

**ITEM 3**

**Town of Kittery  
 Planning Board Meeting  
 January 12, 2023**

**ITEM 3 – 41 Route 236 – Preliminary Site Plan Review**

Action: continue review, approve, or deny plan. Pursuant to 16.4 *Land Use Regulations*, 16.4.20 *Special Exception Use Request*, 16.5.32 *Marijuana Business*, and 16.7 *Site Plan Review* of the Town of Kittery Land Use and Development Code, owner LaPierre Properties, LLC and applicant Well Field 44, LLC with agent Attar Engineering, Inc. requests approval for a special exception use to construct a 1,034-sf Marijuana Business with appurtenant infrastructure and a wetland alteration of 1,367-sf, located on real property with the address of 41 Route 236, Tax Map 29, Lot 1, in the Commercial 2 (C-2) zoning district.

**PROJECT TRACKING**

REQ'D	ACTION	COMMENTS	STATUS
No	Sketch Plan	Accepted May 26, 2022	Accepted
YES	Site Visit	September 20, 2022 (No Quorum)	Held
YES	Additional Site Visit	October 5, 2022	Held
YES	Preliminary Plan Review Completeness/Acceptance	Aug 25, 2022	Accepted
YES	Public Hearing	October 13, 2022	Held; Closed
YES	Preliminary Plan Approval	TBD	TBD
YES	Final Plan Review and Decision	TBD	TBD

**Project Introduction**

41 Route 236 (“Project”) is situated in the Commercial-2 (C-2) and Residential-Suburban (R-S) zoning districts with the majority being in the C-2 zone. The 4.45-acre lot fronts Route 236 from the west and is abutted by vacant lots, single-family residential, and commercial uses. The natural characteristics in and around the site consist of wetlands and forested areas. The lot has significant wetlands (see Michael Cuomo’s letter to Brian Neilson, dated November 23, 2021), and a portion was filled to accommodate its current use as boat storage. The boat storage use received approval in 2009 from both the Town Code Enforcement Officer and Maine Department of Environmental Protection (“MDEP”). The MDEP approval was in the form of a ‘stormwater permit by rule’, as the applicant altered less than 4,300-sf of wetland and the Town approval was through the Business Use Change application process.

The submitted preliminary plan proposes to redevelop the current boat yard storage use to a Marijuana Business, specifically an adult use retail marijuana store. The proposed use is a special exception use, which requires the Board to consider additional review criteria as found 16.7.10.D *Review Process and Submission Requirements* and 16.2.12.F *Basis of decision*.

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28 The applicant is proposing to build a 1,034-sf retail store with now 11 on-site parking spaces, including one  
 29 ADA-compliant space. The additional parking proposed on the adjoining property to the south has been  
 30 dropped (pertinent material provided in the cover letter from Mike Sudak) because there are no parking  
 31 spaces to spare at that location. Instead, a travel way wraps around the proposed building, providing full  
 32 circulation with parking spaces located on the east, west and north sides of the structure. The number of  
 33 parking spaces required is 6 (1 space per 175 feet of floor space) so parking is nearly twice as much as is  
 34 required.

35 The existing site contains wetlands on nearly all sides of the current boat yard use, which is itself situated  
 36 on wetland fill. The wetlands were delineated by Michael Cuomo, Maine Soil Scientist, on November 22,  
 37 2021. The applicant proposed impacts to the existing wetlands in order to construct a new driveway entrance  
 38 from Route 236. This would impact 1,367 square feet of wetlands (reduced from 3,001 sf of impact). The  
 39 applicant will be required to gain DEP approval and pay wetland impact fees to the Town and State, if  
 40 approved.

41 A proposed stormwater detention pond lies immediately to the south of the proposed building. The existing  
 42 gravel driveway now used for access will be abandoned, the fill removed and the area restored to the  
 43 wetland's original elevation and function. This new area of approximately 2,500 sf will be added to the  
 44 10,500 sf to the west that the applicant has proposed for restoration on earlier plans, for a total of about  
 45 13,000 sf of wetland restoration. A wetland restoration plan was provided with a previous submission. All  
 46 access will be via the new curb cut proposed. In order to provide the new access, approximately 1,367  
 47 (instead of 3,001-sf on the last plan) of wetlands are proposed to be altered (filled).

48 This project was found to meet the applicable dimensional standards of Title 16 via previous memos from  
 49 the Town Planner. The newest submittal also includes a lighting/photometric plan that appears to comply  
 50 with Town regulations.

51 The preliminary plan process serves to give the Board a deeper-dive into the details of the proposed  
 52 development, informed by the additional materials such as traffic impact analyses. Most decision-making  
 53 occurs during this phase and the Board can give the applicant direct guidance and feedback. Planning  
 54 Board review continues from the October 13, 2022 meeting. The October 13 meeting packet is available  
 55 at: [Planning Board Meeting - October 13, 2022 | Kittery ME](#) and included the following:

- 56 • Town Planner's memo
- 57 • Letter from Conservation Commission
- 58 • Comment letter from CMA consulting engineers and West Environmental
- 59 • Traffic Impact Assessment from GPI and traffic review memo from Sewall
- 60 • Wetland Restoration Sequence and Goals memo from Michael Cuomo, soil scientist
- 61 • Stormwater Calculations and Stormwater Management report
- 62 • Plans dated 9/29/22

63 The applicant submitted a comment response letter on December 29, 2022 with revised plans and:

- 64 • A complete Town of Kittery Wetland Alteration application
- 65 • Availability letters from Kittery Water District and Kittery Sewer Department
- 66 • Copy of Maine DEP Permit By Rule Stormwater Application
- 67 • Copy of Maine DEP Permit By Rule NRPA application
- 68 • Correspondence with traffic impact reviewers at Sewall

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- 69 • Lighting plan information
- 70 • October 13 wetland plants list from soil scientist Michael Cuomo
- 71 • Updated stormwater calculations and stormwater management plan

72 Town staff sent these updated plans to CMA consulting engineers for review. Review by the Town's  
73 Technical Review Committee is scheduled for January 10, 2023.

74

### 75 **Staff Review**

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76 *Updates/ Discussion Items:*

77 Wetland Restoration: The Board requested additional information about the proposed wetland restoration  
78 work during the October 13, 2022 meeting. The applicant provided a summary of native plants that were  
79 identified at the site and “which are suitable for planting and seeding in the restored wetlands.” Additional  
80 information is being prepared and may be available for the January 12 meeting.

81 Parking: Impacts to trees on the north side of the project were discussed during the October 13, 2022  
82 meeting. Existing trees buffer the site from abutting properties and may be impacted by proposed driveway  
83 construction. The applicant revised plans by replacing 4 angled parking stalls that were previously proposed  
84 to be located north of the building with 2 parallel parking stalls, which accommodates a southward shift in  
85 the driveway location.

86 Traffic: A Traffic Impact Analysis was provided by the applicant in August 2022, revised in September  
87 2022 and reviewed by the Board as part of the October 13 meeting. Reviewers from Sewall consulting  
88 engineers and from Maine DOT agree that trip generation and analysis for the retail store do not warrant  
89 right or left turning lanes. Correspondence provided by the applicant indicates that reviewers from Sewall  
90 were asked to review additional traffic information related to the proposed use that was provided by the  
91 Town of Eliot. Their findings or recommendations were not provided with the December 29, 2022  
92 resubmittal.

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### 94 **Next Steps**

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95 The Board should approve or deny the plan during this meeting since the “total period” for continuation is  
96 not to exceed 90 days per KTC §16.7.10.C(3)a. The Board closed the public hearing for this application on  
97 October 13, 2022.

### 98 **Recommended Motions**

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99 Based on the review of the plan, staff recommends the following motion:

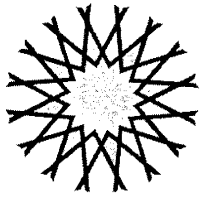
100 ***Motion to approve the preliminary plan** application by owner LaPierre Properties, LLC and applicant*  
101 *Well Field 44, LLC, requesting approval for a special exception use to construct a 1,034-sf Marijuana*  
102 *Business with appurtenant infrastructure and a wetland alteration of 1,367-sf, located on real property*  
103 *with the address of 41 Route 236, Tax Map 29, Lot 1, in the Commercial 2 (C-2) zoning district.*

104 The board may also propose Conditions of approval to ensure that potential impacts are mitigated or Town  
105 regulations are met via Final plan design or construction requirements.

## ITEM 3

106 *Motion to deny the preliminary plan application by owner LaPierre Properties, LLC and applicant Well*  
107 *Field 44, LLC, requesting approval for a special exception use to construct a 1,034-sf Marijuana Business*  
108 *with appurtenant infrastructure and a wetland alteration of 1,367-sf, located on real property with the*  
109 *address of 41 Route 236, Tax Map 29, Lot 1, in the Commercial 2 (C-2) zoning district.*

110



# ATTAR

ENGINEERING, INC

CIVIL · STRUCTURAL · MARINE

Mr. Jason Garnham, Director of Planning & Development  
Ms. Kathy Connor, Project Planner  
Town of Kittery, Maine  
200 Rogers Road  
Kittery, Maine 03904

Decemberr 29<sup>th</sup>, 2022  
Project No. C277-22

**RE: Preliminary Site Plan Review – Request for Continuance  
Well Field 44 Cannabis Dispensary (Tax Map 29, Lot 1)  
41 Route 236, Kittery, Maine**

Dear Mr. Garnham & Ms. Connor:

On behalf of Well Field 44, LLC., I have enclosed for your review and consideration revised Plan Set sheets and associated attachments for the above-referenced project. Changes have been made to satisfy comments presented from the following sources:

- September 28<sup>th</sup> Memo from the Kittery Conservation Commission
- October 6<sup>th</sup> Memo from the Kittery Fire Chief
- October 6<sup>th</sup> Memo from Third-Party Stormwater Reviewer CMA Engineers, Inc.
- October 13<sup>th</sup> Town Review Memo from Kittery Planning Department
- October 13<sup>th</sup> Planning Board Meeting and Public Hearing

**Town Review Memo Comments:**

- An updated Wetland Alteration Application has been provided. While an original application of this type was filed with the June 30<sup>th</sup> Preliminary SPR application, revisions have been made to reflect the current wetland impact and wetland restoration square footages.
- The Photometric Plan (Sheet 9) has been updated to provide increased clarity on the pole locations and the light that they shed around the proposed development. Specification sheets have also been provided on this page for the selected fixtures proposed around the site.
- In response to Planning Board and Public Hearing comments related to treeline impacts near the northern property line (abutting Martin Road residences), the previously-proposed diagonal parking spaces along the north side of the building have been redesigned as parallel spaces. This results in a net loss of two spaces, moving the total number provided from 13 to 11 (6 required). However, this redesign allows the northern edge of pavement to be moved more than 15' further away from the northern property line, thereby eliminating all treeline impacts to the vegetated buffer that currently exists to shield the Martin Road residences from the development. This parking change does not disrupt any of the previously-existing adjacent functions – vehicular circulation and stormwater management still function exactly as they were designed in previous iterations. All affected Plan Set sheets and notes have been updated to reflect this change.

### **Fire Chief Comments:**

- The Grading & Utilities Plan (Sheet 3) has been updated to include the installation of a hydrant on the south side of the proposed entrance as requested by the Kittery Fire Chief. All relevant Plan Set sheets have been updated to include associated valves, shutoffs, and callouts for the appurtenances of this installation.
- Note #9 has been added to the Grading & Utilities Notes package on Sheet 3, which declares that the proposed building shall be serviced by a full NFPA 13 Fire Suppression Sprinkler System as requested by the Kittery Fire Chief. This includes monitored alarms and a keyed Knox Box which shall be located to the satisfaction of the Kittery Fire Chief.

### **Third-Party Engineering Review Comments (CMA Engineers, Inc.):**

The Applicant would like to thank Ms. Strickland of CMA Engineers for the very thorough, annotated review of the Preliminary SPR package. The manner in which comments were presented and referenced to sections of the Kittery Code of Ordinances was incredibly helpful for determining exactly what was being commented on and what the required resolution would be. Responses are ordered in the same section-by-section manner that they were presented in the 3PR Memo.

- §16.4 Zoning Regulations
  - General Note #3 on Sheet 1 (Preliminary Site Plan) has been updated to provide proposed street frontage and building height to demonstrate compliance with the dimensional standards of the C-2 zoning district.
  - General Note #18 on Sheet 1 has been added to provide an impervious cover calculation as requested.
  - An updated Architectural Elevation of the proposed building is attached as requested.
  - The Landscaping Plan (Sheet 10) has been updated to include the required planting locations and details. Further information is provided below in the section of this Cover Letter pertaining to that Plan Set sheet.
- §16.5 General Development Requirements
  - General Note #19 on Sheet 1 has been added to include all relevant State and Federal Permits that apply to this project and that have been applied for.
  - As mentioned in the “Town Review Memo” section, an updated Wetland Alteration Application is attached.
  - A mitigation plan for the undisturbed wetland buffer shall be discussed below in the section covering comments from the Third-Party Environmental Review.
  - The Applicant shall prepare and submit with the Final Site Plan Review Application a Safety Plan which complies with all provisions within State of Maine OCP §3.3, that includes lighting, locking mechanisms, alarms, surveillance, odor, and disposal. The excerpted section of reference is attached.
  - As mentioned above in the “Fire Chief Comments” section, the proposed building shall be serviced by a full NFPA 13 Fire Suppression Sprinkler System.
  - Regarding motion sensor lighting, the Applicant does not intend to have any lighting of this type for the development proposed. All entrance and exit points, for which exterior wall-pac lights are proposed, shall remain illuminated at all

times to allow for the proper function of surveillance equipment as per OCP §3.3.4.A.(1). All pole-mounted lights servicing the parking lots and entrances are intended to be shut off outside of regular business hours.

