufficient to meet demand.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[7] Utilities.

Standard: *The size, type, and locations of all public utilities and private utilities to serve the proposed development will be installed per accepted engineering practices*

Finding: The proposed development will be utilizing existing public utilities for the building. The proposed lighting plan will meet the standards set by Town Code.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[8] Erosion controlled.

Standard: *The proposed development will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water so that a dangerous or unhealthy condition results.*

Finding: The proposed development will be required to provide erosion and sedimentation controls during construction and the approved stormwater management system will control the stormwater on-site.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[9] Groundwater protected.

Standard: *The proposed development will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.*

Finding: The development proposes restoring and upsizing a failed culvert located underneath the existing driveway. Restoring this culvert would reduce the risk of groundwater pooling on the driveway, which would have a positive impact on the quality of groundwater.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[10] Freshwater wetlands identified.

Standard: *All freshwater wetlands within the project area have been identified on any maps submitted as part of the application, regardless of the size of these wetlands.*

Finding: There is one single wetland pocket located on site, which has been notated on the site plan.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[11] River, stream or brook identified.

Standard: *Any river, stream or brook within or abutting the proposed project area has been identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. § 480-B, subsection 9. Municipal solid waste disposal available. The proposed development will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be used.*

Finding: It appears that a stream does not exist in or abutting the property within 75 feet.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[12] Water body quality and shoreline protected.

Standard: *Whenever situated entirely or partially within 250 feet of any wetland, the proposed development will not adversely affect the quality of that body of water or unreasonably affect the shoreline of that body of water. Flood areas identified and development conditioned. All flood-prone areas within the project area have been identified on maps submitted as part of the application. Water and air pollution minimized. The proposed development will not result in undue water or air pollution. In making this determination, the following must be considered:*

- [a] Elevation of the land above sea level and its relation to the floodplains;*
- [b] Nature of soils and subsoils and their ability to adequately support waste disposal;*
- [c] Slope of the land and its effect on effluents;*
- [d] Availability of streams for disposal of effluents;*
- [e] Applicable state and local health and water resource rules and regulations; and*
- [f] Safe transportation, disposal and storage of hazardous materials.*

Finding: The existing driveway is within the minimum setback of an identified wetland pocket. The driveway is legally nonconforming and will not be touched as part of the development. Erosion control measures will be in place to prevent sedimentation runoff entering the wetland during development.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[13] Aesthetic, cultural and natural values protected.

Standard: *The proposed development will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or the municipality, or rare and irreplaceable natural areas, or any public rights for physical or visual access to the shoreline.*

Finding: The proposed development does not appear to have an adverse effect on aesthetic, cultural and natural values as described in the standard.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[14] Environmental considerations.

Standard: *The proposed development will not result in undue levels of lighting, noise, vibrations, smoke, heat, glare, fumes, dust, toxic matter, odors, or electromagnetic interference.*

Finding: The development proposes restoring and upsizing a failed culvert located underneath the existing driveway. Restoring the culvert will reduce the risk of stormwater pooling on top of the driveway, improving the quality of water flowing the property.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[15] Utilization of the site.

Standard: *The proposed development does reflect the natural capabilities of the site to support development.*

Finding: It appears that the proposed development is designed in a manner that respects the natural capabilities of the lot.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

[16] Developer financially and technically capable.

Standard: *Developer is financially and technically capable to meet the standards of this section.*

Finding: It appears the developer is financially and technically capable of effectuating the project. A cost estimate and performance guarantee will be provided to Planning Staff before the issuance of any permitting.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

Based on the foregoing Findings, the Kittery Planning Board finds the applicant has satisfied each of the review standards for approval and, therefore, the Kittery Planning Board hereby grants final approval for the Development at the above referenced property, including any waivers granted or conditions as noted.

Waivers:

1. Modification of minimum parking spaces from 49 to 37, in-lieu of provided transportation for tenants (Approved 4-1-0)
2. Waiver of a landscape strip along any existing right-of-way, as the site is screened by an existing mature tree line (Approved 5-0-0)
3. Waiver of landscaping requirements for the parking area, as the site contains adequate screening through existing mature vegetation on the property (Approved 5-0-0)

Conditions of Approval (to be included as notes on the final plan in addition to the existing notes):

1. Without prior approval, no changes, erasures, modifications or revisions may be made to any Planning Board approved final plan.

2. Applicant/contractor will follow Maine DEP *Best Management Practices* for all work associated with site and building construction to ensure adequate erosion control and slope stabilization.
3. Prior to the commencement of grading and/or construction within a building envelope, as shown on the Plan, the owner and/or developer must stake all corners of the envelope. These markers must remain in place until the Code Enforcement Officer determines construction is completed and there is no danger of damage to areas that are, per Planning Board approval, to remain undisturbed.
4. The maximum occupancy of the building (excluding the superintendent) is set at 60 tenants. Any expansion of maximum occupancy will require all relevant approvals and recalculation of relevant impact fees.
5. All Notices to Applicant contained in the Findings of Fact (dated: 12/14/2022).

Conditions of Approval (Not to be included as notes on the final plan):

1. Incorporate any plan revisions on the site plan as recommended by Staff, Planning Board, or Peer Review Engineer, and submit for Staff review prior to endorsement and recording of the plan.

Notices to Applicant:

1. Prior to the release of the signed plans, the applicant must pay all outstanding fees associated with review, including, but not limited to, Town Attorney fees, peer review, newspaper advertisements and abutter notification.
2. State law requires all subdivision and shoreland development plans, and any plans receiving waivers or variances, be recorded at the York County Registry of Deeds within 90 days of the final approval.
3. Three (3) paper copies of the final recorded plan and any and all related state/federal permits or legal documents that may be required, must be submitted to the Town Planning Department. Date of Planning Board approval shall be included on the final plan in the Signature Block.
4. This approval by the Town Planning Board constitutes an agreement between the Town and the Developer, incorporating the Plan and supporting documentation, the Findings of Fact, and any Conditions of Approval.

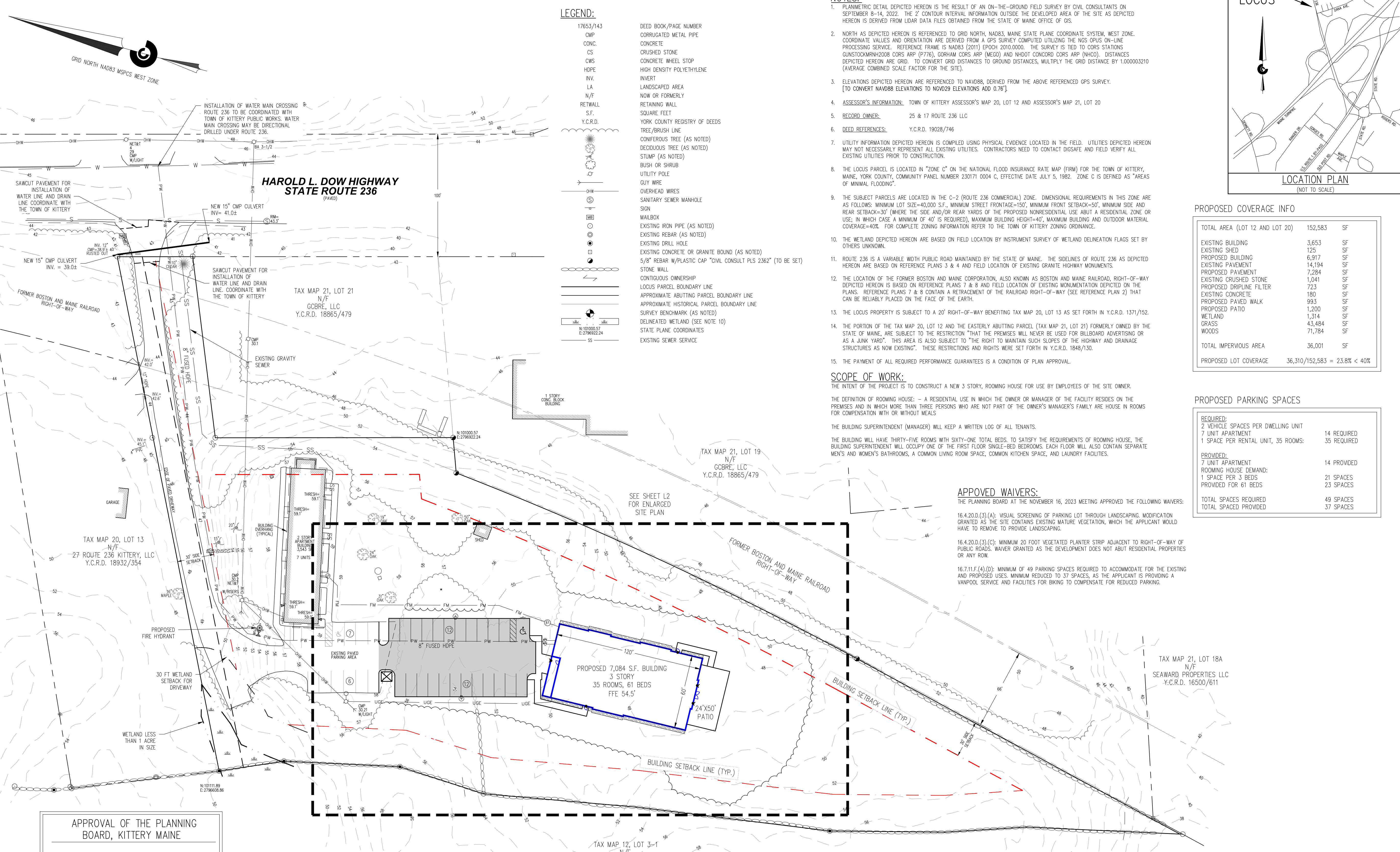
The Planning Board authorizes the Planning Board Chair, or Vice Chair, to sign the Final Plan and the Findings of Fact upon confirmation of compliance with any conditions of approval.

Vote of in favor against abstaining

APPROVED BY THE KITTERY PLANNING BOARD ON 12/24/23

Dutch Dunkelberger, Planning Board Chair

Per Title 16.2.12.B(1) - An aggrieved party with legal standing may appeal a final decision of the Planning Board to the York County Superior Court in accordance with Maine Rules of Civil Procedures Section 80B, within forty-five (45) days from the date the decision by the Planning Board was rendered.



LEGEND:

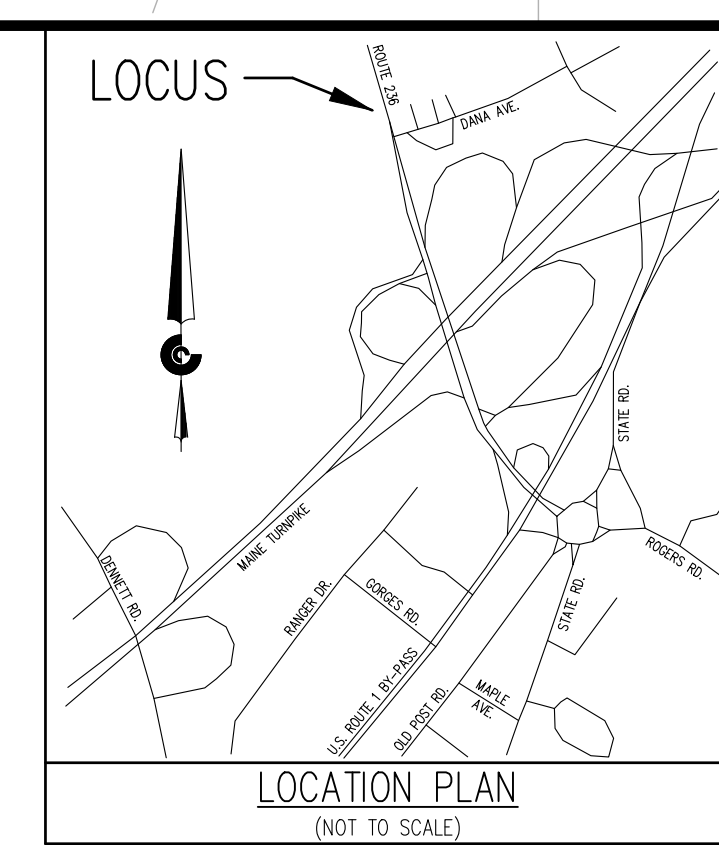
17653/143	DEED BOOK/PAGE NUMBER
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
CS	CRUSHED STONE
CWS	CONCRETE WHEEL STOP
HDPE	HIGH DENSITY POLYETHYLENE
INV.	INVERT
LA	LANDSCAPED AREA
N/F	NOW OR FORMERLY
RET.WALL	RETAINING WALL
S.F.	SQUARE FEET
Y.C.R.D.	YORK COUNTY REGISTRY OF DEEDS
(Symbol)	TREE/BRUSH LINE
(Symbol)	CONIFEROUS TREE (AS NOTED)
(Symbol)	DECIDUOUS TREE (AS NOTED)
(Symbol)	STUMP (AS NOTED)
(Symbol)	BUSH OR SHRUB
(Symbol)	UTILITY POLE
(Symbol)	GUY WIRE
(Symbol)	OVERHEAD WIRES
(Symbol)	SANITARY SEWER MANHOLE
(Symbol)	SIGN
(Symbol)	MAILBOX
(Symbol)	EXISTING IRON PIPE (AS NOTED)
(Symbol)	EXISTING REBAR (AS NOTED)
(Symbol)	EXISTING DRILL HOLE
(Symbol)	EXISTING CONCRETE OR GRANITE BOUND (AS NOTED)
(Symbol)	5/8" REBAR W/PLASTIC CAP "CIVIL CONSULT PLS 2362" (TO BE SET)
(Symbol)	STONE WALL
(Symbol)	CONTIGUOUS OWNERSHIP
(Symbol)	LOCUS PARCEL BOUNDARY LINE
(Symbol)	APPROXIMATE ABUTTING PARCEL BOUNDARY LINE
(Symbol)	APPROXIMATE HISTORICAL PARCEL BOUNDARY LINE
(Symbol)	SURVEY BENCHMARK (AS NOTED)
(Symbol)	DELINEATED WETLAND (SEE NOTE 10)
(Symbol)	STATE PLANE COORDINATES
(Symbol)	EXISTING SEWER SERVICE

NOTES:

- PLANIMETRIC DETAIL DEPICTED HEREON IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY BY CIVIL CONSULTANTS ON SEPTEMBER 8-14, 2022. THE 2' CONTOUR INTERVAL INFORMATION OUTSIDE THE DEVELOPED AREA OF THE SITE AS DEPICTED HEREON IS DERIVED FROM LIDAR DATA FILES OBTAINED FROM THE STATE OF MAINE OFFICE OF GIS.
- NORTH AS DEPICTED HEREON IS REFERENCED TO GRID NORTH, NAD83, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE. COORDINATE VALUES AND ORIENTATION ARE DERIVED FROM A GPS SURVEY COMPUTED UTILIZING THE NGS OPUS ON-LINE PROCESSING SERVICE. REFERENCE FRAME IS NAD83 (2011) EPOCH 2010.0000. THE SURVEY IS TIED TO CORS STATIONS GUNSTOCKMNH2008 CORS ARP (P776), GORHAM CORS ARP (MEO) AND NHDOT CONCORD CORS ARP (MHO). DISTANCES DEPICTED HEREON ARE GRID. TO CONVERT GRID DISTANCES TO GROUND DISTANCES, MULTIPLY THE GRID DISTANCE BY 1.000003210 (AVERAGE COMBINED SCALE FACTOR FOR THE SITE).
- ELEVATIONS DEPICTED HEREON ARE REFERENCED TO NAVD88. DERIVED FROM THE ABOVE REFERENCED GPS SURVEY. [TO CONVERT NAVD88 ELEVATIONS TO NAVD29 ELEVATIONS ADD 0.76']
- ASSESSOR'S INFORMATION: TOWN OF KITTELY ASSESSOR'S MAP 20, LOT 12 AND ASSESSOR'S MAP 21, LOT 20
- RECORD OWNER: 25 & 17 ROUTE 236 LLC
- DEED REFERENCES: Y.C.R.D. 19028/746
- UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS NEED TO CONTACT DIGSAFE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- THE LOCUS PARCEL IS LOCATED IN "ZONE C" ON THE NATIONAL FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF KITTELY, MAINE, YORK COUNTY, COMMUNITY PANEL NUMBER 230171 0004 C, EFFECTIVE DATE JULY 5, 1982. ZONE C IS DEFINED AS "AREAS OF MINIMAL FLOODING".
- THE SUBJECT PARCELS ARE LOCATED IN THE C-2 (ROUTE 236 COMMERCIAL) ZONE. DIMENSIONAL REQUIREMENTS IN THIS ZONE ARE AS FOLLOWS: MINIMUM LOT SIZE=40,000 S.F., MINIMUM STREET FRONTAGE=150', MINIMUM FRONT SETBACK=50', MINIMUM SIDE AND REAR SETBACK=30' (WHERE THE SIDE AND/OR REAR YARDS OF THE PROPOSED NONRESIDENTIAL USE ABUT A RESIDENTIAL ZONE OR USE; IN WHICH CASE A MINIMUM OF 40' IS REQUIRED), MAXIMUM BUILDING HEIGHT=40', MAXIMUM BUILDING AND OUTDOOR MATERIAL COVERAGE=40%. FOR COMPLETE ZONING INFORMATION REFER TO THE TOWN OF KITTELY ZONING ORDINANCE.
- THE WETLAND DEPICTED HEREON ARE BASED ON FIELD LOCATION BY INSTRUMENT SURVEY OF WETLAND DELINEATION FLAG SET BY OTHERS UNKNOWN.
- ROUTE 236 IS A VARIABLE WIDTH PUBLIC ROAD MAINTAINED BY THE STATE OF MAINE. THE SIDELINES OF ROUTE 236 AS DEPICTED HEREON ARE BASED ON REFERENCE PLANS 3 & 4 AND FIELD LOCATION OF EXISTING GRANITE HIGHWAY MONUMENTS.
- THE LOCATION OF THE FORMER BOSTON AND MAINE CORPORATION, ALSO KNOWN AS BOSTON AND MAINE RAILROAD, RIGHT-OF-WAY DEPICTED HEREON IS BASED ON REFERENCE PLANS 7 & 8 AND FIELD LOCATION OF EXISTING MONUMENTATION DEPICTED ON THE PLANS. REFERENCE PLANS 7 & 8 CONTAIN A RETRACEMENT OF THE RAILROAD RIGHT-OF-WAY (SEE REFERENCE PLAN 2) THAT CAN BE RELIABLY PLACED ON THE FACE OF THE EARTH.
- THE LOCUS PROPERTY IS SUBJECT TO A 20' RIGHT-OF-WAY BENEFITING TAX MAP 20, LOT 13 AS SET FORTH IN Y.C.R.D. 1371/152.
- THE PORTION OF THE TAX MAP 20, LOT 12 AND THE EASTERLY ABUTTING PARCEL (TAX MAP 21, LOT 21) FORMERLY OWNED BY THE STATE OF MAINE, ARE SUBJECT TO THE RESTRICTION "THAT THE PREMISES WILL NEVER BE USED FOR BILLBOARD ADVERTISING OR AS A JUNK YARD". THIS AREA IS ALSO SUBJECT TO "THE RIGHT TO MAINTAIN SUCH SLOPES OF THE HIGHWAY AND DRAINAGE STRUCTURES AS NOW EXISTING". THESE RESTRICTIONS AND RIGHTS WERE SET FORTH IN Y.C.R.D. 1848/130.
- THE PAYMENT OF ALL REQUIRED PERFORMANCE GUARANTEES IS A CONDITION OF PLAN APPROVAL.

SCOPE OF WORK:
 THE INTENT OF THE PROJECT IS TO CONSTRUCT A NEW 3 STORY, ROOMING HOUSE FOR USE BY EMPLOYEES OF THE SITE OWNER.
 THE DEFINITION OF ROOMING HOUSE: - A RESIDENTIAL USE IN WHICH THE OWNER OR MANAGER OF THE FACILITY RESIDES ON THE PREMISES AND IN WHICH MORE THAN THREE PERSONS WHO ARE NOT PART OF THE OWNER'S MANAGER'S FAMILY ARE HOUSE IN ROOMS FOR CONFINEMENT WITH OR WITHOUT MEALS.
 THE BUILDING SUPERINTENDENT (MANAGER) WILL KEEP A WRITTEN LOG OF ALL TENANTS.
 THE BUILDING WILL HAVE THIRTY-FIVE ROOMS WITH SIXTY-ONE TOTAL BEDS, TO SATISFY THE REQUIREMENTS OF ROOMING HOUSE, THE BUILDING SUPERINTENDENT WILL OCCUPY ONE OF THE FIRST FLOOR SINGLE-BED BEDROOMS. EACH FLOOR WILL ALSO CONTAIN SEPARATE MEN'S AND WOMEN'S BATHROOMS, A COMMON LIVING ROOM SPACE, COMMON KITCHEN SPACE, AND LAUNDRY FACILITIES.

APPROVED WAIVERS:
 THE PLANNING BOARD AT THE NOVEMBER 16, 2023 MEETING APPROVED THE FOLLOWING WAIVERS:
 16.4.20.D.(3)(A): VISUAL SCREENING OF PARKING LOT THROUGH LANDSCAPING MODIFICATION GRANTED AS THE SITE CONTAINS EXISTING MATURE VEGETATION, WHICH THE APPLICANT WOULD HAVE TO REMOVE TO PROVIDE LANDSCAPING.
 16.4.20.D.(3)(C): MINIMUM 20 FOOT VEGETATED PLANTER STRIP ADJACENT TO RIGHT-OF-WAY OF PUBLIC ROADS. WAIVER GRANTED AS THE DEVELOPMENT DOES NOT ABUT RESIDENTIAL PROPERTIES OR ANY ROW.
 16.7.11.F.(4)(D): MINIMUM OF 49 PARKING SPACES REQUIRED TO ACCOMMODATE FOR THE EXISTING AND PROPOSED USES. MINIMUM REDUCED TO 37 SPACES, AS THE APPLICANT IS PROVIDING A VANPOOL SERVICE AND FACILITIES FOR BIKING TO COMPENSATE FOR REDUCED PARKING.



PROPOSED COVERAGE INFO

TOTAL AREA (LOT 12 AND LOT 20)	152,583	SF
EXISTING BUILDING	3,653	SF
EXISTING SHED	125	SF
PROPOSED BUILDING	6,917	SF
EXISTING PAVEMENT	14,194	SF
PROPOSED PAVEMENT	7,284	SF
EXISTING CRUSHED STONE	1,041	SF
PROPOSED DRIFLIME FILTER	723	SF
EXISTING CONCRETE	180	SF
PROPOSED PAVED WALK	993	SF
PROPOSED PATIO	1,200	SF
WETLAND	1,314	SF
GRASS	43,484	SF
WOODS	71,784	SF
TOTAL IMPERVIOUS AREA	36,001	SF
PROPOSED LOT COVERAGE	36,310/152,583 = 23.8% < 40%	

PROPOSED PARKING SPACES

REQUIRED:		
2 VEHICLE SPACES PER DWELLING UNIT	14	REQUIRED
7 UNIT APARTMENT	35	REQUIRED
1 SPACE PER RENTAL UNIT, 35 ROOMS:		
PROVIDED:		
7 UNIT APARTMENT	14	PROVIDED
ROOMING HOUSE DEMAND:		
1 SPACE PER 3 BEDS	21	SPACES
PROVIDED FOR 61 BEDS	23	SPACES
TOTAL SPACES REQUIRED	49	SPACES
TOTAL SPACED PROVIDED	37	SPACES

APPROVAL OF THE PLANNING BOARD, KITTELY MAINE

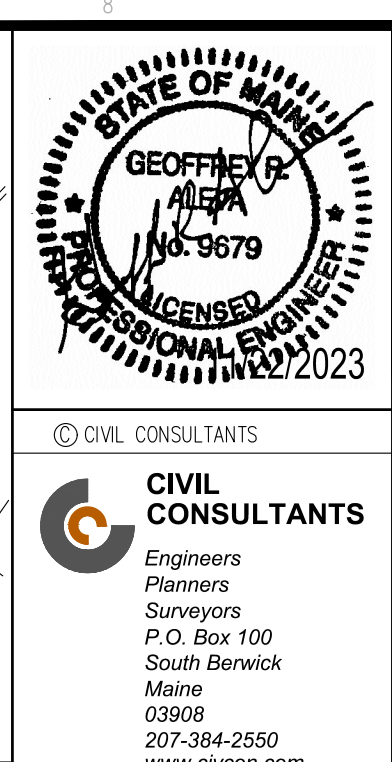
CHAIR _____

DATE _____

SIGNATURES OF 3 OR MORE PLANNING BOARD MEMBERS INDICATE APPROVAL OF THIS PLAN

C-2 ZONING INFORMATION:

PORTION OF LOT TO BE DEVELOPED IS LOCATED IN C-2 (ROUTE 236 COMMERCIAL) ZONE	
MIN LOT SIZE:	REQUIRED: 40,000 SF PROVIDED: 152,583 SF (MERGED)
MINIMUM FRONTAGE:	REQUIRED: 150' PROVIDED: 61.56' (NONCONFORMING)
SETBACKS:	
MAX. FRONT YARD:	50' / 150'+
SIDE YARD:	30' / 17.5' EXIST BLDG
REAR YARD:	30' / 30'+
MAXIMUM BUILDING HEIGHT:	40' / 30'+
MAXIMUM BUILDING COVERAGE:	40% / 23.8%



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Maine
03908
207-384-2550
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DATE	11/22/23
INT.	JAA
REV.	JAA
NO.	1
NO.	2
NO.	3

RECORD OWNER:
25 & 17 ROUTE 236 LLC

ADDRESS:
P.O. BOX 630
KITTELY, ME 03904

SITE PLAN

LAND OF 25 & 17 ROUTE 236 LLC

17/25 ROUTE 236

KITTELY, YORK COUNTY, MAINE

PREPARED FOR:
SEAWARD PROPERTIES LLC
Y.C.R.D. 16500/611

CLIENT ADDRESS:
25 & 17 ROUTE 236 LLC
8 PEPPERELL WAY, YORK, ME 03909

1" = 40'

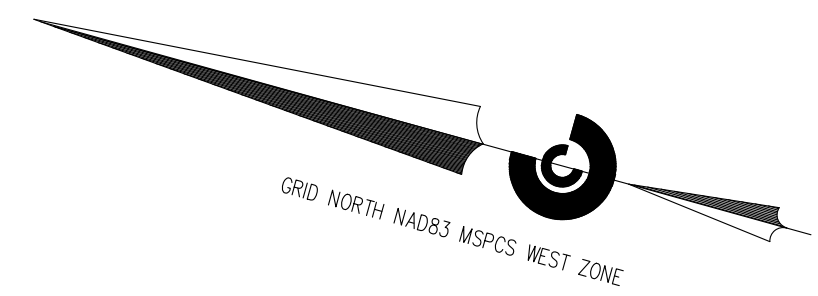
DATE: 08/18/2023
 DRAWN BY: DRC/JAA
 CHECKED BY: GRA
 APPROVED BY:

OVERALL SITE PLAN

PROJECT NO: 22-180.00

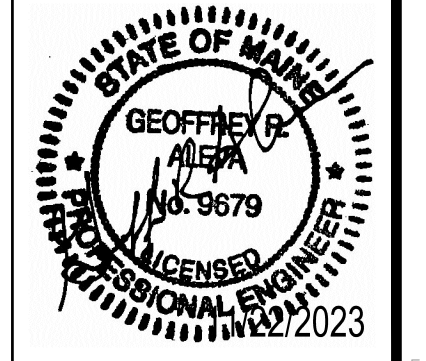
L1

SHEET: 1 OF 5



LEGEND:

— X — X —	CORRUGATED PLASTIC PIPE
—	EROSION CONTROL FILTER BERM
—	PROPOSED TREE LINE
—	PROPOSED CONTOUR
—	RIPRAP OUTLET
—	PROPOSED DRAIN LINE
—	PROPOSED FORCE MAIN SEWER
—	PROPOSED WATER MAIN
●	PROPOSED LIGHT POLE
⊙	PROPOSED CATCH BASIN
⊙	PROPOSED SEWER MANHOLE



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NO.	REVISIONS	INT.	DATE
3	ADD WAIVERS GRANTED	JAA	11/22/23
2	REVISE PER TOWN OF KITTEERY REVIEW	JAA	11/06/23
1	REVISED PER TOWN OF KITTEERY REVIEW	JAA	10/13/23

RECORD OWNER:
 25 & 17 ROUTE 236 LLC
 ADDRESS:
 P.O. BOX 630
 KITTEERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTEERY, YORK COUNTY, MAINE
 PREPARED FOR:
 25 & 17 ROUTE 236 LLC
 CLIENT ADDRESS:
 8 PEPPERELL WAY, YORK, ME 03909

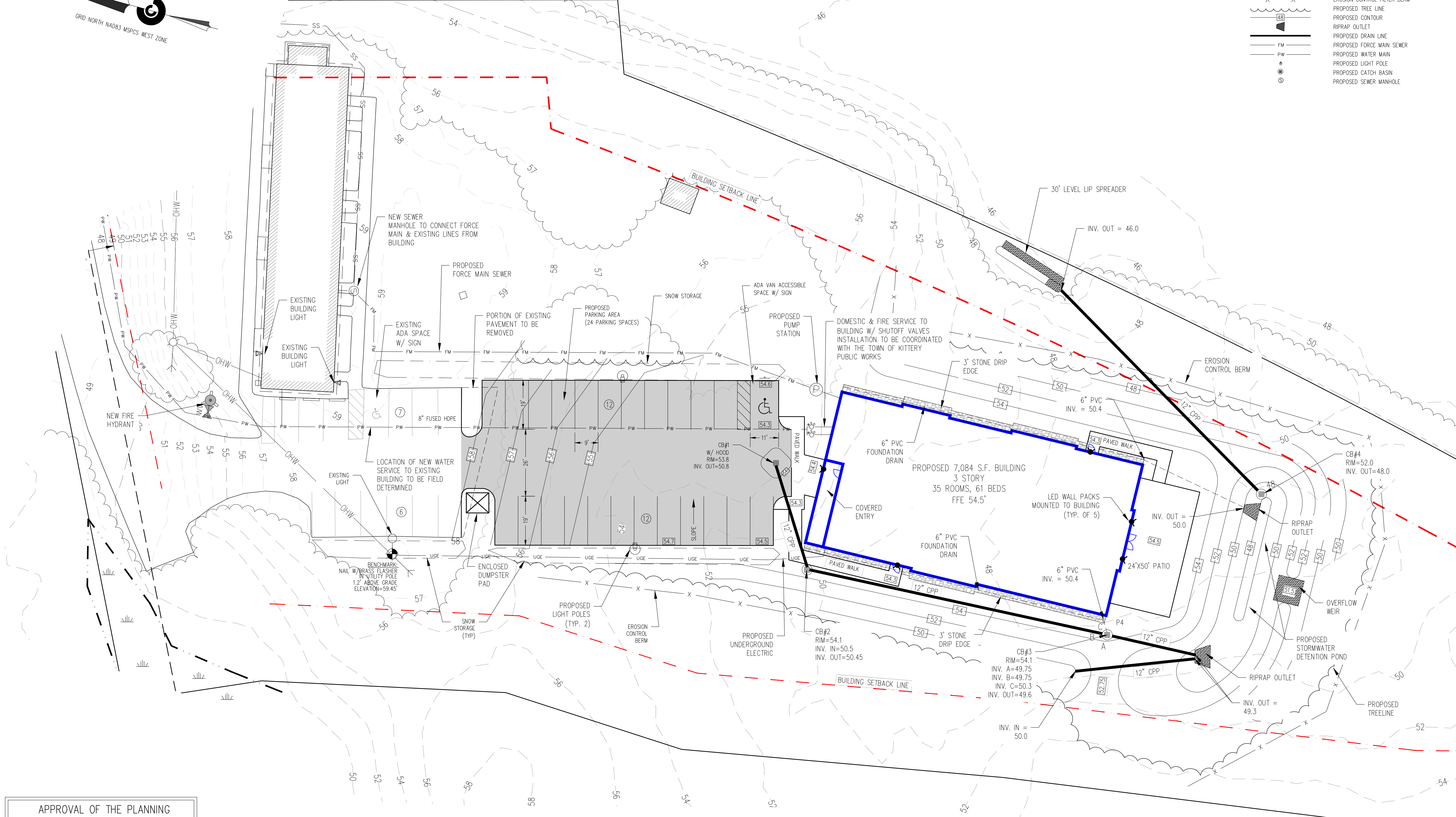
1" = 20'
 0' 20'

DATE: 08/18/2023
 DRAWN BY: DRC/JAA
 CHECKED BY: GRA
 APPROVED BY:

ENLARGED SITE PLAN

PROJECT NO: 22-180.00

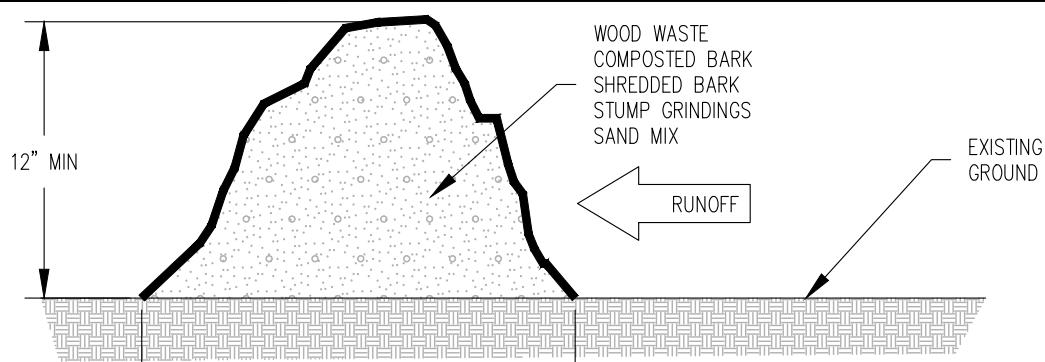
L2
 SHEET: 2 OF 5



APPROVAL OF THE PLANNING BOARD, KITTEERY MAINE

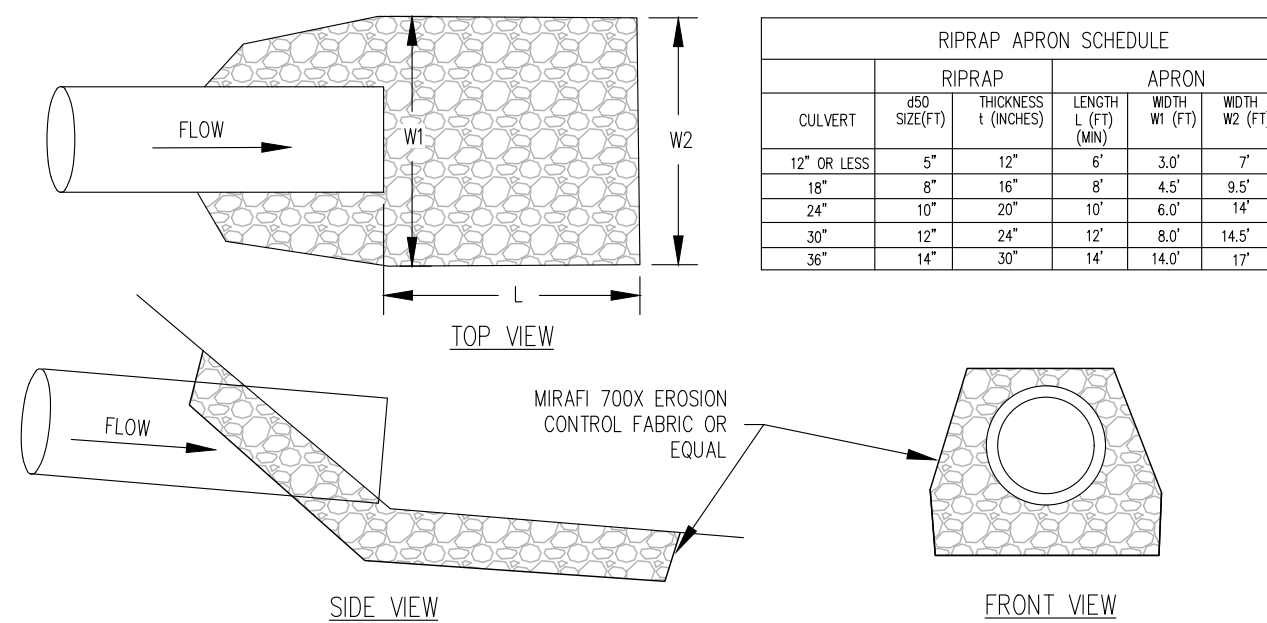
CHAIR	DATE

SIGNATURES OF 3 OR MORE PLANNING BOARD MEMBERS INDICATE APPROVAL OF THIS PLAN

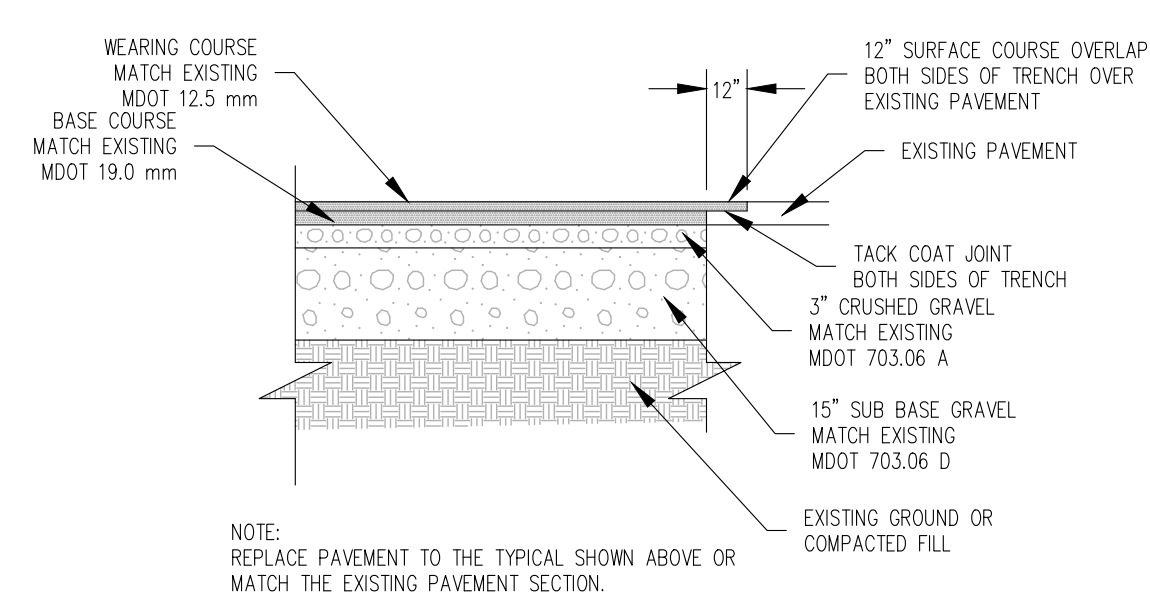


- NOTES:**
- THIS BERM MAY BE USED IN PLACE OF FILTER FENCE WHERE APPLICABLE. THE MIXTURE OF THE BERM MATERIAL NEEDS TO BE A WELL-GRADE BLEND OF ORGANIC & MINERAL SUBSTANCE CONFORMING TO THE FOLLOWING STANDARDS:
 ORGANIC MATTER CONTENT: BETWEEN 80% AND 100%
 MOISTURE CONTENT: 30%-60%
 PH: BETWEEN 5.0 AND 8.0
 PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 5" SCREEN AND A MINIMUM OF 70% MAXIMUM OF 85% PASSING A 0.75" SCREEN. LARGE PORTION OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE MIX.
 - THE BERM SHALL BE PLACED ALONG A RELATIVELY LEVEL CONTOUR WHEREVER POSSIBLE. THE EXISTING SURFACE MUST BE SCOURED AND THE MIXTURE KEPT IN LIKE ANY OTHER SEDIMENT CONTROL MEASURE.