- §16.7.11 Performance Standards and Approval Criteria
  - Correspondence from the Kittery Water District is attached as requested.
  - Correspondence from the Kittery Sewer Services (previously Kittery Sewer Department) is attached as requested.
  - A stormwater narrative has been prepared to summarize the methodology of the analysis performed on this site, as well as the best management practices implemented in the management of stormwater flows. This stormwater narrative includes a discussion of the headwater assessment that was performed in addition to the peak runoff analysis.
  - The HydroCAD model has been updated to have consistent n-values for existing culverts that are present and unaffected in both the existing and developed condition models. These changes, in addition to the revisions discussed below, allow the model to properly demonstrate that there shall be no peak flow increase across any storm event, with reductions exhibited at the Dana Avenue analysis point for the 2-, 10-, and 25-year events.
  - MDEP correspondence is attached as requested.
  - An Environmental Site Assessment (ESA) has been a point of discussion during the Site Walk and by abutting residents and members of the Kittery Land Trust. Should the Planning Board feel an ESA is appropriate for the proposed development, the Applicant would prepare and submit such with the Final Site Plan Review application.
  - The proposed culverted crossing of the entrance to this facility has been increased in size from a 36" CMP to a 48" CMP to be buried 12". This change will retain the same depth of cover over the proposed crossing while also complying with Stream Smart guidelines and allowing the embedment depth to create a natural bottom and more closely mimic the hydrology of the surrounding thin strip of wetlands.
  - The Operation & Maintenance Manual has been updated to include sections on the maintenance of locations of riprap armoring, as well as the outlet control structure within the stormwater detention pond.
  - The most current Traffic Impact Analysis is attached, which details the analysis of warrants for auxiliary turning lanes within Route 236 to support this development. Additionally, correspondence with MDOT is attached which includes their opinion on the prepared TIA and any requirements at the proposed entrance/intersection.
  - As has been discussed at previous meetings, the Planning Board has requested the Applicant to prepare updates to the Traffic Impact Assessment (TIA) for the proposed development in an effort to more appropriately understand the trip generation rates for this type of use (Adult-Use Marijuana Retail). These efforts have included discussion with the Eliot Town Planner and providing TIA materials for recently-approved uses for which trip generation rates were determined based on proposed points of sale, rather than square footage of the proposed development as regularly modeled in LUC-882 (Marijuana Dispensary). Correspondence with Diane Morabito, the traffic engineer responsible for

preparing the TIA for this development, is attached. The Applicant would like to discuss with the Planning Board and Town Staff the potential applicability of these continued TIA amendments, considering that there is unlikely to be significant-enough correlation between the limited stores of this use, let alone the extremely limited number of stores of this use and of this size.

- General Note #14 on Sheet 1 has been added to demonstrate the proposed development's compliance with the parking and loading requirements of Kittery Town Code §16.7.11.F.(4), Table 2.
- A "Lighting Requirements" notes package has been added to Sheet 9, which details the uniformity ratios outlined in Kittery Town Code §16.7.11.H and demonstrates compliance with the illumination requirements for the entrance and parking aisles of the proposed development.
- See above within the "§16.5 General Development Requirements" section for the Applicant's position on motion sensor lighting.
- Plan Set Comments
  - General Note #3 on Sheet 1 has been updated as discussed in the "§16.4 Zoning Regulations" section above to demonstrate compliance with the dimensional standards of the C-2 zoning district.
  - General Note #18 on Sheet 1 has been updated as discussed in the "§16.4 Zoning Regulations" section above to demonstrate compliance with the maximum impervious coverage.
  - The front (easterly) entrance to the proposed building is designed to have 1 ADA space and the associated clearance aisle. For a development and parking lot of this size, the Applicant contends that the current layout satisfactorily addresses "§16.7.11.F.(4).(1).(i), subsections [2] & [3] regarding the appropriate placement of accessible parking spaces to connect to the accessible building entrance.
  - General Notes #6 & #7 on Sheet 1 have been updated to correctly list the title of the project wetland scientist and project soil scientist, respectively.
  - General Note #10 on Sheet 1 has been updated to callout the appropriate entities that shall be supplying water and sewer connections to the proposed development.
  - The proposed hydrant referenced in General Note #11 on Sheet 1 has been displayed on Sheet 3 as intended.
  - All relevant Plan Set sheets have been updated to display the approximate location of vegetative screening plantings along the northern edge of development as requested.
  - The Existing Conditions Plan (Sheet 2) has been updated to include all existing utilities and all known dimensional and elevation values as requested.
  - Regarding the potential vernal pools depicted on Sheet 2, the determination period for vernal pool significance in the 2022 calendar year had passed before site visits were able to be made. As such, the Plan Set has been prepared under the assumption that both of these locations are indeed significant vernal pools, and a NRPA PBR has been applied for under this assumption. General Note #13 on Sheet 1 demonstrates the required critical terrestrial habitat calculation.



- The Grading & Utilities Plan (Sheet 3) has been updated to have the appropriate Kittery Sewer Services references throughout.
- Correspondence with Kittery Sewer Services on the proposed extension is attached as requested.
- Grading & Utilities Notes #1 & #3 have been revised to indicate the singular sewer service and water service as requested.
- Sheet 3 has been updated to include spot grade elevations do provide more clarity to both of the small segmental block retaining walls proposed.
- Concrete curbing is proposed at the entrance that spans the culverted crossing, as depicted in the Site Details page (Sheet 5). All relevant Plan Set sheets have been updated to include callouts to this section of curbing.
- Side slopes on either side of the proposed entrance shall be established as indicated in the Road Cross Section details on Sheet 5.
- The Detention Pond #1 detail on Sheet 5 has been graphically updated to more properly depict the elevations of the outlet control structure as it relates to the top of bank.
- There are no catch basins proposed on site, and this detail has been removed from Sheet 5.
- The Typical Sanitary Manhole detail on Sheet 5 has been updated to include notes about gravel subbase compaction.
- Sheet 5 has been updated to include a Trench Patch Detail for any utility work within the Route 236 corridor, with dimensional requirements and thicknesses to the satisfaction of the Kittery Director of Public Works.
- The Road Cross Section detail on Sheet 5 has been updated to include the proposed 48" culverted crossing of the wetlands at the entrance to the development.
- Plan Set copies for this submittal shall be sent to the Kittery Water District and Kittery Sewer Services as requested to receive comment on the proposed utility services and details.
- The headwater elevation analysis previously included on the Stormwater: Developed Conditions Plan (Sheet 7) has been relocated to the Stormwater: Expanded Developed Conditions Plan (Sheet 8). This table has been updated to reflect the HydroCAD model revisions discussed above in the "§16.7.11 Performance Standards and Approval Criteria" section.
- Callouts on Sheet 7 have been updated to display the correct invert elevations for the Route 236 culverted crossing as is presented in elsewhere in the Plan Set.
- Sheet 8 has been updated to include a callout identifying the inverts, size, and pipe material of the downstream culverted crossing of Dana Avenue. This street was incorrectly labeled as Manson Road in a previous iteration of the Plan Set, and has now been changed.

- The Photometric Plan (Sheet 9) has been updated to include the uniformity ratios for relevant illumination requirements of this development as discussed above in the “§16.7.11 Performance Standards and Approval Criteria” section.
- An excerpted section of the Exterior Lighting Guidelines prepared by Illuminating Engineering Society (IES) of North America is attached. This indicates the accepted minimum of 0.5 footcandles for small commercial lots for parking lots and sidewalks, which demonstrates that the provided 1.4 footcandles is more than adequate.
- The Landscaping Plan (Sheet 10) has been updated to include typical planting details for all proposed plantings within the development. Additionally, notes are provided with each detail discussing installation and maintenance procedures.
- Vegetative screening planting locations, in the form of arborvitae along the northern edge of development, have been updated as discussed in an earlier section of the “Plan Set Comments” section.

**Third-Party Environmental Review Comments (West Environmental, Inc.):**

- All relevant Plan Set sheets have been updated to correctly display the proposed areas to be restored to surrounding wetland grade. No adjustments to the calculated square footages need to be made, as these values were calculated for the areas that are now more clearly graphically displayed. Proposed contours and spot elevations have been provided to ensure that the restoration effort is completed to the surrounding existing grade and that side slopes to the re-established wetlands does not exceed the 3:1 maximum.
- A species list for the surrounding wetland complex has been prepared by Michael Cuomo, project wetland scientist, and is attached.
- As discussed at the last Planning Board meeting, the Applicant has contracted Michael Morrison of Swamp, Inc. to perform the wetland restoration associated with the proposed development. Gathered data will be provided to the Town as soon as it is available, and an update shall be given prior to the next Planning Board meeting.

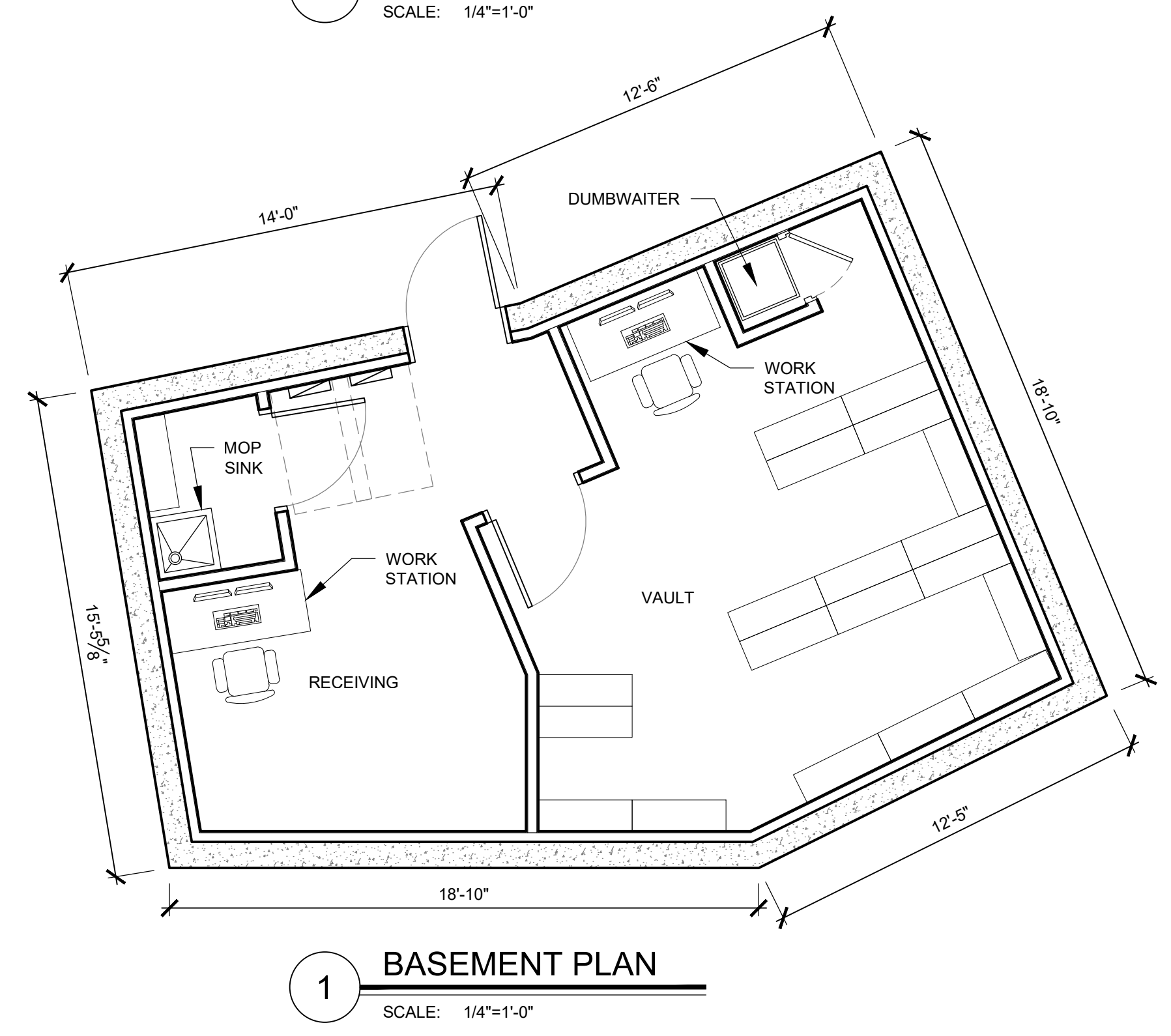
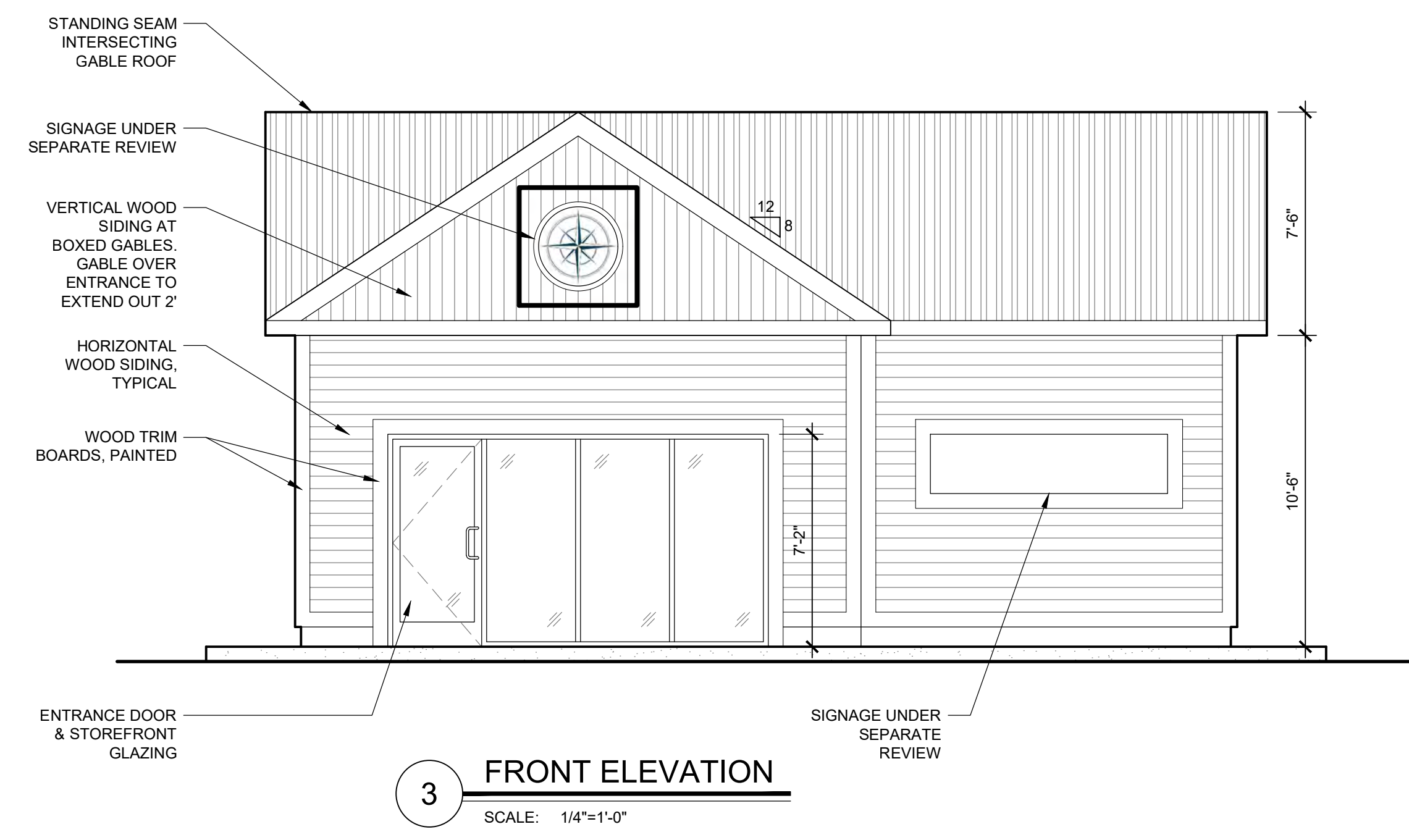
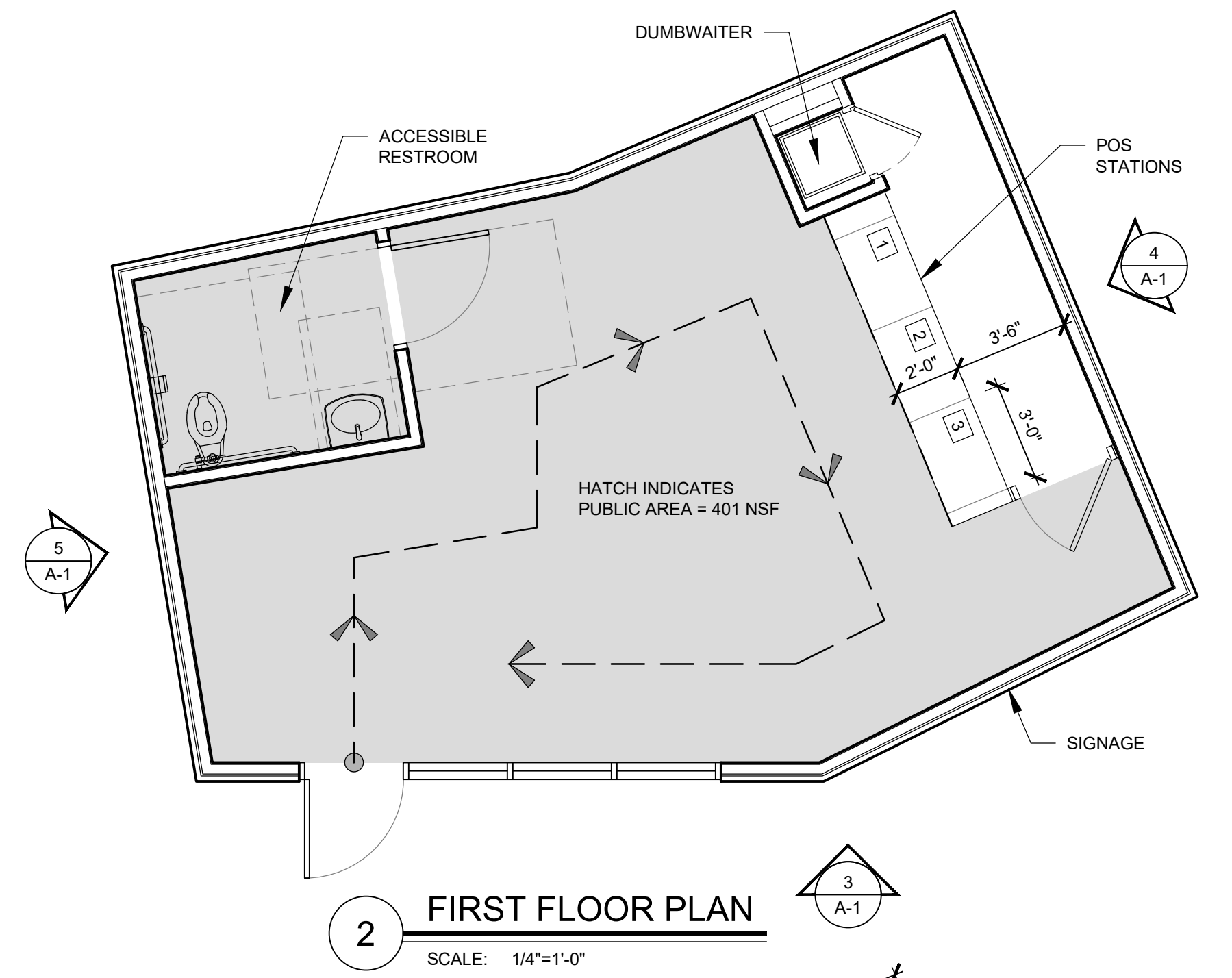
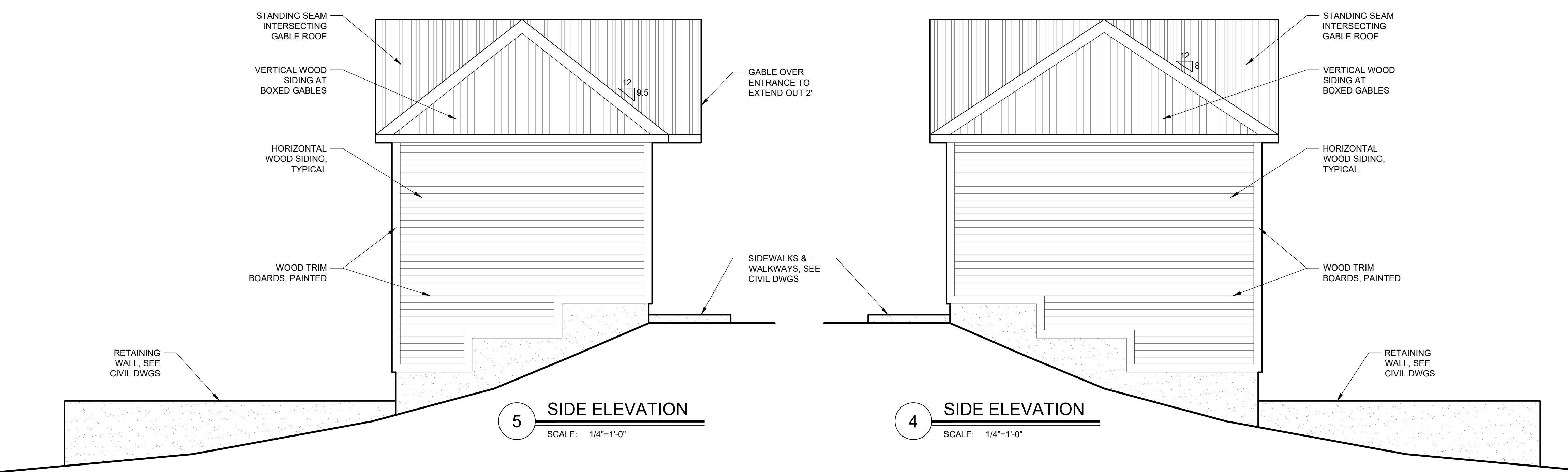
We look forward to discussing this application at the January 12<sup>th</sup> Planning Board meeting. Thank you for your consideration – please contact me for any additional information or clarifications required.

Sincerely;



Michael J. Sudak, E.I.  
Staff Engineer

cc: Well Field 44, LLC.  
C277-22 Cover Rev 29Dec2022.doc





# TOWN OF KITTEERY, MAINE

## TOWN PLANNING DEPARTMENT

200 Rogers Road, Kittery, Maine 03904  
 PHONE: (207) 475-1323  
 Fax: (207) 439-6806  
[www.kittery.org](http://www.kittery.org)

### APPLICATION: WETLAND ALTERATION PLAN REVIEW

<b>MITIGATION FEE TO BE DETERMINED BY THE PLANNING BOARD DURING THE REVIEW PROCESS AND PAID WITH PERFORMANCE GUARANTY.</b>	<b>Application Fee Paid:</b> \$ <u>355.00</u> <b>Date:</b> _____ <b>Escrow Fee Paid:</b> \$ _____ <b>Date:</b> _____
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<b>PROPERTY DESCRIPTION</b>	Parcel ID	Map	29	Lot	1	Zone(s): Base Overlay MS4	C-2, R-5 _____ _____ _____ <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Total Land Area	193,524 sq. ft. (4.44 Ac)
	Physical Address: <b>41 Route 236, Kittery ME 03904</b>								

<b>PROPERTY OWNER'S INFORMATION</b>	Name	Green Grass LLC	Mailing Address	32 Route 236 Kittery, ME 03904	
	Phone	207-252-2332			
	Fax				
	Email	dlapierre67@comcast.net			

<b>APPLICANT'S AGENT INFORMATION</b>	Name	Michael J. Sudak	Mailing Address	Attar Engineering, LLC  1284 State Road, Eliot ME 03903	
	Phone	207-439-6023			
	Fax				
	Email	mike@attarengineering.com			

<b>PROJECT DESCRIPTION</b>	Existing parcel and wetlands: The parcel (map 29, lot 1) is 4.44 acre in area. F.W Wetlands are located in the southern and western portion of the lot. The lot was previously filled and all development will occur in this area.	
	Project Name	Well Field 44, LLC
	Provide a brief summary of the proposed development, its impact on the existing wetlands and the proposed mitigation plan:	
	The parcel will be improved with a new 517 sq. ft. (footprint) two level retail building and parking and access areas.	
	One impact is proposed, totaling 1,367 sq. ft.. Additionally, 13,000 sq. ft. of filled area is proposed for restoration.	

I certify, to the best of my knowledge, the information provided in this application is true and correct and will not deviate from the plans submitted without notifying the Kittery Planning Department of any changes.

Applicant's Signature:	12/29/22 agent	Owner's Signature:	_____
Date:		Date:	_____

- locked doors, video surveillance, counters, and locked displays, in accordance with their Department-approved security plan, to prevent unauthorized entry to limited access areas
  - (2) Other licensees shall use identification checks, locked doors, and video surveillance, in accordance with their Department-approved security plan, to prevent unauthorized entry to limited access areas.
  - (3) Any security breaches must be reported within 24 hours, in writing, to the Department.
- F. Required Signage.
- (1) All areas of ingress and egress to limited access areas on the premises shall be clearly identified by posting a sign which shall be no smaller than 8.5 inches high and 11 inches wide, composed of letters not less than a half inch in height, which shall state: "Pursuant to State Law: Do Not Enter – Authorized Persons Only."
  - (2) If a person must pass through a limited access area to reach other limited access areas, and there is no other route through which a person can gain access to the subsequent limited access areas, then signage must only be posted on the first limited access area through which a person must pass.
- G. Contractors and other authorized visitors.
- (1) Contractors and other authorized visitors who will not handle marijuana plants, marijuana or marijuana products, including but not limited to electricians, plumbers, engineers and alarm technicians, do not require an individual identification card.
  - (2) A contractor may enter a limited access area only if wearing a visitor identification badge, signed in and recorded on a visitor entry log.
  - (3) At all times while in a limited access area, the contractor shall display in a conspicuous place on their person a visitor identification badge.
    - (a) The visitor identification badge must display an identifying mark, which may be a clearly identifiable letter, number or symbol or combination thereof.
    - (b) The visitor identification badge may be displayed on a sticker, a card on a lanyard, a card pinned to the clothing of the visitor, or by other effective means.
  - (4) A visitor entry log must include, at a minimum:
    - (a) The date and time of the visitor's entry;
    - (b) The date and time of the visitor's departure;
    - (c) The full name of the visitor;
    - (d) The identifying number of the visitor's state- or federally-issued identification;
    - (e) The identifying mark on the visitor identification badge; and
    - (f) The purpose for which the contractor is accessing the limited access area[s].

### 3.3 - Security

Cultivation facilities, testing facilities, products manufacturing facilities, and marijuana stores must provide adequate security at the licensed premises. This section does not apply to sample collectors.

**3.3.1 Mandatory Requirements for Cultivation Facilities, Testing Facilities, Products Manufacturing Facilities and Marijuana Stores.** As applicable, marijuana establishments must enact security measures to prevent the diversion of marijuana or marijuana products that are being cultivated, manufactured, tested, packaged, stored, displayed or transported.

- A. Lighting
  - (1) Any gate or perimeter entry point of a marijuana establishment must have lighting sufficient for observers to see, and cameras to record, any activity within 10 feet of the gate or entry.
  - (2) A motion detection lighting system may be employed to light required areas in low-light conditions.
- B. Doors and windows
  - (1) Commercial grade locks, appropriate for facilities requiring high levels of physical security, are required on all perimeter entry doors and on all doors separating limited access areas from areas open to visitors and customers.
  - (2) All external entrances to indoor facilities on the licensed premises must be able to be locked.
  - (3) All perimeter windows must be in good condition and lockable.