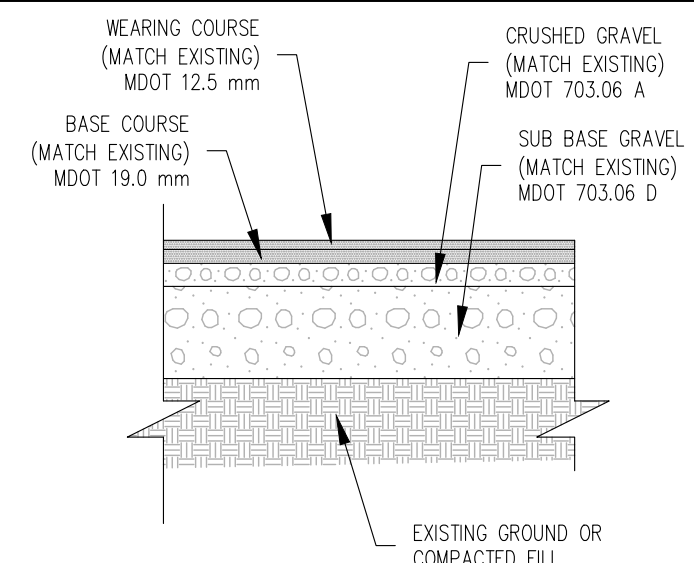
FILTER BERM DETAIL
NOT TO SCALE



RIPRAP APRON PIPE OUTLET DETAIL
NOT TO SCALE

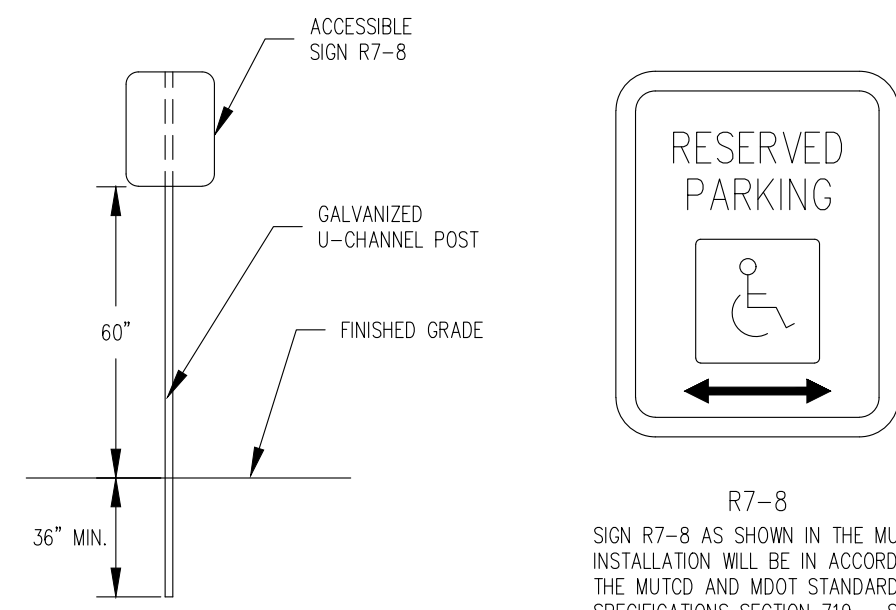


TYPICAL PAVEMENT REPLACEMENT DETAIL
NOT TO SCALE

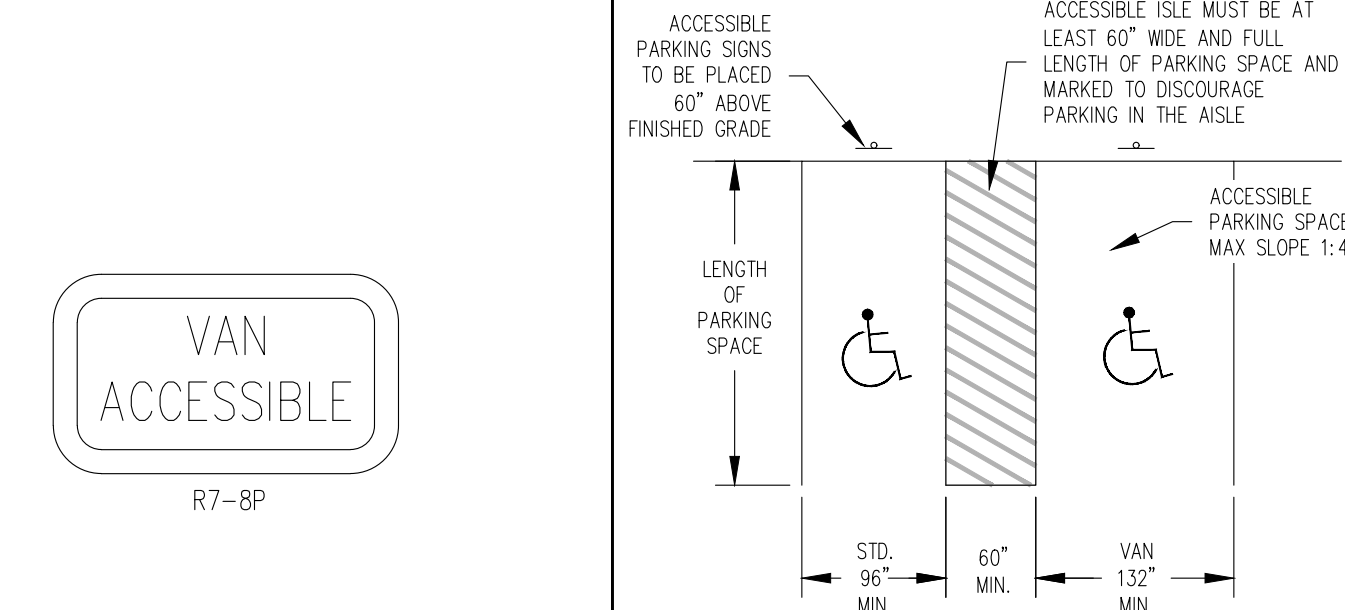


PARKING AREA PAVEMENT SECTION
NOT TO SCALE

- NOTES:**
- ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND MDT STANDARDS. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO MDT STANDARD SPECIFICATIONS, SECTION 719 - SIGNING MATERIAL.
 - THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOGUE CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.

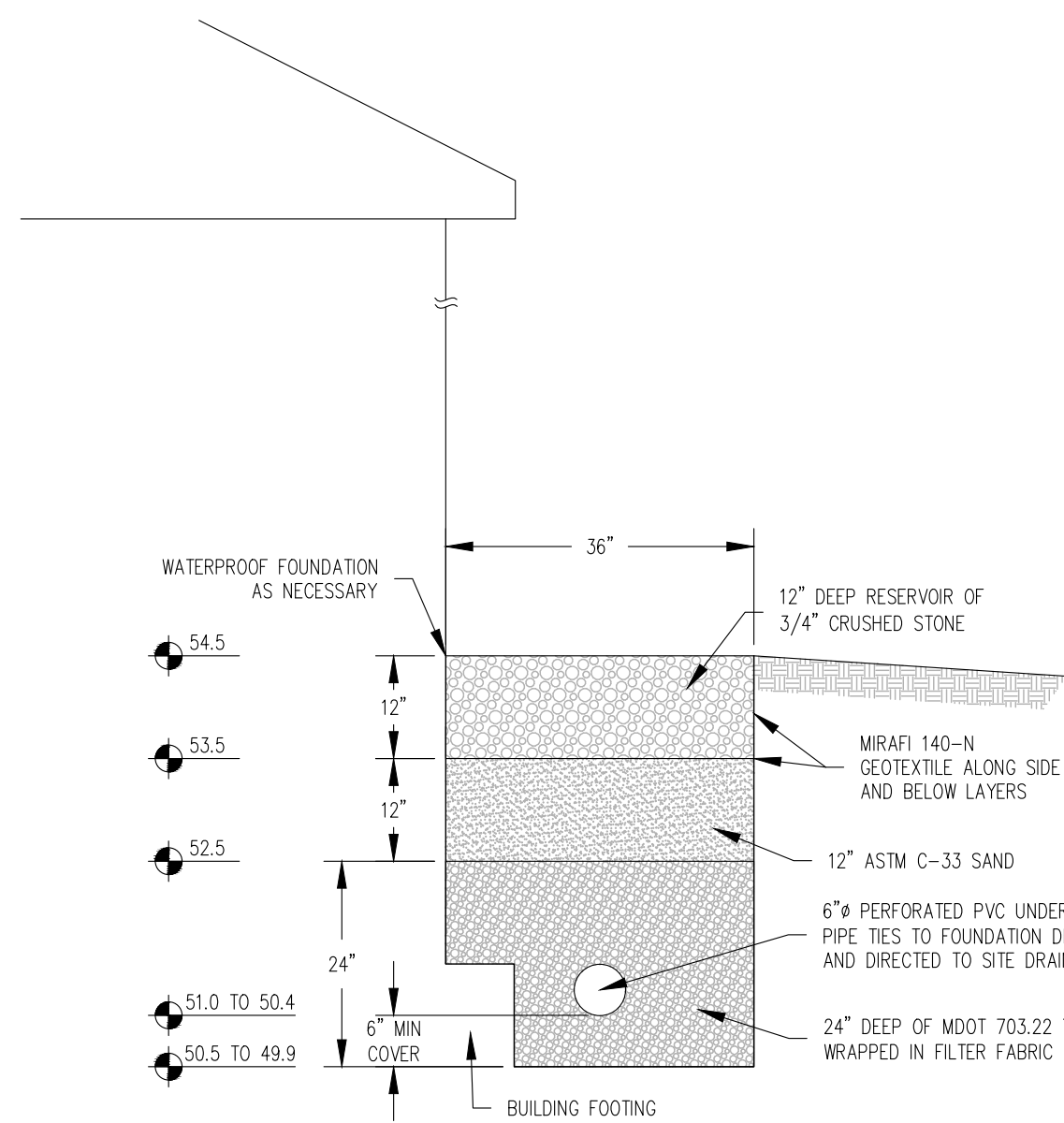


ACCESSIBLE SIGN & SIGN POST
NOT TO SCALE

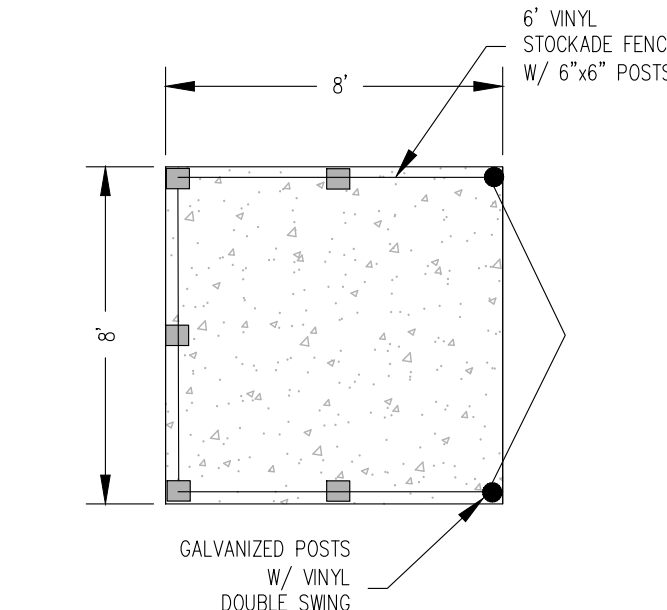


HANDICAP VAN ACCESSIBLE SIGN
NOT TO SCALE

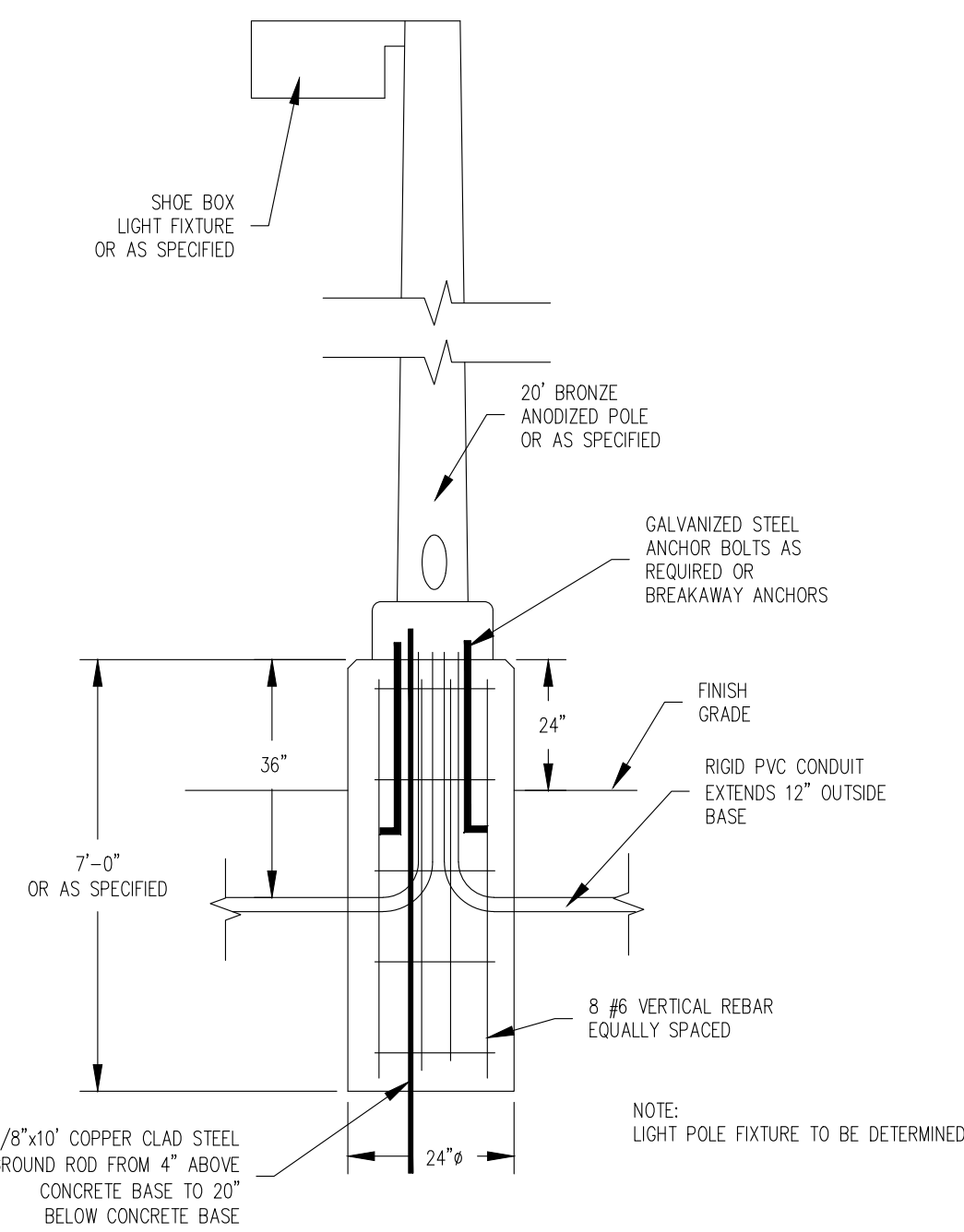
ACCESSIBLE CAR PARKING DETAIL
NOT TO SCALE



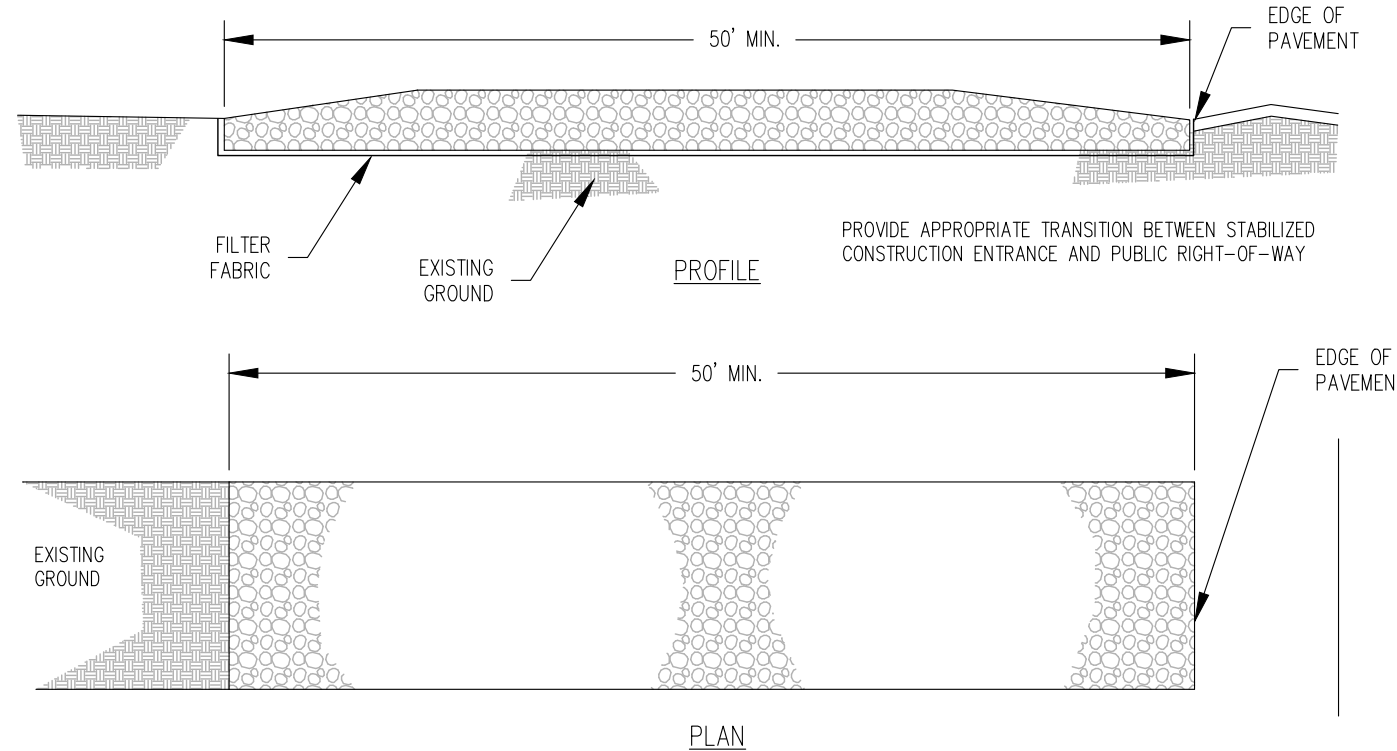
ROOFLINE DRIPEDGE FILTER
NOT TO SCALE



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE



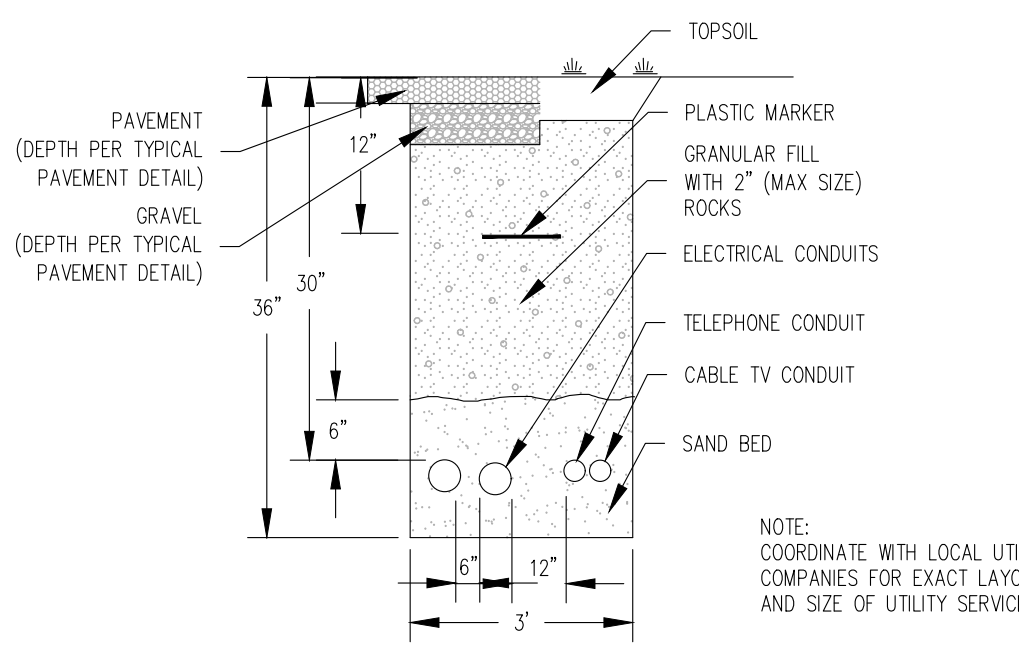
TYPICAL LIGHT POLE
NOT TO SCALE



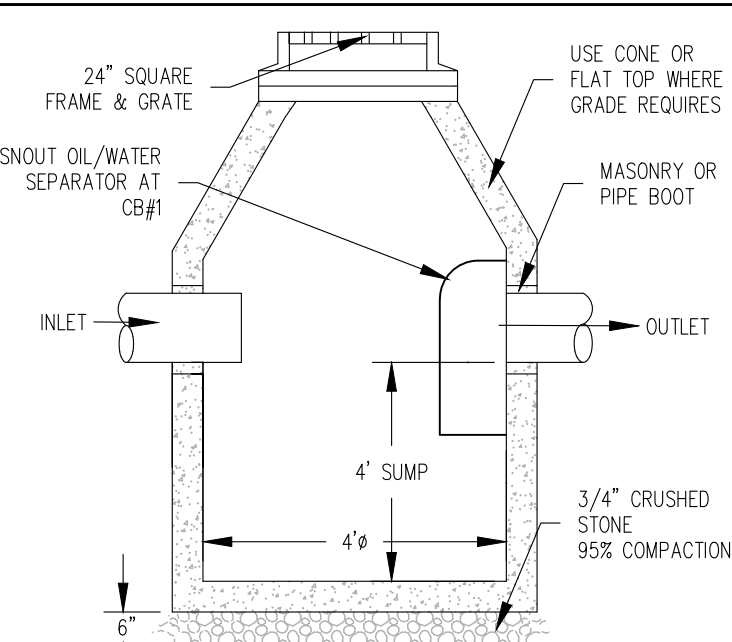
CONSTRUCTION SPECIFICATIONS

- STONE SIZE - AASHTO DESIGNATION M43, SIZE NO 2 (2-1/2" TO 1-1/2"). USE CRUSHED STONE.
- LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
- THICKNESS - NOT LESS THAN EIGHT (8) INCHES.
- WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
- WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATER COURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED, ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

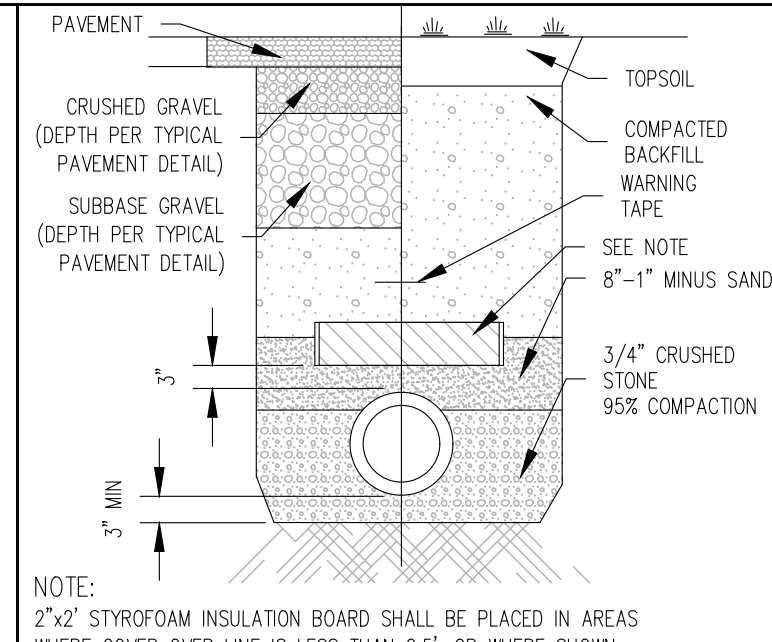
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



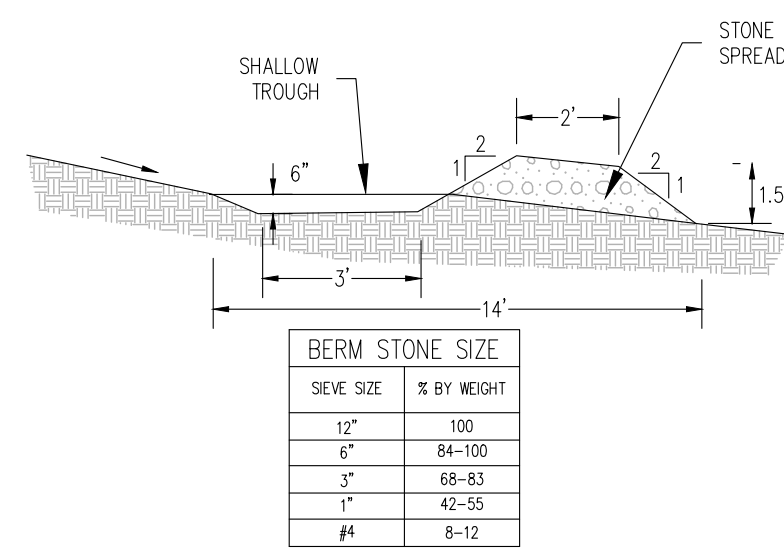
ELECTRIC & TELEPHONE TRENCH DETAIL
NOT TO SCALE



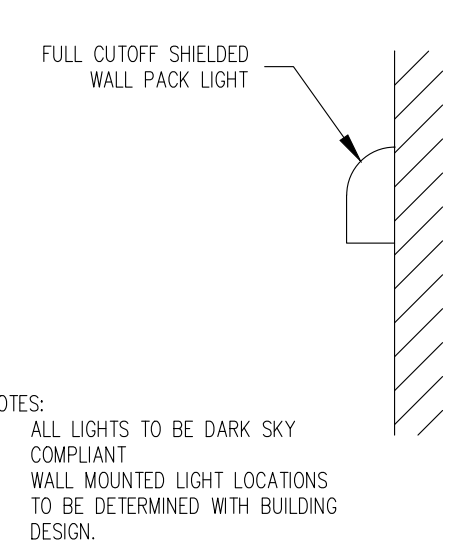
CATCH BASIN DETAIL
NOT TO SCALE



DRAINLINE TRENCH DETAIL
NOT TO SCALE



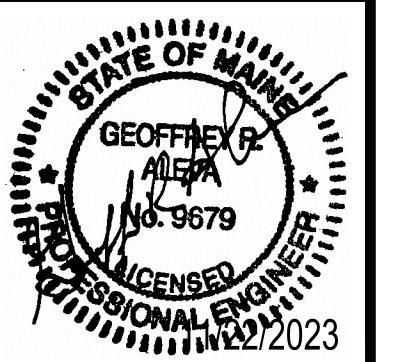
STONE LINED LEVEL LIP SPREADER
NOT TO SCALE



WALL-MOUNT LIGHTING DETAIL
NOT TO SCALE

APPROVAL OF THE PLANNING BOARD, KITTERY MAINE

CHAIR _____ DATE _____



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South Berwick
Maine
03908
207-384-2550
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NO.	REVISIONS	DATE
3	ADD WAIVERS GRANTED	11/22/23
2	REVISE PER TOWN OF KITTERY REVIEW	JAA 11/06/23
1	REVISED PER TOWN OF KITTERY REVIEW	JAA 10/13/23

RECORD OWNER:
25 & 17 ROUTE 236 LLC
ADDRESS:
P.O. BOX 630
KITTERY, ME 03904

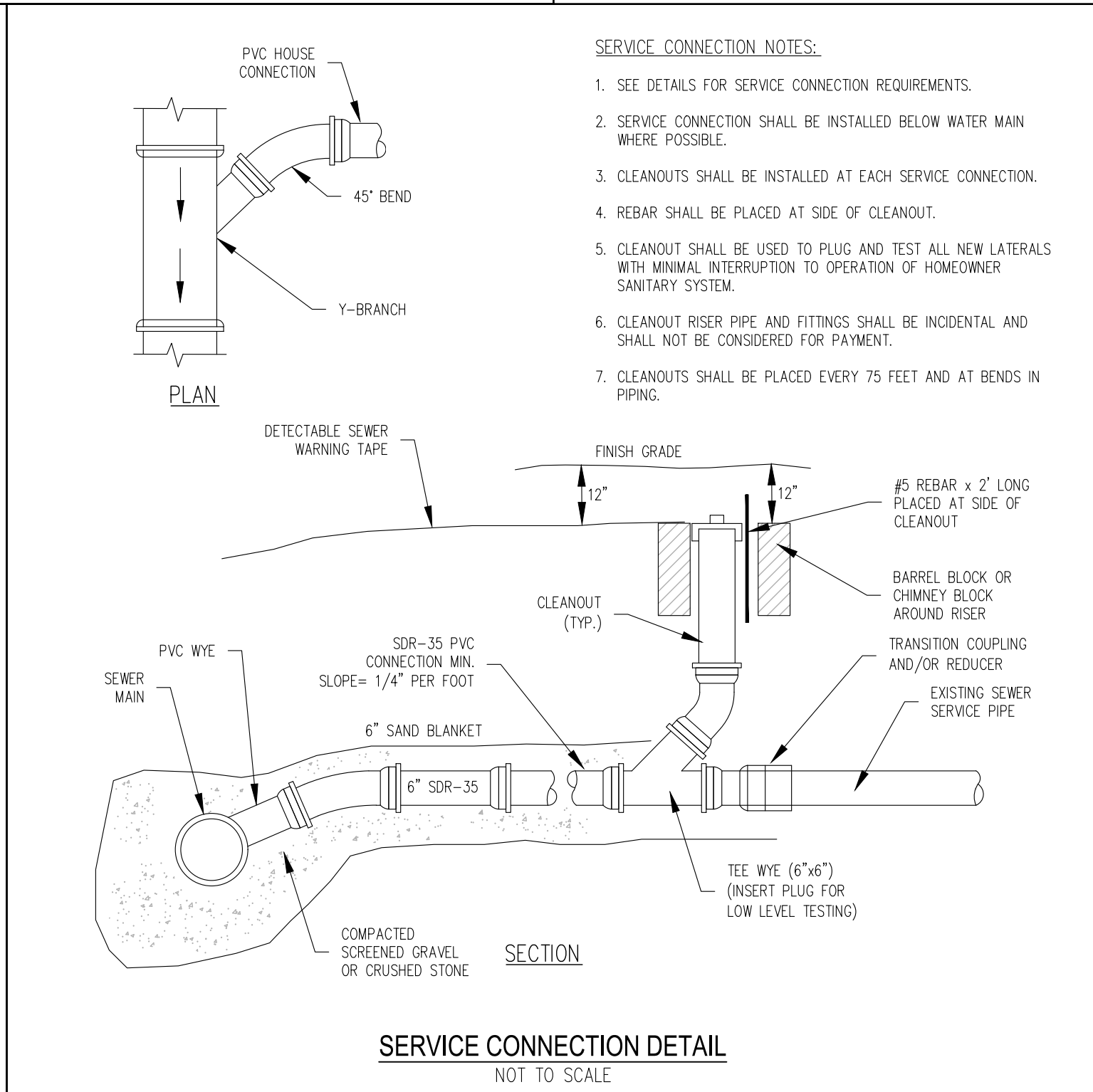
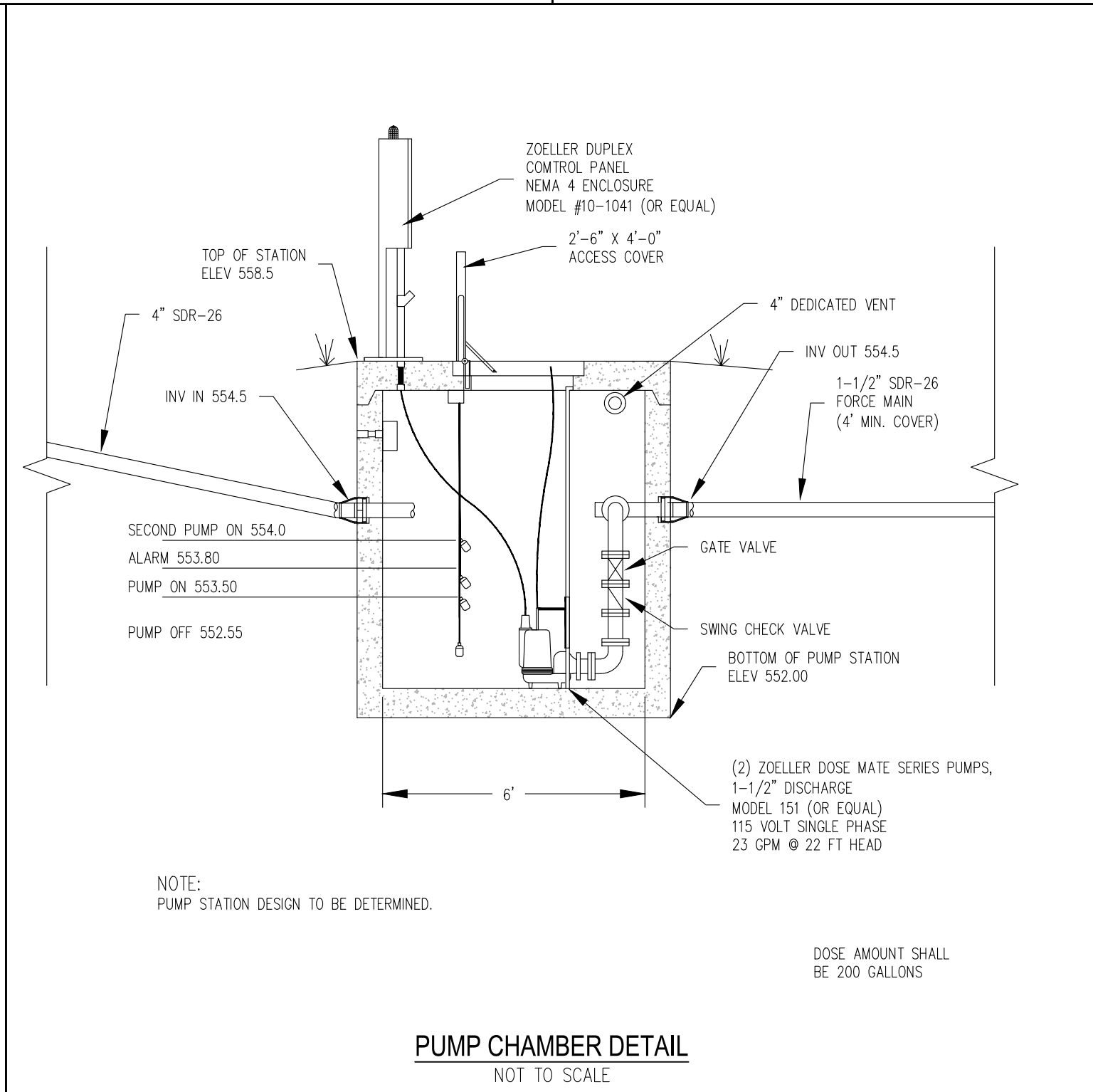
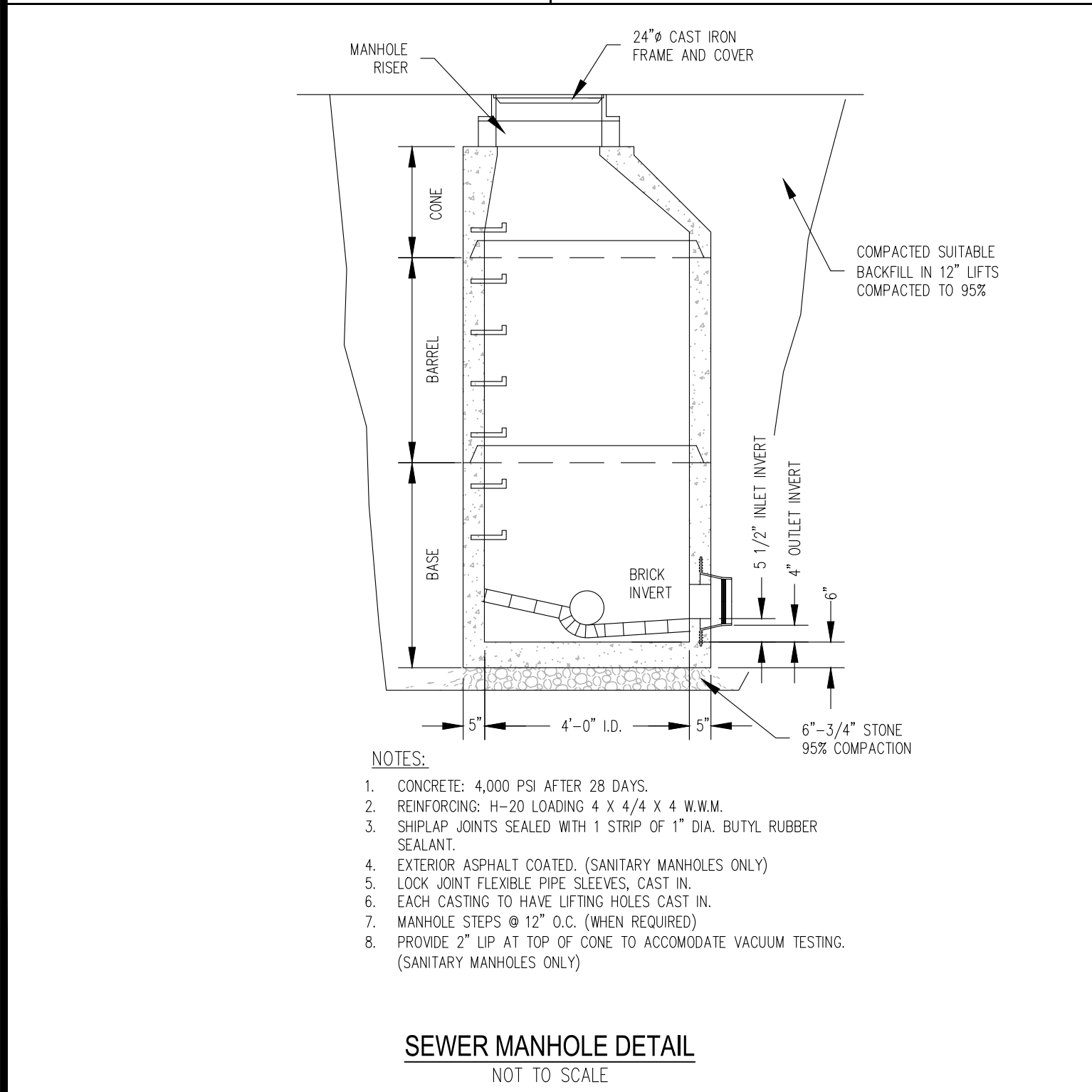
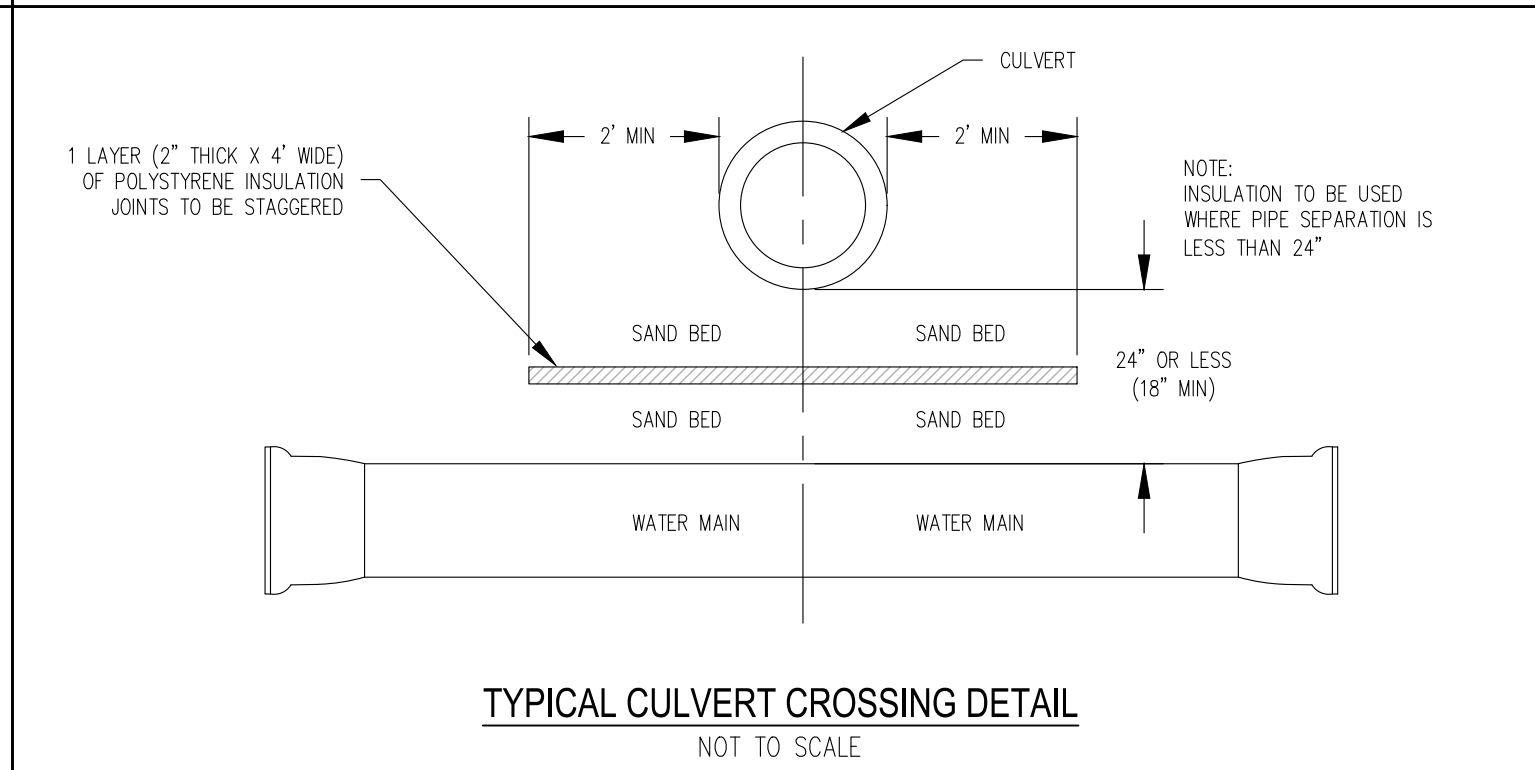
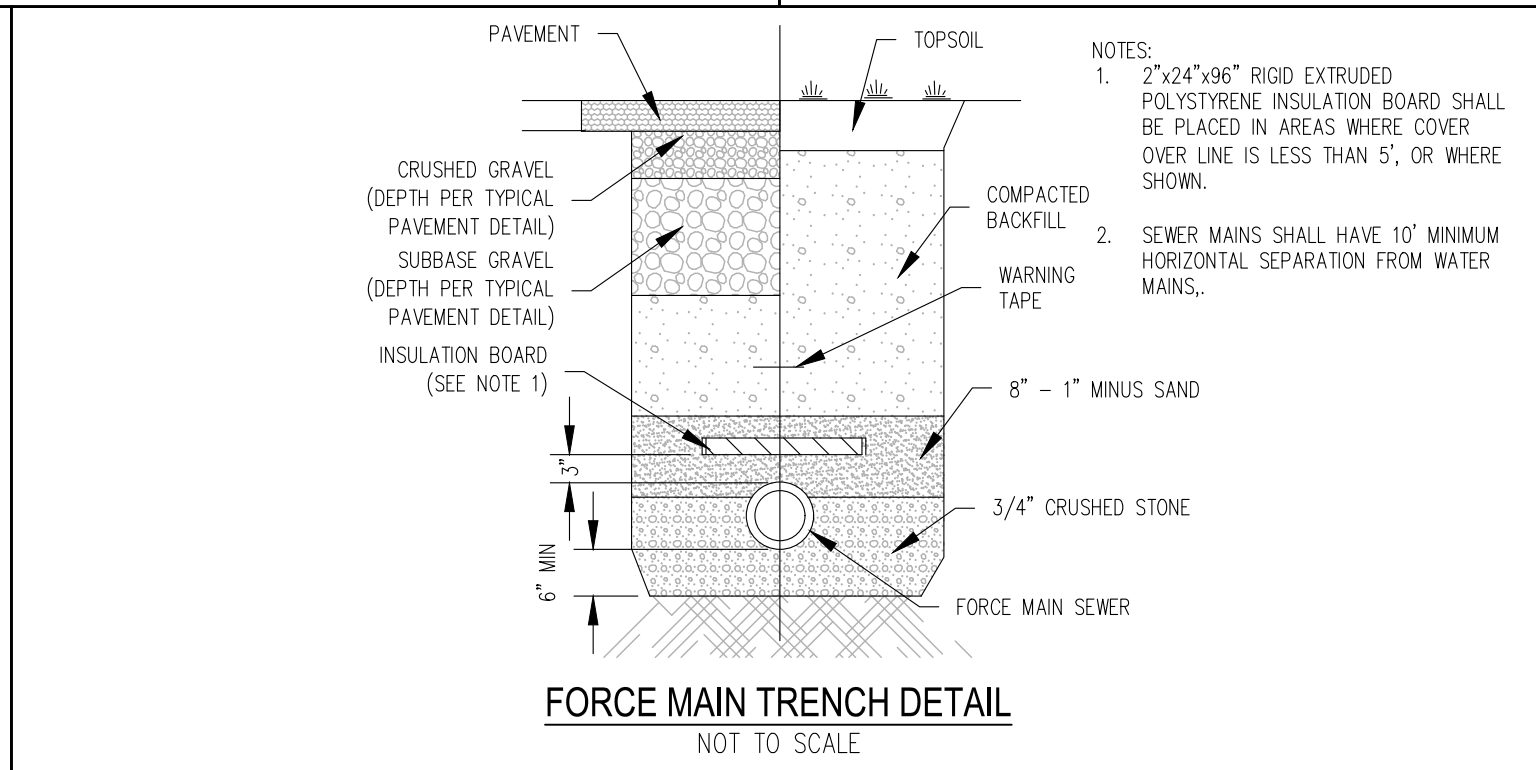
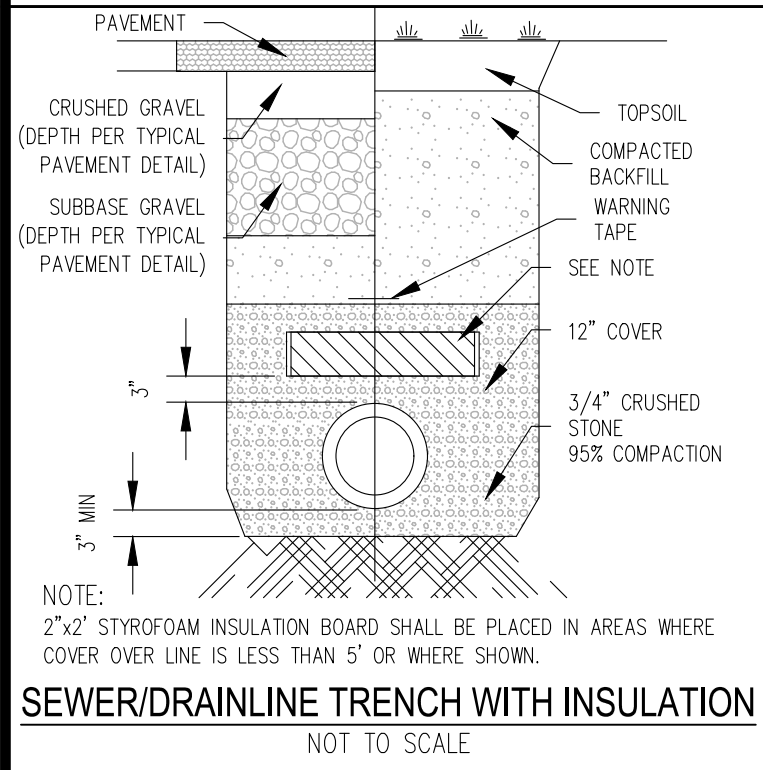
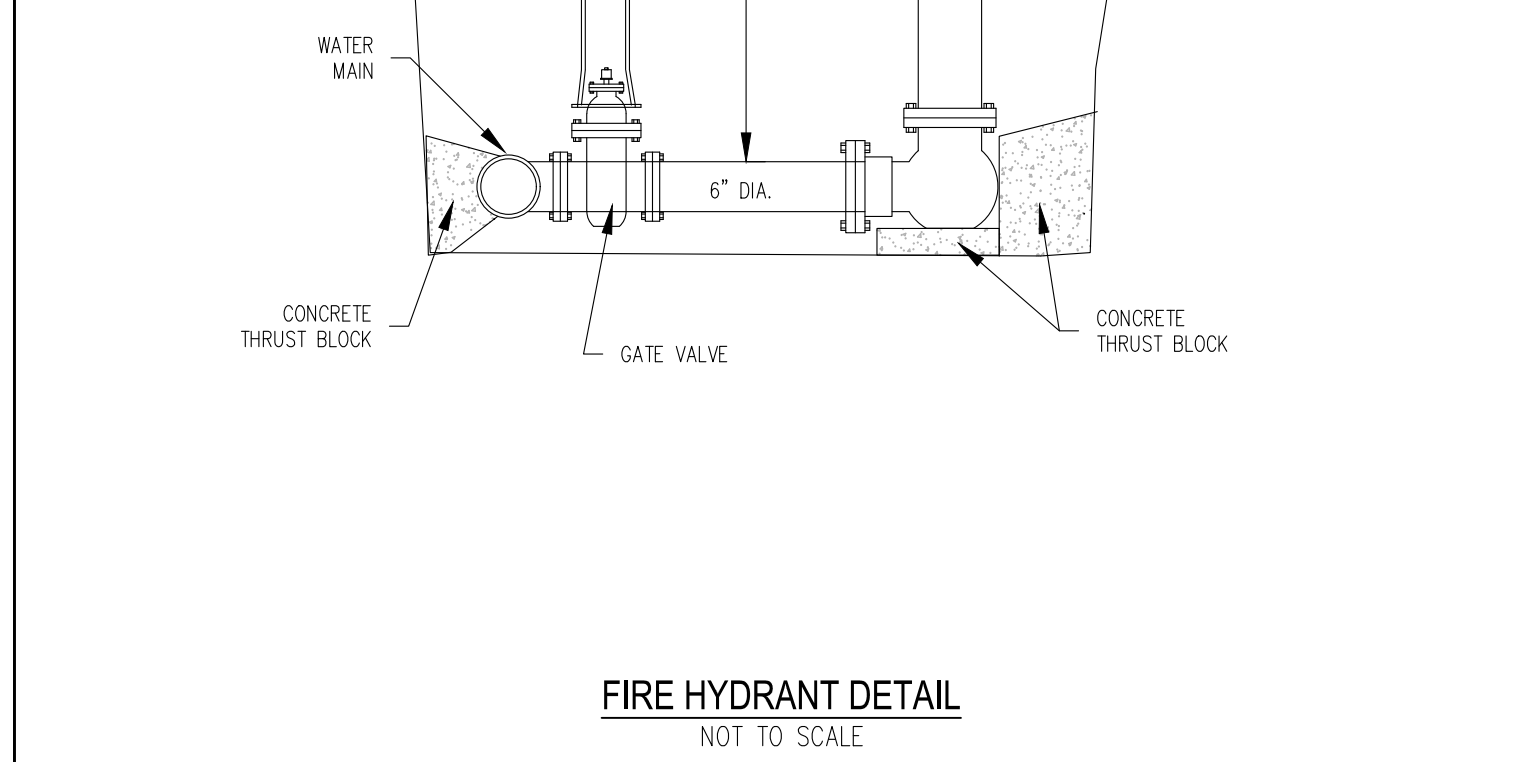
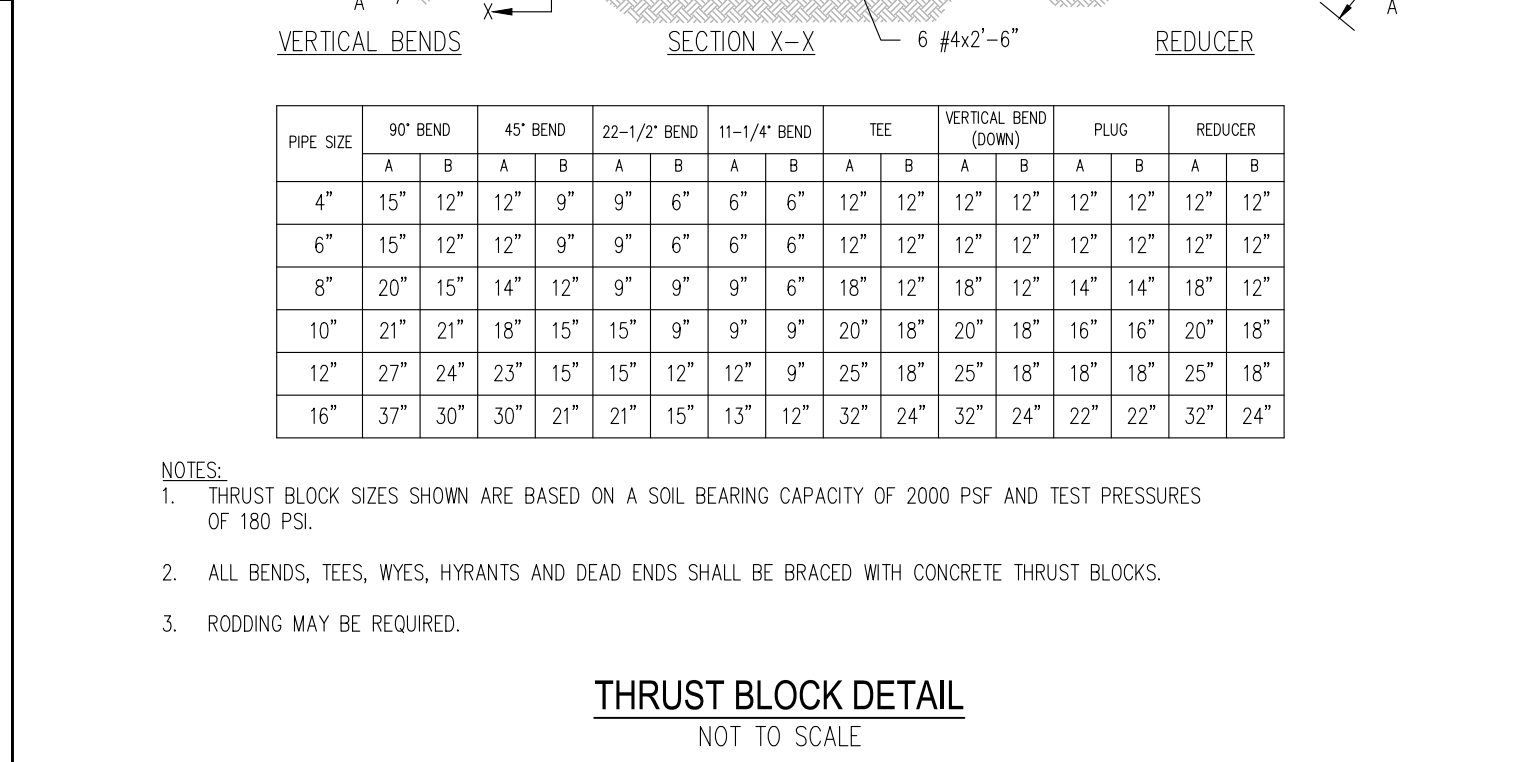
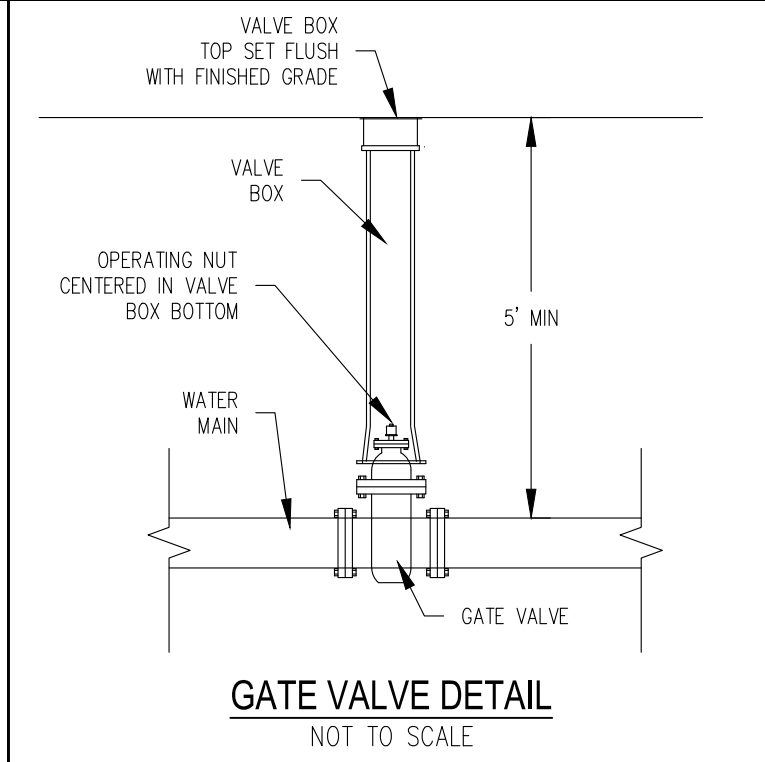
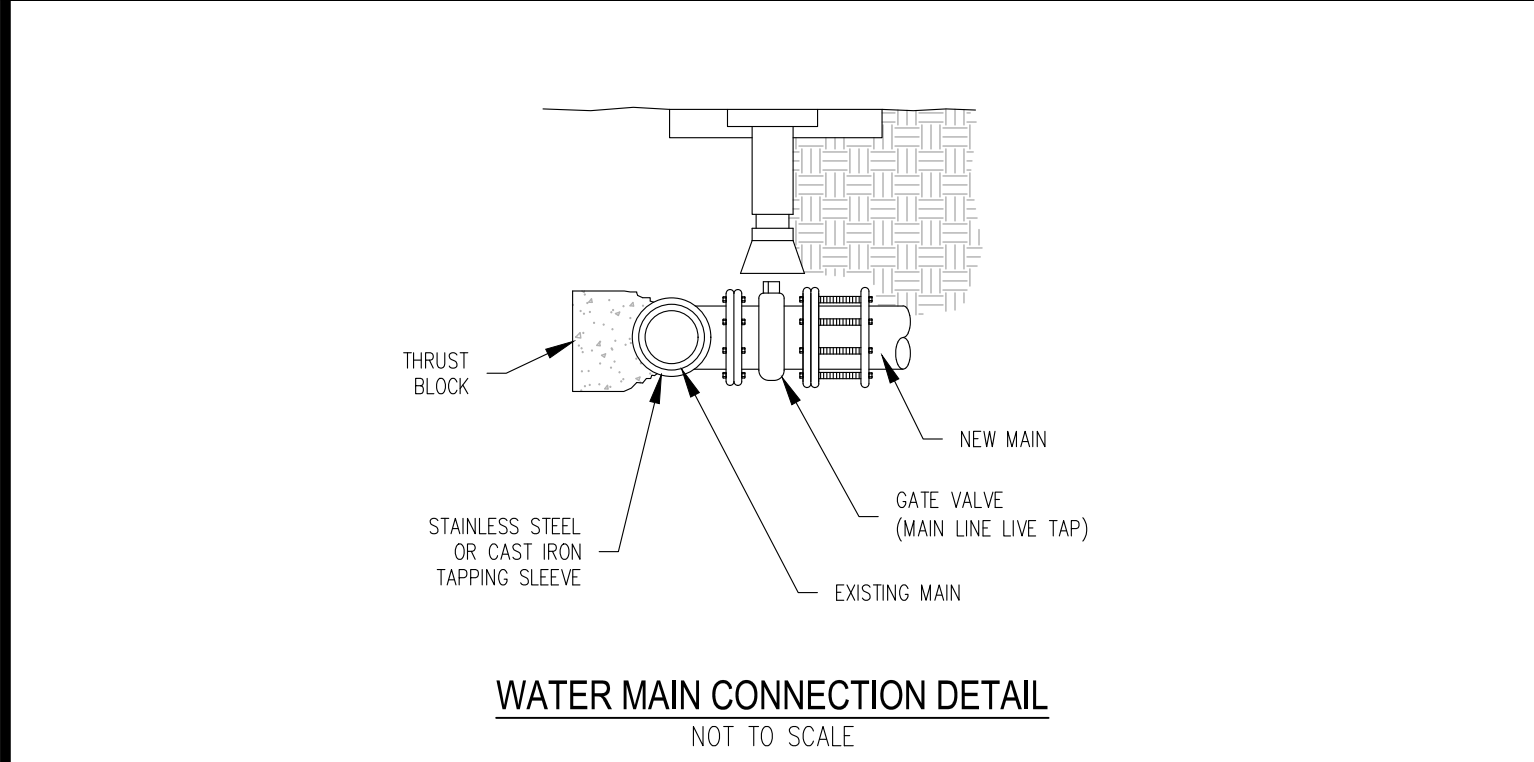
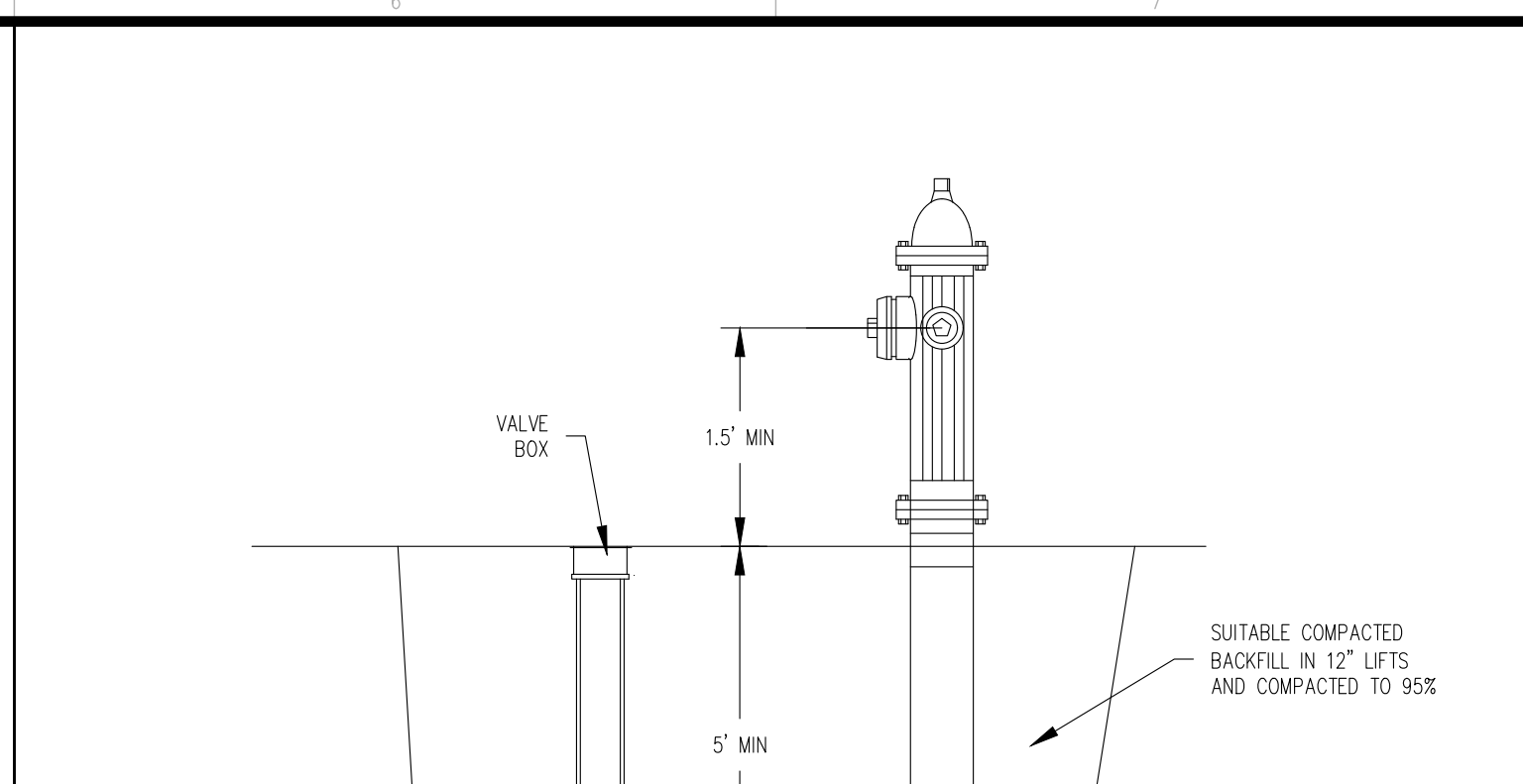
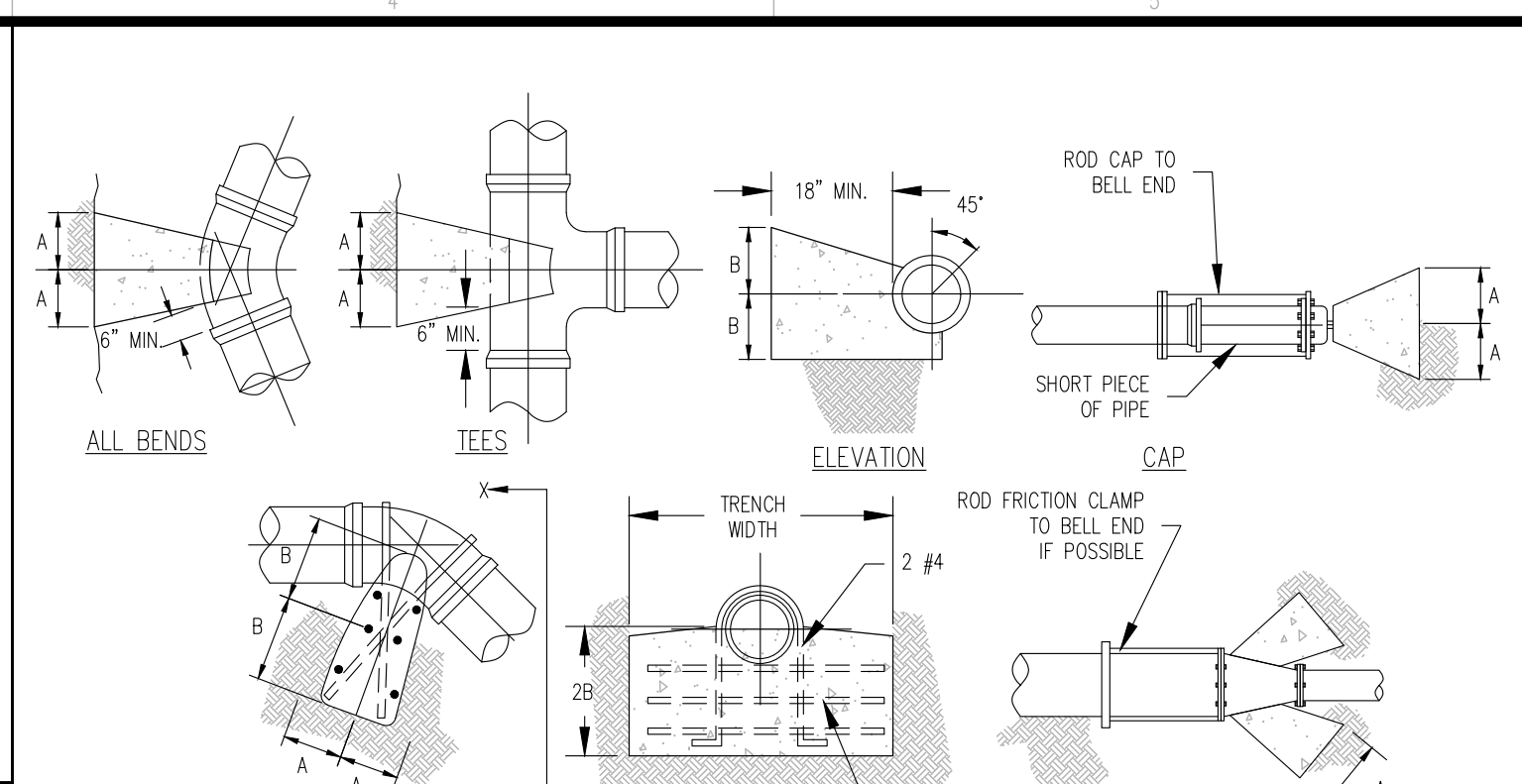
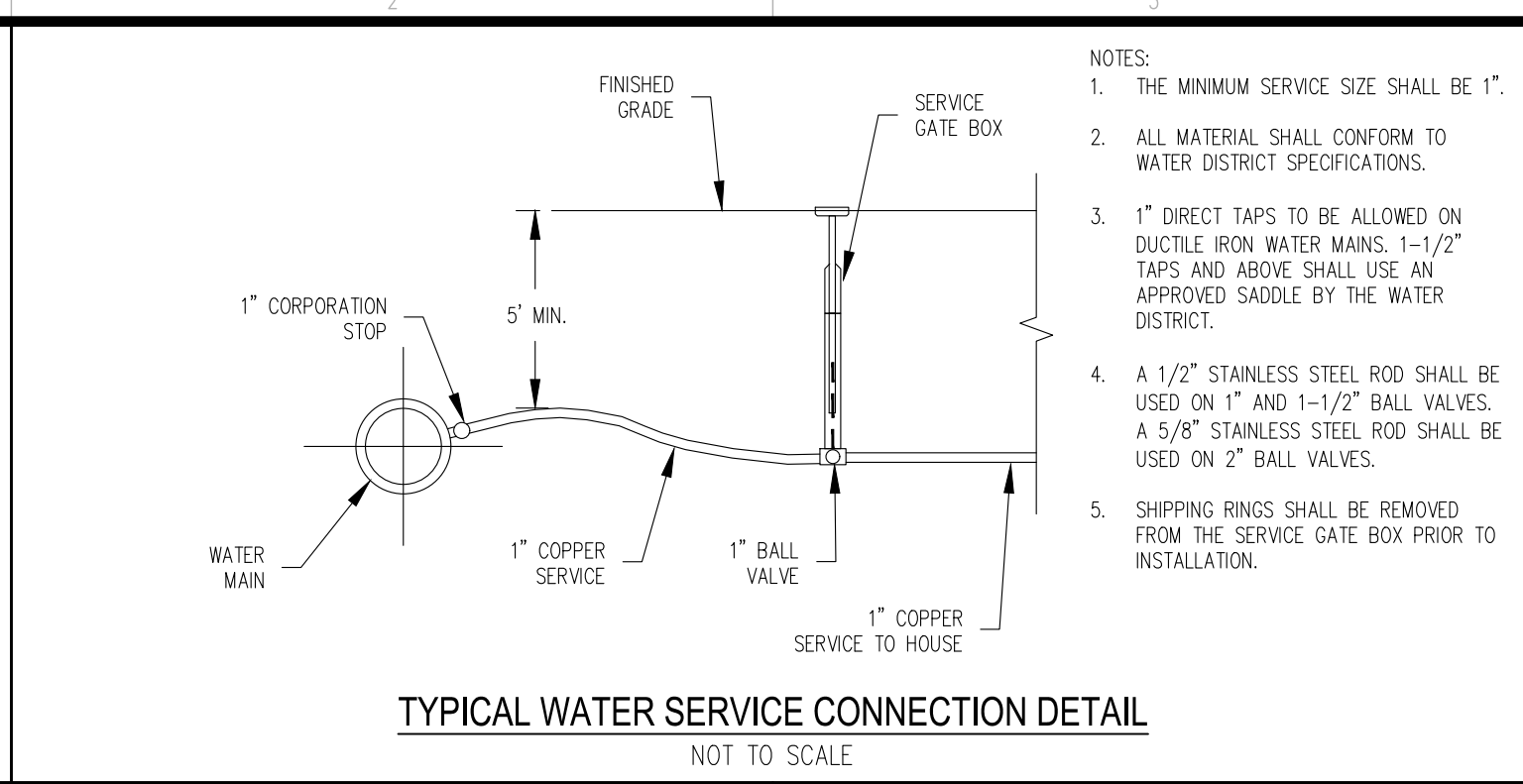
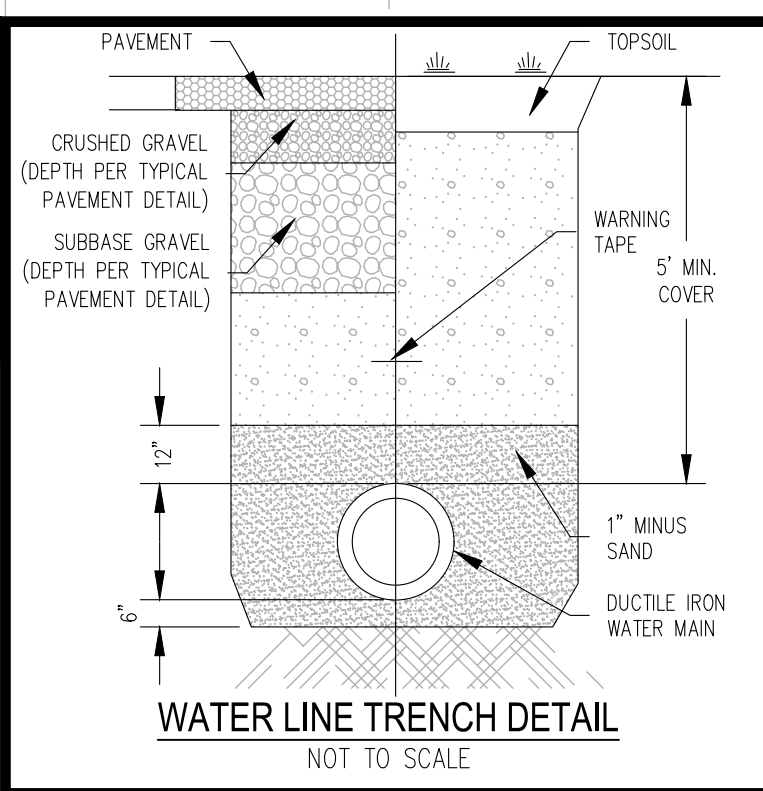
SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTERY, YORK COUNTY, MAINE
PREPARED FOR:
25 & 17 ROUTE 236 LLC
CLIENT ADDRESS:
8 PEPPERELL WAY, YORK, ME 03909