*This is a PROVISIONALLY ADOPTED major substantive rule subject to further consideration by the Maine State Legislature.*

C. Alarm system

- (1) Monitored sensors are required on all perimeter entry points and perimeter windows, except that perimeter windows may be protected by appropriately located motion sensors
- (2) Alarm systems must be monitored by a licensed security company capable of contacting the licensee and, if necessary, law enforcement.
- (3) The system must include an audible alarm, which must be capable of being disabled remotely by the security company.

D. Video surveillance

- (1) Placement and coverage of cameras shall be sufficient:
  - (a) Cameras must be permanently fixed inside each entry/exit point (perimeter and limited access area) to allow identification of persons entering the premises and limited access areas.
  - (b) Cameras must be permanently fixed outside each entry/exit point (perimeter and limited access area) to allow identification of persons exiting the premises and limited access areas.
  - (c) A sufficient number of cameras must be permanently fixed to allow the viewing, in its entirety, of any area where marijuana, marijuana plants, immature marijuana plants, seedlings, seeds, marijuana concentrate or marijuana products are cultivated, manufactured, stored or prepared for transfer or sale or where samples for mandatory testing are collected, and prepared and sealed for transport to a marijuana testing facility;
    - (i) Except that outdoor cultivation areas must have only a sufficient number of cameras permanently fixed to allow the viewing of the entirety of the perimeter of the cultivation area inside of the exterior fence; and
    - (ii) Indoor cultivation areas, including each grow room and each drying room, must have only a sufficient number of cameras permanently fixed to allow the viewing of all points of ingress and egress to and from the cultivation area.
  - (d) A sufficient number of cameras must be permanently fixed to allow the viewing, in its entirety, of any area where marijuana waste is stored before being made unusable, or where marijuana waste is made unusable.
  - (e) A camera must be permanently fixed at each point of sale to monitor the identity of the purchaser and ensure facial identity.
  - (f) A sufficient number of cameras shall be permanently fixed to allow recording of all areas outside of the premises within 10 feet of the exterior fence and gates of a cultivation facility with outdoor growing.
- (2) Video surveillance shall meet the following minimum requirements:
  - (a) Minimum camera resolution is 720p.
  - (b) System storage and cameras are internet protocol (IP) compatible.
  - (c) All cameras must record continuously twenty-four hours per day or be motion activated and at a minimum of 15 frames per second.
    - (i) Motion activated video storage must capture and store footage for no less than 120 seconds prior to motion activation and 120 second following the cessation of motion.
  - (d) All recorded images must clearly and accurately display the time and date. Time is to be measured in accordance with the U.S. National Institute Standards and Technology standards.
  - (e) The surveillance system storage device must be secured on the premises in a lockbox, cabinet or closet, or must be on a third-party server or secured in another manner to protect from employee tampering or criminal theft.
- (3) All surveillance recordings must be kept for a minimum of 45 days on the licensee's recording device.
- (4) All videos are subject to inspection by any Department employee and must be copied and provided to the Department upon request.

*This is a PROVISIONALLY ADOPTED major substantive rule subject to further consideration by the Maine State Legislature.*

- (5) Licensees shall maintain a list of all persons with access to video surveillance recording and procedures for controlling access to recordings.

**3.3.2 Fencing and Lighting Requirements for Cultivation Facilities.** A cultivation facility that cultivates seedlings, immature plants, mother plants or mature plants in outdoor areas or in greenhouses or other structures that do not meet all security requirements for buildings must secure such cultivation areas with fencing and lighting.

- A. Any cultivation facility with cultivation areas that do not meet the requirements for building security shall erect secure fencing around such areas. Fencing and all gates must be secure, at least 6 feet high and obscure, or have a cover that obscures, the Limited Access Area from being readily viewed from outside of the fenced in area. Such fencing must be commercial or security grade, not agricultural or residential grade, and designed to prevent access to the cultivation area by unauthorized persons.
- B. Lighting shall be designed to sufficiently illuminate a perimeter of at least 10 feet around any point of entry, whether it is a gate or access from a building. A licensee may use motion sensor lighting in cultivation areas.

**3.3.3 Additional Security Measures.** The licensee may choose to enact additional security measures to enhance the safety of the marijuana establishment. Any additional security measures implemented by a licensee are subject to the following requirements:

- A. Measures to prevent employee or contractor theft:
  - (1) Licensees may designate areas for employee and contractor storage of bags, overcoats and other belongings.
  - (2) Licensees may place limits on the size of bags to be brought to the marijuana establishment.
  - (3) Licensees may institute other reasonable procedures for checking for stolen marijuana or marijuana products when an employee or contractor leaves the premises.
- B. Security guards:
  - (1) Security guards are permitted but not required at marijuana establishments.
  - (2) Security guards employed or contracted by a licensee must:
    - (a) Meet all qualifications of 32 MRS, chapter 93;
    - (b) Be at least 21 years of age;
    - (c) Comply with all requirements of 32 MRS, chapter 93; and
    - (d) Obtain and display individual identification cards if they will be in limited access areas or in a vehicle that is transporting marijuana plants, marijuana or marijuana products.
  - (3) Security guards must not consume marijuana or marijuana products or be intoxicated while performing any duties for a licensee.
  - (4) Licensees, employees and security guards must comply with all laws and regulations related to firearms and other weapons.

**3.3.4 Written Security Plan.** Before cultivating, manufacturing, testing, selling, storing or transporting marijuana or marijuana products, each licensee shall receive Department approval of a written security plan, included in the licensee's facility plan of record, demonstrating compliance with all requirements of this rule.

- A. At a minimum, the security plan shall provide sufficient detail so that the Department may determine whether the following requirements are met:
  - (1) Lighting adequately illuminates entry and exit points;
  - (2) All doors and windows are lockable;
  - (3) Fences (if present) meet height and other requirements;
  - (4) Alarm sensors are present on all entry points and windows and are remotely monitored;
  - (5) Video cameras are present in all required locations;
  - (6) Video cameras and storage meet all required specifications; and
  - (7) In areas of the premises (if any) designated for retail sales, lockable and secure display cases or counters of sufficient height to prevent the public from handling marijuana plants, marijuana or marijuana products without direct supervision of a licensee or employee.

*This is a PROVISIONALLY ADOPTED major substantive rule subject to further consideration by the Maine State Legislature.*

- B. Each licensee shall adhere to the security plan and notify the Department in writing through the submission of a revised security plan 14 days prior to making any material change to security measures. The Department may determine at any time that the revised security plan does not meet minimum requirements. Except in exigent circumstances, which must be communicated to the Department in 24 hours, a licensee may not make any material changes to security measures without prior notice to the Department in writing.
- C. Material changes include, but are not limited to: the addition or removal of sensors or cameras; or changes to the location of sensors, cameras, points of entry or exit or points of sale or authorized transfers; changing security monitoring companies; and changes to lighting.

### 3.4 - General Conduct

#### 3.4.1. General Requirements.

- A. Marijuana licensees are responsible for the operation of their licensed business in compliance with Maine Revised Statutes, Titles 28-B, 17-A, 36; this rule; and any other applicable state laws and rules.
- B. Licensees and their employees must conduct business and maintain the licensed premises, surrounding area, and vehicles transporting product, in compliance with the following laws, as they now exist or may later be amended:
  - (1) Falsification in Official Matters, 17-A MRS, chapter 19;
  - (2) Offenses against Public Order, 17-A MRS, chapter 21;
  - (3) Drugs, 17-A MRS, chapter 45; and
  - (4) Motor Vehicles and Traffic, 29-A MRS.
- C. Licensees have the responsibility to control their conduct and the conduct of employees, customers, contractors and visitors on the licensed premises at all times. Licensees shall ensure that at all times during business hours, as applicable, and hours of apparent activity that there is, on-site, an individual identification cardholder authorized to cooperate with Department inspection of the premises and business records. Except as otherwise provided by law, licensees or employees may not:
  - (1) Be disorderly or visibly intoxicated by liquor, marijuana or controlled substances on the licensed premises;
  - (2) Permit any disorderly or visibly intoxicated person to remain on the licensed premises;
  - (3) Engage in or allow behavior on the licensed premises that provokes conduct which presents a threat to public safety;
  - (4) Engage in, or permit any employee or other person to engage in, conduct on the licensed premises that is prohibited by any portion of 28-B MRS, 17-A MRS or 36 MRS; any part of this rule; or any other applicable state laws and rules; or
  - (5) Engage in or permit any employee or other person to engage in the consumption of any type of marijuana, marijuana concentrate or marijuana product on the premises, except:
    - (a) A licensee may allow an employee who is a qualifying patient to consume legally obtained medical marijuana or marijuana products on the licensed premises. Pursuant to 22 MRS § 2426(2)(B), no employer is required to accommodate the ingestion of medical marijuana in any workplace or any employee working while under the influence of marijuana.
    - (b) An employee of a licensee may ingest, consume or apply products for quality control, research or development, or employee educational purposes, so long as the licensee does not allow any products to be smoked on the premises and the licensee ensures that the person conducting the testing does not operate any equipment or machinery or a motor vehicle while under the influence of the marijuana product.
- D. Licensees are prohibited by this rule from manufacturing, selling or offering for sale any marijuana product intended for intravenous delivery or that involves any type of injection involving piercing of the skin of a human or animal.

**3.4.2. General Sanitary Requirements.** In addition to the requirements found in Maine Food Code Chapter 33, this rule and all other applicable rules and laws, a marijuana establishment licensee must:

- A. Prohibit an individual from working at a licensed premise who has or appears to have:

*This is a PROVISIONALLY ADOPTED major substantive rule subject to further consideration by the Maine State Legislature.*



John C. Perry, President  
James E. Golter, Treasurer  
Robert A. Gray, Clerk

Michael H. Melhorn, Trustee  
Carla J. Robinson, Trustee  
Michael S. Rogers, Superintendent

OFFICE OF

## KITTERY WATER DISTRICT

17 State Road  
Kittery, ME 03904-1565  
TEL: 207-439-1128  
FAX: 207-439-8549  
E-Mail: [kitterywater@comcast.net](mailto:kitterywater@comcast.net)

Kittery Planning Board  
200 Rogers Road  
Kittery, ME 03904

October 12, 2022

RE: 41 Rt. 236, Kittery

Dear Planning Board Members,

Please accept this letter as verification that the Kittery Water District does have the capacity to supply municipal water service to the proposed Cannabis Dispensary, Well Field 44, located at 41 Rt. 236 Kittery

Sincerely,



Michael S. Rogers  
Superintendent

Cc: Michael J. Sudak, E.I. – Attar Engineering, Inc.



# TOWN OF KITTERY, MAINE

SEWER DEPARTMENT

200 Rogers Road, Kittery, ME 03904

Telephone: (207) 439-4646 Fax: (207) 439-2799

Brian Nielsen  
41 Route 236,  
Kittery, ME 03904

November 9, 2021

RE:Sewer Availability

Brian,

This letter is to confirm that there is sanitary sewer service available for your project Located at 41 Route 236, the sewer system (piping and pumping stations) and the treatment facility has the capacity and ability to handle the increased flow.

If you have further questions or concerns, please contact me.

Sincerely Yours

*Timothy Babkirk*

Timothy Babkirk  
Superintendent of Sewer Services  
Town of Kittery  
200 Rogers Rd  
Kittery ME 03904  
1-207-439-4646  
tbabkirk@kitteryme.org

# STORMWATER PBR APPLICATION FORM

<b><sup>1</sup> Name of Applicant:</b>		<b><sup>5</sup> Name of Agent:</b>	
<b><sup>2</sup> Applicant's Mailing Address:</b>		<b><sup>6</sup> Agent's Mailing Address:</b>	
<b><sup>3</sup> Applicant's Daytime Phone:</b>		<b><sup>7</sup> Agent's Daytime Phone:</b>	
<b><sup>4</sup> Applicant's Email Address:</b>		<b><sup>8</sup> Agent's Email Address:</b>	
<b><sup>9</sup> Location of Project: (Road, Street, Rt.)</b>		<b><sup>10</sup> Location Town:</b>	<b><sup>11</sup> Location County:</b>
<b><sup>12</sup> Is this PBR for renewal of an individual Stormwater permit or Stormwater Permit-by-Rule?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Is this PBR for transfer of a Stormwater Permit-by-Rule?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No  <b>If Yes, DEP Permit Number:</b> _____ <b>Prior Project Manager (if known):</b> _____ <b>NOTE:</b> If either box is checked Yes, skip to Box 30B below.			
<b><sup>13</sup> Type of Direct Watershed: (Check all that apply.)</b> <input type="checkbox"/> Lake not most at risk <input type="checkbox"/> Lake most at risk <input type="checkbox"/> Lake most at risk, severely blooming <input type="checkbox"/> River, stream or brook <input type="checkbox"/> Urban impaired stream <input type="checkbox"/> Freshwater wetland <input type="checkbox"/> Coastal wetland <input type="checkbox"/> Wellhead of public water supply		<b><sup>14</sup> Amount of Developed Area:</b> Total _____ acres <b>OR</b> Total _____ SF	
		<b><sup>15</sup> Amount of Impervious Area:</b> Total _____ acres <b>OR</b> Total _____ SF	
		<b><sup>16</sup> Amount of Occupied Area:</b> Total _____ acres	
<b><sup>17</sup> Part of a Subdivision?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b><sup>18</sup> Is this Activity Part of a Larger Project?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b><sup>19</sup> Name of Waterbody(ies) Drained to:</b>		<b><sup>20</sup> Name of Impaired Waterbody (if applicable)</b>	
<b><sup>21</sup> Brief Project Description:</b>			
<b><sup>22</sup> Size of Lot or Parcel:</b> Total _____ acres <b>OR</b> Total _____ SF		<b>UTM Northing, if known:</b>	<b>UTM Easting, if known:</b>
<b><sup>23</sup> Deed Reference Numbers:</b> Book: _____ Page: _____		<b><sup>24</sup> Map and Lot Numbers:</b> Map: _____ Lot: _____	
<b><sup>25</sup> DEP Staff Previously Contacted:</b>		<b><sup>26</sup> Project started prior to Application?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>If yes, Completed?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b><sup>27</sup> Resubmission of PBR Application?</b> <input type="checkbox"/> No <input type="checkbox"/> Yes →	<b>If Yes, Prior Application Number:</b>	<b>Prior Project Manager:</b>	
<b><sup>28</sup> Written Notice of Violation?</b> <input type="checkbox"/> No <input type="checkbox"/> Yes →	<b>If Yes, Name of DEP Enforcement Staff Involved:</b>		
<b><sup>29</sup> Detailed Directions to the Project Site:</b>			