SCALE AS NOTED
0" = 1"
DATE: 08/18/2023
DRAWN BY: DRC
CHECKED BY: GRA
APPROVED BY:

PROPOSED CONSTRUCTION DETAILS

PROJECT NO: 22-180.00

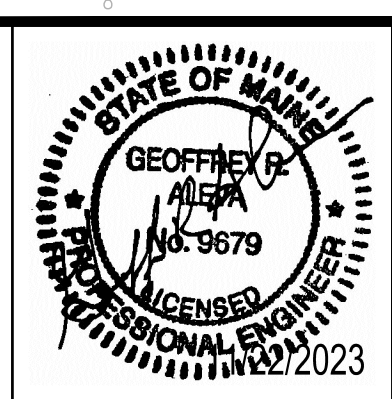
L3
SHEET: 3 OF 5



APPROVAL OF THE PLANNING BOARD, KITTERY MAINE

CHAIR _____ DATE _____

TAX MAP 20, LOT 12
TAX MAP 21, LOT 20



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 South Berwick
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 03908
 207-384-2550
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NO.	REVISIONS	DATE
3	ADD WAIVERS GRANTED	11/22/23
2	REVISE PER TOWN OF KITTERY REVIEW	11/06/23
1	REVISED PER TOWN OF KITTERY REVIEW	10/13/23

RECORD OWNER:
 25 & 17 ROUTE 236 LLC
 ADDRESS:
 P.O. BOX 630
 KITTERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTERY, YORK COUNTY, MAINE
 PREPARED FOR:
 25 & 17 ROUTE 236 LLC
 CLIENT ADDRESS:
 8 PEPPERELL WAY, YORK, ME 03909

SCALE AS NOTED
 0" = 1"
 DATE: 08/18/2023
 DRAWN BY: DRC
 CHECKED BY: GRA
 APPROVED BY:

PROPOSED CONSTRUCTION DETAILS
 PROJECT NO: 22-180.00
L4
 SHEET: 4 OF 5

MAINTENANCE PROCEDURES

THE FOLLOWING PROCEDURES ARE BASED ON THE MAINE STORMWATER MANAGEMENT DESIGN MANUAL , TECHNICAL DESIGN MANUAL VOLUME III, MAY 2016. MAINTENANCE PROCEDURES WILL BE FOLLOWED FOR INITIAL AND LONG TERM MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES AT THIS SITE. NOTE: FOR THE PURPOSES OF THESE PROCEDURES, A MAJOR STORM EVENT IS CLASSIFIED AS A RAINFALL EXCEEDING 3.0 INCHES. A SIGNIFICANT RAINFALL IS 1/2" IN A 24 HOUR PERIOD.

DETENTION BASINS

DETENTION BASINS SHOULD BE INSPECTED ANNUALLY FOR EROSION. THEREAFTER, DESTABILIZATION OF SIDE SLOPES EMBANKMENT SETTLING AND OTHER SIGNS OF STRUCTURE FAILURE, AND LOSS OF STORAGE VOLUME DUE TO SEDIMENT ACCUMULATION. CORRECTIVE ACTION SHOULD BE TAKEN IMMEDIATELY UPON IDENTIFICATION OF PROBLEMS.

MAINTENANCE AGREEMENT: A LEGAL ENTITY SHOULD BE ESTABLISHED OR INSPECTING AND MAINTAINING ANY DETENTION BASIN. THE LEGAL AGREEMENT SHOULD LIST SPECIFIC MAINTENANCE RESPONSIBILITIES (INCLUDING TIMETABLES) AND PROVIDE FOR THE FUNDING TO OVER LONG-TERM INSPECTION AND MAINTENANCE.

INLET AND OUTLET INSPECTIONS: THE INLET AND OUTLET OF THE BASIN SHOULD BE CHECKED PERIODICALLY TO ENSURE THAT FLOW STRUCTURES ARE NOT BLOCKED BY DEBRIS. INSPECTIONS SHOULD BE CONDUCTED MONTHLY DURING WET WEATHER CONDITIONS (MARCH TO NOVEMBER), FLOW STRUCTURES SHOULD BE EASILY ACCESSIBLE FOR INSPECTION AND THE REMOVAL OF DEBRIS BLOCKAGE DURING STORM CONDITIONS.

EMBANKMENT MAINTENANCE: EMBANKMENTS SHOULD BE MAINTAINED TO PRESERVE THEIR INTEGRITY AS IMPOUNDMENT STRUCTURES, INCLUDING: MOWING, CONTROL OF WOODY VEGETATION, RODENT, AND OUTLET MAINTENANCE AND REPAIR. BASINS SHOULD BE MOWED NO MORE THAN TWICE A YEAR DURING THE GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN 12 INCHES. ALL ACCUMULATED TRASH AND DEBRIS SHOULD BE REMOVED.

SEDIMENT REMOVAL: SEDIMENT SHOULD BE REMOVED FROM THE PRETREATMENT STRUCTURE AT LEAST ANNUALLY AND FROM THE BASIN WHEN NECESSARY.

INFILTRATION BASINS, DRY WELLS AND INFILTRATION TRENCHES

MAINTENANCE: PREVENTIVE MAINTENANCE IS VITAL FOR THE LONG-TERM EFFECTIVENESS OF AN INFILTRATION SYSTEM. SINCE INFILTRATION IS LESS CONSPICUOUS THAN MOST BMPs, IT IS EASY TO OVERLOOK DURING MAINTENANCE INSPECTIONS. THE FOLLOWING CRITERIA APPLY TO ALL INFILTRATION SYSTEMS.

FERTILIZATION: FERTILIZATION OF THE AREA OVER THE INFILTRATION BED SHOULD BE AVOIDED UNLESS ABSOLUTELY NECESSARY TO ESTABLISH VEGETATION.

SNOW STORAGE: SNOW REMOVED FROM ANY ON-SITE OR OFF-SITE AREAS MAY NOT BE STORED OVER AN INFILTRATION AREA, WITH THE EXCEPTION OF STORAGE ON PERMEABLE PAVEMENT.

MONITORING AND INSPECTIONS: INSPECT THE INFILTRATION SYSTEM SEVERAL TIMES IN THE FIRST YEAR OF OPERATION AND AT LEAST ANNUALLY THEREAFTER. CONDUCT THE INSPECTIONS AFTER LARGE STORMS TO CHECK FOR SURFACE PONDING AT THE INLET THAT MAY INDICATE CLOGGING. WATER LEVELS IN THE OBSERVATION WELL SHOULD BE RECORDED OVER SEVERAL DAYS AFTER THE STORM TO ENSURE THAT THE SYSTEM DRAINS WITHIN 24 TO 48 HOURS AFTER FILLING. THE BASIN WILL NEED TO BE REHABILITATED IF IT FAILS TO DRAIN BEFORE THE NEXT RAIN EVENT OF 72 HOURS.

POLLUTION-CONTROL DEVICES: POLLUTION-CONTROL DEVICES SUCH AS OIL-WATER SEPARATORS, SKIMMERS, AND BOOMS SHOULD BE INSPECTED REGULARLY TO DETERMINE IF THEY NEED TO BE CLEANED OR REPLACED.

SEDIMENT REMOVAL AND MAINTENANCE OF SYSTEM PERFORMANCE: SEDIMENT MUST BE REMOVED FROM THE SYSTEM AT LEAST ANNUALLY TO PREVENT DEGRADATION OF SYSTEM PERFORMANCE. THE PRE-TREATMENT INLETS SHOULD BE CHECKED AND CLEANED OUT WHEN ACCUMULATED SEDIMENT OCCUPIES MORE THAN 10% OF THE AVAILABLE CAPACITY. THIS CAN BE DONE MANUALLY OR BY A VACUUM PUMP. INLET AND OUTLET PIPES SHOULD BE CHECKED FOR CLOGGING. ACCUMULATED GREASE AND OIL FROM SEPARATOR DEVICES SHOULD BE REMOVED FREQUENTLY AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS. THE SYSTEM MUST BE REHABILITATED OR REPLACED IF ITS PERFORMANCE IS DEGRADED TO THE POINT THAT APPLICABLE STORMWATER STANDARDS ARE NOT MET.

PRETREATMENT BUFFER STRIPS: IF A GRASS BUFFER STRIP IS USED IN CONJUNCTION WITH THE INFILTRATION BMP IT SHOULD HAVE VIGOROUS AND DENSE VEGETATION. BARE SPOTS OR ERODED AREAS SHOULD BE REPAIRED AND/OR RE-SEEDED OR RE-SODDED. WATERING AND/OR FERTILIZATION SHOULD BE PROVIDED DURING THE FIRST FEW MONTHS AFTER THE STRIP IS ESTABLISHED, AND MAY BE NEEDED IN TIMES OF DROUGHT. GRASS FILTER STRIPS SHOULD BE MOWED REGULARLY TO PREVENT THE UNCONTROLLED GROWTH OF WEEDS, BUT FILTER STRIP PERFORMANCE WILL BE IMPAIRED IF THE GRASS IS CUT TOO SHORT.

ROOF DRIPLINE FILTERS

MAINTENANCE: A DRIPLINE FILTER BED NEEDS TO BE MAINTAINED LIKE ANY OTHER FILTER BASIN. THE MAINTENANCE ACTIVITIES FOR FILTRATION BMPs LISTED IN CHAPTER 7.2 OF THE BMP MANUAL APPLY EQUALLY TO THIS TYPE OF STRUCTURE. ANY DEBRIS MUST BE REMOVED FROM THE RESERVOIR COURSE. THE MAINTENANCE PLAN NEEDS TO ADDRESS THAT THESE STRUCTURES ARE PART OF THE STORMWATER MANAGEMENT PLAN FOR THE PROJECT, CANNOT BE PAVED OVER OR ALTERED IN ANYWAY. NO GUTTER MAY BE INSTALLED ON THE ROOF LINE.

VEGETATED SWALE

MAINTENANCE: THE AREA SHOULD BE INSPECTED FOR FAILURES FOLLOWING HEAVY RAINFALL AND REPAIRED AS NECESSARY FOR NEWLY FORMED CHANNELS OR GULLIES. BARE SPOTS SHOULD BE RESEEDED OR RESODDED. TRASH, LEAVES AND/OR ACCUMULATED SEDIMENTS SHOULD BE REMOVED. WOODY OR OTHER UNDESIRABLE VEGETATION SHOULD BE CONTROLLED. CHECK DAM INTEGRITY SHOULD BE CHECKED.

- AERATION: THE BUFFER STRIP MAY REQUIRE PERIODIC MECHANICAL AERATION (BY ROTOTILLING OR OTHER) TO RESTORE INFILTRATION CAPACITY. THIS AERATION MUST BE DONE DURING A TIME WHEN THE AREA CAN BE RESEEDED AND MULCHED PRIOR TO ANY SIGNIFICANT RAINFALL.
- MOWING: GRASS SHOULD NOT BE TRIMMED EXTREMELY SHORT, AS THIS WILL REDUCE THE FILTERING EFFECT OF THE SWALE (MPCA, 1989). THE CUT VEGETATION SHOULD BE REMOVED TO PREVENT THE DECAYING ORGANIC LITTER FROM ADDING POLLUTANTS TO THE DISCHARGE FROM THE SWALE. MOWED HEIGHT OF THE GRASS SHOULD BE 2-4 INCHES TALLER THAN THE MAXIMUM FLOW DEPTH OF THE DESIGN WATER QUALITY STORM. A MINIMUM MOW HEIGHT OF 6 INCHES IS GENERALLY RECOMMENDED (GALLI, 1993).
- EROSION: IT IS IMPORTANT TO INSTALL EROSION AND SEDIMENT CONTROL MEASURES TO STABILIZE THIS AREA AS SOON AS POSSIBLE AND RETAIN ANY ORGANIC MATTER IN THE BOTTOM OF THE TRENCH.
- FERTILIZATION: ROUTINE FERTILIZATION AND/OR PESTICIDE USE IS STRONGLY DISCOURAGED. IF COMPLETE RESEEDING IS NECESSARY, HALF THE ORIGINAL RECOMMENDED RATE OF FERTILIZER SHOULD BE APPLIED WITH A FULL RATE OF SEED.
- SEDIMENT REMOVAL: LEVEL OF SEDIMENT DEPOSITION IN THE CHANNEL SHOULD BE MONITORED REGULARLY, AND REMOVED FROM GRASSED CHANNELS BEFORE PERMANENT DAMAGE IS DONE TO THE GRASSED VEGETATION, OR IF INFILTRATION TIMES ARE LONGER THAN 12 HOURS. SEDIMENT SHOULD BE REMOVED FROM A CHANNEL WHEN IT REDUCES THE CAPACITY OF THE CHANNEL.

LEVEL SPREADERS

MAINTENANCE: LONG TERM MAINTENANCE OF THE LEVEL SPREADER IS ESSENTIAL TO ENSURE ITS EFFECTIVENESS. SPREADERS CONSTRUCTED OF WOOD, ASPHALT, STONE OR CONCRETE CURBING ALSO REQUIRE INSPECTION AND MAINTENANCE.

- INSPECTIONS: AT LEAST ONCE A YEAR AND FOLLOWING MAJOR STORMS, THE LEVEL SPREADER POOL SHOULD BE INSPECTED FOR SAND ACCUMULATION AND DEBRIS THAT MAY REDUCE ITS CAPACITY.
- SEDIMENT REMOVAL: SEDIMENT BUILD-UP WITHIN THE SWALE SHOULD BE REMOVED WHEN IT HAS ACCUMULATED TO APPROXIMATELY 25% OF DESIGN VOLUME OR CHANNEL CAPACITY. DISPOSE OF THE SEDIMENTS APPROPRIATELY.
- DEBRIS: REMOVE DEBRIS SUCH AS LEAF LITTER, BRANCHES AND TREE GROWTH FROM THE SPREADER.
- MOWING: VEGETATED SPREADERS MAY REQUIRE MOWING.
- SNOW STORAGE: DO NOT STORE SNOW WITHIN THE AREA OF THE LEVEL SPREADER.
- LEVEL SPREADER REPLACEMENT: THE RECONSTRUCTION OF THE LEVEL SPREADER MAY BE NECESSARY WHEN SHEET FLOW FROM THE SPREADER CHANNELIZES INTO THE BUFFER.

WATER QUALITY INLET

MAINTENANCE: SEDIMENT REMOVAL FROM THE SUMP AND ANY FLOATING DEBRIS AND PRODUCTS IS IMPERATIVE FOR THE CONTINUITY OF THE EFFECTIVENESS OF THE STRUCTURE. THE SUMP NEEDS CLEANING WHEN SEDIMENTS ARE VISIBLE AT THE BOTTOM OF THE OUTLET PIPE.

- INSPECTION: WATER QUALITY INLETS SHOULD BE INSPECTED THREE TO FOUR TIMES ANNUALLY.
- SEDIMENT REMOVAL: SEDIMENT SHOULD BE REMOVED WHEN ACCUMULATION IS WITHIN 6 INCHES OF THE BOTTOM OF THE HOOD.

OVERWINTER STABILIZATION

MAINE EROSION AND SEDIMENT CONTROL BMP (3/2016)

1. STABILIZATION OF DITCHES AND CHANNELS

ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL GRASS-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A DITCH OR CHANNEL IS NOT GRASS-LINED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER MUST BE TAKEN.

SOD LINING: A DITCH OR CHANNEL MUST BE LINED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD FROM SLOUGHING DURING FLOW CONDITIONS.

STONE LINING: A DITCH OR CHANNEL MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

2. STABILIZATION OF DISTURBED SLOPES

ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

TEMPORARY VEGETATION AND EROSION CONTROL MATS: BY OCTOBER 1, THE DISTURBED SLOPE MUST BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET FOLLOWED BY INSTALLATION OF 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 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR STONE RIPRAP AS DESCRIBED IN THE FOLLOWING STANDARDS.

SOD: THE DISTURBED SLOPE MUST BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. 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 WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

EROSION CONTROL MIX: EROSION CONTROL MIX MUST BE PROPERLY INSTALLED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STONE RIPRAP: PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER TO BE INSTALLED BENEATH THE RIPRAP.

3. STABILIZATION OF DISTURBED SLOPS

TEMPORARY VEGETATION: BY OCTOBER 1, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3-LBS PER 1,000 SQUARE FEET. LIGHTLY MULCH THE SEEDS WITH HAY OR STRAW AT 75-LBS PER 1,000 SQUARE FEET, 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 COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN MULCH THE AREA FOR OVERWINTER PROTECTION AS FOLLOWS.

MULCH: BY NOVEMBER 15, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150-LBS PER 1,000 SQUARE FEET 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.

MAINTENANCE

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR BARE SPOTS. AN ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85% TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STABILIZATION SCHEDULE BEFORE WINTER

SEPTEMBER 15 ALL DISTURBED AREAS MUST BE SEEDS AND MULCHED. ALL SLOPES MUST BE STABILIZED. SEEDS AND MULCHED. ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR AN EROSION CONTROL BLANKET.

OCTOBER 1 IF THE SLOPE IS STABILIZED WITH AN EROSION CONTROL BLANKET AND SEEDS, ALL DISTURBED AREAS TO BE PROTECTED WITH ANNUAL GRASS MUST BE SEEDS AT A SEEDING RATE OF 3-LBS PER 1,000 SQUARE FEET AND MULCHED.

NOVEMBER 15 ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THIS DATE.

DECEMBER 1 ALL DISTURBED AREAS WHERE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED VEGETATION, MUST BE PROTECTED FOR OVER-WINTER. NOTE: THE DATES GIVEN ARE FOR PROJECTS IN SOUTH-CENTRAL MAINE.

EROSION AND SEDIMENT CONTROL PRACTICES

1. NO SOIL SHALL BE DISTURBED DURING THE PERIOD OF MARCH 1 THROUGH APRIL 15, NOR DURING ANY OTHER PERIOD WHEN SOILS ARE SATURATED DUE TO RAIN OR SNOW MELT.
2. DISTURBED SOILS SHALL BE STABILIZED WITHIN ONE (1) WEEK FROM THE TIME IT WAS LAST ACTIVELY WORKED USING TEMPORARY OR PERMANENT MEASURES SUCH AS PLACEMENT OF RIPRAP, MULCH OR EROSION CONTROL BLANKET, OR OTHER COMPARABLE MEASURES.
3. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF AT LEAST ONE (1) BALE PER 500 SQUARE FEET (1-2 TONS PER ACRE).
4. IF MULCH IS LIKELY TO BE REMOVED DUE TO TO STEEP SLOPES OR WIND, IT SHALL BE ANCHORED WITH NETTING, PEG OR TWINE, OR OTHER SUITABLE METHOD AND SHALL BE MAINTAINED UNTIL A CATCH OF VEGETATION IS ESTABLISHED OVER THE ENTIRE DISTURBED AREA.
5. IN ADDITION TO PLACEMENT OF RIPRAP, MULCH OR EROSION CONTROL BLANKETS, ADDITIONAL STEPS SHALL BE TAKEN WHERE NECESSARY IN ORDER TO PREVENT SEDIMENTATION OF THE WATER. EVIDENCE OF SEDIMENTATION INCLUDES VISIBLE GULLY EROSION, DISCOLORATION OF WATER BY SUSPENDED PARTICLES AND SLUMPING OF BANKS, SILT FENCES, STAKED HAY BALES AND OTHER SEDIMENTATION CONTROL MEASURES, WHERE PLANNED FOR, SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF WORK, BUT SHALL ALSO BE INSTALLED WHEREVER NECESSARY DUE TO SEDIMENTATION.
6. MULCH OR OTHER TEMPORARY MEASURES SHALL BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED WITH VEGETATION OR OTHER PERMANENT CONTROL MEASURES AFTER WHICH TEMPORARY MEASURES WILL BE REMOVED.
7. PERMANENT RE-VEGETATION OF ALL DISTURBED AREAS, USING NATIVE PLANT MATERIAL WHEN POSSIBLE, SHALL OCCUR WITHIN 30 DAYS FROM THE TIME THE AREAS WERE LAST ACTIVELY WORKED, OR FOR FALL AND WINTER ACTIVITIES, BY JUNE 15, EXCEPT WHERE PRECLUDED BY THE TYPE OF ACTIVITY (E.G. RIPRAP, ROAD SURFACES, ETC.). THE VEGETATIVE COVER SHALL BE MAINTAINED.
8. DISPOSAL OF COLLECTED DEBRIS MUST BE IN CONFORMANCE WITH MAINE SOLID WASTE LAW, TITLE 38 MRSA SECTION 1301 ET. SEQ.
9. LIME AND FERTILIZER APPLICATION RATES SHALL NOT EXCEED THE FOLLOWING:

GROUND LIMESTONE: 3 TONS/ACRE (130 LBS./1000 S.F.)
FERTILIZER, 10-10-10 OF EQUIVALENT: 600 LBS./ACRE (14 LBS./1000 S.F.)

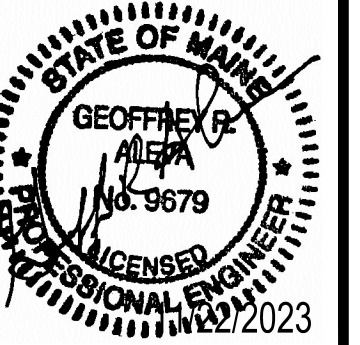
FERTILIZER SHALL NOT BE APPLIED BEFORE START OF THE GROWING SEASON NOR AFTER SEPTEMBER 30. FERTILIZED AREAS SHALL BE MULCHED TO REDUCE OFF-SITE TRANSPORT OF NUTRIENTS UNTIL USED BY VEGETATIVE GROWTH.

SEEDING MIXTURE AND SCHEDULE:

SPREAD TOPSOIL UNIFORMLY 6" DEEP OVER AREAS TO BE RECLAIMED. THE FOLLOWING SEED MIXTURE SHALL BE USED:

LAWNS:	
KENTUCKY BLUEGRASS	0.46 LBS./1000 S.F.
CREeping RED FESCUE	0.46 LBS./1000 S.F.
PERENNIAL RYE GRASS	0.11 LBS./1000 S.F.
TOTAL	1.03 LBS./1000 S.F.

APPLY LIME AND FERTILIZER AS SPECIFIED UNDER THE EROSION AND SEDIMENTATION CONTROL NOTES. WORK INTO THE TOP (4) INCHES OF SOIL PRIOR TO SEEDING. AFTER SEEDING, APPLY MULCH HAY AS SPECIFIED, ON FLAT AREAS AND NOT EXPOSED TO WIND, THE MULCH WILL BE ANCHORED BY WETTING DOWN. IN OTHER AREAS, JUTE NETTING SHALL BE USED FOR ANCHORAGE. THE ABOVE SEEDING SCHEDULE IS APPLICABLE IF SEEDING DURING THE GROWING SEASON (APRIL 15 TO JUNE 15 AND AUGUST 30 TO SEPTEMBER 30). BETWEEN JUNE 15 AND AUGUST 30, SEEDING WILL BE DELAYED UNTIL AUGUST 30. IF SOIL IS DISTURBED BETWEEN OCTOBER 1 AND NOVEMBER 1, DELAY SEEDING UNTIL NOVEMBER 1. AFTER NOVEMBER 1 AND BEFORE A SNOW COVER FORMS, THE SAME PROCEDURE WILL BE FOLLOWED EXCEPT THE SEED RATE WILL BE DOUBLED. AFTER SNOW COVER AND BEFORE APRIL 15, SEEDING WILL BE DELAYED UNTIL APRIL 15. HAY MULCH WILL BE APPLIED AT A RATE OF 150 LBS./1000 SQUARE FEET. THIS WILL BE ANCHORED BY NON-ASPHALTIC TACKIFIER SPRAYED ON LAWNS AND JUTE NETTING IN DRAINAGE WAYS AND OTHER AREAS.



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	DATE	DATE
	11/22/23	
JAA	11/06/23	
JAA	10/13/23	

	INT.	REVISIONS
3	ADD WAIVERS GRANTED	
2	REVISE PER TOWN OF KITTERY REVIEW	
1	REVISED PER TOWN OF KITTERY REVIEW	

NO.	DATE

RECORD OWNER:
25 & 17 ROUTE 236 LLC

ADDRESS:
P.O. BOX 630
KITTERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTERY, YORK COUNTY, MAINE
 PREPARED FOR:
25 & 17 ROUTE 236 LLC
 CLIENT ADDRESS:
8 PEPPERELL WAY, YORK, ME 03909



DATE: 08/18/2023
 DRAWN BY: DRC
 CHECKED BY: GRA
 APPROVED BY:

MAINTENANCE NOTES

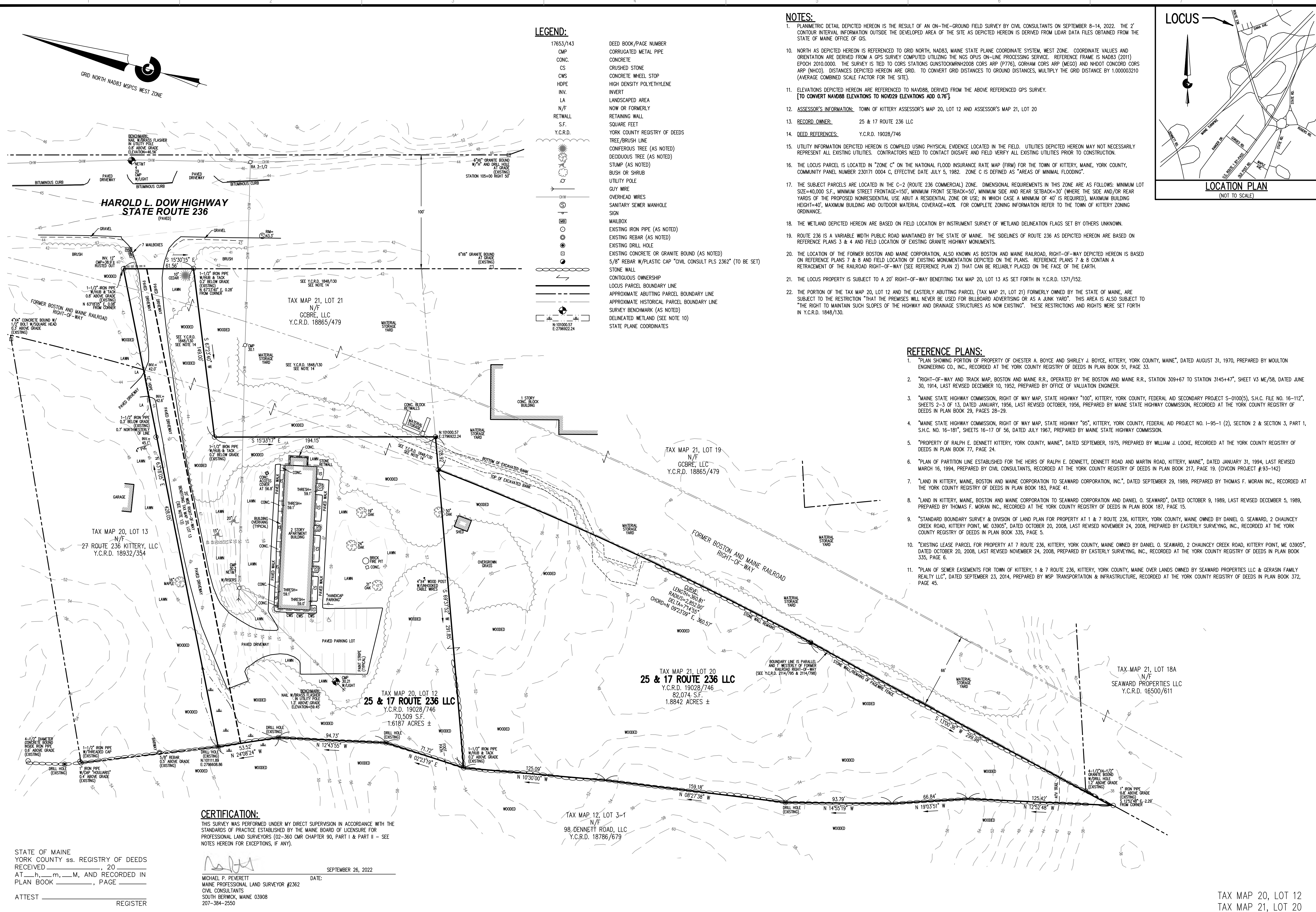
PROJECT NO: 22-180.00

L5

SHEET: 5 OF 5

APPROVAL OF THE PLANNING BOARD, KITTERY MAINE	
CHAIR	DATE

TAX MAP 20, LOT 12
 TAX MAP 21, LOT 20



LEGEND:

17653/143	DEED BOOK/PAGE NUMBER
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
CS	CRUSHED STONE
CWS	CONCRETE WHEEL STOP
HOPE	HIGH DENSITY POLYETHYLENE
INV.	INVERT
LA	LANDSCAPED AREA
N/F	NOW OR FORMERLY
RET WALL	RETAINING WALL
S.F.	SQUARE FEET
Y.C.R.D.	YORK COUNTY REGISTRY OF DEEDS
	TREE/BRUSH LINE
	CONIFEROUS TREE (AS NOTED)
	DECIDUOUS TREE (AS NOTED)
	STUMP (AS NOTED)
	BUSH OR SHRUB
	UTILITY POLE
	GUY WIRE
	OVERHEAD WIRES
	SANITARY SEWER MANHOLE
	SIGN
	MAILBOX
	EXISTING IRON PIPE (AS NOTED)
	EXISTING REBAR (AS NOTED)
	EXISTING DRILL HOLE
	EXISTING CONCRETE OR GRANITE BOUND (AS NOTED)
	5/8" REBAR W/PLASTIC CAP "CIVIL CONSULT PLS 2362" (TO BE SET)
	STONE WALL
	CONTIGUOUS OWNERSHIP
	LOCUS PARCEL BOUNDARY LINE
	APPROXIMATE ABUTTING PARCEL BOUNDARY LINE
	APPROXIMATE HISTORICAL PARCEL BOUNDARY LINE
	SURVEY BENCHMARK (AS NOTED)
	DELMETATED WETLAND (SEE NOTE 10)
	STATE PLANE COORDINATES

- NOTES:**
- PLANIMETRIC DETAIL DEPICTED HEREIN IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY BY CIVIL CONSULTANTS ON SEPTEMBER 8-14, 2022. THE 2' CONTOUR INTERVAL INFORMATION OUTSIDE THE DEVELOPED AREA OF THE SITE AS DEPICTED HEREON IS DERIVED FROM LIDAR DATA FILES OBTAINED FROM THE STATE OF MAINE OFFICE OF GIS.
 - NORTH AS DEPICTED HEREON IS REFERENCED TO GRID NORTH, NAD83, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE. COORDINATE VALUES AND ORIENTATION ARE DERIVED FROM A GPS SURVEY COMPUTED UTILIZING THE NGS OPUS ON-LINE PROCESSING SERVICE. REFERENCE FRAME IS NAD83 (2011) EPOCH 2010.0000. THE SURVEY IS TIED TO CORS STATIONS QUINCY/STOCKMUN/2008 CORS ARP (P778), GORHAM CORS ARP (MEOO) AND NH00T CONCORD CORS ARP (NH00). DISTANCES DEPICTED HEREON ARE GRID. TO CONVERT GRID DISTANCES TO GROUND DISTANCES, MULTIPLY THE GRID DISTANCE BY 1.000003210 (AVERAGE COMBINED SCALE FACTOR FOR THE SITE).
 - ELEVATIONS DEPICTED HEREON ARE REFERENCED TO NAVD88, DERIVED FROM THE ABOVE REFERENCED GPS SURVEY. [TO CONVERT NAVD88 ELEVATIONS TO NGVD29 ELEVATIONS ADD 0.76']
 - ASSESSOR'S INFORMATION: TOWN OF KITTEERY ASSESSOR'S MAP 20, LOT 12 AND ASSESSOR'S MAP 21, LOT 20
 - RECORD OWNER: 25 & 17 ROUTE 236 LLC
 - DEED REFERENCES: Y.C.R.D. 19028/746
 - UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS NEED TO CONTACT DIGSAFE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 - THE LOCUS PARCEL IS LOCATED IN "ZONE C" ON THE NATIONAL FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF KITTEERY, MAINE, YORK COUNTY, COMMUNITY PANEL NUMBER 230171 0004 C, EFFECTIVE DATE JULY 5, 1982. ZONE C IS DEFINED AS "AREAS OF MINIMAL FLOODING".
 - THE SUBJECT PARCELS ARE LOCATED IN THE C-2 (ROUTE 236 COMMERCIAL) ZONE. DIMENSIONAL REQUIREMENTS IN THIS ZONE ARE AS FOLLOWS: MINIMUM LOT SIZE=40,000 S.F., MINIMUM STREET FRONTAGE=150', MINIMUM FRONT SETBACK=50', MINIMUM SIDE AND REAR SETBACK=30' (WHERE THE SIDE AND/OR REAR YARDS OF THE PROPOSED NONRESIDENTIAL USE ABUT A RESIDENTIAL ZONE OR USE, IN WHICH CASE A MINIMUM OF 40' IS REQUIRED), MAXIMUM BUILDING HEIGHT=40', MAXIMUM BUILDING AND OUTDOOR MATERIAL COVERAGE=40%. FOR COMPLETE ZONING INFORMATION REFER TO THE TOWN OF KITTEERY ZONING ORDINANCE.
 - THE WETLAND DEPICTED HEREON ARE BASED ON FIELD LOCATION BY INSTRUMENT SURVEY OF WETLAND DELINEATION FLAGS SET BY OTHERS UNKNOWN.
 - ROUTE 236 IS A VARIABLE WIDTH PUBLIC ROAD MAINTAINED BY THE STATE OF MAINE. THE SIDELINES OF ROUTE 236 AS DEPICTED HEREON ARE BASED ON REFERENCE PLANS 3 & 4 AND FIELD LOCATION OF EXISTING GRANITE HIGHWAY MONUMENTS.
 - THE LOCATION OF THE FORMER BOSTON AND MAINE CORPORATION, ALSO KNOWN AS BOSTON AND MAINE RAILROAD, RIGHT-OF-WAY DEPICTED HEREON IS BASED ON REFERENCE PLANS 7 & 8 AND FIELD LOCATION OF EXISTING MONUMENTATION DEPICTED ON THE PLANS. REFERENCE PLANS 7 & 8 CONTAIN A RETRACTION OF THE RAILROAD RIGHT-OF-WAY (SEE REFERENCE PLAN 2) THAT CAN BE RELIABLY PLACED ON THE FACE OF THE EARTH.
 - THE LOCUS PROPERTY IS SUBJECT TO A 20' RIGHT-OF-WAY BENEFITING TAX MAP 20, LOT 13 AS SET FORTH IN Y.C.R.D. 1371/152.
 - THE PORTION OF THE TAX MAP 20, LOT 12 AND THE EASTERLY ABUTTING PARCEL (TAX MAP 21, LOT 21) FORMERLY OWNED BY THE STATE OF MAINE, ARE SUBJECT TO THE RESTRICTION "THAT THE PREMISES SHALL NEVER BE USED FOR BILLBOARD ADVERTISING OR AS A JUNK YARD". THIS AREA IS ALSO SUBJECT TO "THE RIGHT TO MAINTAIN SUCH SLOPES OF THE HIGHWAY AND DRAINAGE STRUCTURES AS NOW EXISTING". THESE RESTRICTIONS AND RIGHTS WERE SET FORTH IN Y.C.R.D. 1848/130.

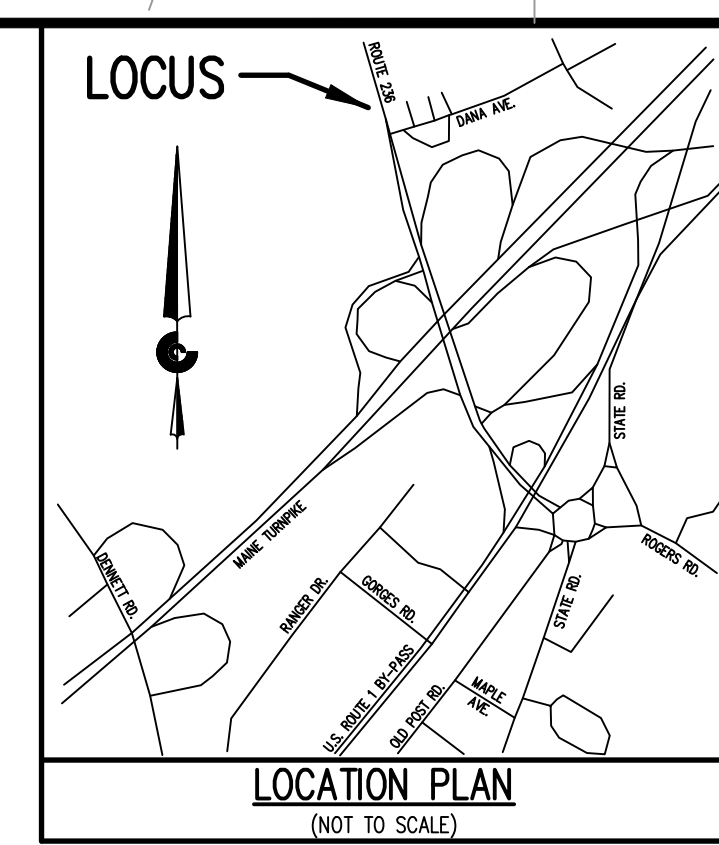
- REFERENCE PLANS:**
- "PLAN SHOWING PORTION OF PROPERTY OF CHESTER A. BOYCE AND SHIRLEY J. BOYCE, KITTEERY, YORK COUNTY, MAINE", DATED AUGUST 31, 1970, PREPARED BY MOULTON ENGINEERING CO., INC., RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 51, PAGE 33.
 - "RIGHT-OF-WAY AND TRACK MAP, BOSTON AND MAINE R.R., OPERATED BY THE BOSTON AND MAINE R.R., STATION 309+67 TO STATION 3145+47", SHEET V3 ME/58, DATED JUNE 30, 1914, LAST REVISED DECEMBER 10, 1952, PREPARED BY OFFICE OF VALUATION ENGINEER.
 - "MAINE STATE HIGHWAY COMMISSION, RIGHT OF WAY MAP, STATE HIGHWAY "100", KITTEERY, YORK COUNTY, FEDERAL AID SECONDARY PROJECT S-0100(S), S.H.C. FILE NO. 16-112", SHEETS 2-3 OF 13, DATED JANUARY, 1956, LAST REVISED OCTOBER, 1956, PREPARED BY MAINE STATE HIGHWAY COMMISSION, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 29, PAGES 28-29.
 - "MAINE STATE HIGHWAY COMMISSION, RIGHT OF WAY MAP, STATE HIGHWAY "95", KITTEERY, YORK COUNTY, FEDERAL AID PROJECT NO. 1-95-1 (2), SECTION 2 & SECTION 3, PART 1, S.H.C. NO. 16-101", SHEETS 16-17 OF 56, DATED JULY 1967, PREPARED BY MAINE STATE HIGHWAY COMMISSION.
 - "PROPERTY OF RALPH E. DENNETT KITTEERY, YORK COUNTY, MAINE", DATED SEPTEMBER, 1975, PREPARED BY WILLIAM J. LOOKE, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 77, PAGE 24.
 - "PLAN OF PARTITION ESTABLISHED FOR THE HEIRS OF RALPH E. DENNETT, DENNETT ROAD AND MARTIN ROAD, KITTEERY, MAINE", DATED JANUARY 31, 1994, LAST REVISED MARCH 16, 1994, PREPARED BY CIVIL CONSULTANTS, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 217, PAGE 19. (CIVCON PROJECT #93-142)
 - "LAND IN KITTEERY, MAINE, BOSTON AND MAINE CORPORATION TO SEAWARD CORPORATION, INC.", DATED SEPTEMBER 29, 1989, PREPARED BY THOMAS F. MORAN INC., RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 183, PAGE 41.
 - "LAND IN KITTEERY, MAINE, BOSTON AND MAINE CORPORATION TO SEAWARD CORPORATION AND DANIEL O. SEAWARD", DATED OCTOBER 9, 1989, LAST REVISED DECEMBER 5, 1989, PREPARED BY THOMAS F. MORAN INC., RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 187, PAGE 15.
 - "STANDARD BOUNDARY SURVEY & DIVISION OF LAND PLAN FOR PROPERTY AT 1 & 7 ROUTE 236, KITTEERY, YORK COUNTY, MAINE OWNED BY DANIEL O. SEAWARD, 2 CHAUNCEY CREEK ROAD, KITTEERY POINT, ME 03905", DATED OCTOBER 20, 2008, LAST REVISED NOVEMBER 24, 2008, PREPARED BY EASTERLY SURVEYING, INC., RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 335, PAGE 5.
 - "EXISTING LEASE PARCEL FOR PROPERTY AT 7 ROUTE 236, KITTEERY, YORK COUNTY, MAINE OWNED BY DANIEL O. SEAWARD, 2 CHAUNCEY CREEK ROAD, KITTEERY POINT, ME 03905", DATED OCTOBER 20, 2008, LAST REVISED NOVEMBER 24, 2008, PREPARED BY EASTERLY SURVEYING, INC., RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 372, PAGE 6.
 - "PLAN OF SEWER EASEMENTS FOR TOWN OF KITTEERY, 1 & 7 ROUTE 236, KITTEERY, YORK COUNTY, MAINE OVER LANDS OWNED BY SEAWARD PROPERTIES LLC & GERASIN FAMILY REALTY LLC", DATED SEPTEMBER 23, 2014, PREPARED BY WSP TRANSPORTATION & INFRASTRUCTURE, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 372, PAGE 45.

CERTIFICATION:
 THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE STANDARDS OF PRACTICE ESTABLISHED BY THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS (02-360 CMR CHAPTER 90, PART I & PART II - SEE NOTES HEREON FOR EXCEPTIONS, IF ANY).

STATE OF MAINE
 YORK COUNTY ss. REGISTRY OF DEEDS
 RECEIVED _____ 20____
 AT _____ m., AND RECORDED IN
 PLAN BOOK _____, PAGE _____

ATTEST _____ REGISTER

DATE: SEPTEMBER 26, 2022
 MICHAEL P. PEVERETT
 MAINE PROFESSIONAL LAND SURVEYOR #2362
 CIVIL CONSULTANTS
 SOUTH BERWICK, MAINE 03908
 207-384-2550



STATE OF MAINE
 MICHAEL P. PEVERETT
 2362
 PROFESSIONAL LAND SURVEYOR

CIVIL CONSULTANTS
 Engineers
 Planners
 Surveyors
 P.O. Box 100
 South Berwick
 Maine
 03908
 207-384-2550
 www.civcon.com

NO.	REVISIONS	INT.	DATE

RECORD OWNER:
 25 & 17 ROUTE 236 LLC

ADDRESS:
 P.O. BOX 630
 KITTEERY, ME 03904

**BOUNDARY / EXISTING CONDITIONS SURVEY
 LAND OF 25 & 17 ROUTE 236 LLC
 17/25 ROUTE 236
 KITTEERY, YORK COUNTY, MAINE**

PREPARED FOR:
 SONNY NATARAJAN
 8 PEPPERELL WAY, YORK, ME 03909

DATE: SEPTEMBER 26, 2022
 DRAWN BY: MPP
 CHECKED BY: CHM
 APPROVED BY: MPP

**BOUNDARY/EXISTING
 CONDITIONS
 PLAN**

PROJECT NO: 2218000

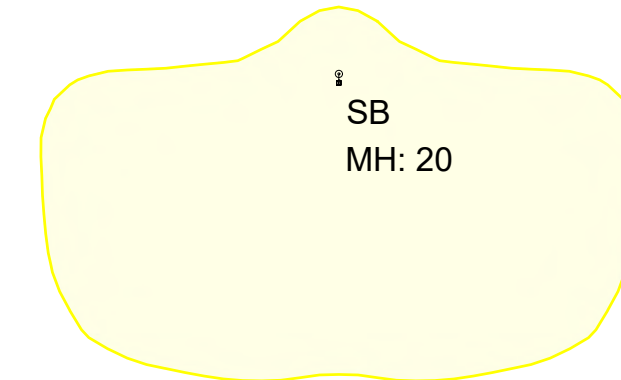
EC1

SHEET: 1 OF 1

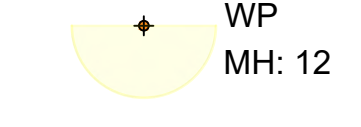
STATE OF MAINE
 YORK COUNTY ss. REGISTRY OF DEEDS
 RECEIVED _____ 20____
 AT _____ m., AND RECORDED IN
 PLAN BOOK _____, PAGE _____

ATTEST _____ REGISTER

LIGHT SYMBOLS



AREA LIGHT POLE:
BEACON VIPER, LED,
COLOR TEMP 3K
FIXTURE HEIGHT: 20 FT
MOUNT: POLE ARM
FINISH: BRONZE



WALL PACK:
BEACON LIGHTING LED
COLOR TEMP 3K
FIXTURE HEIGHT: 12 FT
MOUNT: WALL
FINISH: BRONZE

PREPARED FOR
PUBLIC HEARING
NOT FOR
CONSTRUCTION
11/13/2023

Scott Strynar
Landscape Architect, LLC.
98 Meehan Lane
North Berwick, ME 03906
(t) 207-957-4441

Registered Landscape Architect
Maine, New Hampshire & Mass.
www.scottstrynar.com

NO.	REVISIONS	INT.	DATE
2	REVISE PER TOWN OF KITTERY REVIEW	JAA	10/27/23
1	REVISED PER TOWN OF KITTERY REVIEW	JAA	10/13/23

RECORD OWNER:
25 & 17 ROUTE 236 LLC

ADDRESS:
P.O. BOX 630
KITTERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTERY, YORK COUNTY, MAINE

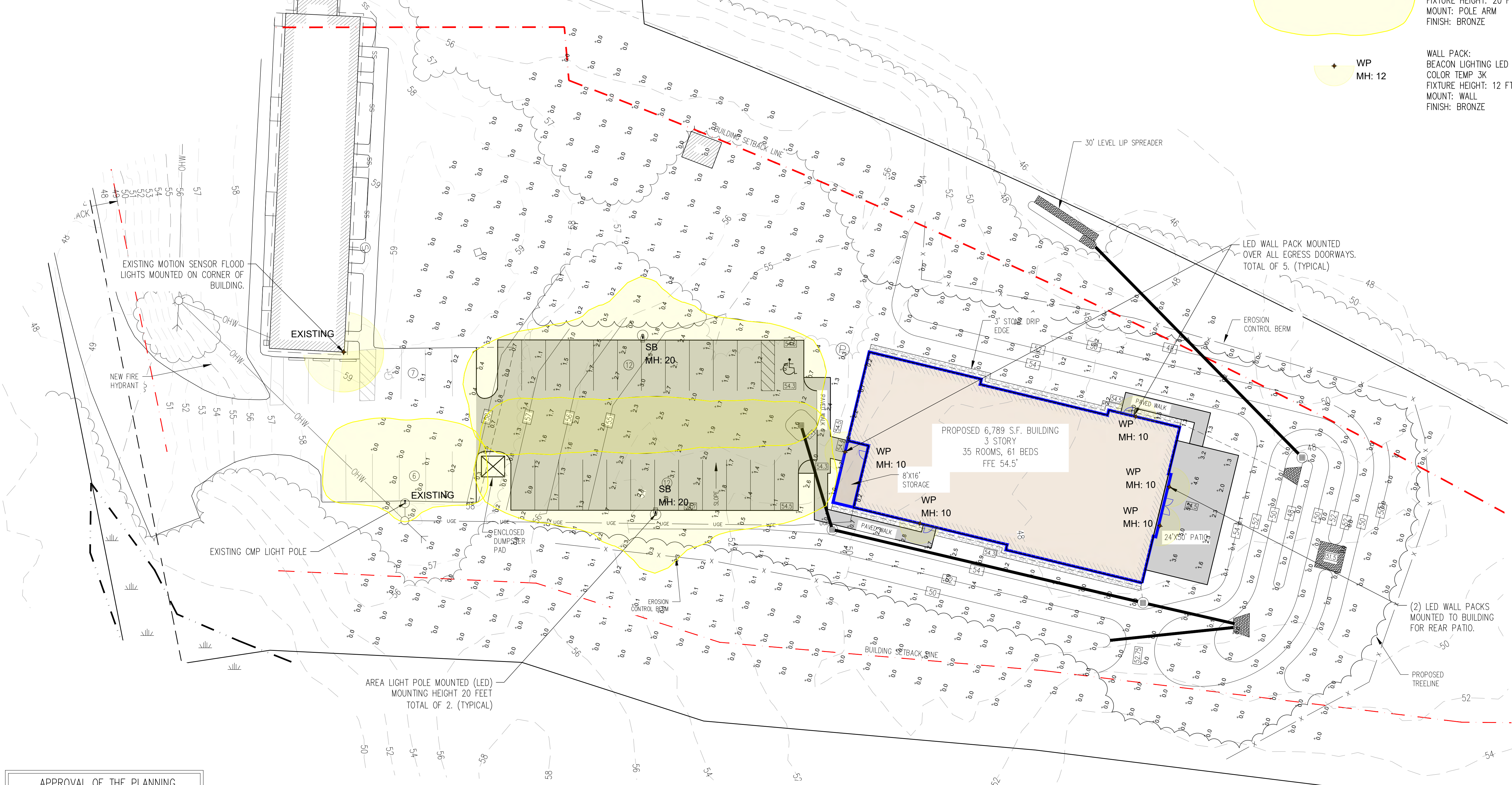
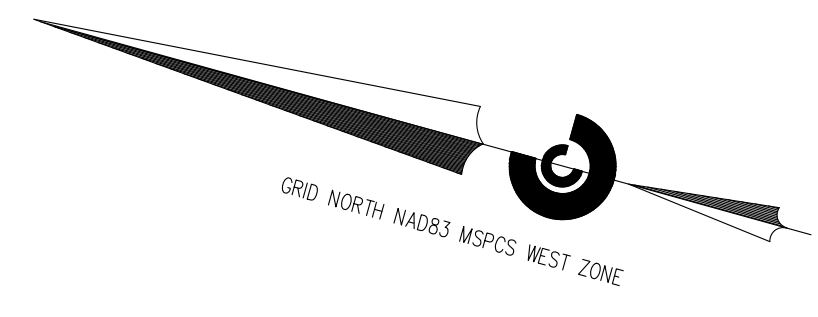
PREPARED FOR:
25 & 17 ROUTE 236 LLC
CLIENT ADDRESS:
8 PEPPERELL WAY, YORK, ME 03909

DATE: 08/18/2023
DRAWN BY: DRC/JAA
CHECKED BY: GRA
APPROVED BY:

SITE LIGHTING PLAN

PROJECT NO: 22-180.00

LL1
SHEET: 2 OF 5



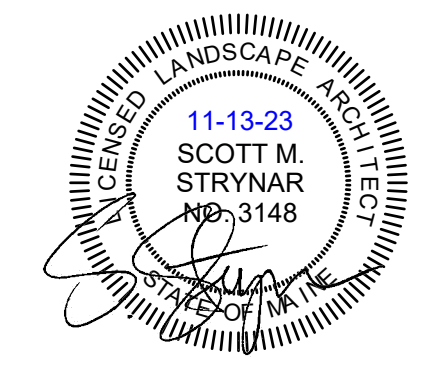
APPROVAL OF THE PLANNING BOARD, KITTERY MAINE

CHAIR	DATE

SIGNATURES OF 3 OR MORE PLANNING BOARD MEMBERS INDICATE APPROVAL OF THIS PLAN

Tag	Qty	Watts	Lumens	LLF	Description	Mounting Height
W1	5	19.9	2489	0.900	GEO1-24L-20-3K7-3-UNV-DBT	10
SA	2	83.6	9214	0.900	VP-ST-1-36L-85-3K7-3	20

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE	ILLUMINANCE	Fc	0.40	5.7	0.0	N.A.	N.A.
PARKING	ILLUMINANCE	Fc	1.84	3.8	0.6	3.07	6.33



TAX MAP 20, LOT 12
TAX MAP 21, LOT 20

DATE: LOCATION: MAINE
TYPE: PROJECT: 17/25 RTE 236, KITTERY
CATALOG #:

RSA-A Series

ROUND STRAIGHT ALUMINUM POLE

AAL Poles

SPECIFICATIONS

APPLICATIONS

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

- SHAFT: One-piece straight aluminum with round cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/8", or 1/2" thickness. Base plate of 355 cast aluminum.
- BOLT COVERS: Four (4) individual bolt covers provided, painted to match pole and base finish.
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available.
- HAND HOLE: Rectangular 3x5 aluminum hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554); Galvanized hardware with two washers and two nuts per bolt for leveling/spacing.

ORDERING GUIDE

Example: PRN-4R2-Q5-PCR-GF-SBC-PTF-BLT

POLE	SHAFT	THICKNESS	FINISH	BLT	WHAZ
RSA-A	Round Straight Aluminum Pole	Ordering matrix	Ordering matrix	Ordering matrix	Ordering matrix

Accessories

VMS30X 2nd mode vibration damper ordered separately

MOUNTING ORIENTATION

1 2 2L 3T 3Y 4 - Denotes handhole location

Color Option

CC Custom Color

Example: RSA-A-18-40-C (20FT) @ 4" ROUND
RSA-A-25-50-B (25FT) @ 5" ROUND

currentlighting.com/maill
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DATE: LOCATION: MAINE
TYPE: PROJECT: 17/25 RTE 236, KITTERY
CATALOG #:

RSA-A Series

ROUND STRAIGHT ALUMINUM POLE

PRODUCTS EXCEPTIONS & DETAILS

ORDERING MATRIX

Catalog Number	Height Feet	Nominal Shaft Dimensions	Wall Thickness	Base Plate Diameter	Anchor Bolt Size	Pole Weight
RSA-A-10-40-A	10	3.0	4" round	0.125	6.75"	27
RSA-A-12-40-A	12	3.7	4" round	0.125	6.75"	31
RSA-A-14-40-A	14	4.3	4" round	0.125	6.75"	36
RSA-A-16-40-A	16	4.9	4" round	0.125	6.75"	40
RSA-A-18-40-A	18	5.5	4" round	0.125	6.75"	45
RSA-A-20-40-A	20	6.1	4" round	0.125	6.75"	50
RSA-A-10-40-B	10	3.0	4" round	0.188	6.75"	38
RSA-A-12-40-B	12	3.7	4" round	0.188	6.75"	44
RSA-A-14-40-B	14	4.3	4" round	0.188	6.75"	51
RSA-A-16-40-B	16	4.9	4" round	0.188	6.75"	58
RSA-A-18-40-B	18	5.5	4" round	0.188	6.75"	65
RSA-A-20-40-B	20	6.1	4" round	0.188	6.75"	71
RSA-A-10-40-C	12	3.7	4" round	0.25	6.75"	57
RSA-A-12-40-C	14	4.3	4" round	0.25	6.75"	66
RSA-A-14-40-C	16	4.9	4" round	0.25	6.75"	75
RSA-A-16-40-C	18	5.5	4" round	0.25	6.75"	83
RSA-A-18-40-C	20	6.1	4" round	0.25	6.75"	92
RSA-A-12-50-B	12	3.7	5" round	0.188	7.75"	56
RSA-A-14-50-B	14	4.3	5" round	0.188	7.75"	64
RSA-A-16-50-B	16	4.9	5" round	0.188	7.75"	73
RSA-A-18-50-B	18	5.5	5" round	0.188	7.75"	81
RSA-A-20-50-B	20	6.1	5" round	0.188	7.75"	90
RSA-A-25-50-B	25	7.6	5" round	0.188	7.75"	111
RSA-A-16-60-A	16	4.9	6" round	0.125	8.75"	60
RSA-A-18-60-A	18	5.5	6" round	0.125	8.75"	67
RSA-A-20-60-A	20	6.1	6" round	0.125	8.75"	74
RSA-A-25-60-A	25	7.6	6" round	0.125	8.75"	91
RSA-A-16-60-C	18	5.5	6" round	0.25	8.75"	127
RSA-A-20-60-C	20	6.1	6" round	0.25	8.75"	140
RSA-A-25-60-C	25	9.1	6" round	0.25	8.75"	208

MOUNTING ORIENTATION

1 2 2L 3T 3Y 4 - Denotes handhole location

Color Option

CC Custom Color

Color

BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Gloss Smooth
DGT Graphite Matte Textured
LGS Light Gray Gloss Smooth
PSS Platinum Silver Gloss Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGT Verde Green Gloss Smooth

Color Option

CC Custom Color

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DATE: LOCATION: 17/25 RTE 236, KITTERY, MAINE
TYPE: PROJECT:
CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC - ORDERING GUIDE

Example: VP-ST-1-36L-39-3K7-2-UNV-A-BLT

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP	ST	1	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	2	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	3	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	4	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V

Color

BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Gloss Smooth
DGT Graphite Matte Textured
LGS Light Gray Gloss Smooth
PSS Platinum Silver Gloss Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGT Verde Green Gloss Smooth

Color Option

CC Custom Color

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DATE: LOCATION: 17/25 RTE 236, KITTERY, MAINE
TYPE: PROJECT:
CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC - ORDERING GUIDE

Example: VP-ST-1-36L-39-3K7-2-UNV-A-BLT

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP	ST	1	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	2	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	3	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V
VP	ST	4	36L-39*	5500 Lumens	ACT/CR1	FR Auto Front Row	UNV 120V

Color

BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Gloss Smooth
DGT Graphite Matte Textured
LGS Light Gray Gloss Smooth
PSS Platinum Silver Gloss Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGT Verde Green Gloss Smooth

Color Option

CC Custom Color

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DATE: LOCATION: 17/25 RTE 236, KITTERY, MAINE
TYPE: PROJECT:
CATALOG #:

GEOPAK SERIES 1

SIZE 1 - TRP1QSPH01

ORDERING GUIDE

Example: TRP1-24L-25-4K7-3-UNV-DBT

Series	LEDs	Wattage	CCT/CRI	Distribution	Voltage
TRP1	24L 2x2	15 15-watts	3K7 3000K, 70 CRI	3 TYPE-B	UNV 120-270V
RD1	20L 2x2	20 20-watts	4K7 4000K, 70 CRI	4W TYPE-M	120 120V
RS1	25L 2x2	25 25-watts	5K7 5000K, 70 CRI	5W TYPE-M	208 208V
RD1	20L 2x2	20 20-watts	3K7 3000K, 80 CRI	4W TYPE-M	240 240V
RS1	25L 2x2	25 25-watts	4K7 4000K, 80 CRI	5W TYPE-M	277 277V
RS1	25L 2x2	25 25-watts	5K7 5000K, 80 CRI	5W TYPE-M	347 347V
RS1	25L 2x2	25 25-watts	5K7 5000K, 80 CRI	5W TYPE-M	480 480V

Color

BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Gloss Smooth
DGT Graphite Matte Textured
LGS Light Gray Gloss Smooth
PSS Platinum Silver Gloss Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGT Verde Green Gloss Smooth

Color Option

CC Custom Color

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DATE: LOCATION: 17/25 RTE 236, KITTERY, MAINE
TYPE: PROJECT:
CATALOG #:

GEOPAK SERIES 1

SIZE 1 - TRP1QSPH01

ORDERING GUIDE

Example: TRP1-24L-25-4K7-3-UNV-DBT

Series	LEDs	Wattage	CCT/CRI	Distribution	Voltage
TRP1	24L 2x2	15 15-watts	3K7 3000K, 70 CRI	3 TYPE-B	UNV 120-270V
RD1	20L 2x2	20 20-watts	4K7 4000K, 70 CRI	4W TYPE-M	120 120V
RS1	25L 2x2	25 25-watts	5K7 5000K, 70 CRI	5W TYPE-M	208 208V
RD1	20L 2x2	20 20-watts	3K7 3000K, 80 CRI	4W TYPE-M	240 240V
RS1	25L 2x2	25 25-watts	4K7 4000K, 80 CRI	5W TYPE-M	277 277V
RS1	25L 2x2	25 25-watts	5K7 5000K, 80 CRI	5W TYPE-M	347 347V
RS1	25L 2x2	25 25-watts	5K7 5000K, 80 CRI	5W TYPE-M	480 480V

Color

BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Gloss Smooth
DGT Graphite Matte Textured
LGS Light Gray Gloss Smooth
PSS Platinum Silver Gloss Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGT Verde Green Gloss Smooth

Color Option

CC Custom Color

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APPROVAL OF THE PLANNING BOARD, KITTERY MAINE

CHAIR

DATE

SIGNATURES OF 3 OR MORE PLANNING BOARD MEMBERS INDICATE APPROVAL OF THIS PLAN

PREPARED FOR PUBLIC HEARING NOT FOR CONSTRUCTION 11/13/2023

Scott Strynar
Landscape Architect, LLC.
98 Meehan Lane
North Berwick, ME 03906
(1) 207-957-4441

NO.	REVISED PER	TOWN OF KITTERY REVIEW	DATE	INT.
1	10/13/23	JAA	10/27/23	INT.
2	REVERSE PER TOWN OF KITTERY REVIEW	JAA	10/27/23	INT.

RECORD OWNER:
25 & 17 ROUTE 236 LLC
ADDRESS:
P.O. BOX 630
KITTERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTERY, YORK COUNTY, MAINE
25 & 17 ROUTE 236 LLC
8 PEPPERELL WAY, YORK, ME 03909

DATE: 08/18/2023
DRAWN BY: DRC/JAA
CHECKED BY: GRA
APPROVED BY:

SITE LIGHTING DETAILS
PROJECT NO: 22-180.00
SHEET: 2 OF 5



The seal affixed above applies to this report and all attachments including the HydroCAD calculations, Stormwater Plans D1, D2

Site Plan Application
Stormwater Management Plan
“25 & 17 ROUTE 236 LLC”
KITTERY, MAINE

Prepared for
25 & 17 Route 236 LLC
P.O. Box 630
Kittery, ME 03904

August 2023

Site Plan Application

STORMWATER MANAGEMENT PLAN

**“25 & 17 Route 236 LLC”
25 & 17 Route 236
Kittery, Maine**

Prepared for:

**25 & 17 Route 236 LLC
P.O. Box 630
Kittery, ME 03904**

August 2023

INTRODUCTION:

The project site is located at 25 & 17 Route 236 in Kittery, Maine. 25 Route 236 is known as Map 20, Lot 12 and 17 Route 236 is known as Map 21, Lot 20 on the Town of Kittery tax map system. The existing lots contain a total of 3.50 acres of land, of which 0.445 acres are impervious coverage.

Most of the existing development is located on Map 20, Lot 12. There is an existing seven-unit 3,653 SF apartment building with associated parking and driveway entrance. The area surrounding the building is grassed, with the remainder of the property being woodland. There is 1,314 SF of wetlands in the northwest corner of the lot.

The only development on Map 21, Lot 20 is a small 125 SF shed with overgrown grass in the surrounding area. The remainder of the lot is undeveloped woodland.

The proposed development is intending to construct a new 3 story, 6,789 SF rooming house for the primary use of employees of the property owner.

The building will have an associated parking lot extended from the existing parking lot. There will also be a 128 SF storage building and a 1,200 SF patio on the south side of the building. Access to the new building will be from the existing driveway from Route 236.

The project will disturb less than an acre and will not require DEP review. The impervious area of the site will increase but will remain under the allowable 40% lot coverage for the Commercial-2 zone.

DESIGN REQUIREMENTS:

Section 16.7.11.C.4.a. of the Kittery Ordinance requires post-development peak discharges be limited to pre-development levels for a 2- year and 25-year, 24-hour storm.

The analysis for this report includes the 2-year and 25-year events to predict the downstream effects of the proposed site coverage changes.

EXISTING DRAINAGE CONDITIONS:

The existing lot is broken into four distinct drainage areas. Subcatchment 1 contains the northernmost portion of the property and includes a large offsite area to the northwest of the lot which drains toward the property. Stormwater from this area drains toward the culvert crossing under the entrance to the property. This culvert is a rusted out 12” corrugated metal pipe. While the outlet to this culvert was not able to be field located, the outlet area was modeled as OUT 1 for the purpose of this analysis.

Subcatchment 2 is the northern portion of the existing apartment building. The stormwater from this area also drains to OUT 1 along the southern side of the existing driveway entrance.



Subcatchment 3 contains the southeast side of the existing apartment building. This area drains east toward Gagne & Son landscaping supply store. This outlet is modeled as OUT 2.

Subcatchment 4 contains the remaining portion of the existing apartment, parking lot, the entire undeveloped area of Map 21, Lot 20, and a portion of undeveloped woodland to the west. This area also drains east toward Gagne & Son. The outlet is far enough south that it has been modeled separately as OUT 3.

Based on the Medium Intensity Soil Survey (attached) obtained from the NRCA Web Soil Survey website, soils in the watershed were found to be entirely hydrologic soil type D soils. See sheet D1 for the pre-development drainage conditions.

The area to be developed is in Zone C which is defined as areas of minimal flooding. A copy of the applicable FEMA map is included in the Town Site Plan Application.

PROPOSED DRAINAGE:

The proposed site has been designed to limit post-development flows off site during 2-year and 25-year storms to the greatest extent practical. This will ensure that there are minimal adverse downstream impacts as a result of the new development.

Subcatchments 10 and 20 are equivalent to subcatchments 1 and 2 in the pre-development analysis and will drain to OUT 1. These drainage areas will not be affected by the proposed development. However, the damaged CMP pipe under the entrance will be replaced as part of the work. This adjustment increases the flow to OUT 1 based on the stormwater

analysis with no other changes to the drainage areas.

Subcatchment 30 is equivalent to subcatchments 3 in the pre-development analysis and will drain to OUT 2. There are no changes to this area caused by the new development.

Subcatchment 4 in the pre-development analysis has been broken into six drainage areas to account for the new development.

Subcatchment 40 contains the northern portion of the new development, including the new parking lot. A catch basin routes the runoff towards a large detention basin modelled as pond 46P to the south of the new building.

Subcatchment 41 primarily contains the undeveloped portion to the west of the lot. A culvert collects the runoff from this area and routes to pond 46P.

Subcatchment 42 primarily contains the undeveloped portion to the south of the new development. The runoff from this subcatchment routes directly to OUT 3.

Subcatchment 43 contains the area to the east of the new development. Roughly half of this area will remain undeveloped, while the other half will be regraded and contain grass cover. The runoff from this subcatchment routes directly to OUT 3.

Subcatchments 44 and 45 contain the east and west side of the new building roof, respectively. There is a roof dripline filter on both sides of the building that collects roof runoff. All runoff from these areas are eventually routed to pond 46P.

Subcatchment 46 contains the southern portion of the new building roof, the proposed patio, and pond 46P. All runoff



from pond 46P gets routed through a new culvert and outlets to a level lip spreader on the east side of the lot. The level lip spreader is intended to convert runoff back to sheet flow prior to discharging off the property.

ANALYSIS:

The overall perimeter of the watershed remained the same for both Pre- and Post Development analyses. There were four subcatchments identified in the Pre-Development analysis and ten in the Post-Development analysis.

Three distinct discharge points known as OUT 1, OUT 2 and OUT 3 were used to compare the pre and post-development storm water flows.

For further details regarding subcatchment determination, refer to the project drawings and D1 & D2 included with this report.

METHODOLOGY:

All runoff calculations were performed using methods based on USDA-SCS Technical Release No. 20 (also known as TR-20). The 2- and 25-year events for the city of Portsmouth, New Hampshire (Type III rainfall distribution) were used for the analysis to determine the pre- and post-development peak discharge rates per Town of York requirements. Rainfall data was obtained from the Cornell Extreme Precipitation maps using 24 hour rainfall for Portsmouth, NH, in accordance with section 16.7.11.C.4.a. of the Kittery Ordinance.

Runoff curve numbers (CN) and times of concentration (Tc) were determined by the methods outlined in USDA-SCS Technical Release No. 55 (better known as TR-55). On site watershed areas were

determined using one-foot contour data gathered from an on the ground field survey performed by Civil Consultants. Offsite watershed areas were determined using two-foot contours from LIDAR.

The detailed analysis for this project was performed by computer utilizing "HYDROCAD" stormwater modeling software. The computer printouts are attached.