## SUBMISSIONS

<b><sup>30A</sup> For a new Stormwater PBR:</b> <input type="checkbox"/> This Form (signed and dated) <input type="checkbox"/> Photos of Area <input type="checkbox"/> Fee <input type="checkbox"/> ESC Plan <input type="checkbox"/> Dept. of Inland Fisheries & Wildlife Approval (if in Essential Habitat) <input type="checkbox"/> Location Map <input type="checkbox"/> Site Plan	<b><sup>30B</sup> For renewal of an individual Stormwater permit or Stormwater PBR and/or transfer of a Stormwater PBR:</b> <input type="checkbox"/> This Form (signed and dated) <input type="checkbox"/> Copy of original Stormwater permit or PBR <input type="checkbox"/> Fee <input type="checkbox"/> For a transfer: A copy of the deed, lease, purchase option or other evidence of applicant's title, right or interest in project site, and proof of legal name if the applicant is a corporation or other legal entity.
<b>FEE:</b> Pay by credit card at the Payment Portal. The SW Permit-by-Rule fee may be found here: <a href="https://www.maine.gov/dep/feeschedule.pdf">https://www.maine.gov/dep/feeschedule.pdf</a> . <input type="checkbox"/> <b>Attach payment confirmation from the <a href="#">Payment Portal</a> when filing this notification form.</b>	

# STORMWATER PBR APPLICATION FORM

## CERTIFICATION / SIGNATURE for NEW STORMWATER PBR or RENEWAL

### Applicant Statement:

I am applying for a Stormwater PBR or permit renewal and have attached the required submissions. I have read the requirements and I affirm that my project satisfies the applicable stormwater management standards. I authorize staff of State and Federal agencies having jurisdiction over this activity to access the project site for the purpose of determining compliance with the rules.

**“I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”**

Signature (may be typed): \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Print or Type Name: \_\_\_\_\_

## CERTIFICATION / SIGNATURES for TRANSFER of a STORMWATER PBR

**Current Permittee Statement:** By signing below, the current permittee certifies that they agree to the transfer of the Stormwater PBR identified on this application form to the applicant named on this form.

Signature (may be typed): \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Print or Type Name: \_\_\_\_\_

**Applicant Statement:** By signing below the applicant certifies that they have received, read, and understand and will comply with the Stormwater PBR being transferred.

**“I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”**

Signature (may be typed): \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Print or Type Name: \_\_\_\_\_

## NOTICE OF INTENT TO COMPLY with the MAINE CONSTRUCTION GENERAL PERMIT

**(Must be Completed by All Applicants)**

**Applicant Statement:** With this Stormwater PBR form and my signature below, I am filing notice of my intent to carry out work that meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards. In addition, I will file a Notice of Termination (NOT) within 20 days of project completion.

If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed): \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Print or Type Name: \_\_\_\_\_

**From:** [noreply@informe.org](mailto:noreply@informe.org)  
**Subject:** DEP Payment Receipt  
**Date:** Thursday, December 29, 2022 2:22:19 PM

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## Payment Receipt Confirmation

Your payment was successfully processed.

### Transaction Summary

Description	Amount
DEP Payment Portal	\$359.00
Service Fee	\$2.00
Maine.gov Total	\$361.00

### Customer Information

**Customer Name** Sammie Rogers  
**Company Name** Attar Engineering Inc.  
**Local Reference ID** 2919214261  
**Receipt Date** 12/29/2022  
**Receipt Time** 02:22:11 PM EST

### Payment Information

**Payment Type** Credit Card  
**Credit Card Type** VISA  
**Credit Card Number** \*\*\*\*\*2174  
**Order ID** 64842656  
**Billing Name** Judith P Wood

### Billing Information

**Billing Address** 1284 STATE RD  
**Billing City, State** Eliot, ME  
**ZIP/Postal Code** 03903  
**Country** US  
**Phone Number** 2074396023

**This receipt has been emailed to the address below.**

**Email Address** sammie@attarengineering.com

**From:** [Maine Dept. of Environmental Protection](#)  
**To:** [Sammie Rogers](#)  
**Subject:** Dept. of Environmental Protection Payment Portal  
**Date:** Thursday, December 29, 2022 2:22:16 PM

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Thank you for submitting this payment to the Dept. of Environmental Protection. Below is a copy of the information and payment the agency will receive.

- Applicant Name: **Well Field 44, LLC.**
- Activity Location: **41 Route 236, Kittery ME 03904**
- First Name: **Sammie**
- Last Name: **Rogers**
- Company Name: **Attar Engineering Inc.**
- Street Address: **1284 STATE RD**
- Town/City: **Eliot**
- State or Province: **Maine**
- Country: **United States**
- Zip Code: **03903**
- Phone Number: **2074396023**
- Email Address: **sammie@attarengineering.com**
- Fee Type: **Stormwater Management Law (Permit-by-Rule)**
- Customer Number:
- Invoice Number:
- Spill Number:
- Payment Amount: **359.00**
- Additional Comments:

Your information will be reviewed and you may be contacted if more information is needed or if there are additional questions.

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PERMIT BY RULE NOTIFICATION FORM**

(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)				AGENT INFORMATION (If Applying on Behalf of Owner)			
Name:				Name:			
Mailing Address:				Mailing Address:			
Mailing Address:				Mailing Address:			
Town/State/Zip:				Town/State/Zip:			
Daytime Phone #:			Ext:	Daytime Phone #:			Ext:
Email Address:				Email Address:			
PROJECT INFORMATION							
Part of a larger project? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	After the Fact? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Project involves work below mean low water? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name of waterbody:	
Project Town:			Town Email Address:			Map and Lot Number:	
Brief Project Description:							
Project Location & Brief Directions to Site:							

**PERMIT BY RULE (PBR) SECTIONS (Check at least one):** I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, [Chapter 305](#). I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Sec. (2) Act. Adj. to Prot. Natural Res. | <input type="checkbox"/> Sec. (9) Utility Crossing                 | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects       |
| <input type="checkbox"/> Sec. (3) Intake Pipes                    | <input type="checkbox"/> Sec. (10) Stream Crossing                 | <input type="checkbox"/> Sec. (17) Transfer/Permit Extension        |
| <input type="checkbox"/> Sec. (4) Replacement of Structures       | <input type="checkbox"/> Sec. (11) State Transportation Facilities | <input type="checkbox"/> Sec. (18) Maintenance Dredging             |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Veg.       | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas    | <input type="checkbox"/> Sec. (19) Act. Near SVP Habitat            |
| <input type="checkbox"/> Sec. (7) Outfall Pipes                   | <input type="checkbox"/> Sec. (13) F&W Creat./Water Qual. Improv.  | <input type="checkbox"/> Sec. (20) Act. Near Waterfowl/Bird Habitat |
| <input type="checkbox"/> Sec. (8) Shoreline Stabilization         | <input type="checkbox"/> Sec. (15) Public Boat Ramps               |   |

**NOTE: Municipal permits also may be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.**

**NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE**

- Attach** all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.
- Attach** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- Attach** Proof of Legal Name if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>). Individuals and municipalities are not required to provide any proof of identity.

**FEE:** Pay by credit card at the [Payment Portal](#). The Permit-by-Rule fee may be found here <https://www.maine.gov/dep/feeschedule.pdf> and is currently \$288.

- Attach** payment confirmation from the Payment Portal when filing this notification form.

**Signature & Certification:**

- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

**By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.**

Signature of Agent or Applicant (may be typed):		Date:	
---	--	-------	--

**Keep a copy as a record of permit.** Email this completed form with attachments to DEP at: [DEP.PBRNotification@maine.gov](mailto:DEP.PBRNotification@maine.gov). DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

**From:** [noreply@informe.org](mailto:noreply@informe.org)  
**Subject:** DEP Payment Receipt  
**Date:** Thursday, December 29, 2022 2:20:55 PM

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## Payment Receipt Confirmation

Your payment was successfully processed.

### Transaction Summary

Description	Amount
DEP Payment Portal	\$288.00
Service Fee	\$2.00
Maine.gov Total	\$290.00

### Customer Information

**Customer Name** Sammie Rogers  
**Company Name** Attar Engineering Inc.  
**Local Reference ID** 2919193330  
**Receipt Date** 12/29/2022  
**Receipt Time** 02:20:47 PM EST

### Payment Information

**Payment Type** Credit Card  
**Credit Card Type** VISA  
**Credit Card Number** \*\*\*\*\*2174  
**Order ID** 64842256  
**Billing Name** Judith P Wood

### Billing Information

**Billing Address** 1284 STATE RD  
**Billing City, State** Eliot, ME  
**ZIP/Postal Code** 03903  
**Country** US  
**Phone Number** 2074396023

**This receipt has been emailed to the address below.**

**Email Address** sammie@attarengineering.com



**From:** [Maine Dept. of Environmental Protection](#)  
**To:** [Sammie Rogers](#)  
**Subject:** Dept. of Environmental Protection Payment Portal  
**Date:** Thursday, December 29, 2022 2:20:54 PM

---

Thank you for submitting this payment to the Dept. of Environmental Protection. Below is a copy of the information and payment the agency will receive.

- Applicant Name: **Well Field 44, LLC.**
- Activity Location: **41 Route 236, Kittery ME 03904**
- First Name: **Sammie**
- Last Name: **Rogers**
- Company Name: **Attar Engineering Inc.**
- Street Address: **1284 STATE RD**
- Town/City: **Eliot**
- State or Province: **Maine**
- Country: **United States**
- Zip Code: **03903**
- Phone Number: **2074396023**
- Email Address: **sammie@attarengineering.com**
- Fee Type: **Natural Resources Protection Act (Permit-by-Rule)**
- Customer Number:
- Invoice Number:
- Spill Number:
- Payment Amount: **288.00**
- Additional Comments:

Your information will be reviewed and you may be contacted if more information is needed or if there are additional questions.

September 7, 2022

Mr. Mike Michael J. Sudak, E.I.  
Attar Engineering, Inc.  
1284 State Road  
Eliot, Maine 03903

## RE: PROPOSED MARIJUANA SALES SHOP – 41 ROUTE 236

As requested, this memorandum is written to document revised trip generation and updated traffic analysis for a proposed marijuana sales shop at 41 Route 236 in Kittery, Maine. The site location is shown in Figure 1. Sewall performed a full traffic impact analysis study for the originally proposed 3,150 square foot (S.F.) building, dated 12/29/2021. That analysis was based upon winter counts, which were factored to peak summer conditions. This updated analysis is based upon summer 2022 traffic counts. Additionally, the proposed building has been reduced in size from 3,150 S.F. to 1,034 S.F. The revised trip generation analysis is as follows:

### TRIP GENERATION

The number of trips to be generated by the smaller marijuana sales shop was estimated utilizing the latest Institute of Transportation Engineers (ITE) “Trip Generation, 11<sup>th</sup> edition”, which is the same approach used for the original traffic impact study. Land use code (LUC) 882 – Marijuana Dispensary was utilized on the basis of 1,034 gross S.F. The results are summarized below:

<u>Time Period</u>	<u>ITE TRIP GENERATION</u> <u>One-Way Trip-Ends</u>
Weekday	218
AM Peak Hour – Adjacent Street	11
Entering	6
Exiting	5
AM Peak Hour – Generator	17
Entering	9
Exiting	8

<u>Time Period</u>	<u>One-Way Trip-Ends</u>
PM Peak Hour – Adjacent Street	19
Entering	9
Exiting	10
PM Peak Hour – Generator	25
Entering	12
Exiting	13
Saturday Peak Hour - Generator	30
Entering	15
Exiting	15

As seen above, the smaller shop is expected to generate from 11 to 30 one-way trips in peak hours and 218 one-way (109 round-trips) daily based upon the ITE data. This is a significant reduction from the previously proposed facility, which would have generated from 33 to 91 trips in peak hours and 666 trips on a daily basis.

## TRAFFIC VOLUMES

Based upon the previous traffic counts, the highest peak hour period for Route 236 is the weekday PM peak hour, typical of most Maine locations. An updated turning movement count was conducted on August 9, 2022 under peak summer conditions at the intersection of Route 236 and the Pine Brook Business Suites. The previous counts were conducted in December of 2021 and given time of year, required significant factoring to obtain projected summer volumes. It is important to note that the actual summer 2022 counts were 15 % lower than the factored 2021 traffic volumes, which is a significant difference, showing that the volumes utilized in the original Traffic Impact Study were inflated. The updated 2022 traffic counts are summarized in Figure 2.

The new marijuana sales trips were assigned to Route 236 based upon the traffic patterns recorded during the counts, which are also consistent with the previous trip assignment patterns used in the original study. These trip assignments, for the PM peak hour analysis period, are shown in Figure 3. As in the original study, the 2022 volumes were projected to 2023 No Build conditions using a ½ % annual traffic growth rate. The projected 2023 No Build volumes are shown in Figure 4. Lastly, the projected Build volumes are shown in Figure 5.

## AUXILIARY TURN LANE WARRANTS

It is understood that the Town of Kittery has requested right and left turn lanes on Route 236 to serve the proposed marijuana sales facility. Route 236 is a state facility. MaineDOT utilizes the warrant charts in NCHRP 457 to determine if auxiliary turn lanes are warranted. Sewall performed left and right turn lane analysis, for the projected Build 2023 volumes, utilizing average Route 236 volumes (as opposed to 30<sup>th</sup> highest hour summer volumes). The warrant charts, for the 45-mph speed limit requested by MaineDOT (versus the 40-mph posted speed limit) are included in the appendix. The results show that neither a right turn lane or a left turn lane are warranted on Route 236 to serve traffic entering the site. Since these turn lanes are unwarranted it is unlikely that MaineDOT would allow them to be built within their right-of-way, especially given potential wetland impacts.