The attached Pre- and Post Development plans (D1 & D2) show subcatchment boundaries, hydraulic flow lines, existing and proposed roads, and drainage features and facilities. Land cover type boundaries used in the model for on-site areas are also shown on the plan (i.e. tree lines, gravel, etc).

FLOW RATES (REVISED):

TWO-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff (in cfs)		Change (cfs)
	Pre	Post	
OUT 1	3.47	5.88	+2.41
OUT 2	0.59	0.59	0.00
OUT 3	3.98	3.31	-0.67

TWENTY FIVE-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff (in cfs)		Change (cfs)
	Pre	Post	
OUT 1	22.23	15.83	-6.40
OUT 2	1.61	1.61	0.00
OUT 3	11.88	8.04	-3.84

Although there is an increase in flow to OUT 1 during the 2-year storm, this increase is due only to the model changing the exiting damaged culvert from a 12" CMP to a 15" HDPE. This change also results in a large decrease in flow during the 25-year storm.



This change in flow is due only to the way HydroCAD models stormwater. Realistically, the replacement of the culvert will have minimal impact on the runoff.

There are no changes to OUT 2 as the new development has no impact on this drainage area.

Runoff to OUT 3 has been decreased in both the 2-year and 25-year storm analyses in accordance with the Town of Kittery regulations. A large detention basin has been utilized to store runoff from the new development, and a level lip spreader will convert runoff back to sheet flow prior to discharging from the property.

A stormwater maintenance and inspection plan has also been included as part of this submission.

CONCLUSIONS:

The proposed site expansion will result in a decrease in stormwater flows to analysis point OUT 3. A large detention basin with a riprapped outlet will be utilized to reduce the impact of runoff to abutting lots.

The flow to OUT 1 has been modeled to increase during smaller storms due to the replacement of the damaged CMP culvert. There is no new development proposed that will affect this outlet.

It is our opinion that there will be no adverse downstream impacts because of this project, and the surrounding lots have been sufficiently protected by the proposed stormwater management plan.

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Stormwater Maintenance/Inspection Plan

During the construction of the new rooming house and parking facilities, maintenance of all erosion, sedimentation, and stormwater flow control structures and devices will be the responsibility of 25 & 17 Route 236, LLC., henceforth referred to as “Owner”.

The Owner will be responsible for the continued maintenance of the stormwater collection system during construction.

During construction, all erosion control devices and structures shall be checked weekly and after each “significant rainfall”**. Necessary repairs will be made to correct undermining or deterioration of the devices and/or structures.

After construction, the Owner will be responsible for the continued maintenance of all stormwater BMPs. The BMPs shall be checked annually and after major storm events.

The Owner shall maintain inspection logs (attached) of all stormwater and erosion control measures. The log shall reflect the dates of the inspections and describe actions taken. The log shall be kept on file for a minimum of 5 years and be made available to the Town upon request.

If invasive species are observed in any of the stormwater facilities, they shall be removed immediately. Any damage to the surface of the basins or filters shall be repaired and stabilized as soon as possible after disturbance.

The activities listed in the inspection log will be accomplished in early spring and in late fall.

A major storm event is classified as a rainfall exceeding 2.0 inches in a 24-hr storm event.

** Significant rainfall is 0.5” in 24 hr

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During Construction

During construction, maintenance shall be performed routinely on all erosion and sediment control BMPs. Refer to the following list of erosion and sediment control procedures.

Dust Control

Stabilize all laydown areas and all unpaved surfaces with a base gravel or coarse gravel as soon as possible. Use traffic control to restrict speed and route.

Water Application with frequent reapplication during warm sunny days will mitigate dust. The distribution of water should not cause turbid runoff.

Sweep and Vacuum paved road surface when dry. Sweep from the centerline to the edge of the travel way. Do not sweep into a waterbody or wetland. The public roadway may also require sweeping.

Construction Entrance

The entrance/exit pad should have a length of 50 feet or more and a 12-foot minimum width (or as appropriate to contain the wheel base of construction vehicles plus 3 feet on either side). The pad should be 6 inches or more thick with angular aggregate (2-3 inch diameter). Appropriate reclaimed concrete material may be used. The aggregate should be placed over a geotextile filter to prevent the stones from pushing into the native soil. At the bottom of slopes, a diversion ridge should be provided to intercept runoff. Berms may be necessary to divert water around any exposed soil, and runoff should be directed to a sediment trap. The pad should be inspected weekly, and before and after each storm. The pad may have to be replaced if the voids become filled with sediment. Street sweeping may be necessary.

Sediment Controls – All sediment controls shall be checked weekly and after significant rainfalls.

Silt Fence - The fence should be anchored to resist pull-out, and be stretched tightly between stakes to prevent sagging. A 6-inch wide and 6-inch deep trench should be excavated upgradient of the fence line to key the “flap” of the fabric. The trench is backfilled and compacted. When joints are necessary, filter cloth should be spliced by wrapping end stakes together. In areas where the flap cannot be keyed properly (due to frozen ground, bedrock, stony soil, roots, near a protected natural resource, etc.), the silt fence should be anchored with aggregate, crushed stone, erosion control mix, or other material.

Erosion Control Mix Berm - It may be necessary to cut, pack down or remove tall grasses, brush or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles. The ECM berm should be a minimum of 12” high and a minimum of two feet wide. On longer or steeper slopes, the berm will need to be wider and higher. Berms composed of ECM can be reshaped when necessary.

Storm Drain Inlet Protection - An inlet protection (storm drain drop inlet or curb inlet) captures sediment before runoff enters a catch basin. It is not effective for silts and clays. Various types of off-the-shelf devices are acceptable if installed, used, and maintained as specified by the manufacturer.

Overwinter Construction – The winter construction period runs from November 1st through April 15th; however no vegetation growth should be anticipated past October 15th in southern Maine. Additional stabilization measures should be provided by November 1st for winter and spring snowmelt if a construction site is not permanently stabilized with pavement, a gravel road base, 90% mature vegetation cover, erosion control mulch, or riprap. Ideally, permanent seeding should occur 45 days before the first killing frost (different dates for different Maine locations); otherwise, overwinter mulching is necessary.



Mulching – Mulching is the application of an organic cover over exposed soil to protect its structure from the impact of raindrops, to reduce the potential for erosion, and to maintain soil permeability and moisture for vegetation uptake. Erosion will occur where the soil does not have firm and continuous contact with an erosion control cover. Mulch must remain until the site is permanently stabilized or revegetated. Mulching shall be performed per weather prediction, soil erodibility, season, extent of disturbance, etc. within 7 days in sensitive areas (within 100 feet of a natural resource) or within 14 to 30 days in other areas.

Hay/Straw Mulch - Hay (straw will not import weeds) mulch prevents rain drop erosion, protects new seeding from sun exposure, and maintains moisture during germination. Loose mulch is not effective in windy areas, in areas of groundwater seepage or in channels with concentrated flows. Temporary mulch should be applied to areas that will not be actively worked for more than 14 days (7 days in sensitive areas). Application rate should be 2 bales (70-90 pounds) per 1000 square feet or 1.5 to 2 tons (90-100 bales) per acre and must be evenly distributed. Provide a mulch cover to soil stockpiles. Anchoring should be provided in areas with strong wind or on slopes greater than 5%. Hay mulch should be limited to slopes flatter than 2:1 unless short (less than 10 feet), and in non-seepage areas. Another measure should be used on steeper slopes with a high runoff potential. Anchoring can be accomplished by punching, crimping the mulch into the soil or tracking with a punch-roller or a knife blade roller. Walking and punching with a spade or shovel may be practicable on very small sites. Peg and twine or netting should be installed per the manufacturer's recommendations. Non-biodegradable plastic netting should be removed after the site is revegetated. Apply additional mulch if not revegetated with 90% grass uptake.

Erosion Control Blankets - An erosion control blanket could be used in the following conditions:

- Vegetated waterways and ditches; but not in areas of groundwater seepage
- Steep slopes (15% or greater and up to 2:1)
- In protected natural resource areas
- On areas that may be slow to revegetate
- For overwinter stabilization (November 1st - April 15th)

The soil surface should be finely graded and smooth for the blanket to have direct contact with the soil and to prevent undermining. Erosion control blankets perform best on loamy soils and should not be used on rocky sites or shallow soils. Seed should be sown before installing the erosion control blanket. Always unroll the blanket downhill without stretching and anchor the upslope edge in a 12 inch deep trench that is backfilled and tamped. Overlap shingle style a minimum of 12 inches at the top of each row and 4 inches at the edges of parallel rows. Anchor along the overlap with a maximum spacing of 3 feet or as required by the manufacturer.

Erosion Control Mix - Erosion control mix can be used on frozen ground, forested areas, on cut and fill slopes, and on roadside embankments. Apply a thickness of 2 inches on 3:1 slopes or less and add an additional 1/2 inch per 20 feet of slope or up to 4 inches for a 100 foot slope. On slopes greater than 3:1, 4 inches or more of material is recommended; and if slopes are greater than 60 feet long, 5 inches are needed. Erosion control mix is not recommended for slopes steeper than 1:1. The mix must be distributed evenly with a hydraulic bucket, pneumatic blower, or by hand. Other reinforcement BMPs (i.e. riprap) should be used on slopes with groundwater seepage, within drainage channels and their outlets, or in gullies.



Slopes – To be effective, slope stabilization and reinforcement should be adapted to the soil type, angle and length of the slope, presence of surface or groundwater, depth to bedrock, etc. Consultation with a civil engineer is advised for slopes that are over six feet, steeper than 1.5:1 grade, on unstable soils, with groundwater seeps, or where a structure is located near the top of the bank. A proper permit and design may be required for an embankment repair near a waterbody.

Cuts and Fills - Erosion potentials on fill slopes depend upon the depth of the fill, steepness, watershed size and presence of water. Fill slopes are more unstable than cut slopes from being disturbed or if lacking fines for proper compaction. In a wet area, gravel fill is preferred; but is at risk of being unstable. Terracing prevents surface runoff and promotes vegetation establishment by retaining moisture. The time between initial exposure and final stabilization should be minimized to prevent soil loss. Divert clean water away from the area and disperse to an undisturbed buffer or swale. For a fill slope, the native area should be cleared, grubbed, and scarified to a 3-inch depth. When working in below freezing temperatures, the ground should be scarified immediately before adding fill. The fill should be free of brush, rocks, or roots, and should not include frozen, soft or mucky material. The fill should be placed and compacted in 8-inch lifts to reduce lenses of loose soil. When filling or cutting a long slope (greater than 20 feet), benches (or terraces) should be provided to direct runoff away from the slope. The number of benches should be based upon the erodibility of the soil, steepness of the slope, and groundwater seeps. Mulch any soil exposed for longer than 7 days and with seed if ready for revegetation. Rill or gully erosion should be repaired immediately. Use winter stabilization practices if the construction is stopped for the winter months.

Geotextiles - Geotextiles should be placed with 12 inch overlaps and keyed 6 to 12 inches at the top and bottom of the area. Avoid using damaged cloth. **Woven Geotextiles** are mostly used for soil reinforcement beneath sharp, angular aggregates if dropped more than 5 feet; and where the cover will be more than 10 feet thick. It may be used for seepage management if the fabric's openings are smaller than the soil gradation. A woven filter fabric is usually used in a road base to provide bearing capacity and linear strength over soft subsoil. **Nonwoven Geotextiles** will retain more fine particles than woven geotextiles; and may allow water seepage without clogging. Nonwoven geotextiles have a rough surface that will bond soil layers and resists sliding along the planes of contact.

Riprap Protection - Riprap is used for structural support when a slope cannot be vegetated due to length or steepness of the slope, groundwater or surface water seepage, poor soil conditions, flowing water, etc. On a long slope, larger stones are used and placed at the bottom of the embankment and gradually grading down to smaller stones toward the top. A riprap stabilization project is composed of three sections:

- The surface armor layer of rough, angular rocks.
- The filter layer (a sand and gravel layer and/or a geotextile fabric) that supports the stones against settlement, allows groundwater to drain through the structure, and prevents the soil beneath from being washed through the riprap layer.
- The toe protection that reinforce the slope and prevents movement of the riprap. It is usually anchored in a trench at the toe of the slope.

Pipe Outlet Protection – Pipe outlet protection is the armor and/or plunge pool at the outlet of a culvert that prevents scour or turbulence, and will dissipate the flow energy from the pipe to the channel. For channels with a continuous flow, the culvert should be imbedded one quarter (1/4) its diameter to prevent a 'hanging' condition (drop from the pipe outlet to channel).



Post Construction – Routine Ongoing Maintenance

Sweeping

Paved surfaces shall be swept or vacuumed at least annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events. **Applicable to: All parking lots and travel ways on site.**

Roadways and Parking Surfaces				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Clear accumulated winter sand in parking lots and along roadways	X			
Sweep pavement to remove sediment	X			
Clean-out the sediment within water bars or open top culverts	X			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X			

Ditches, Swales and Culverts

Open swales and ditches need to be inspected on a monthly basis or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated.

If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to not flush the sediments into the retention/detention pond as it will reduce the pond's capacity and hasten the time when it must be cleaned. All pipes should be inspected on an annual basis.

Stormwater Channels				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect ditches, swales and other open stormwater channels	X	X	X	
Remove any obstructions and accumulated sediments or debris	X	X		
Control vegetated growth and woody vegetation		X		
Repair any erosion of the ditch lining		X		
Mow vegetated ditches		X		
Remove woody vegetation growing through riprap		X		
Repair any slumping side slopes	X	X		
Replace riprap where underlying filter fabric or underdrain gravel is showing or where stones have dislodge	X			X



Vegetated Areas

All areas of maintained lawn are to be inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized. Channelized flows from the eroded land shall be diverted to buffers or other areas able to withstand the high sediment load in the erosive runoff. **Applicable to: Lawn areas receiving/conveying flows in any storm event.**

Vegetated Areas				
	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
Inspect all slopes and embankments	X		X	
Replant bare areas or areas with sparse growth	X		X	
Armor areas with fill erosions with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows	X		X	

Catch Basins/Manholes

All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. These will be cleared, if necessary on a yearly basis or when sediment reaches two thirds of total volume. Catch basins and manholes need to be vacuumed and cleaned of all accumulated sediment. This work must be done by a vacuum truck. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Catch Basin/Manhole Systems				
	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X		



Detention Basin

After each significant rainfall event, or at least monthly, the basin shall be visually inspected to assure that the outlet structure is not blocked and that no sign of erosion is apparent within the berm or riprap.

Any sign of erosion or blockage shall be immediately repaired.

The basin shall be inspected on an annual basis to assure that significant sediment accumulation has not occurred. Whenever the sediment is within three inches of the outlet invert the accumulated sediment shall be removed and disposed of properly.

The basin shall be inspected on an annual basis for erosion, destabilization of side slopes, embankment settling, and other signs of structural failure. Corrective actions should be taken immediately upon identification of problems. Contact design engineer.

On a semi-annual basis, remove debris from the riprap apron, outlets, and emergency overflow.

On a semi-annual basis, inspect and remove debris from the control structure; check the orifice and all openings, and the elevation of any outlet weirs.

Remove sediment if it occupies 15% of the pond volume. In ponds with a permanent pool of water, the sediment can be measured by measuring the bottom surface elevations and comparing with records of initial construction.

Detention Basin				
	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Inspect the embankments for settlement, slope erosion, internal piping, and downstream swamping. A professional engineer must review these immediately.		X	X	
Mow the embankment to control woody vegetation.		X		
Inspect the outlet control structure for broken seals, obstructed orifices, and plugged trash racks.	X	X	X	
Remove and dispose of sediments and debris within the control structure.		X		X
Repair any damage to trash racks or debris guards		X		
Mow vegetated spillways to control woody vegetation and replace any dislodged stone in riprap spillways		X		
The riprap outlet should be inspected after every major storm in the first few months to ensure proper function and thereafter should be inspected at least once every six months.	X	X	X	
Detention basins should be inspected annually for erosion, destabilization of side slopes, embankment settling, and other signs of structural failure. Corrective actions should be taken immediately upon identification of problems. Contact design engineer.		X		



Level Lip Spreader

Long term maintenance of the level spreader is essential to ensure its continued effectiveness. The following provisions should be followed; in the first year the level spreader should be inspected semi annually and following major storm events for any signs of channelization and should be immediately repaired. After the first year, annual inspection should be sufficient.

Inspect and remove debris in level spreader. Record weir elevation, and adjust if necessary per the direction of the design engineer. Inspect for bypass or undermining, repair as needed any channelization as it is occurring and remove sediment buildup to assure sheet flow conditions.

Inspections: At least once a year, the level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity.

Sediment Removal: Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.

Debris: As needed remove debris such as leaf litter, branches and tree growth from the spreader.

Level Spreader Replacement: The reconstruction of the level spreader may be necessary when sheet flow from the spreader becomes channeled.

Mowing: Filters with grass cover should be mowed no more than 2 times per growing season to maintain grass heights less than 12 inches.

Level Lip Spreader				
	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
The level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity	X			
Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity				X
Remove debris such as leaf litter, branches and tree growth from the spreader	X	X		
The reconstruction of the level spreader may be necessary when sheet flow from the spreader becomes channeled into the buffer				X
Filters with grass cover should be mowed not more than 2 times per growing season				



Stormwater Maintenance 25 & 17 Route 236 LLC – Site Expansion

Post Construction Maintenance Checklist

This log is intended to accompany the Stormwater Management Facilities Maintenance Plan for 25 & 17 Route 236, LLC site expansion. The following items shall be checked, cleaned and maintained on regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five years and shall be available for review by the Town upon request. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Sweeping of Paved areas	Sweep annually in the Spring.			
Ditches, Swales and Culverts	Inspect after major rainfall event. Repair erosion or drainage immediately. Remove sediment if filtration times become greater than 12 hours. Clean culverts when sediment occupies more than 20% of pipe diameter.			
Vegetated Areas	Inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized.			
Catch Basins/ Manhole	Clean sumps with vacuum pump annually or when sediment occupies more than two thirds of the sump capacity.			
Detention Basin	After each significant rainfall event, or at least monthly, the basin shall be visually inspected to assure that the outlet structure is not blocked and that no sign of erosion is apparent within the berm or riprap. Repair erosion or drainage immediately.			
Level Lip Spreader	Inspected regularly for signs of erosions and channelization. Remove debris and sediment buildup. Grass should be mowed not more than 2 times per growing season.			



Stormwater Management System
25 & 17 Route 236 LLC – Site Expansion
Post Construction Inspection & Maintenance Log

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (List Items/Comments)	Date of Cleaning/Repair	Performed By

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**CIVIL
CONSULTANTS**

P.O. Box 100 South Berwick, Maine 03908 207-384-2550

Stormwater Management System
25 & 17 Route 236 LLC – Site Expansion

During Construction Inspection & Maintenance Log

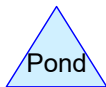
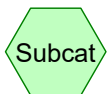
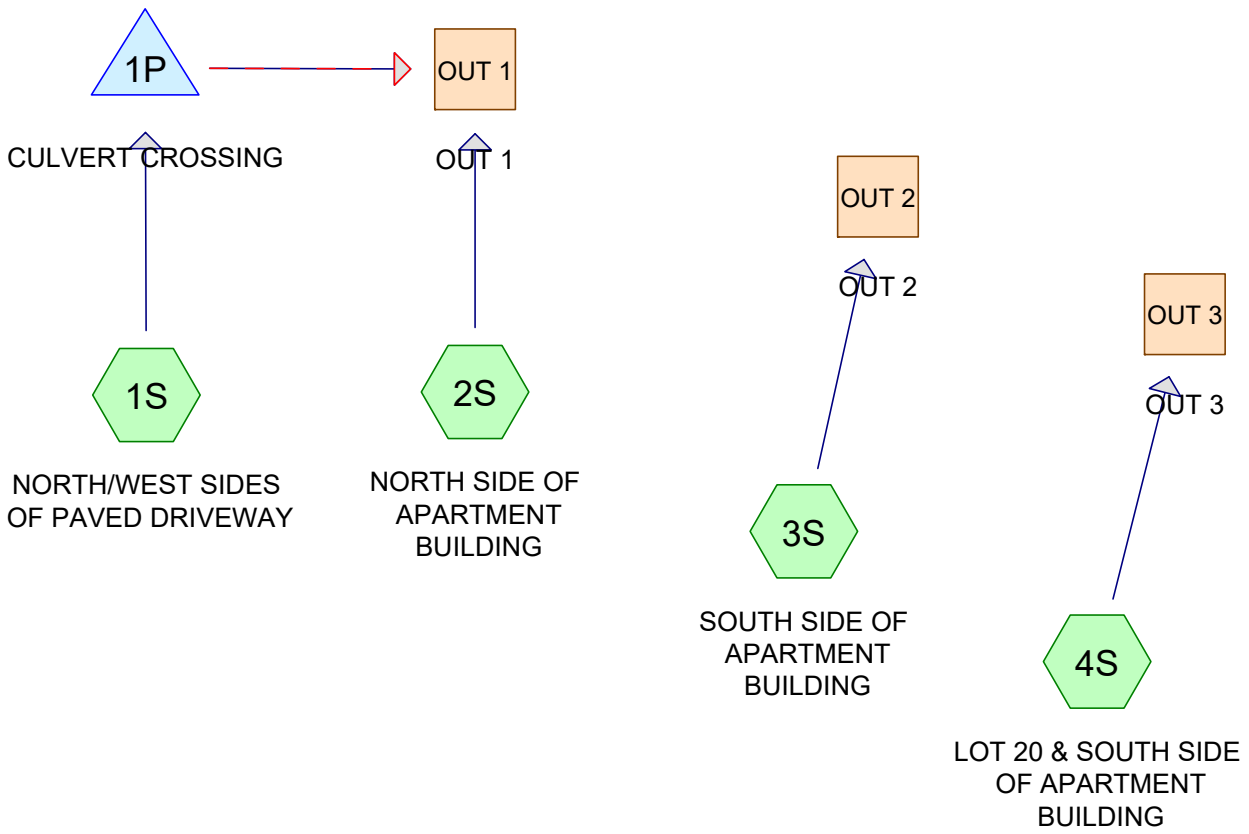
BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (List Items/Comments)	Date of Cleaning/Repair	Performed By

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**CIVIL
CONSULTANTS**

P.O. Box 100 South Berwick, Maine 03908 207-384-2550



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.459	84	1 acre lots, 20% imp, HSG D (1S)
0.616	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S)
0.035	96	Gravel surface, HSG D (1S, 2S, 3S, 4S)
0.133	98	Paved parking, HSG D (1S, 2S, 3S, 4S)
0.346	93	Paved roads w/open ditches, 50% imp, HSG D (1S, 2S)
0.087	98	Roofs, HSG D (2S, 3S, 4S)
0.004	98	Unconnected pavement, HSG D (2S, 3S, 4S)
7.315	77	Woods, Good, HSG D (1S, 2S, 3S, 4S)
9.995	79	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
9.995	HSG D	1S, 2S, 3S, 4S
0.000	Other	
9.995		TOTAL AREA

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.459	0.000	1.459	1 acre lots, 20% imp	
0.000	0.000	0.000	0.616	0.000	0.616	>75% Grass cover, Good	
0.000	0.000	0.000	0.035	0.000	0.035	Gravel surface	
0.000	0.000	0.000	0.133	0.000	0.133	Paved parking	
0.000	0.000	0.000	0.346	0.000	0.346	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.087	0.000	0.087	Roofs	
0.000	0.000	0.000	0.004	0.000	0.004	Unconnected pavement	
0.000	0.000	0.000	7.315	0.000	7.315	Woods, Good	
0.000	0.000	0.000	9.995	0.000	9.995	TOTAL AREA	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	53.0	0.0200	0.013	12.0	0.0	0.0
2	1P	38.90	38.00	91.0	0.0099	0.025	12.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: NORTH/WEST SIDES Runoff Area=245,360 sf 7.93% Impervious Runoff Depth=1.41"
Flow Length=1,072' Tc=25.4 min CN=80 Runoff=5.59 cfs 0.662 af

Subcatchment 2S: NORTH SIDE OF Runoff Area=27,202 sf 19.18% Impervious Runoff Depth=1.62"
Flow Length=193' Tc=6.7 min CN=83 Runoff=1.15 cfs 0.084 af

Subcatchment 3S: SOUTH SIDE OF Runoff Area=15,862 sf 12.01% Impervious Runoff Depth=1.48"
Flow Length=119' Tc=7.8 min CN=81 Runoff=0.59 cfs 0.045 af

Subcatchment 4S: LOT 20 & SOUTH SIDE Runoff Area=146,939 sf 2.30% Impervious Runoff Depth=1.28"
Flow Length=373' Tc=12.7 min CN=78 Runoff=3.98 cfs 0.360 af

Reach OUT 1: OUT 1 Inflow=3.47 cfs 0.746 af
Outflow=3.47 cfs 0.746 af

Reach OUT 2: OUT 2 Inflow=0.59 cfs 0.045 af
Outflow=0.59 cfs 0.045 af

Reach OUT 3: OUT 3 Inflow=3.98 cfs 0.360 af
Outflow=3.98 cfs 0.360 af

Pond 1P: CULVERT CROSSING Peak Elev=42.23' Storage=3,518 cf Inflow=5.59 cfs 0.662 af
Primary=3.21 cfs 0.662 af Secondary=0.00 cfs 0.000 af Outflow=3.21 cfs 0.662 af

Total Runoff Area = 9.995 ac Runoff Volume = 1.151 af Average Runoff Depth = 1.38"
93.11% Pervious = 9.306 ac 6.89% Impervious = 0.688 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: NORTH/WEST SIDES Runoff Area=245,360 sf 7.93% Impervious Runoff Depth=3.93"
Flow Length=1,072' Tc=25.4 min CN=80 Runoff=15.79 cfs 1.847 af

Subcatchment 2S: NORTH SIDE OF Runoff Area=27,202 sf 19.18% Impervious Runoff Depth=4.25"
Flow Length=193' Tc=6.7 min CN=83 Runoff=3.00 cfs 0.221 af

Subcatchment 3S: SOUTH SIDE OF Runoff Area=15,862 sf 12.01% Impervious Runoff Depth=4.04"
Flow Length=119' Tc=7.8 min CN=81 Runoff=1.61 cfs 0.123 af

Subcatchment 4S: LOT 20 & SOUTH SIDE Runoff Area=146,939 sf 2.30% Impervious Runoff Depth=3.73"
Flow Length=373' Tc=12.7 min CN=78 Runoff=11.88 cfs 1.048 af

Reach OUT 1: OUT 1 Inflow=22.23 cfs 2.068 af
Outflow=22.23 cfs 2.068 af

Reach OUT 2: OUT 2 Inflow=1.61 cfs 0.123 af
Outflow=1.61 cfs 0.123 af

Reach OUT 3: OUT 3 Inflow=11.88 cfs 1.048 af
Outflow=11.88 cfs 1.048 af

Pond 1P: CULVERT CROSSING Peak Elev=43.24' Storage=8,341 cf Inflow=15.79 cfs 1.847 af
Primary=3.68 cfs 1.455 af Secondary=17.36 cfs 0.392 af Outflow=21.03 cfs 1.847 af

Total Runoff Area = 9.995 ac Runoff Volume = 3.239 af Average Runoff Depth = 3.89"
93.11% Pervious = 9.306 ac 6.89% Impervious = 0.688 ac

Summary for Subcatchment 1S: NORTH/WEST SIDES OF PAVED DRIVEWAY

Runoff = 15.79 cfs @ 12.34 hrs, Volume= 1.847 af, Depth= 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
165,393	77	Woods, Good, HSG D
1,360	98	Paved parking, HSG D
10,792	93	Paved roads w/open ditches, 50% imp, HSG D
63,556	84	1 acre lots, 20% imp, HSG D
3,908	80	>75% Grass cover, Good, HSG D
351	96	Gravel surface, HSG D
245,360	80	Weighted Average
225,893		92.07% Pervious Area
19,467		7.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	100	0.0400	0.10		Sheet Flow, 1.1 Woods: Light underbrush n= 0.400 P2= 3.17"
3.1	250	0.0720	1.34		Shallow Concentrated Flow, 1.2 Woodland Kv= 5.0 fps
4.4	389	0.0051	1.47	25.81	Trap/Vee/Rect Channel Flow, 1.3 Bot.W=5.00' D=0.50' Z= 60.0 '/' Top.W=65.00' n= 0.030 Stream, clean & straight
1.0	185	0.0216	3.09	7.71	Trap/Vee/Rect Channel Flow, 1.4 Bot.W=1.00' D=0.50' Z= 8.0 '/' Top.W=9.00' n= 0.030 Stream, clean & straight
0.1	53	0.0200	6.42	5.04	Pipe Channel, 1.5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	95	0.0316	3.64	46.38	Trap/Vee/Rect Channel Flow, 1.6 Bot.W=3.00' D=0.50' Z= 45.0 '/' Top.W=48.00' n= 0.030 Stream, clean & straight
25.4	1,072	Total			

Summary for Subcatchment 2S: NORTH SIDE OF APARTMENT BUILDING

Runoff = 3.00 cfs @ 12.10 hrs, Volume= 0.221 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
1,102	98	Paved parking, HSG D
4,266	93	Paved roads w/open ditches, 50% imp, HSG D
609	96	Gravel surface, HSG D
1,827	98	Roofs, HSG D
8,433	80	>75% Grass cover, Good, HSG D
10,809	77	Woods, Good, HSG D
156	98	Unconnected pavement, HSG D
27,202	83	Weighted Average
21,984		80.82% Pervious Area
5,218		19.18% Impervious Area
156		2.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	50	0.2300	0.27		Sheet Flow, 2.1 Grass: Dense n= 0.240 P2= 3.17"
3.6	143	0.0175	0.66		Shallow Concentrated Flow, 2.2 Woodland Kv= 5.0 fps
6.7	193	Total			

Summary for Subcatchment 3S: SOUTH SIDE OF APARTMENT BUILDING

Runoff = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
9,050	77	Woods, Good, HSG D
4,503	80	>75% Grass cover, Good, HSG D
516	98	Paved parking, HSG D
1,372	98	Roofs, HSG D
404	96	Gravel surface, HSG D
17	98	Unconnected pavement, HSG D
15,862	81	Weighted Average
13,957		87.99% Pervious Area
1,905		12.01% Impervious Area
17		0.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0300	0.12		Sheet Flow, 3.1 Grass: Dense n= 0.240 P2= 3.17"
0.8	69	0.0870	1.47		Shallow Concentrated Flow, 3.2 Woodland Kv= 5.0 fps
7.8	119	Total			

Summary for Subcatchment 4S: LOT 20 & SOUTH SIDE OF APARTMENT BUILDING

Runoff = 11.88 cfs @ 12.18 hrs, Volume= 1.048 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
133,384	77	Woods, Good, HSG D
9,988	80	>75% Grass cover, Good, HSG D
580	98	Roofs, HSG D
2,800	98	Paved parking, HSG D
181	96	Gravel surface, HSG D
6	98	Unconnected pavement, HSG D
146,939	78	Weighted Average
143,553		97.70% Pervious Area
3,386		2.30% Impervious Area
6		0.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		Sheet Flow, 4.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	93	0.1075	1.64		Shallow Concentrated Flow, 4.2 Woodland Kv= 5.0 fps
1.7	101	0.0396	0.99		Shallow Concentrated Flow, 4.3 Woodland Kv= 5.0 fps
1.5	129	0.0050	1.48	20.36	Trap/Vee/Rect Channel Flow, 4.4 Bot.W=5.00' D=0.50' Z= 50.0 & 40.0 ' Top.W=50.00' n= 0.030 Stream, clean & straight
12.7	373	Total			

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.257 ac, 9.06% Impervious, Inflow Depth = 3.97" for 25 YR event
Inflow = 22.23 cfs @ 12.34 hrs, Volume= 2.068 af
Outflow = 22.23 cfs @ 12.34 hrs, Volume= 2.068 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.364 ac, 12.01% Impervious, Inflow Depth = 4.04" for 25 YR event
Inflow = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af
Outflow = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 3: OUT 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.373 ac, 2.30% Impervious, Inflow Depth = 3.73" for 25 YR event
 Inflow = 11.88 cfs @ 12.18 hrs, Volume= 1.048 af
 Outflow = 11.88 cfs @ 12.18 hrs, Volume= 1.048 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CULVERT CROSSING

[93] Warning: Storage range exceeded by 0.24'

[58] Hint: Peaked 0.24' above defined flood level

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

[87] Warning: Oscillations may require Finer Routing or smaller dt (severity=23)

Inflow Area = 5.633 ac, 7.93% Impervious, Inflow Depth = 3.93" for 25 YR event
 Inflow = 15.79 cfs @ 12.34 hrs, Volume= 1.847 af
 Outflow = 21.03 cfs @ 12.34 hrs, Volume= 1.847 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.68 cfs @ 12.34 hrs, Volume= 1.455 af
 Secondary = 17.36 cfs @ 12.34 hrs, Volume= 0.392 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 43.24' @ 12.34 hrs Surf.Area= 7,732 sf Storage= 8,341 cf

Flood Elev= 43.00' Surf.Area= 7,732 sf Storage= 8,341 cf

Plug-Flow detention time= 11.3 min calculated for 1.847 af (100% of inflow)

Center-of-Mass det. time= 11.3 min (842.3 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	38.90'	8,341 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.90	0	0.0	0	0	0
39.00	1	3.0	0	0	1
40.00	97	39.0	36	36	123
41.00	548	90.6	292	328	659
42.00	4,250	384.6	2,108	2,436	11,779
43.00	7,732	555.4	5,905	8,341	24,564

Device	Routing	Invert	Outlet Devices
#1	Primary	38.90'	12.0" Round CMP_Round 12" L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.90' / 38.00' S= 0.0099 1' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	42.90'	32.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60

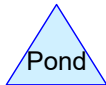
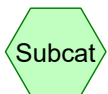
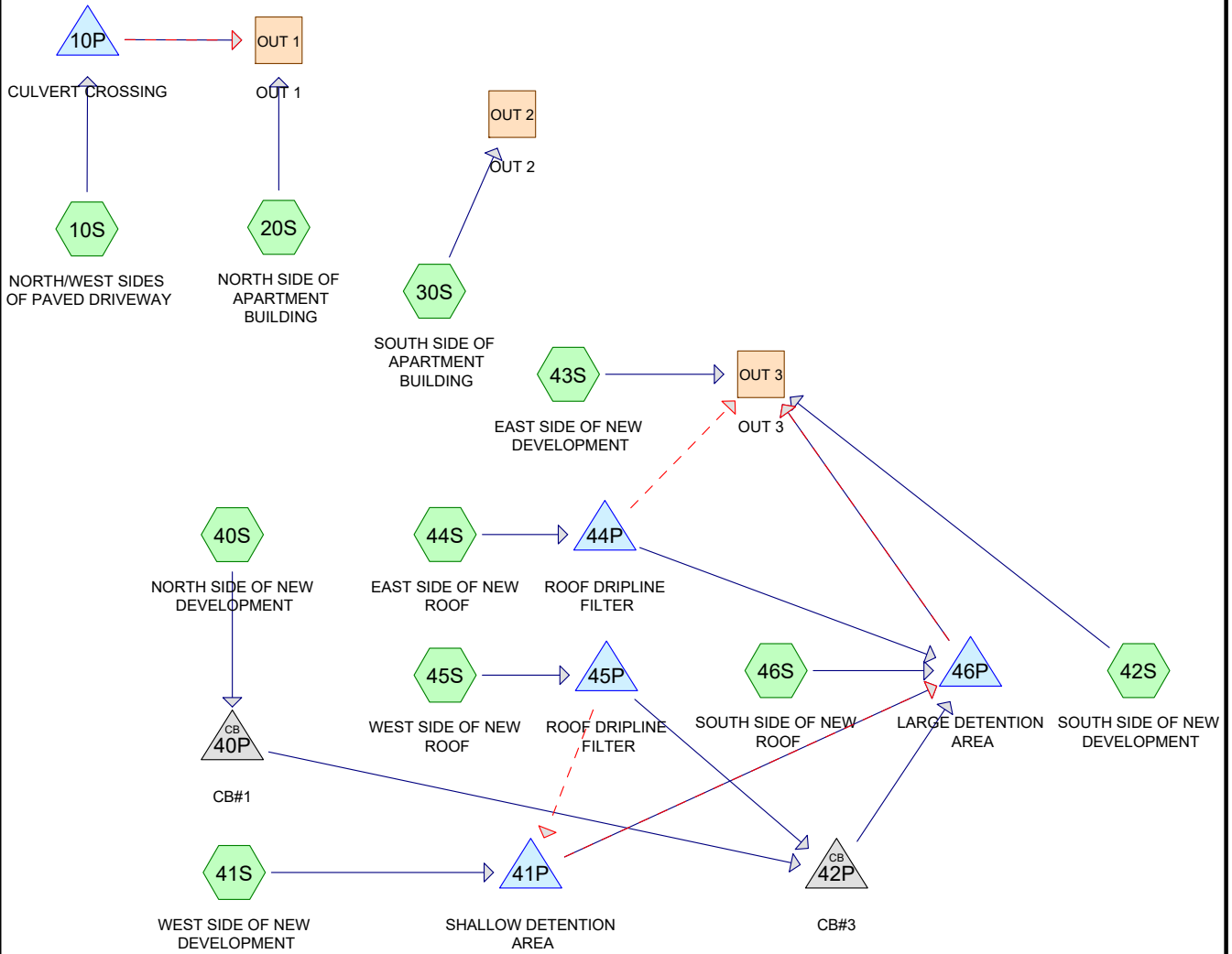
Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.68 cfs @ 12.34 hrs HW=43.24' TW=0.00' (Dynamic Tailwater)

↳1=CMP_Round 12" (Barrel Controls 3.68 cfs @ 4.68 fps)

Secondary OutFlow Max=17.36 cfs @ 12.34 hrs HW=43.24' TW=0.00' (Dynamic Tailwater)

↳2=Broad-Crested Rectangular Weir (Weir Controls 17.36 cfs @ 1.58 fps)



Routing Diagram for 20230816-2218000-POST
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.459	84	1 acre lots, 20% imp, HSG D (10S)
1.078	80	>75% Grass cover, Good, HSG D (10S, 20S, 30S, 40S, 41S, 42S, 43S, 46S)
0.052	96	Gravel surface, HSG D (10S, 20S, 30S, 40S, 44S, 45S)
0.295	98	Paved parking, HSG D (10S, 20S, 30S, 40S)
0.346	93	Paved roads w/open ditches, 50% imp, HSG D (10S, 20S)
0.246	98	Roofs, HSG D (20S, 30S, 40S, 44S, 45S, 46S)
0.047	98	Unconnected pavement, HSG D (20S, 30S, 40S, 43S, 44S, 46S)
6.472	77	Woods, Good, HSG D (10S, 20S, 30S, 40S, 41S, 42S, 43S)
9.995	80	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
9.995	HSG D	10S, 20S, 30S, 40S, 41S, 42S, 43S, 44S, 45S, 46S
0.000	Other	
9.995		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.459	0.000	1.459	1 acre lots, 20% imp	
0.000	0.000	0.000	1.078	0.000	1.078	>75% Grass cover, Good	
0.000	0.000	0.000	0.052	0.000	0.052	Gravel surface	
0.000	0.000	0.000	0.295	0.000	0.295	Paved parking	
0.000	0.000	0.000	0.346	0.000	0.346	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.246	0.000	0.246	Roofs	
0.000	0.000	0.000	0.047	0.000	0.047	Unconnected pavement	
0.000	0.000	0.000	6.472	0.000	6.472	Woods, Good	
0.000	0.000	0.000	9.995	0.000	9.995	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	10S	0.00	0.00	53.0	0.0200	0.013	12.0	0.0	0.0
2	10P	38.90	38.00	91.0	0.0099	0.013	15.0	0.0	0.0
3	40P	50.80	49.75	160.0	0.0066	0.013	12.0	0.0	0.0
4	41P	50.00	49.00	47.0	0.0213	0.013	12.0	0.0	0.0
5	42P	49.60	49.00	30.0	0.0200	0.013	12.0	0.0	0.0
6	44P	50.40	50.00	43.0	0.0093	0.010	6.0	0.0	0.0
7	45P	50.40	50.30	4.0	0.0250	0.010	6.0	0.0	0.0
8	46P	48.00	46.00	109.0	0.0183	0.013	12.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NORTH/WEST SIDES Runoff Area=245,360 sf 7.93% Impervious Runoff Depth=1.41"
Flow Length=1,072' Tc=25.4 min CN=80 Runoff=5.59 cfs 0.662 af

Subcatchment 20S: NORTH SIDE OF Runoff Area=27,202 sf 19.18% Impervious Runoff Depth=1.62"
Flow Length=193' Tc=6.7 min CN=83 Runoff=1.15 cfs 0.084 af

Subcatchment 30S: SOUTH SIDE OF Runoff Area=15,862 sf 12.01% Impervious Runoff Depth=1.48"
Flow Length=119' Tc=7.8 min CN=81 Runoff=0.59 cfs 0.045 af

Subcatchment 40S: NORTH SIDE OF NEW Runoff Area=21,626 sf 53.63% Impervious Runoff Depth=2.18"
Flow Length=105' Tc=6.8 min CN=90 Runoff=1.22 cfs 0.090 af

Subcatchment 41S: WEST SIDE OF NEW Runoff Area=53,516 sf 0.00% Impervious Runoff Depth=1.22"
Flow Length=143' Tc=9.5 min CN=77 Runoff=1.51 cfs 0.125 af

Subcatchment 42S: SOUTH SIDE OF NEW Runoff Area=44,253 sf 0.00% Impervious Runoff Depth=1.22"
Flow Length=216' Tc=12.8 min CN=77 Runoff=1.13 cfs 0.103 af

Subcatchment 43S: EAST SIDE OF NEW Runoff Area=13,486 sf 1.33% Impervious Runoff Depth=1.34"
Flow Length=50' Slope=0.1700 '/' Tc=5.3 min CN=79 Runoff=0.49 cfs 0.035 af

Subcatchment 44S: EAST SIDE OF NEW Runoff Area=3,045 sf 88.28% Impervious Runoff Depth=2.98"
Flow Length=28' Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment 45S: WEST SIDE OF NEW Runoff Area=3,007 sf 87.83% Impervious Runoff Depth=2.98"
Flow Length=28' Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment 46S: SOUTH SIDE OF NEW Runoff Area=8,006 sf 26.78% Impervious Runoff Depth=1.62"
Flow Length=28' Tc=6.0 min UI Adjusted CN=83 Runoff=0.35 cfs 0.025 af

Reach OUT 1: OUT 1 Inflow=5.88 cfs 0.746 af
Outflow=5.88 cfs 0.746 af

Reach OUT 2: OUT 2 Inflow=0.59 cfs 0.045 af
Outflow=0.59 cfs 0.045 af

Reach OUT 3: OUT 3 Inflow=3.31 cfs 0.411 af
Outflow=3.31 cfs 0.411 af

Pond 10P: CULVERT CROSSING Peak Elev=40.90' Storage=275 cf Inflow=5.59 cfs 0.662 af
Primary=5.47 cfs 0.662 af Secondary=0.00 cfs 0.000 af Outflow=5.47 cfs 0.662 af

Pond 40P: CB#1 Peak Elev=51.47' Inflow=1.22 cfs 0.090 af
12.0" Round Culvert n=0.013 L=160.0' S=0.0066 '/' Outflow=1.22 cfs 0.090 af

Pond 41P: SHALLOW DETENTION AREA Peak Elev=50.43' Storage=1,655 cf Inflow=1.51 cfs 0.125 af
Primary=0.57 cfs 0.124 af Secondary=0.00 cfs 0.000 af Outflow=0.57 cfs 0.124 af

Pond 42P: CB#3

Peak Elev=50.31' Inflow=1.34 cfs 0.107 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Outflow=1.34 cfs 0.107 af

Pond 44P: ROOF DRIPLINE FILTER

Peak Elev=53.52' Storage=57 cf Inflow=0.22 cfs 0.017 af
Primary=0.17 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.017 af

Pond 45P: ROOF DRIPLINE FILTER

Peak Elev=53.53' Storage=58 cf Inflow=0.22 cfs 0.017 af
Primary=0.17 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.017 af

Pond 46P: LARGE DETENTION AREA

Peak Elev=48.88' Storage=327 cf Inflow=2.05 cfs 0.273 af
Primary=1.85 cfs 0.273 af Secondary=0.00 cfs 0.000 af Outflow=1.85 cfs 0.273 af

Total Runoff Area = 9.995 ac Runoff Volume = 1.203 af Average Runoff Depth = 1.44"
89.47% Pervious = 8.942 ac 10.53% Impervious = 1.052 ac

Summary for Subcatchment 10S: NORTH/WEST SIDES OF PAVED DRIVEWAY

Runoff = 5.59 cfs @ 12.36 hrs, Volume= 0.662 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
165,393	77	Woods, Good, HSG D
1,360	98	Paved parking, HSG D
10,792	93	Paved roads w/open ditches, 50% imp, HSG D
63,556	84	1 acre lots, 20% imp, HSG D
3,908	80	>75% Grass cover, Good, HSG D
351	96	Gravel surface, HSG D
245,360	80	Weighted Average
225,893		92.07% Pervious Area
19,467		7.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	100	0.0400	0.10		Sheet Flow, 10.1 Woods: Light underbrush n= 0.400 P2= 3.17"
3.1	250	0.0720	1.34		Shallow Concentrated Flow, 10.2 Woodland Kv= 5.0 fps
4.4	389	0.0051	1.47	25.81	Trap/Vee/Rect Channel Flow, 10.3 Bot.W=5.00' D=0.50' Z= 60.0 '/' Top.W=65.00' n= 0.030 Stream, clean & straight
1.0	185	0.0216	3.09	7.71	Trap/Vee/Rect Channel Flow, 10.4 Bot.W=1.00' D=0.50' Z= 8.0 '/' Top.W=9.00' n= 0.030 Stream, clean & straight
0.1	53	0.0200	6.42	5.04	Pipe Channel, 10.5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	95	0.0316	3.64	46.38	Trap/Vee/Rect Channel Flow, 10.6 Bot.W=3.00' D=0.50' Z= 45.0 '/' Top.W=48.00' n= 0.030 Stream, clean & straight
25.4	1,072	Total			

Summary for Subcatchment 20S: NORTH SIDE OF APARTMENT BUILDING

Runoff = 1.15 cfs @ 12.10 hrs, Volume= 0.084 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
1,102	98	Paved parking, HSG D
4,266	93	Paved roads w/open ditches, 50% imp, HSG D
609	96	Gravel surface, HSG D
1,827	98	Roofs, HSG D
8,433	80	>75% Grass cover, Good, HSG D
10,809	77	Woods, Good, HSG D
156	98	Unconnected pavement, HSG D
27,202	83	Weighted Average
21,984		80.82% Pervious Area
5,218		19.18% Impervious Area
156		2.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	50	0.2300	0.27		Sheet Flow, 20.1 Grass: Dense n= 0.240 P2= 3.17"
3.6	143	0.0175	0.66		Shallow Concentrated Flow, 20.2 Woodland Kv= 5.0 fps
6.7	193	Total			

Summary for Subcatchment 30S: SOUTH SIDE OF APARTMENT BUILDING

Runoff = 0.59 cfs @ 12.11 hrs, Volume= 0.045 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
9,050	77	Woods, Good, HSG D
4,503	80	>75% Grass cover, Good, HSG D
516	98	Paved parking, HSG D
1,372	98	Roofs, HSG D
404	96	Gravel surface, HSG D
17	98	Unconnected pavement, HSG D
15,862	81	Weighted Average
13,957		87.99% Pervious Area
1,905		12.01% Impervious Area
17		0.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0300	0.12		Sheet Flow, 30.1 Grass: Dense n= 0.240 P2= 3.17"
0.8	69	0.0870	1.47		Shallow Concentrated Flow, 30.2 Woodland Kv= 5.0 fps
7.8	119	Total			

Summary for Subcatchment 40S: NORTH SIDE OF NEW DEVELOPMENT

Runoff = 1.22 cfs @ 12.10 hrs, Volume= 0.090 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
1,193	77	Woods, Good, HSG D
8,654	80	>75% Grass cover, Good, HSG D
1,264	98	Roofs, HSG D
9,863	98	Paved parking, HSG D
181	96	Gravel surface, HSG D
471	98	Unconnected pavement, HSG D
21,626	90	Weighted Average
10,028		46.37% Pervious Area
11,598		53.63% Impervious Area
471		4.06% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		Sheet Flow, 40.1 Grass: Dense n= 0.240 P2= 3.17"
0.4	21	0.0143	0.84		Shallow Concentrated Flow, 40.2 Short Grass Pasture Kv= 7.0 fps
0.2	34	0.0265	3.30		Shallow Concentrated Flow, 40.3 Paved Kv= 20.3 fps
6.8	105	Total			

Summary for Subcatchment 41S: WEST SIDE OF NEW DEVELOPMENT

Runoff = 1.51 cfs @ 12.14 hrs, Volume= 0.125 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
47,707	77	Woods, Good, HSG D
5,809	80	>75% Grass cover, Good, HSG D
53,516	77	Weighted Average
53,516		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		Sheet Flow, 41.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	93	0.1075	1.64		Shallow Concentrated Flow, 41.2 Woodland Kv= 5.0 fps
9.5	143	Total			

Summary for Subcatchment 42S: SOUTH SIDE OF NEW DEVELOPMENT

Runoff = 1.13 cfs @ 12.19 hrs, Volume= 0.103 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
40,851	77	Woods, Good, HSG D
3,402	80	>75% Grass cover, Good, HSG D
44,253	77	Weighted Average
44,253		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, 42.1 Woods: Light underbrush n= 0.400 P2= 3.17"
2.3	166	0.0575	1.20		Shallow Concentrated Flow, 42.2 Woodland Kv= 5.0 fps
12.8	216	Total			

Summary for Subcatchment 43S: EAST SIDE OF NEW DEVELOPMENT

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
6,910	77	Woods, Good, HSG D
6,397	80	>75% Grass cover, Good, HSG D
179	98	Unconnected pavement, HSG D
13,486	79	Weighted Average
13,307		98.67% Pervious Area
179		1.33% Impervious Area
179		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.1700	0.16		Sheet Flow, 43.1 Woods: Light underbrush n= 0.400 P2= 3.17"

Summary for Subcatchment 44S: EAST SIDE OF NEW ROOF

Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
2,673	98	Roofs, HSG D
357	96	Gravel surface, HSG D
15	98	Unconnected pavement, HSG D
3,045	98	Weighted Average
357		11.72% Pervious Area
2,688		88.28% Impervious Area
15		0.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 44.1 - DIRECT ENTRY

Summary for Subcatchment 45S: WEST SIDE OF NEW ROOF

Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Description
2,641	98	Roofs, HSG D
366	96	Gravel surface, HSG D
3,007	98	Weighted Average
366		12.17% Pervious Area
2,641		87.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 45.1 - DIRECT ENTRY

Summary for Subcatchment 46S: SOUTH SIDE OF NEW ROOF

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.21"

Area (sf)	CN	Adj	Description
919	98		Roofs, HSG D
1,225	98		Unconnected pavement, HSG D
5,862	80		>75% Grass cover, Good, HSG D
8,006	85	83	Weighted Average, UI Adjusted
5,862			73.22% Pervious Area
2,144			26.78% Impervious Area
1,225			57.14% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 46.1 - DIRECT ENTRY

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.257 ac, 9.06% Impervious, Inflow Depth = 1.43" for 2 YR event
 Inflow = 5.88 cfs @ 12.40 hrs, Volume= 0.746 af
 Outflow = 5.88 cfs @ 12.40 hrs, Volume= 0.746 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.364 ac, 12.01% Impervious, Inflow Depth = 1.48" for 2 YR event
 Inflow = 0.59 cfs @ 12.11 hrs, Volume= 0.045 af
 Outflow = 0.59 cfs @ 12.11 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 3: OUT 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.373 ac, 13.10% Impervious, Inflow Depth > 1.46" for 2 YR event
 Inflow = 3.31 cfs @ 12.16 hrs, Volume= 0.411 af
 Outflow = 3.31 cfs @ 12.16 hrs, Volume= 0.411 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 10P: CULVERT CROSSING

Inflow Area = 5.633 ac, 7.93% Impervious, Inflow Depth = 1.41" for 2 YR event
 Inflow = 5.59 cfs @ 12.36 hrs, Volume= 0.662 af
 Outflow = 5.47 cfs @ 12.42 hrs, Volume= 0.662 af, Atten= 2%, Lag= 3.2 min
 Primary = 5.47 cfs @ 12.42 hrs, Volume= 0.662 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 40.90' @ 12.42 hrs Surf.Area= 485 sf Storage= 275 cf
 Flood Elev= 43.00' Surf.Area= 7,732 sf Storage= 8,341 cf

Plug-Flow detention time= 0.2 min calculated for 0.662 af (100% of inflow)
 Center-of-Mass det. time= 0.2 min (860.8 - 860.6)

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Type III 24-hr 2 YR Rainfall=3.21"

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Volume	Invert	Avail.Storage	Storage Description			
#1	38.90'	8,341 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
38.90	0	0.0	0	0	0	
39.00	1	3.0	0	0	1	
40.00	97	39.0	36	36	123	
41.00	548	90.6	292	328	659	
42.00	4,250	384.6	2,108	2,436	11,779	
43.00	7,732	555.4	5,905	8,341	24,564	

Device	Routing	Invert	Outlet Devices
#1	Primary	38.90'	15.0" Round NEW 15" HDPE L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.90' / 38.00' S= 0.0099 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	42.90'	32.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.47 cfs @ 12.42 hrs HW=40.90' TW=0.00' (Dynamic Tailwater)
 ↳1=NEW 15" HDPE (Inlet Controls 5.47 cfs @ 4.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.90' TW=0.00' (Dynamic Tailwater)
 ↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 40P: CB#1

Inflow Area = 0.496 ac, 53.63% Impervious, Inflow Depth = 2.18" for 2 YR event
 Inflow = 1.22 cfs @ 12.10 hrs, Volume= 0.090 af
 Outflow = 1.22 cfs @ 12.10 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.22 cfs @ 12.10 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 51.47' @ 12.10 hrs
 Flood Elev= 53.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.80'	12.0" Round 12" HDPE L= 160.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.80' / 49.75' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.10 hrs HW=51.47' TW=50.29' (Dynamic Tailwater)
 ↳1=12" HDPE (Inlet Controls 1.22 cfs @ 2.19 fps)

Summary for Pond 41P: SHALLOW DETENTION AREA

Inflow Area = 1.229 ac, 0.00% Impervious, Inflow Depth = 1.22" for 2 YR event
 Inflow = 1.51 cfs @ 12.14 hrs, Volume= 0.125 af
 Outflow = 0.57 cfs @ 12.49 hrs, Volume= 0.124 af, Atten= 62%, Lag= 21.3 min
 Primary = 0.57 cfs @ 12.49 hrs, Volume= 0.124 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 50.43' @ 12.49 hrs Surf.Area= 4,430 sf Storage= 1,655 cf
 Flood Elev= 52.50' Surf.Area= 10,950 sf Storage= 17,994 cf

Plug-Flow detention time= 95.4 min calculated for 0.124 af (99% of inflow)
 Center-of-Mass det. time= 92.0 min (947.4 - 855.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	50.00'	23,695 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	3,280	317.0	0	0	3,280
52.00	10,078	423.8	12,738	12,738	9,619
53.00	11,859	448.7	10,956	23,695	11,402

Device	Routing	Invert	Outlet Devices
#1	Primary	50.00'	12.0" Round Culvert L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.00' / 49.00' S= 0.0213 ' S= 0.0213 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	52.75'	10.0' long x 11.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Primary OutFlow Max=0.57 cfs @ 12.49 hrs HW=50.43' TW=48.66' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 0.57 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=50.00' TW=48.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 42P: CB#3

Inflow Area = 0.565 ac, 57.80% Impervious, Inflow Depth = 2.28" for 2 YR event
 Inflow = 1.34 cfs @ 12.12 hrs, Volume= 0.107 af
 Outflow = 1.34 cfs @ 12.12 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.34 cfs @ 12.12 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 50.31' @ 12.12 hrs
 Flood Elev= 53.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.60'	12.0" Round 12" HDPE L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 49.60' / 49.00' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.12 hrs HW=50.31' TW=48.85' (Dynamic Tailwater)
 ↳1=12" HDPE (Inlet Controls 1.34 cfs @ 2.26 fps)

Summary for Pond 44P: ROOF DRIPLINE FILTER

[87] Warning: Oscillations may require Finer Routing or smaller dt (severity=3)

Inflow Area =	0.070 ac, 88.28% Impervious, Inflow Depth = 2.98" for 2 YR event
Inflow =	0.22 cfs @ 12.08 hrs, Volume= 0.017 af
Outflow =	0.17 cfs @ 12.11 hrs, Volume= 0.017 af, Atten= 23%, Lag= 1.6 min
Primary =	0.17 cfs @ 12.11 hrs, Volume= 0.017 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 53.52' @ 12.15 hrs Surf.Area= 720 sf Storage= 57 cf
 Flood Elev= 133.00' Surf.Area= 1,120 sf Storage= 294 cf

Plug-Flow detention time= 3.0 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 3.0 min (759.3 - 756.3)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	144 cf	3.00'W x 120.00'L x 1.00'H Prismatic - STONE 360 cf Overall x 40.0% Voids
#2	52.50'	54 cf	3.00'W x 120.00'L x 1.00'H Prismatic FILTER 360 cf Overall x 15.0% Voids
#3	54.50'	96 cf	Ponding over filter surface (Conic) Listed below (Recalc)
		294 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.50	372	0	0	372
54.75	400	96	96	405

Device	Routing	Invert	Outlet Devices
#1	Primary	50.40'	6.0" Round Culvert-collector L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.40' / 50.00' S= 0.0093 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	52.50'	10.000 in/hr Exfiltration over Surface area Phase-In= 0.10'
#3	Secondary	54.60'	120.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.17 cfs @ 12.11 hrs HW=53.50' TW=48.83' (Dynamic Tailwater)

↑1=Culvert-collector (Passes 0.17 cfs of 1.26 cfs potential flow)

↑2=Exfiltration (Exfiltration Controls 0.17 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.50' TW=0.00' (Dynamic Tailwater)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 45P: ROOF DRIPLINE FILTER

[87] Warning: Oscillations may require Finer Routing or smaller dt (severity=3)

Inflow Area = 0.069 ac, 87.83% Impervious, Inflow Depth = 2.98" for 2 YR event
 Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.017 af
 Outflow = 0.17 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 23%, Lag= 2.2 min
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.017 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 53.53' @ 12.15 hrs Surf.Area= 720 sf Storage= 58 cf
 Flood Elev= 133.00' Surf.Area= 1,120 sf Storage= 294 cf

Plug-Flow detention time= 3.0 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 3.0 min (759.3 - 756.3)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	144 cf	3.00'W x 120.00'L x 1.00'H Prismatic - STONE 360 cf Overall x 40.0% Voids
#2	52.50'	54 cf	3.00'W x 120.00'L x 1.00'H Prismatic FILTER 360 cf Overall x 15.0% Voids
#3	54.50'	96 cf	Ponding over filter surface (Conic) Listed below (Recalc)
		294 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.50	372	0	0	372
54.75	400	96	96	405

Device	Routing	Invert	Outlet Devices
#1	Primary	50.40'	6.0" Round Culvert-collector L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.40' / 50.30' S= 0.0250 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	52.50'	10.000 in/hr Exfiltration over Surface area Phase-In= 0.10'
#3	Secondary	54.60'	120.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=53.52' TW=50.31' (Dynamic Tailwater)

↳ **1=Culvert-collector** (Passes 0.17 cfs of 1.26 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.50' TW=50.00' (Dynamic Tailwater)

↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 46P: LARGE DETENTION AREA

Inflow Area = 2.048 ac, 21.38% Impervious, Inflow Depth > 1.60" for 2 YR event
 Inflow = 2.05 cfs @ 12.12 hrs, Volume= 0.273 af
 Outflow = 1.85 cfs @ 12.16 hrs, Volume= 0.273 af, Atten= 10%, Lag= 2.5 min
 Primary = 1.85 cfs @ 12.16 hrs, Volume= 0.273 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 48.88' @ 12.16 hrs Surf.Area= 581 sf Storage= 327 cf

Plug-Flow detention time= 5.1 min calculated for 0.273 af (100% of inflow)
 Center-of-Mass det. time= 4.8 min (872.0 - 867.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	48.00'	5,760 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
48.00	193	102.7	0	0	193	
50.00	1,371	196.5	1,386	1,386	2,446	
52.00	3,122	267.4	4,375	5,760	5,104	

Device	Routing	Invert	Outlet Devices
#1	Primary	48.00'	12.0" Round Culvert L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.00' / 46.00' S= 0.0183 ' / S= 0.0183 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	51.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.85 cfs @ 12.16 hrs HW=48.88' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 1.85 cfs @ 2.53 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=48.00' TW=0.00' (Dynamic Tailwater)

↳ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NORTH/WEST SIDES Runoff Area=245,360 sf 7.93% Impervious Runoff Depth=3.93"
Flow Length=1,072' Tc=25.4 min CN=80 Runoff=15.79 cfs 1.847 af

Subcatchment 20S: NORTH SIDE OF Runoff Area=27,202 sf 19.18% Impervious Runoff Depth=4.25"
Flow Length=193' Tc=6.7 min CN=83 Runoff=3.00 cfs 0.221 af

Subcatchment 30S: SOUTH SIDE OF Runoff Area=15,862 sf 12.01% Impervious Runoff Depth=4.04"
Flow Length=119' Tc=7.8 min CN=81 Runoff=1.61 cfs 0.123 af

Subcatchment 40S: NORTH SIDE OF NEW Runoff Area=21,626 sf 53.63% Impervious Runoff Depth=5.01"
Flow Length=105' Tc=6.8 min CN=90 Runoff=2.70 cfs 0.207 af

Subcatchment 41S: WEST SIDE OF NEW Runoff Area=53,516 sf 0.00% Impervious Runoff Depth=3.63"
Flow Length=143' Tc=9.5 min CN=77 Runoff=4.64 cfs 0.371 af

Subcatchment 42S: SOUTH SIDE OF NEW Runoff Area=44,253 sf 0.00% Impervious Runoff Depth=3.63"
Flow Length=216' Tc=12.8 min CN=77 Runoff=3.47 cfs 0.307 af

Subcatchment 43S: EAST SIDE OF NEW Runoff Area=13,486 sf 1.33% Impervious Runoff Depth=3.83"
Flow Length=50' Slope=0.1700 '/' Tc=5.3 min CN=79 Runoff=1.42 cfs 0.099 af

Subcatchment 44S: EAST SIDE OF NEW Runoff Area=3,045 sf 88.28% Impervious Runoff Depth=5.93"
Flow Length=28' Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment 45S: WEST SIDE OF NEW Runoff Area=3,007 sf 87.83% Impervious Runoff Depth=5.93"
Flow Length=28' Tc=6.0 min CN=98 Runoff=0.42 cfs 0.034 af

Subcatchment 46S: SOUTH SIDE OF NEW Runoff Area=8,006 sf 26.78% Impervious Runoff Depth=4.25"
Flow Length=28' Tc=6.0 min UI Adjusted CN=83 Runoff=0.90 cfs 0.065 af

Reach OUT 1: OUT 1 Inflow=15.83 cfs 2.068 af
Outflow=15.83 cfs 2.068 af

Reach OUT 2: OUT 2 Inflow=1.61 cfs 0.123 af
Outflow=1.61 cfs 0.123 af

Reach OUT 3: OUT 3 Inflow=8.04 cfs 1.118 af
Outflow=8.04 cfs 1.118 af

Pond 10P: CULVERT CROSSING Peak Elev=43.08' Storage=8,341 cf Inflow=15.79 cfs 1.847 af
Primary=8.79 cfs 1.784 af Secondary=6.27 cfs 0.063 af Outflow=15.06 cfs 1.847 af

Pond 40P: CB#1 Peak Elev=52.29' Inflow=2.70 cfs 0.207 af
12.0" Round Culvert n=0.013 L=160.0' S=0.0066 '/' Outflow=2.70 cfs 0.207 af

Pond 41P: SHALLOW DETENTION AREA Peak Elev=50.96' Storage=4,442 cf Inflow=4.64 cfs 0.371 af
Primary=2.05 cfs 0.371 af Secondary=0.00 cfs 0.000 af Outflow=2.05 cfs 0.371 af

Pond 42P: CB#3

Peak Elev=51.02' Inflow=2.87 cfs 0.241 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Outflow=2.87 cfs 0.241 af

Pond 44P: ROOF DRIPLINE FILTER

Peak Elev=54.50' Storage=198 cf Inflow=0.42 cfs 0.035 af
Primary=0.21 cfs 0.035 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.035 af

Pond 45P: ROOF DRIPLINE FILTER

Peak Elev=54.50' Storage=198 cf Inflow=0.42 cfs 0.034 af
Primary=0.19 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.034 af

Pond 46P: LARGE DETENTION AREA

Peak Elev=50.15' Storage=1,595 cf Inflow=5.18 cfs 0.712 af
Primary=3.83 cfs 0.712 af Secondary=0.00 cfs 0.000 af Outflow=3.83 cfs 0.712 af

Total Runoff Area = 9.995 ac Runoff Volume = 3.309 af Average Runoff Depth = 3.97"
89.47% Pervious = 8.942 ac 10.53% Impervious = 1.052 ac

Summary for Subcatchment 10S: NORTH/WEST SIDES OF PAVED DRIVEWAY

Runoff = 15.79 cfs @ 12.34 hrs, Volume= 1.847 af, Depth= 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
165,393	77	Woods, Good, HSG D
1,360	98	Paved parking, HSG D
10,792	93	Paved roads w/open ditches, 50% imp, HSG D
63,556	84	1 acre lots, 20% imp, HSG D
3,908	80	>75% Grass cover, Good, HSG D
351	96	Gravel surface, HSG D
245,360	80	Weighted Average
225,893		92.07% Pervious Area
19,467		7.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	100	0.0400	0.10		Sheet Flow, 10.1 Woods: Light underbrush n= 0.400 P2= 3.17"
3.1	250	0.0720	1.34		Shallow Concentrated Flow, 10.2 Woodland Kv= 5.0 fps
4.4	389	0.0051	1.47	25.81	Trap/Vee/Rect Channel Flow, 10.3 Bot.W=5.00' D=0.50' Z= 60.0 '/' Top.W=65.00' n= 0.030 Stream, clean & straight
1.0	185	0.0216	3.09	7.71	Trap/Vee/Rect Channel Flow, 10.4 Bot.W=1.00' D=0.50' Z= 8.0 '/' Top.W=9.00' n= 0.030 Stream, clean & straight
0.1	53	0.0200	6.42	5.04	Pipe Channel, 10.5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	95	0.0316	3.64	46.38	Trap/Vee/Rect Channel Flow, 10.6 Bot.W=3.00' D=0.50' Z= 45.0 '/' Top.W=48.00' n= 0.030 Stream, clean & straight
25.4	1,072	Total			

Summary for Subcatchment 20S: NORTH SIDE OF APARTMENT BUILDING

Runoff = 3.00 cfs @ 12.10 hrs, Volume= 0.221 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
1,102	98	Paved parking, HSG D
4,266	93	Paved roads w/open ditches, 50% imp, HSG D
609	96	Gravel surface, HSG D
1,827	98	Roofs, HSG D
8,433	80	>75% Grass cover, Good, HSG D
10,809	77	Woods, Good, HSG D
156	98	Unconnected pavement, HSG D
27,202	83	Weighted Average
21,984		80.82% Pervious Area
5,218		19.18% Impervious Area
156		2.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	50	0.2300	0.27		Sheet Flow, 20.1 Grass: Dense n= 0.240 P2= 3.17"
3.6	143	0.0175	0.66		Shallow Concentrated Flow, 20.2 Woodland Kv= 5.0 fps
6.7	193	Total			

Summary for Subcatchment 30S: SOUTH SIDE OF APARTMENT BUILDING

Runoff = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
9,050	77	Woods, Good, HSG D
4,503	80	>75% Grass cover, Good, HSG D
516	98	Paved parking, HSG D
1,372	98	Roofs, HSG D
404	96	Gravel surface, HSG D
17	98	Unconnected pavement, HSG D
15,862	81	Weighted Average
13,957		87.99% Pervious Area
1,905		12.01% Impervious Area
17		0.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0300	0.12		Sheet Flow, 30.1 Grass: Dense n= 0.240 P2= 3.17"
0.8	69	0.0870	1.47		Shallow Concentrated Flow, 30.2 Woodland Kv= 5.0 fps
7.8	119	Total			

Summary for Subcatchment 40S: NORTH SIDE OF NEW DEVELOPMENT

Runoff = 2.70 cfs @ 12.10 hrs, Volume= 0.207 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
1,193	77	Woods, Good, HSG D
8,654	80	>75% Grass cover, Good, HSG D
1,264	98	Roofs, HSG D
9,863	98	Paved parking, HSG D
181	96	Gravel surface, HSG D
471	98	Unconnected pavement, HSG D
21,626	90	Weighted Average
10,028		46.37% Pervious Area
11,598		53.63% Impervious Area
471		4.06% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		Sheet Flow, 40.1 Grass: Dense n= 0.240 P2= 3.17"
0.4	21	0.0143	0.84		Shallow Concentrated Flow, 40.2 Short Grass Pasture Kv= 7.0 fps
0.2	34	0.0265	3.30		Shallow Concentrated Flow, 40.3 Paved Kv= 20.3 fps
6.8	105	Total			

Summary for Subcatchment 41S: WEST SIDE OF NEW DEVELOPMENT

Runoff = 4.64 cfs @ 12.13 hrs, Volume= 0.371 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
47,707	77	Woods, Good, HSG D
5,809	80	>75% Grass cover, Good, HSG D
53,516	77	Weighted Average
53,516		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		Sheet Flow, 41.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	93	0.1075	1.64		Shallow Concentrated Flow, 41.2 Woodland Kv= 5.0 fps
9.5	143	Total			

Summary for Subcatchment 42S: SOUTH SIDE OF NEW DEVELOPMENT

Runoff = 3.47 cfs @ 12.18 hrs, Volume= 0.307 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
40,851	77	Woods, Good, HSG D
3,402	80	>75% Grass cover, Good, HSG D
44,253	77	Weighted Average
44,253		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, 42.1 Woods: Light underbrush n= 0.400 P2= 3.17"
2.3	166	0.0575	1.20		Shallow Concentrated Flow, 42.2 Woodland Kv= 5.0 fps
12.8	216	Total			

Summary for Subcatchment 43S: EAST SIDE OF NEW DEVELOPMENT

Runoff = 1.42 cfs @ 12.08 hrs, Volume= 0.099 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
6,910	77	Woods, Good, HSG D
6,397	80	>75% Grass cover, Good, HSG D
179	98	Unconnected pavement, HSG D
13,486	79	Weighted Average
13,307		98.67% Pervious Area
179		1.33% Impervious Area
179		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.1700	0.16		Sheet Flow, 43.1 Woods: Light underbrush n= 0.400 P2= 3.17"

Summary for Subcatchment 44S: EAST SIDE OF NEW ROOF

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
2,673	98	Roofs, HSG D
357	96	Gravel surface, HSG D
15	98	Unconnected pavement, HSG D
3,045	98	Weighted Average
357		11.72% Pervious Area
2,688		88.28% Impervious Area
15		0.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 44.1 - DIRECT ENTRY

Summary for Subcatchment 45S: WEST SIDE OF NEW ROOF

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Description
2,641	98	Roofs, HSG D
366	96	Gravel surface, HSG D
3,007	98	Weighted Average
366		12.17% Pervious Area
2,641		87.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 45.1 - DIRECT ENTRY

Summary for Subcatchment 46S: SOUTH SIDE OF NEW ROOF

Runoff = 0.90 cfs @ 12.09 hrs, Volume= 0.065 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=6.17"

Area (sf)	CN	Adj	Description
919	98		Roofs, HSG D
1,225	98		Unconnected pavement, HSG D
5,862	80		>75% Grass cover, Good, HSG D
8,006	85	83	Weighted Average, UI Adjusted
5,862			73.22% Pervious Area
2,144			26.78% Impervious Area
1,225			57.14% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	28		0.08		Direct Entry, 46.1 - DIRECT ENTRY

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.257 ac, 9.06% Impervious, Inflow Depth = 3.97" for 25 YR event
 Inflow = 15.83 cfs @ 12.48 hrs, Volume= 2.068 af
 Outflow = 15.83 cfs @ 12.48 hrs, Volume= 2.068 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.364 ac, 12.01% Impervious, Inflow Depth = 4.04" for 25 YR event
 Inflow = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af
 Outflow = 1.61 cfs @ 12.11 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 3: OUT 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.373 ac, 13.10% Impervious, Inflow Depth = 3.98" for 25 YR event
 Inflow = 8.04 cfs @ 12.16 hrs, Volume= 1.118 af
 Outflow = 8.04 cfs @ 12.16 hrs, Volume= 1.118 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 10P: CULVERT CROSSING