## CAPACITY ANALYSIS

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement. These criteria are defined in the following table excerpted from the 2010 "Highway Capacity Manual":

### **Unsignalized Intersection Level of Service**

<u>LOS</u>	<u>Delay Range</u>
A	<= 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

## UNSIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was calculated for the unsignalized site drive intersection for projected 2023 Build conditions using Synchro 11/SimTraffic to assure acceptable levels of service. The results, averaging five (5) runs, are summarized below:

<u>Approach</u>	<b>Route 236 &amp; Site Drive PM Peak Hour Level of Service 2023 Build</b>
Eastbound Site Drive	C (15.2)
Northbound Route 236	A (1.0)
Southbound Route 236	A (2.2)
Overall Intersection	A (1.5)

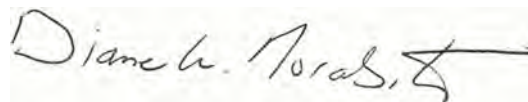
As seen above, the proposed site drive is expected to function at good level of service “C” during the PM peak hour, demonstrating no capacity concerns for the projected volumes.

To summarize, the reduced size facility is expected to generate from 11 to 30 one-way trips in peak hours, which would not be expected to have a significant impact on off-site traffic operations. Updated peak summer traffic counts were obtained for the traffic analysis, which did not identify any capacity constraints. Additionally, neither a right-turn nor a left-turn lane are warranted on Route 236 to store traffic entering the proposed marijuana sales facility.

As always, please do not hesitate to contact Sewall if you or the Town of Kittery have any questions or require any additional information or analysis regarding our findings.



Sincerely,



Diane W. Morabito, P.E. PTOE  
Vice President Traffic Engineering



## Figure 1

Site Location Map

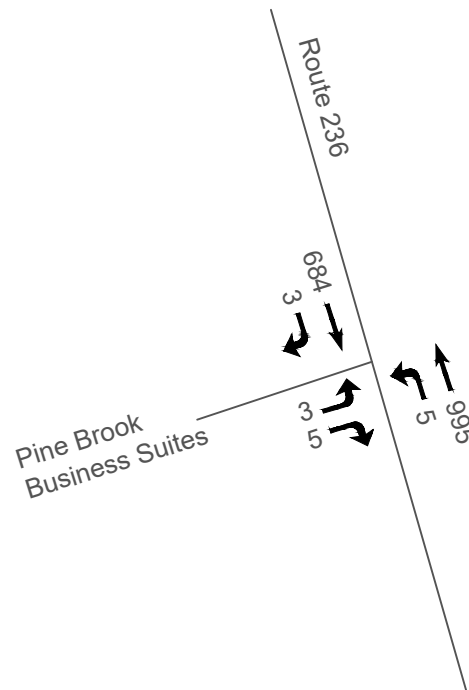
41 Route 236 Marijuana Sales

Kittery, Maine

**Sewal**  
The evolution of expertise  
A TFC Company



PM Peak Hour: 2:30-3:30



**Figure 2**

**2022 Existing PM Peak Hour Volumes**

**41 Route 236 Marijuana Sales**

**Kittery, Maine**





19 Primary Trips

9 In

10 Out

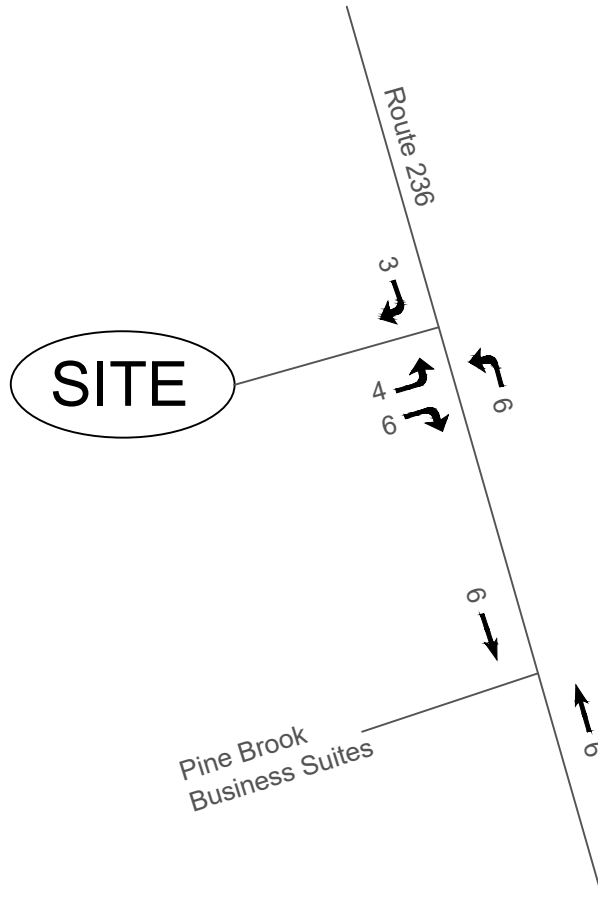


Figure 3

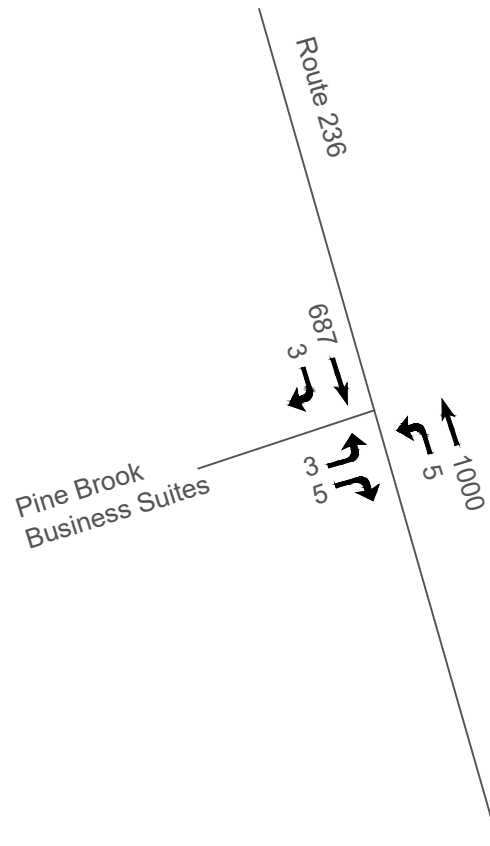
PM Peak Hour Trip Assignments

41 Route 236 Marijuana Sales

Kittery, Maine



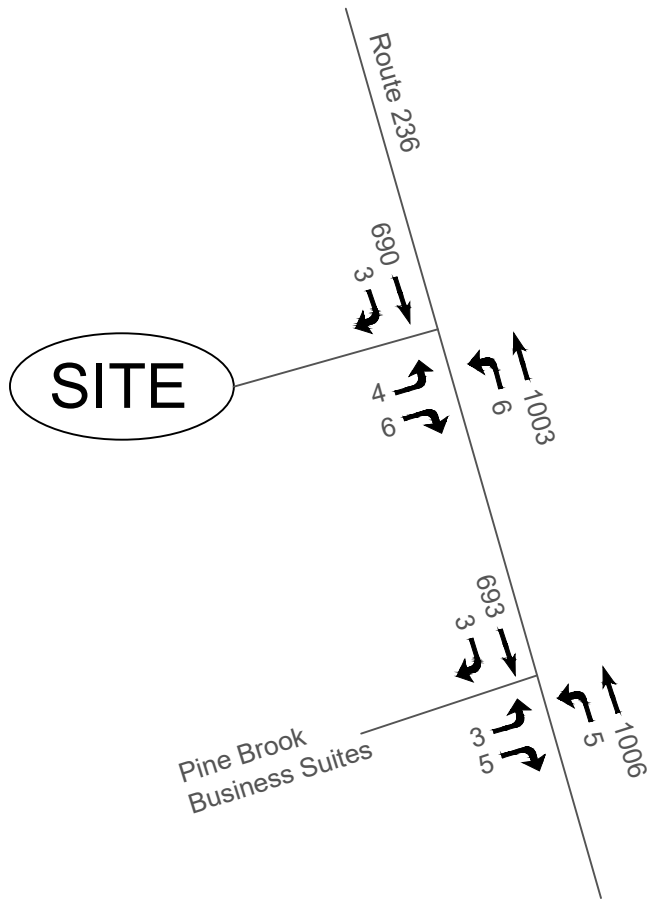




**Figure 4**

**2023 No Build PM Peak Hour Volumes  
41 Route 236 Marijuana Sales  
Kittery, Maine**





**Figure 5**

**2023 Build PM Peak Hour Volumes**

**41 Route 236 Marijuana Sales**

**Kittery, Maine**



**Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.**

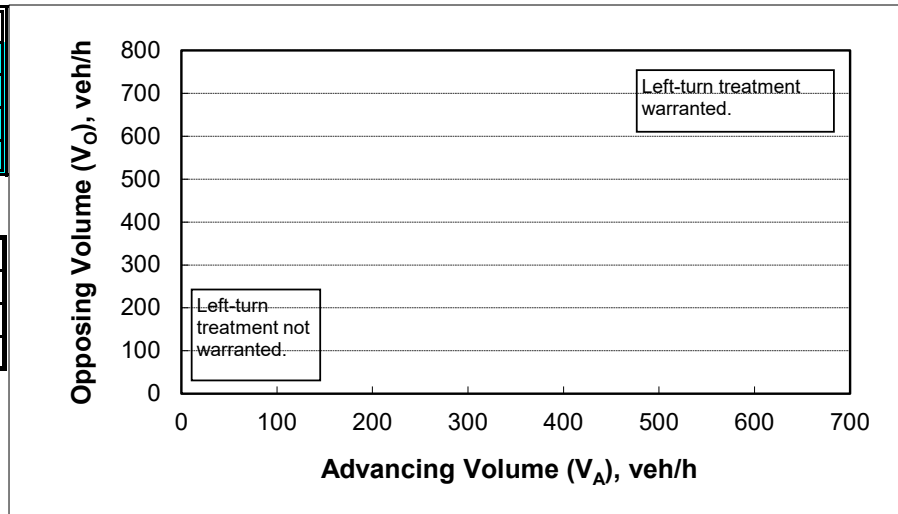
**2-lane roadway (English)**

**INPUT**

Variable	Value
85 <sup>th</sup> percentile speed, mph:	45
Percent of left-turns in advancing volume ( $V_A$ ), %:	1%
Advancing volume ( $V_A$ ), veh/h:	879
Opposing volume ( $V_O$ ), veh/h:	604

**OUTPUT**

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	1083
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
<b>Left-turn treatment NOT warranted.</b>	



**CALIBRATION CONSTANTS**

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

**Build PM Peak Hour - Average Route 236 Volumes - Left-turn Lane Not Warranted**

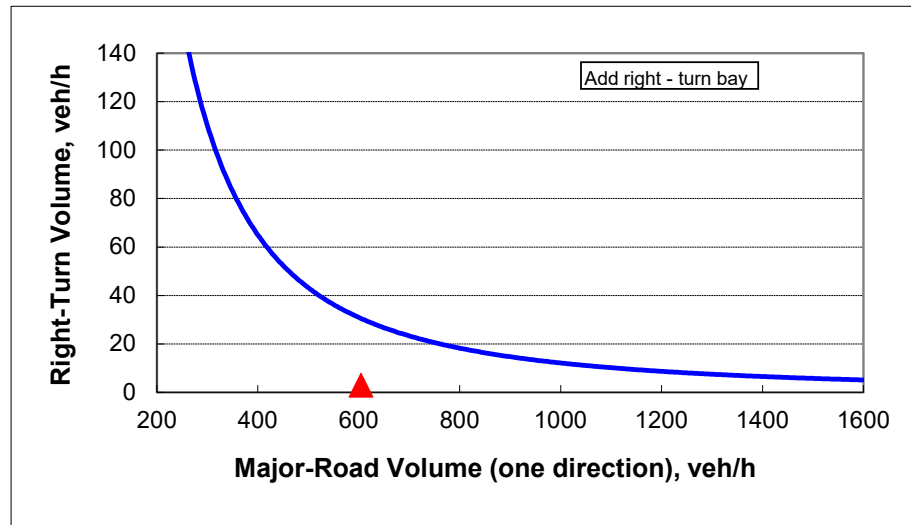
**Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	604
Right-turn volume, veh/h:	3

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	31
<b>Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:</b>	
<b>Do NOT add right-turn bay.</b>	



Build PM Volumes - Average Route 236 Volumes - Right-turn Lane Not Warranted

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	-1:-10	-1:-10	-1:-10	-1:-10	-1:-10	-1:-10
End Time	12:00	12:00	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1842	1920	1885	1832	1837	1863
Vehs Exited	1851	1903	1886	1827	1844	1862
Starting Vehs	38	28	47	37	35	35
Ending Vehs	29	45	46	42	28	38
Travel Distance (mi)	912	942	931	901	910	919
Travel Time (hr)	32.8	35.8	33.2	31.8	32.8	33.3
Total Delay (hr)	9.0	11.0	8.9	8.2	9.1	9.2
Total Stops	588	726	587	573	590	612
Fuel Used (gal)	29.8	31.4	30.0	29.3	29.8	30.1

Interval #0 Information Seeding

Start Time	-1:-10
End Time	-1:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Record

Start Time	-1:00
End Time	12:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	1842	1920	1885	1832	1837	1863
Vehs Exited	1851	1903	1886	1827	1844	1862
Starting Vehs	38	28	47	37	35	35
Ending Vehs	29	45	46	42	28	38
Travel Distance (mi)	912	942	931	901	910	919
Travel Time (hr)	32.8	35.8	33.2	31.8	32.8	33.3
Total Delay (hr)	9.0	11.0	8.9	8.2	9.1	9.2
Total Stops	588	726	587	573	590	612
Fuel Used (gal)	29.8	31.4	30.0	29.3	29.8	30.1