[93] Warning: Storage range exceeded by 0.08'

[58] Hint: Peaked 0.08' above defined flood level

[87] Warning: Oscillations may require Finer Routing or smaller dt (severity=2)

Inflow Area = 5.633 ac, 7.93% Impervious, Inflow Depth = 3.93" for 25 YR event
 Inflow = 15.79 cfs @ 12.34 hrs, Volume= 1.847 af
 Outflow = 15.06 cfs @ 12.48 hrs, Volume= 1.847 af, Atten= 5%, Lag= 8.5 min
 Primary = 8.79 cfs @ 12.48 hrs, Volume= 1.784 af
 Secondary = 6.27 cfs @ 12.48 hrs, Volume= 0.063 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 43.08' @ 12.48 hrs Surf.Area= 7,732 sf Storage= 8,341 cf

Flood Elev= 43.00' Surf.Area= 7,732 sf Storage= 8,341 cf

Plug-Flow detention time= 4.8 min calculated for 1.847 af (100% of inflow)

Center-of-Mass det. time= 4.8 min (835.8 - 831.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	38.90'	8,341 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
38.90	0	0.0	0	0	0	
39.00	1	3.0	0	0	1	
40.00	97	39.0	36	36	123	
41.00	548	90.6	292	328	659	
42.00	4,250	384.6	2,108	2,436	11,779	
43.00	7,732	555.4	5,905	8,341	24,564	

Device	Routing	Invert	Outlet Devices
#1	Primary	38.90'	15.0" Round NEW 15" HDPE L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.90' / 38.00' S= 0.0099 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	42.90'	32.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=8.78 cfs @ 12.48 hrs HW=43.07' TW=0.00' (Dynamic Tailwater)
 ↳1=NEW 15" HDPE (Inlet Controls 8.78 cfs @ 7.16 fps)

Secondary OutFlow Max=6.02 cfs @ 12.48 hrs HW=43.07' TW=0.00' (Dynamic Tailwater)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 6.02 cfs @ 1.11 fps)

Summary for Pond 40P: CB#1

Inflow Area = 0.496 ac, 53.63% Impervious, Inflow Depth = 5.01" for 25 YR event
 Inflow = 2.70 cfs @ 12.10 hrs, Volume= 0.207 af
 Outflow = 2.70 cfs @ 12.10 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.70 cfs @ 12.10 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 52.29' @ 12.10 hrs
 Flood Elev= 53.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.80'	12.0" Round 12" HDPE L= 160.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.80' / 49.75' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.70 cfs @ 12.10 hrs HW=52.29' TW=51.02' (Dynamic Tailwater)
 ↳1=12" HDPE (Outlet Controls 2.70 cfs @ 3.43 fps)

Summary for Pond 41P: SHALLOW DETENTION AREA

Inflow Area = 1.229 ac, 0.00% Impervious, Inflow Depth = 3.63" for 25 YR event
 Inflow = 4.64 cfs @ 12.13 hrs, Volume= 0.371 af
 Outflow = 2.05 cfs @ 12.40 hrs, Volume= 0.371 af, Atten= 56%, Lag= 16.1 min
 Primary = 2.05 cfs @ 12.40 hrs, Volume= 0.371 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 50.96' @ 12.40 hrs Surf.Area= 6,089 sf Storage= 4,442 cf
 Flood Elev= 52.50' Surf.Area= 10,950 sf Storage= 17,994 cf

Plug-Flow detention time= 60.9 min calculated for 0.371 af (100% of inflow)
 Center-of-Mass det. time= 59.6 min (883.2 - 823.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	50.00'	23,695 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	3,280	317.0	0	0	3,280
52.00	10,078	423.8	12,738	12,738	9,619
53.00	11,859	448.7	10,956	23,695	11,402

Device	Routing	Invert	Outlet Devices
#1	Primary	50.00'	12.0" Round Culvert L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.00' / 49.00' S= 0.0213 ' S= 0.0213 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	52.75'	10.0' long x 11.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Primary OutFlow Max=2.05 cfs @ 12.40 hrs HW=50.96' TW=50.12' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 2.05 cfs @ 2.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=50.00' TW=48.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 42P: CB#3

Inflow Area = 0.565 ac, 57.80% Impervious, Inflow Depth = 5.12" for 25 YR event
 Inflow = 2.87 cfs @ 12.10 hrs, Volume= 0.241 af
 Outflow = 2.87 cfs @ 12.10 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.87 cfs @ 12.10 hrs, Volume= 0.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 51.02' @ 12.10 hrs
 Flood Elev= 53.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	49.60'	12.0" Round 12" HDPE L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 49.60' / 49.00' S= 0.0200 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.86 cfs @ 12.10 hrs HW=51.02' TW=49.69' (Dynamic Tailwater)
 ↳ **1=12" HDPE** (Inlet Controls 2.86 cfs @ 3.64 fps)

Summary for Pond 44P: ROOF DRIPLINE FILTER

[87] Warning: Oscillations may require Finer Routing or smaller dt (severity=1)

Inflow Area =	0.070 ac, 88.28% Impervious, Inflow Depth = 5.93" for 25 YR event
Inflow =	0.42 cfs @ 12.08 hrs, Volume= 0.035 af
Outflow =	0.21 cfs @ 12.23 hrs, Volume= 0.035 af, Atten= 49%, Lag= 8.6 min
Primary =	0.21 cfs @ 12.23 hrs, Volume= 0.035 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 54.50' @ 12.23 hrs Surf.Area= 720 sf Storage= 198 cf
 Flood Elev= 133.00' Surf.Area= 1,120 sf Storage= 294 cf

Plug-Flow detention time= 6.0 min calculated for 0.035 af (100% of inflow)
 Center-of-Mass det. time= 6.0 min (750.7 - 744.7)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	144 cf	3.00'W x 120.00'L x 1.00'H Prismatic - STONE 360 cf Overall x 40.0% Voids
#2	52.50'	54 cf	3.00'W x 120.00'L x 1.00'H Prismatic FILTER 360 cf Overall x 15.0% Voids
#3	54.50'	96 cf	Ponding over filter surface (Conic) Listed below (Recalc)
		294 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.50	372	0	0	372
54.75	400	96	96	405

Device	Routing	Invert	Outlet Devices
#1	Primary	50.40'	6.0" Round Culvert-collector L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.40' / 50.00' S= 0.0093 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	52.50'	10.000 in/hr Exfiltration over Surface area Phase-In= 0.10'
#3	Secondary	54.60'	120.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.17 cfs @ 12.23 hrs HW=54.50' TW=50.11' (Dynamic Tailwater)

↑1=Culvert-collector (Passes 0.17 cfs of 1.46 cfs potential flow)

↑2=Exfiltration (Exfiltration Controls 0.17 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.50' TW=0.00' (Dynamic Tailwater)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 45P: ROOF DRIPLINE FILTER

Inflow Area = 0.069 ac, 87.83% Impervious, Inflow Depth = 5.93" for 25 YR event
 Inflow = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af
 Outflow = 0.19 cfs @ 12.26 hrs, Volume= 0.034 af, Atten= 54%, Lag= 10.5 min
 Primary = 0.19 cfs @ 12.26 hrs, Volume= 0.034 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 54.50' @ 12.26 hrs Surf.Area= 720 sf Storage= 198 cf

Flood Elev= 133.00' Surf.Area= 1,120 sf Storage= 294 cf

Plug-Flow detention time= 6.0 min calculated for 0.034 af (100% of inflow)

Center-of-Mass det. time= 6.0 min (750.7 - 744.7)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	144 cf	3.00'W x 120.00'L x 1.00'H Prismatoid - STONE 360 cf Overall x 40.0% Voids
#2	52.50'	54 cf	3.00'W x 120.00'L x 1.00'H Prismatoid FILTER 360 cf Overall x 15.0% Voids
#3	54.50'	96 cf	Ponding over filter surface (Conic) Listed below (Recalc)
		294 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.50	372	0	0	372
54.75	400	96	96	405

Device	Routing	Invert	Outlet Devices
#1	Primary	50.40'	6.0" Round Culvert-collector L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.40' / 50.30' S= 0.0250 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	52.50'	10.000 in/hr Exfiltration over Surface area Phase-In= 0.10'
#3	Secondary	54.60'	120.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.17 cfs @ 12.26 hrs HW=54.50' TW=50.46' (Dynamic Tailwater)

↑1=Culvert-collector (Passes 0.17 cfs of 1.46 cfs potential flow)

↑2=Exfiltration (Exfiltration Controls 0.17 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.50' TW=50.00' (Dynamic Tailwater)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 46P: LARGE DETENTION AREA

Inflow Area = 2.048 ac, 21.38% Impervious, Inflow Depth = 4.17" for 25 YR event
 Inflow = 5.18 cfs @ 12.11 hrs, Volume= 0.712 af
 Outflow = 3.83 cfs @ 12.32 hrs, Volume= 0.712 af, Atten= 26%, Lag= 12.6 min
 Primary = 3.83 cfs @ 12.32 hrs, Volume= 0.712 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 50.15' @ 12.32 hrs Surf.Area= 1,476 sf Storage= 1,595 cf

Plug-Flow detention time= 4.9 min calculated for 0.712 af (100% of inflow)
 Center-of-Mass det. time= 4.7 min (839.3 - 834.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	48.00'	5,760 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
48.00	193	102.7	0	0	193	
50.00	1,371	196.5	1,386	1,386	2,446	
52.00	3,122	267.4	4,375	5,760	5,104	

Device	Routing	Invert	Outlet Devices							
#1	Primary	48.00'	12.0" Round Culvert L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.00' / 46.00' S= 0.0183 ' S Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf							
#2	Secondary	51.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64							

Primary OutFlow Max=3.83 cfs @ 12.32 hrs HW=50.15' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.83 cfs @ 4.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=48.00' TW=0.00' (Dynamic Tailwater)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing State	Yes
Location	
Latitude	43.070 degrees North
Longitude	70.755 degrees West
Elevation	0 feet
Date/Time	Fri Aug 18 2023 09:16:28 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.03	2.66	2.92	1yr	2.35	2.81	3.22	3.94	4.55	1yr
2yr	0.32	0.50	0.62	0.82	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.49	3.21	3.57	2yr	2.84	3.43	3.94	4.68	5.33	2yr
5yr	0.37	0.58	0.73	0.98	1.25	1.61	5yr	1.08	1.47	1.89	2.43	3.14	4.07	4.58	5yr	3.60	4.40	5.04	5.94	6.70	5yr
10yr	0.41	0.65	0.82	1.12	1.45	1.89	10yr	1.25	1.73	2.23	2.89	3.75	4.86	5.53	10yr	4.31	5.32	6.09	7.11	7.98	10yr
25yr	0.48	0.76	0.97	1.34	1.78	2.34	25yr	1.53	2.14	2.78	3.63	4.74	6.17	7.10	25yr	5.46	6.83	7.81	9.03	10.05	25yr
50yr	0.54	0.86	1.10	1.54	2.08	2.76	50yr	1.79	2.53	3.29	4.33	5.67	7.39	8.58	50yr	6.54	8.25	9.43	10.81	11.97	50yr
100yr	0.60	0.97	1.25	1.77	2.42	3.26	100yr	2.09	2.98	3.91	5.16	6.77	8.85	10.38	100yr	7.83	9.98	11.39	12.96	14.27	100yr
200yr	0.68	1.10	1.43	2.05	2.83	3.84	200yr	2.44	3.52	4.62	6.14	8.08	10.60	12.55	200yr	9.38	12.06	13.76	15.55	17.01	200yr
500yr	0.80	1.32	1.72	2.49	3.49	4.78	500yr	3.01	4.39	5.78	7.72	10.22	13.47	16.14	500yr	11.92	15.52	17.68	19.78	21.48	500yr

Lower Confidence Limits

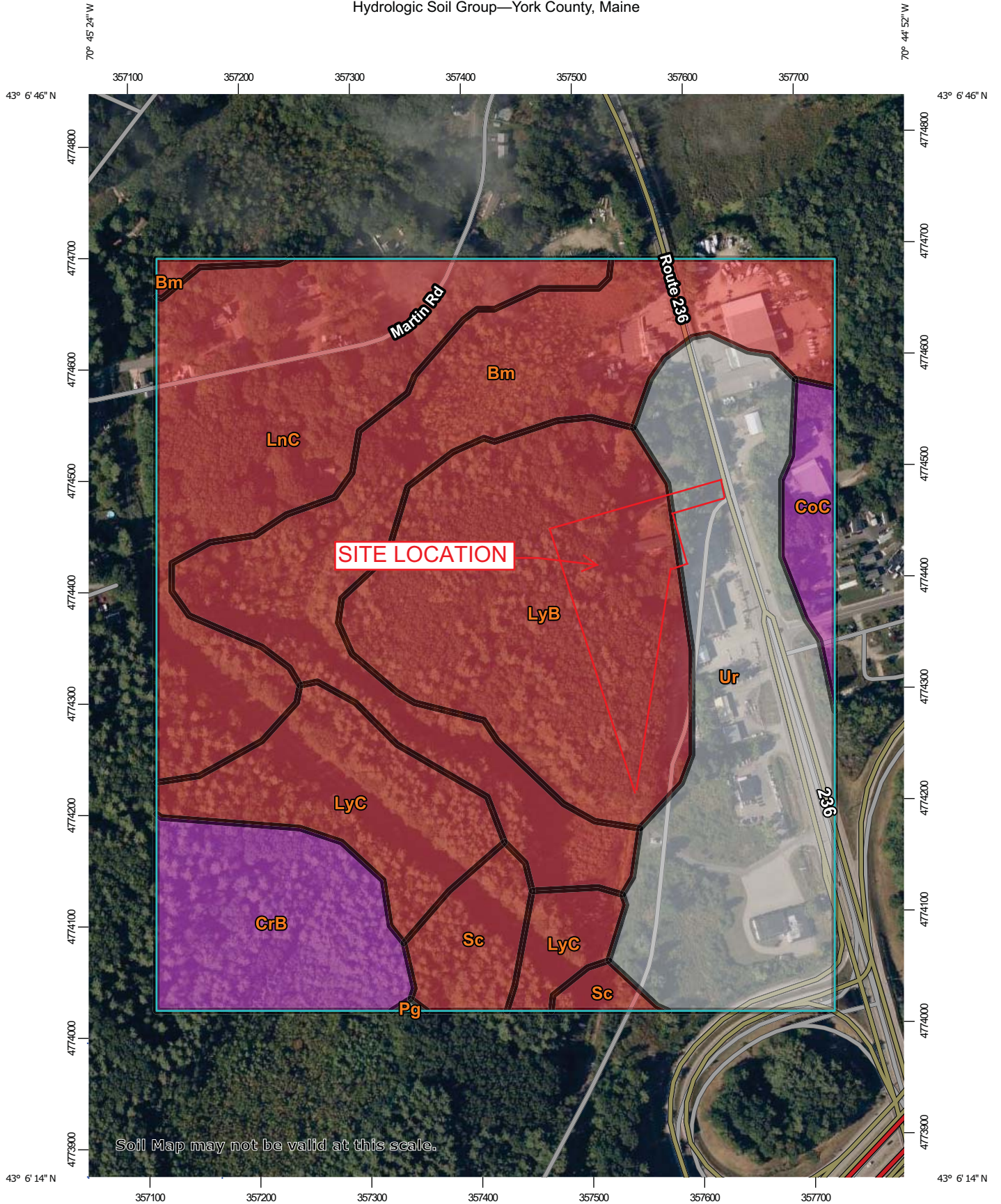
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	1yr	0.63	0.86	0.93	1.33	1.69	2.24	2.49	1yr	1.98	2.39	2.87	3.19	3.90	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.06	3.45	2yr	2.71	3.32	3.82	4.55	5.09	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.78	4.19	5yr	3.35	4.03	4.72	5.53	6.24	5yr
10yr	0.39	0.59	0.73	1.03	1.33	1.60	10yr	1.14	1.56	1.80	2.39	3.05	4.37	4.85	10yr	3.87	4.67	5.43	6.41	7.19	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.75	3.53	4.73	5.88	25yr	4.19	5.65	6.64	7.78	8.67	25yr
50yr	0.48	0.73	0.91	1.31	1.76	2.17	50yr	1.52	2.12	2.35	3.06	3.92	5.35	6.78	50yr	4.73	6.52	7.71	9.03	10.00	50yr
100yr	0.54	0.81	1.01	1.46	2.01	2.47	100yr	1.73	2.41	2.62	3.40	4.33	6.02	7.82	100yr	5.32	7.52	8.95	10.49	11.55	100yr
200yr	0.59	0.89	1.13	1.63	2.27	2.81	200yr	1.96	2.75	2.93	3.77	4.77	6.75	9.02	200yr	5.97	8.68	10.38	12.20	13.35	200yr
500yr	0.68	1.02	1.31	1.90	2.71	3.36	500yr	2.33	3.28	3.41	4.30	5.43	7.86	10.89	500yr	6.95	10.47	12.63	14.92	16.17	500yr

Upper Confidence Limits

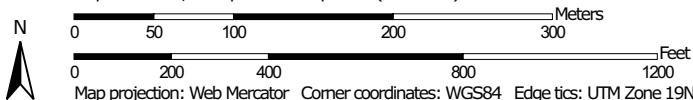
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.20	2.98	3.17	1yr	2.64	3.05	3.58	4.37	5.04	1yr
2yr	0.34	0.52	0.64	0.87	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.52	3.42	3.71	2yr	3.03	3.56	4.09	4.84	5.63	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.62	5yr	1.15	1.59	1.89	2.54	3.25	4.34	4.97	5yr	3.84	4.78	5.38	6.38	7.16	5yr
10yr	0.47	0.72	0.89	1.25	1.61	1.98	10yr	1.39	1.93	2.28	3.11	3.96	5.34	6.21	10yr	4.72	5.97	6.83	7.85	8.76	10yr
25yr	0.58	0.88	1.09	1.56	2.05	2.57	25yr	1.77	2.52	2.96	4.08	5.16	7.76	8.36	25yr	6.87	8.04	9.17	10.35	11.42	25yr
50yr	0.67	1.02	1.27	1.83	2.47	3.13	50yr	2.13	3.06	3.60	5.01	6.34	9.71	10.48	50yr	8.59	10.08	11.48	12.74	13.98	50yr
100yr	0.79	1.20	1.50	2.16	2.97	3.82	100yr	2.56	3.73	4.38	6.17	7.79	12.15	13.14	100yr	10.75	12.63	14.36	15.72	17.11	100yr
200yr	0.93	1.39	1.77	2.56	3.57	4.66	200yr	3.08	4.56	5.35	7.60	9.57	15.23	16.48	200yr	13.48	15.85	18.00	19.38	20.94	200yr
500yr	1.15	1.71	2.20	3.20	4.55	6.06	500yr	3.93	5.92	6.94	10.05	12.62	20.58	22.27	500yr	18.21	21.41	24.26	25.55	27.37	500yr



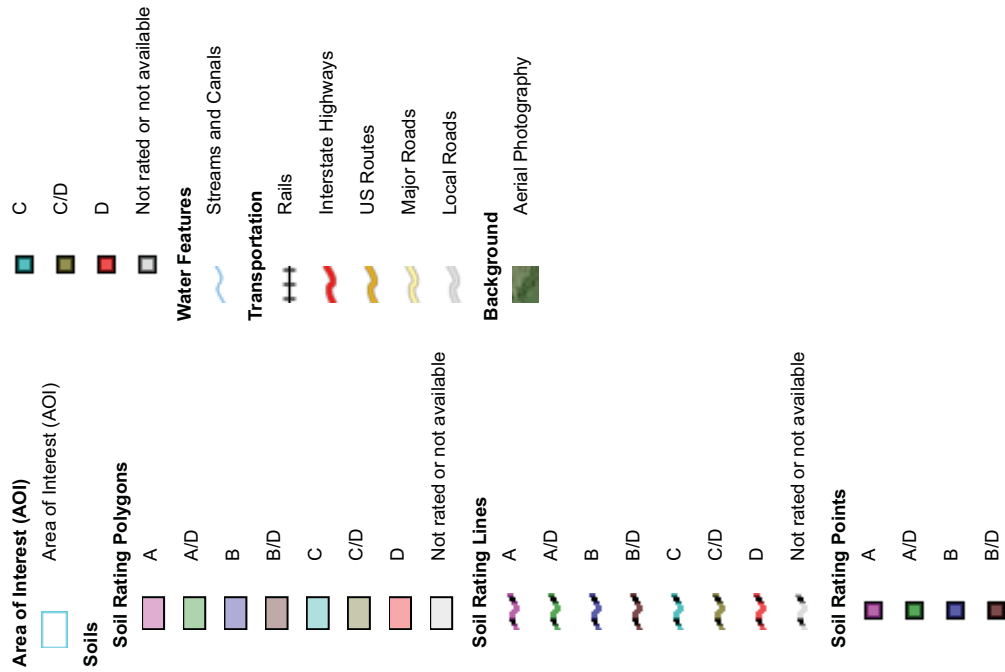
Hydrologic Soil Group—York County, Maine



Map Scale: 1:4,740 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND



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 21, Aug 30, 2022

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
Bm	Biddeford mucky peat, 0 to 3 percent slopes	D	20.5	20.0%
CoC	Colton gravelly sandy loam, 8 to 15 percent slopes	A	2.4	2.3%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	8.6	8.4%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	17.8	17.3%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	19.8	19.3%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	9.3	9.1%
Pg	Pits, gravel		0.0	0.0%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	3.6	3.5%
Ur	Urban land		20.5	20.0%
Totals for Area of Interest			102.4	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.

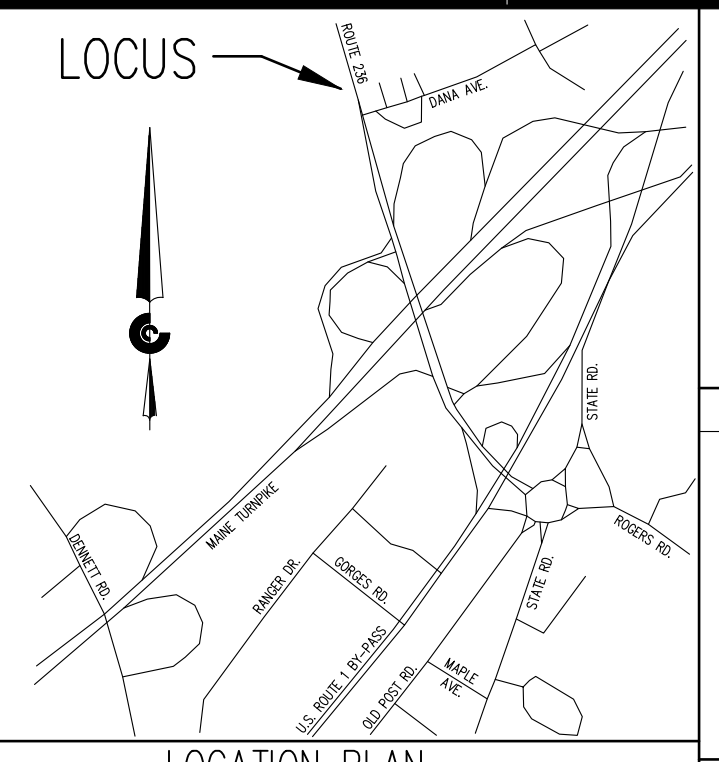
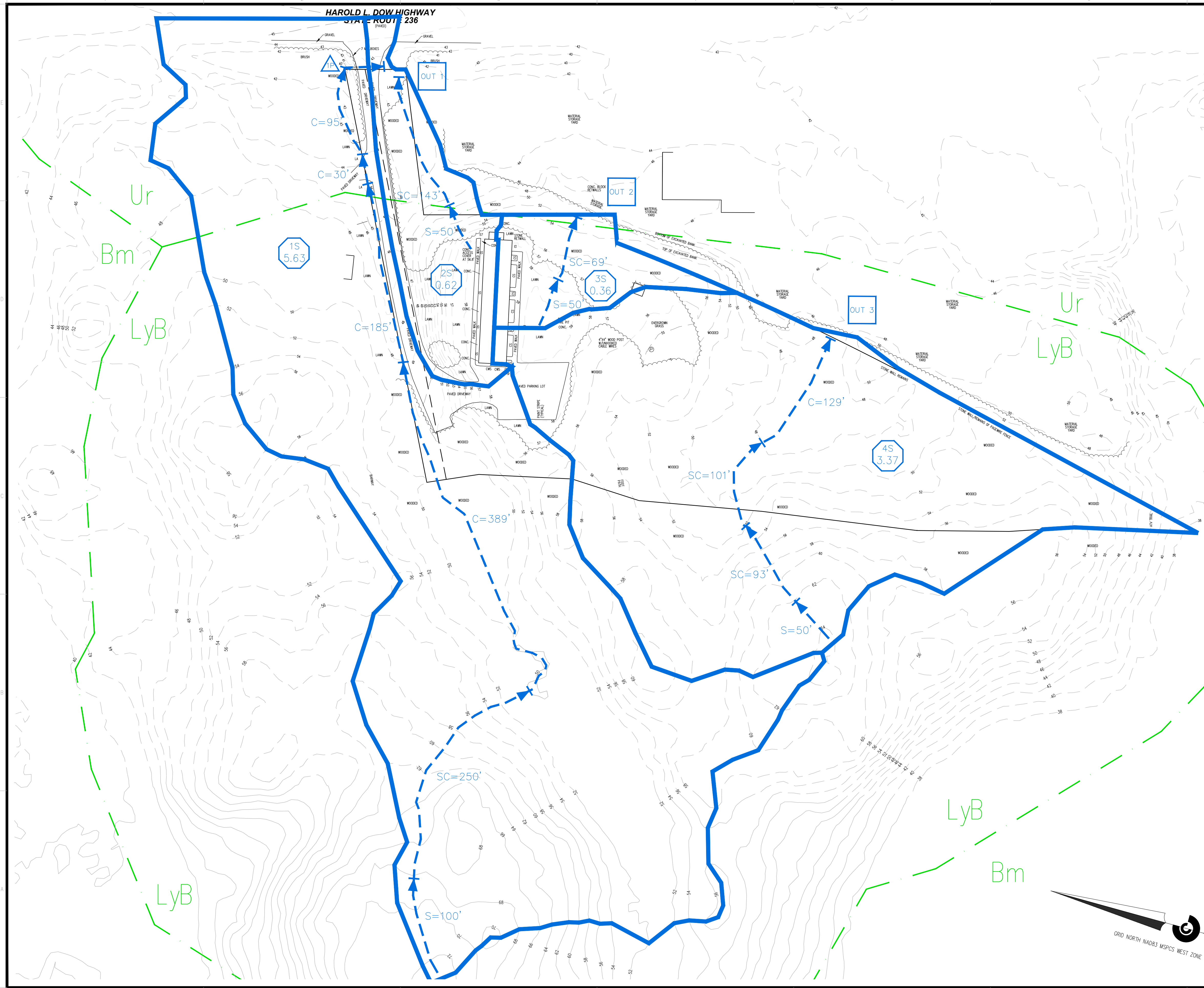
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



PREPARED FOR
SITE PLAN REVIEW
NOT FOR
CONSTRUCTION
8/18/2023

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CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

LOCATION PLAN
(NOT TO SCALE)

DRAINAGE LEGEND:

- POND POND NUMBER
 - SUBCATCHMENT SUBCATCHMENT NUMBER
SUBCATCHMENT ACREAGE
 - REACH REACH NUMBER
 - Tc COMPONENTS
- S = Sheet
SC = Shallow Concentrated
C = Channel

SOILS LEGEND

- A Soils:
SCS Soils:
HSS Soils:
 - B Soils:
SCS Soils:
HSS Soils:
 - C Soils:
SCS Soils:
HSS Soils:
 - D Soils:
SCS Soils: Bm, LyB, Ur
HSS Soils:
- Subcatchment Boundaries
Pre-Development
 - Subcatchment Boundaries
Post-Development
 - SCS Soil Line
 - High Intensity Soil Line (N/A)
 - Tc Flow Path & Direction
Pre-Development
 - Tc Flow Path & Direction
Post-Development

PRE-DEVELOPMENT STORMWATER FLOWS

	OUT 1	OUT 2	OUT 3
2-YEAR	3.47 CFS	0.59 CFS	3.98 CFS
25-YEAR	22.23 CFS	1.61 CFS	11.88 CFS

NO.	REVISIONS	INT.	DATE

RECORDED OWNER:
25 & 17 ROUTE 236 LLC
ADDRESS:
P.O. BOX 630
KITTEERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTEERY, YORK COUNTY, MAINE
PREPARED FOR:
SONNY NATARAJAN
CLIENT ADDRESS:
8 PEPPERELL WAY, YORK, ME 03909

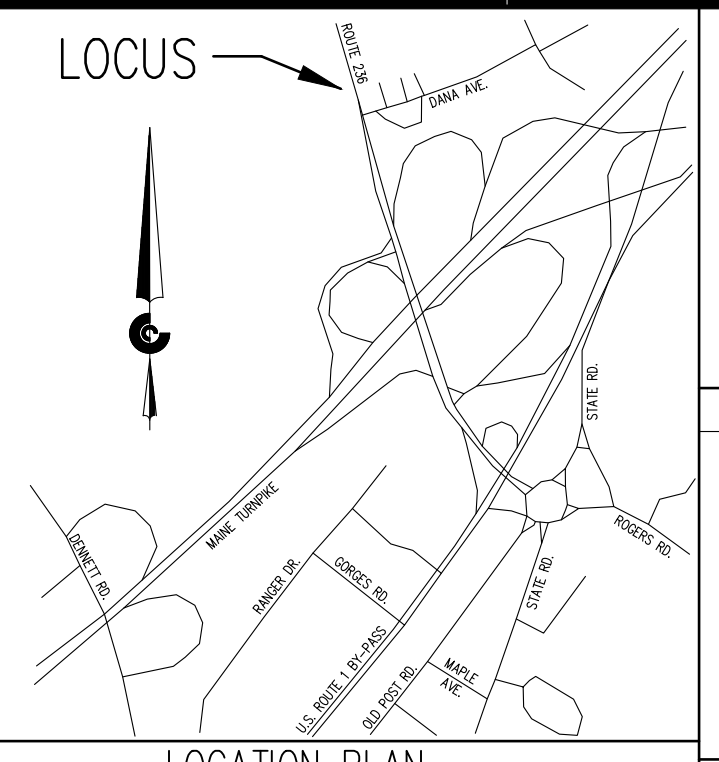
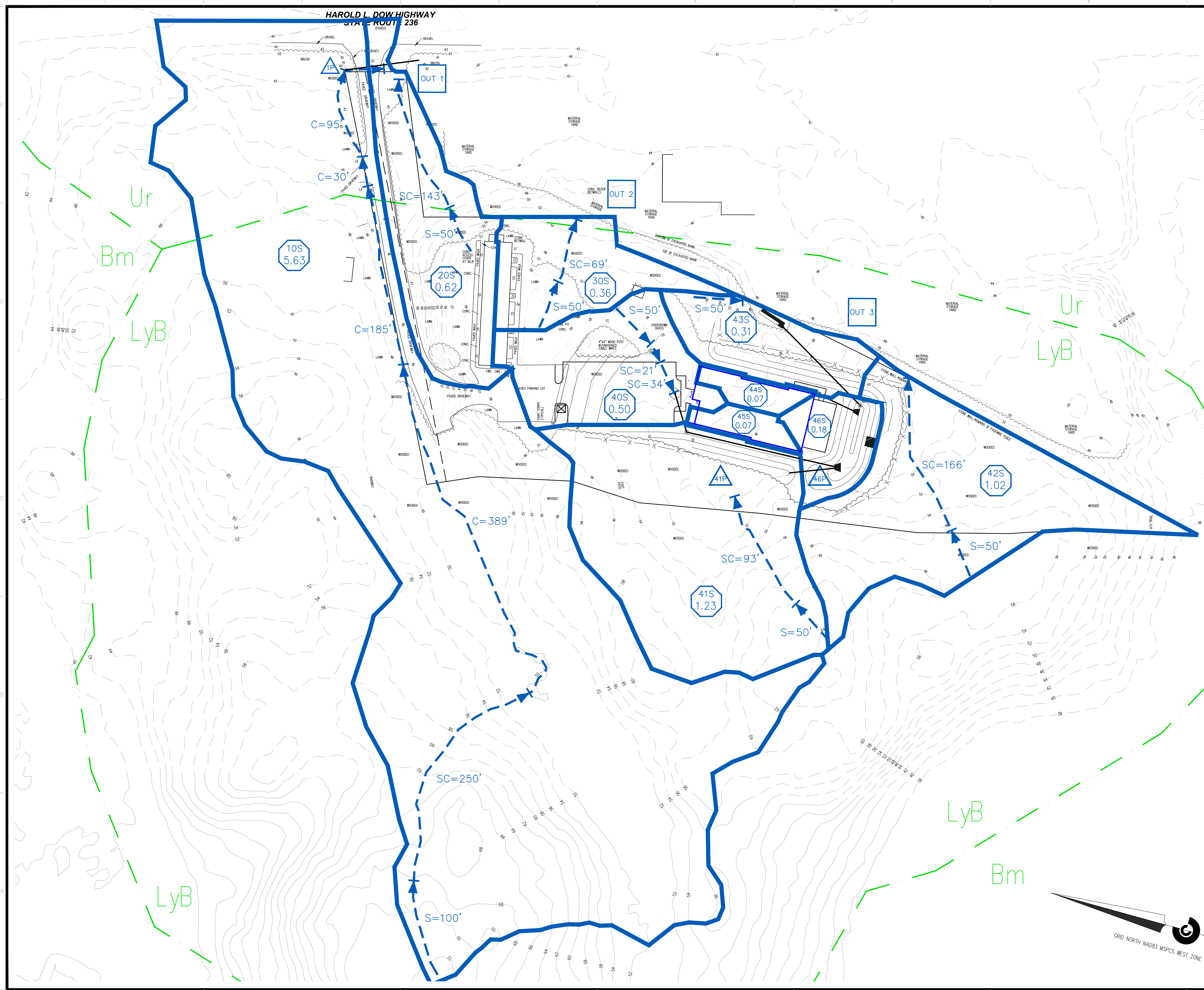
1" = 50'
0' 50'

DATE: 08/18/2023
DRAWN BY: STR/DRG
CHECKED BY: GRA
APPROVED BY:

**PRE-DEVELOPMENT
STORMWATER
MANAGEMENT PLAN**

PROJECT NO: 22-180.00

D1
SHEET: 1 OF 2



PREPARED FOR
SITE PLAN REVIEW
NOT FOR
CONSTRUCTION
8/18/2023

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CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

LOCATION PLAN
(NOT TO SCALE)

DRAINAGE LEGEND:

- POND POND NUMBER
 - SUBCATCHMENT SUBCATCHMENT NUMBER
SUBCATCHMENT AREA
 - REACH REACH NUMBER
 - Tc COMPONENTS
- S = Sheet
SC = Shallow Concentrated
C = Channel

SOILS LEGEND

- A Soils: SCS Soils; HISS Soils
- B Soils: SCS Soils; HISS Soils
- C Soils: SCS Soils; HISS Soils
- D Soils: SCS Soils; HISS Soils
- Subcatchment Boundaries Pre-Development
- Subcatchment Boundaries Post-Development
- SCS Soil Line
- High Intensity Soil Line (N/A)
- Tc Flow Path & Direction Pre-Development
- Tc Flow Path & Direction Post-Development

PRE-DEVELOPMENT STORMWATER FLOWS

	OUT 1	OUT 2	OUT 3
2-YEAR	3.47 CFS	0.59 CFS	3.98 CFS
25-YEAR	22.23 CFS	1.61 CFS	11.88 CFS

PRE-DEVELOPMENT STORMWATER FLOWS

	OUT 1	OUT 2	OUT 3
2-YEAR	5.88 CFS	0.59 CFS	3.31 CFS
25-YEAR	15.83 CFS	1.61 CFS	8.04 CFS

NO.	REVISIONS	INT.	DATE

RECORDED OWNER:
25 & 17 ROUTE 236 LLC
ADDRESS:
P.O. BOX 630
KITTEERY, ME 03904

SITE PLAN
LAND OF 25 & 17 ROUTE 236 LLC
17/25 ROUTE 236
KITTEERY, YORK COUNTY, MAINE
PREPARED FOR:
CLIENT ADDRESS:
SONNY NATARAJAN
8 PEPPERELL WAY, YORK, ME 03909

DATE: 08/18/2023
DRAWN BY: STR/DRG
CHECKED BY: GRA
APPROVED BY:

POST-DEVELOPMENT STORMWATER MANAGEMENT PLAN

PROJECT NO: 22-180.00

D2
SHEET: 2 OF 2