---

**3: Route 236 & Martin Road/Stevenson Road Performance by approach**

---

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.7	2.1	0.1	0.8	0.5
Total Del/Veh (s)	27.2	28.4	14.0	7.8	12.6

---

**6: Route 236 & Site Drive Performance by approach**

---

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	1.0	0.0	0.6
Total Del/Veh (s)	15.2	1.0	2.2	1.5

---

**Total Network Performance**

---

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	16.5

**Intersection: 3: Route 236 & Martin Road/Stevenson Road**

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	L	TR	L	TR
Maximum Queue (ft)	62	42	114	74	139	466	88	245
Average Queue (ft)	21	11	36	32	18	192	36	80
95th Queue (ft)	54	35	84	68	74	374	74	183
Link Distance (ft)	642		972			879		1226
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		50		50	175		200	
Storage Blk Time (%)	4	0	9	6		8		1
Queuing Penalty (veh)	1	0	4	3		1		0

**Intersection: 6: Route 236 & Site Drive**

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	56
Average Queue (ft)	9	3
95th Queue (ft)	31	27
Link Distance (ft)	232	456
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Network Summary**

Network wide Queuing Penalty: 9
---------------------------------

Intersection: 3: Route 236 & Martin Road/Stevenson Road

Phase	1	2	4	5	6	8
Movement(s) Served	SBL	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	10.0	45.0	20.0	5.0	50.0	20.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	C-Max	None
Avg. Green (s)	7.5	71.1	8.9	6.3	82.2	8.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	33	5	15	71	11	15
Cycles @ Minimum (%)	0	0	3	0	0	3
Cycles Maxed Out (%)	0	95	0	0	89	0
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA  
Number of Complete Cycles : 0



**From:** [Illian, Randy](#)  
**To:** [Mike Sudak](#)  
**Cc:** [Ken Wood](#); [Wyatt](#); [Adam Causey](#); [David Rich](#)  
**Subject:** RE: 41 Route 236 - Cannabis Dispensary - Traffic Impact Analysis  
**Date:** Wednesday, August 31, 2022 8:04:52 AM

---

Mike,

Based upon Diane's submittals, I agree that this, 1000 SF Cannabis Dispensary does not require a TMP. Additionally, the modifications to the driveway are within the Kittery Urban Compact and are the authority of the Town of Kittery.

Please note that the official Speed Limit in this area is 45 MPH.

I would like to request the study be modified for the 45 MPH Speed Limit and the following added to the plans:

1. Proposed width of the driveway
2. Appropriate guardrail end treatments on both sides of the driveway
3. Vegetation maintenance (necessary to maintain/maximize sight distance)

Thank you,

**Randy Illian, P.E.**  
**Southern Region Traffic Engineer**  
**Maine Department of Transportation**  
Scarborough, ME  
tel: (207)885-7000  
fax: (207)883-3806  
he / him

---

**From:** Mike Sudak <mike@attarengineering.com>  
**Sent:** Tuesday, August 30, 2022 11:52 AM  
**To:** Illian, Randy <Randy.Illian@maine.gov>  
**Cc:** Ken Wood <Ken@attarengineering.com>; Wyatt <wyatt@attarengineering.com>  
**Subject:** 41 Route 236 - Cannabis Dispensary - Traffic Impact Analysis

**EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Randy,

Thank you for calling me back earlier this morning. As requested I've attached the most current Plan Set and Traffic Impact Analysis for the project that we discussed in Kittery on the Route 236 corridor. My original outreach to Van Terrell (and then to you) was to make good on the Town's request for the MDOT to weigh in on the TIA that has been prepared by Sewall for the new entrance and business that is being proposed. I know this is in the Urban Compact Zone and therefore your agency has no jurisdiction on permitting, but I wanted to see if you agree with the assertions made

within the TIA.

Please let me know if you have any questions/concerns.

Thanks and take care.

-Mike

---

Michael J. Sudak, E.I.  
Civil Engineer  
Attar Engineering, Inc.  
1284 State Road  
Eliot, Maine 03903  
Ph: (207) 439-6023  
Fax: (207) 439-2128  
Cell: (978) 317-3398

**From:** [Diane Morabito](#)  
**To:** [Mike Sudak](#)  
**Cc:** [Ken Wood](#)  
**Subject:** RE: Well Field 44 Cannabis Dispensary - 41 Route 236 Kittery  
**Date:** Monday, November 28, 2022 8:17:26 AM  
**Attachments:** [image001.png](#)

---

Hi Mike,

I have looked this over. We could do a similar point of sale analysis, but we would need to count a similarly sized facility in Maine with a similar number of point of sales (and somewhat similar size). GPI counted a single larger facility in Massachusetts, which would not necessarily correlate to your facility.

Are you aware of other area facilities of similar size with a similar number of points of sale? If so, we could plan to count them to generate specific trip rate data. However, use of the data in the GPI report would not help you. With 3 points of sale and the numbers in the GPI report you would wind up with much larger numbers than the numbers we utilized in the updated study. Their numbers showed 40 trips per register for the PM peak hour and 51 for the Saturday peak hour, giving you over 100 trips in these peak hours, requiring a TMP from MaineDOT.

Let me know how you would like to proceed.

Diane

**Diane W. Morabito, PE, PTOE**

*Vice President Traffic Engineering*

**T:** +1. 207.817.5440 | **F:** +1. 207.827.3641 | **E:** [diane.morabito@sewall.com](mailto:diane.morabito@sewall.com)

14 York Street | Portland, Maine 04101 | [www.sewall.com](http://www.sewall.com)



---

**From:** Mike Sudak <mike@attarengineering.com>  
**Sent:** Tuesday, November 22, 2022 1:04 PM  
**To:** Diane Morabito <mordi@sewall.com>  
**Cc:** Ken Wood <Ken@attarengineering.com>  
**Subject:** Well Field 44 Cannabis Dispensary - 41 Route 236 Kittery

Good Afternoon Diane, I hope you've been well.

I wanted to give you an update on the progress of this application and my (hopefully final) additional ask of you and the TIA efforts for this application.

Since we last spoke I have had two meetings with the Planning Board including a Public Hearing, and traffic continues to be an often-discussed topic. At the Planning Board's request I went and spoke with the neighboring Town Planner in Eliot to receive some "lessons learned" within their Town and the developments of this use that have been approved and constructed in Eliot. Of all of the

feedback I received, the one that was most compelling was a TIA prepared by Greenman-Pederson, Inc. which compared trip generation rates using square footage against proposed number of points of sale.

I've attached the TIA for you as it was provided to me from the Town of Eliot, which I have also provided to the Town of Kittery. They would like a similar analysis and comparison made for this proposed development, which I am hoping you can accommodate. I've spoken with my Client and the intended number of points of sale for this building is 3. If once you dig into this you find that there is more information you need, I'd be happy to be the go-between to the Town of Eliot and/or GPI as necessary.

Please let me know if you have any questions/concerns.

Thanks and take care.

-Mike

---

Michael J. Sudak, E.I.  
Civil Engineer  
Attar Engineering, Inc.  
1284 State Road  
Eliot, Maine 03903  
Ph: (207) 439-6023  
Fax: (207) 439-2128  
Cell: (978) 317-3398

# **GUIDELINES FOR GOOD EXTERIOR LIGHTING PLANS**

2020

These guidelines have been developed in consultation with lighting professionals (with experience in developing good lighting plans) to aid communities wishing to control light pollution and preserve a view of the stars in the night sky.

**Outdoor lighting should be carefully designed with regard to placement, intensity, timing, duration, and color. Good lighting will:**

- **Promote Safety**

*"More light" is not necessarily "better light"*. If fixtures are not designed and installed correctly, unsafe glare can result, reducing the effectiveness of lighting, which can contribute to reduced visibility and accidents. Lighting that is too bright can interfere with the eye's ability to re-adapt to darker areas.

**Crime Prevention Through Environmental Design (CPTED)** stresses that lighting systems should "minimize glare, shadow, light pollution, and light trespass". Lighting that protects our night sky and nocturnal environment also improves visibility and safety by enhancing night vision.

- **Save Money**

Adhering to professionally recommended light levels provides adequate illumination. Shielded fixtures with efficient light bulbs are more cost-effective because they use less energy by directing the light toward the ground. See this website for cost comparisons:

<http://darksksociety.org/lightcost/index.php>

- **Conserve Natural Resources**

Inappropriate or excessive lighting wastes our limited natural resources and pollutes the air and water by unnecessarily burning our limited supply of fossil fuels.

- **Be Better Neighbors**

Excessive or misdirected lighting can intrude on the privacy of others when light or glare trespasses over property lines.

- **Retain Community's Character and Reduce Skyglow**

Our clear view of the starry night sky is a resource to be preserved and protected. Stray and excessive lighting contributes to "light pollution", clutter, and unnatural "sky glow".

- **Protect Ecology of Flora and Fauna**

Research studies indicate that artificial night lighting disrupts the migrating, feeding, and breeding habits of many wildlife species, as well as growth patterns of trees. See references in [The Ecological Consequences of Artificial Night Lighting](#).

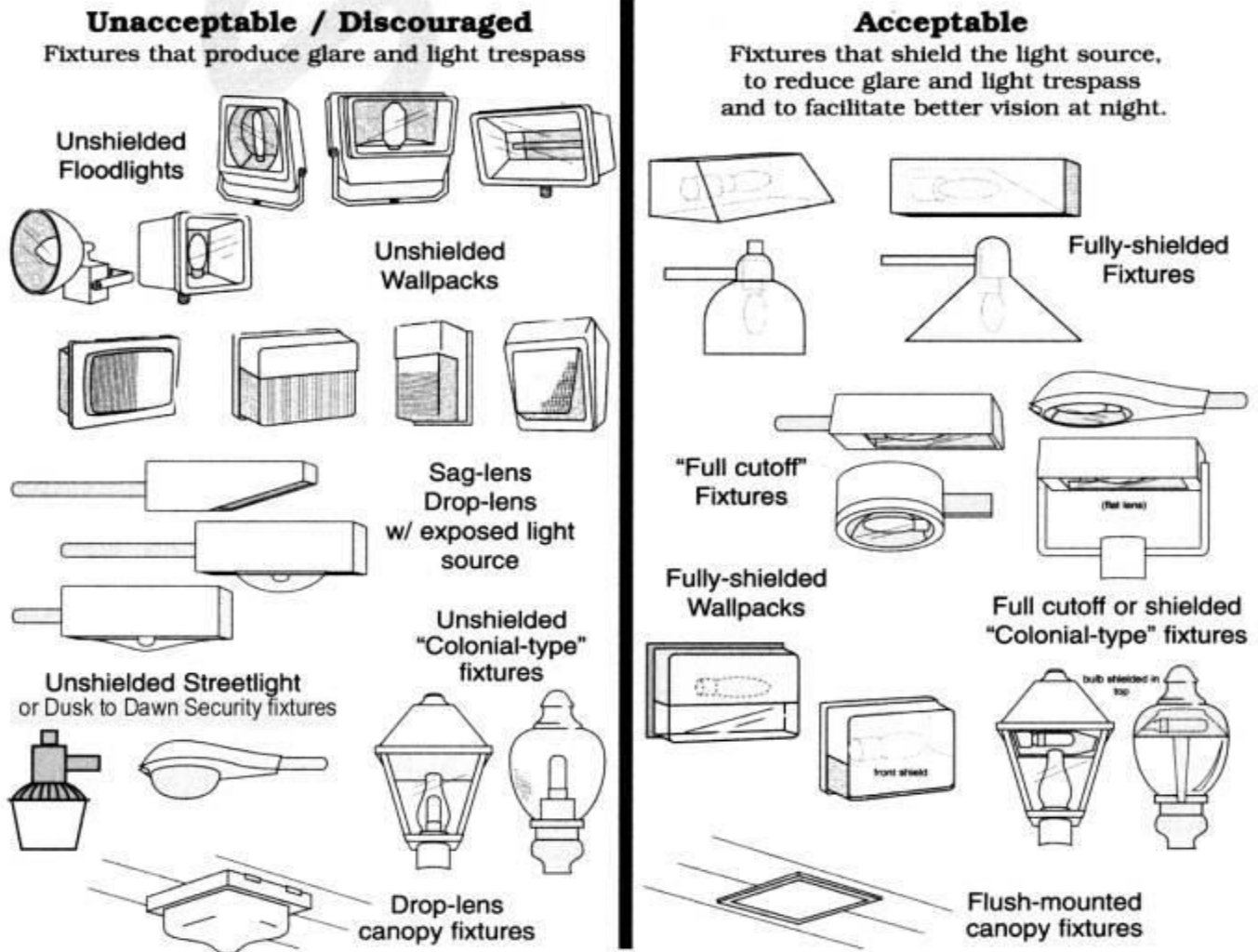
- **Reduce Health Risks**

Light at night not only disrupts your sleep but also interferes with your circadian rhythms. Recent research indicates that intrusive lighting may reduce the production of melatonin, a beneficial hormone, and a resulting raise in the rates of breast and other cancers.

The American Medical Association (AMA) endorses dark-sky friendly lighting at or below 3000 Kelvin to reduce hazardous glare (especially for older drivers) and excessive light trespass which has many implications for human health including the correlation of melatonin suppression with the growth of cancerous tumors. In 2009 the AMA passed a resolution urging federal, state, and local legislative action to reduce light pollution.

- Included:**
- 1. Diagrams of Acceptable/Unacceptable Lighting Fixtures**
  - 2. How to Develop an Acceptable Lighting Plan**
  - 3. Definitions of lighting Fixtures**
  - 4. Lighting Plan Submissions**
  - 5. Recommended Illumination Levels for various tasks**

Examples of Unacceptable/Acceptable Fixture Types



Diagrams courtesy of Bob Crelin

Ask your local electrical suppliers for IES designated "Zero Uplight" or "Fully Shielded" light fixtures. Once you have selected fixtures which are compatible with your architecture and community, contact the manufacturer's representative to see a sample of the fixture(s), the "cut sheet" to show your client and municipal officials, and to ask for a free lighting plan. If you have a CAD file, the plan can be easily provided in a short period of time.

**\*\*\*Definition of "Fully Shielded/Zero Uplight": A light fixture with an opaque shield above the lamp (bulb), so that, as designed and installed, the light fixture projects all its light below the horizontal plane through the lowest light emitting part of the fixture.**

Most lighting manufacturers have Application Departments which will execute free lighting plans to meet local lighting codes if they are provided these Guidelines.

# How to Develop an Acceptable Lighting Plan

**Deliver these requirements to a manufacturers' representative or send to the manufacturers applications department with a site plan (CAD file) shading in the areas to be illuminated and the hours of anticipated use for each area. Manufacturers will provide a lighting plan at no costs once you and your client have chosen the style of fixture that meets your aesthetic design.**

**1. Identify where as well as when lighting is needed.** Minimize lighting to the extent necessary to meet safety purposes. Plans should define the areas for which illumination is needed for safe pedestrian passage and indicated when those areas are expected to be used. Itemize each area (e.g. parking lot, doorways, walkways, signage, foliage) with the anticipated hours of use. Commercial outdoor lighting should be used for safe pedestrian passage and property identification, and lit during active business hours and shut off afterward. Use a highlighter on a site plan for those areas to be lit to professional recommendations.

**2. Direct light downward by choosing the correct type of light fixtures.** (See Appendix 3). Specify IES (Illuminating Engineering Society) "Zero Uplight" or "fully shielded" fixtures, so that no light is emitted above the lowest light emitting part of the fixture. Top mounted sign lighting is recommended with "RLM" (dish) type shields, and aimed so that the light falls entirely on the sign and positioned so that the light source (bulb) is not visible from any point off the property or into the roadway to reduce glare. For each one square foot of sign, usually no more than 200 lumens is necessary for good visibility.

**3. Select the correct light source.** Compact fluorescent (2700K or less) or High Pressure Sodium is recommended unless the light is motion sensor activated, in which case LED, incandescent, or the instant start compact fluorescent bulbs can be used. Metal Halide (due to its higher costs, energy use, impact on the environment, and greater contribution to "sky glow") is discouraged, as well as LED light sources rated over 2300 Kelvin. Outdated Mercury Vapor bulbs are prohibited. Limit the use of LEDs to fixtures that are motion sensor activated and with less than 2300 Kelvin; or in 1800 Kelvin fixtures that are not operated dusk to dawn.

**4. Utilize "shut off" controls such as sensors, timers, motion detectors.** Automatic controls turn off lights (or sections of lights) when not needed. Interior and exterior lights should be extinguished no later than one half hour after the close of business. Additional motion sensor activated lighting can be used for emergency access. Avoid "dusk-to-dawn" sensors without a middle-of-night shut off control. Lights alone will not serve to "protect" property and are a poor "security" device. Examine other means of protecting property to discourage criminal activity. Let your local police know that you have a "lights out" policy so that they can investigate if they see lights "on" after hours.

**5. Limit the height of fixtures.** Locate fixtures no closer to the property line than four times the mounting height of the fixture, and not to exceed the height of adjacent structures. (Exceptions may be made for larger parking areas, commercial zones adjacent to highways, or for fixtures with greater cut off shielding behind the pole mount in commercial zones.)

**6. Limit light crossing property lines, i.e. "light trespass".** Limit spill light across the property lines. Light levels at the property line should not exceed 0.1 footcandles (fc) adjacent to business properties, and 0.05 fc (the brightest moonlight is 0.01 fc) at residential property boundaries. Utility leased floodlight fixtures mounted on public utility poles in the public right-of-way or on property lines shall not be used for private property due to excessive light trespass "spill light".

**7. Use the correct amount of light.** Light levels and uniformity ratios should not exceed recommended values, per IESNA RP-33 or 20. (See Appendix 5, Recommended Illumination Levels for

various tasks). "Lumen cap" recommendations for areas to be illuminated should not exceed: commercial properties in non-urban commercial zones = 25,000 lumens per acre; for projects in residential and LBO zones = 10,000 lumens per acre. For residential properties: for suburban: 50,000 lumens per acre cap, and in urban areas: 100,000.

**8. Ask for Assistance** Your Planning Department and local lighting sales representatives can assist you in obtaining the necessary information for good lighting. For large projects over 15,000 lumens: greater energy conservation and control of light pollution, light trespass and glare, may be achieved with the help of a professional lighting designer with "dark sky" lighting plan experience.

**9. A post installation inspection** should be conducted to check for compliance with a light meter against the approved lighting plan. Substitutions by electricians and contractors are common and should not be accepted.

**10. Design interior lighting so that it does not illuminate or project glare to the outdoors.** Provide interior lighting photometrics for the building's perimeter areas, demonstrating that the interior lighting falls substantially within the building and not through the windows. When glass or windows on a commercial use property face a public right of way or a residential property, a lighting plan shall be submitted that demonstrates that all interior light fixtures shall be located, aimed, or shielded so that the light source and all parts of the fixture which transmit light shall not be visible at the property line or into the right of way. Shield glare from bare bulbs. After closing, interior lighting needs to be extinguished by the use of shut off timers. Avoid "wall washing" (upwardly directed lighting to illuminate the building).

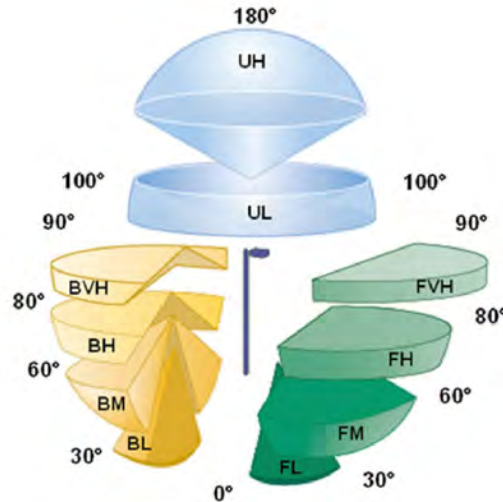
**11. Free Lighting plans** can be provided by a lighting manufacturers' Applications Departments. Select a manufacturer based on the type and range of fixtures. Submit criteria (attached) along with a site plan (electronic preferred) that has been marked with a highlighter on those areas that are to be lit for pedestrian safety and where pedestrians and cars are in conflict. Separate areas that are to be lit at different times so that they can be placed on separate circuits. Specify motion sensors to be used on all areas and doorways that are not active during nighttime hours.

**12. Flag Lighting** can be accomplished with a top mounted fixture with automated shutoffs for middle of the night energy conservation. Flags are not required to be lit.



## Definition of Acceptable Fixtures: "Fully Shielded" (Zero Uplight) and RLM shields.

"Fully Shielded" or "Zero Uplight" fixtures are independently certified by the manufacturers, and do not allow light to be emitted above the lowest light emitting part of the fixture. Manufacturers provide cutoff designations for their fixtures to indicate the percentage of light that is emitted in various directions. Up, Back, Forward in High, Medium, Low angles.



- If the manufacturer is unable to provide the cut off characteristics for a fixture (also called a "luminaire"), the following definition needs to be met, which can sometimes be determined by a visual inspection of the fixture or a cut sheet (it is best to have the photometric data):  
"Fully Shielded": a fixture constructed and installed in such a manner that all light emitted by it, either directly from the lamp (bulb) or a diffusing element, or indirectly by reflection or refraction from any part of the fixture, is projected below the horizontal. This can be determined by a "field test" or a visual assessment of an operating sample or by examining a manufacturer's supplied cut sheet photograph.
- Manufacturers and their representatives can provide photographs of light fixtures as "cut sheets" as well as literature confirming the independently tested "cut off" characteristics of their products. These IES files may be assessed for compliance in a computer program: <http://www.3dop.com/index1.html>
- Photometric layouts for various heights, light sources, and wattages are also available as "IES" files upon request or through manufacturers' websites.
- Fixtures must be installed properly, so that the bottom of the fixture is level with the ground. Exceptions are often given for sign lighting which requires vertical lighting, provided that the light source (bulb) is shielded from view from off the property or into a roadway.
- Sign lighting shall be mounted above the sign, lamped so that the footcandle maximum on the face of the sign does not exceed 2 footcandles (fc).



Example of an "RLM" sign lighting shield:

# Lighting Plan Submissions

The following information needs to be provided to your municipality's review board which will enable them to evaluate the Site Plan for proper exterior lighting:

The Lighting Plan should be depicted on a site plan, indicating the location of each current and proposed outdoor lighting fixture with projected hours of use. This plan will need to be stamped and certified by a licensed professional, such as an architect or engineer. Many lighting manufacturers can provide free photometric layouts on prepared site plans, to conform to your local requirements.

- (1) The lighting plan should include the following information for all proposed and existing:
  - (2)
    - Type and number of luminaire equipment (fixtures), including the "cut off characteristics", indicating manufacturer and model number(s).
    - Lamp source type (bulb type, i.e. high pressure sodium), lumen output, and wattage.
    - Mounting height with distance noted to the nearest property line for each luminaire.
    - Types of timing devices used to control the hours set for illumination, as well as the proposed hours when each fixture will be operated.
    - Total Lumens for each fixture, and total square footage of areas to be illuminated.
    - For all plans of more than three fixtures: A Calculation Summary indicating footcandle levels on the lighting plan, noting the maximum, average, and minimum, as well as the uniformity ratio of maximum to minimum and average to minimum levels\* to avoid "hot" spots of light.
  - (3) Lighting manufacturer-supplied specifications ("cut sheets") that include photographs of the fixtures; and for fixtures that are rated to exceed 2000 lumens, submit the certified BUG (Zero Up Light) designation for the fixture or fixtures.
  - (4) For a lighting design with multiple fixtures (e.g. parking lots and walkways) a Lighting Plan shall include light levels in footcandles on the ground at the designated mounting heights for the proposed fixtures. Maximum illuminance levels should be expressed in footcandle measurements on a grid of the site showing footcandle readings in five foot grids. The grid shall include light contributions from all sources (i.e. pole mounted, wall mounted, sign, and street lights.) Show footcandle measurements five feet beyond the property lines.
  - (5) If requested by the reviewing agency, a statement from a lighting design professional that a plan, other than that required is needed to meet the intent of these standards.
  - (6) An environmental impact statement may be required as to the impact of the exterior lighting proposed on adjacent preserves or waterways to include flora, fauna, and the night sky. Location of species sensitive to light at night or the proximity to nature preserves or astronomical observatories or "Dark Sky Parks", needs to be indicated.
  - (7) On the Approved Plan it should be noted that no substitutions, additions, or changes may be made without prior approval by the governing authority; and that all lighting not on the plan shall be removed and no additional lighting shall be installed without prior approvals.

# Recommended Illumination Levels for various tasks\*

## I. Table of Limits of Illumination, measured in footcandles (fc) at ground level unless noted:

<u>Task Area</u>	<u>Avg.</u>	<u>or</u>	<u>Not to exceed:</u>
1. Active Building Entrance	2.0 fc		5 fc
Approach	0.2 fc		
2. Gas Station Approach			2 fc
3. Gas Station Pump Area			avg: 5 fc
4. Gas Station Service Area			avg. 3 fc
5. Sidewalks	0.2 fc		5 fc
6. Surface of signs			2 fc

## II. Average/Minimum/Uniformity Ratio Limits for Parking Lots (RP 20 – 14) LZ 1/2

	<u>Minimum</u>	<u>Average/Minimum</u>	<u>Maximum/Minimum</u>
1. Small Commercial lots	0.5 fc	4:01	15:01
2. Public larger lots	1.0 fc	4:01	15:01

**OR:**

**III.** If illuminance grid lighting plans cannot be reviewed or if fixtures do not provide IES designations and photometrics and the light sources (bulbs) are rated less than 2000 lumens, use these guidelines:

1. **Pole position shall be no greater in height than four times the distance to the property line.**

2. **Maximum Lumen Levels for different fixture heights:**

<u>Mounting Height (Feet)</u>	<u>Recommended Lumen Maximums</u>
6	500 - 1000 lumens
8	600 - 1,600 lumens
10	1,000 - 2,000 lumens
12	1,600 - 2,400 lumens

**FOOTCANDLE: ("FC")** – Is the basic unit of illuminance (the amount of light falling on a surface).

Footcandle measurement is taken with a hand held light meter. One footcandle is equivalent to the illuminance produced on one square foot of surface area by a source of one candle at a distance of one foot. Horizontal footcandles measure the illumination striking a horizontal plane. Footcandle values can be measured directly with certain handheld incident light meters.

**LUMEN** – A unit used to measure the actual amount of light that is produced by a bulb.

The lumen quantifies the amount of light energy produced by a lamp at the lamp, not by the energy input, which is indicated by the "wattage". For example, a 75-watt incandescent lamp can produce 1000 lumens while a 70-watt high-pressure sodium lamp produces 6000 lumens. Lumen output is listed by the manufacturer on the packaging.

**\* IES, Recommended Practices, (RP-33-99): Lighting for Exterior Environments; and (RP-20): Parking Lots.** The Illuminating Engineering Society of North America (IES or IESNA), is an organization that establishes updated recommendations, standards, and illumination guidelines for the lighting industry. <http://www.iesna.org>

**Michael Cuomo, Soil Scientist**  
6 York Pond Road, York, Maine 03909  
207 363 4532  
mcuomosoil@gmail.com

13 October 2022

Michael Sudak  
Attar Engineering, Inc.  
1284 State Road  
Eliot, Maine 03903

Dear Mr. Sudak;

This letter is in reference to the Well Field 44, LLC, property located at 41 Route 236 in Kittery, Maine. On 12 October 2022 I returned to the site to make note of the dominant native wetland plants to assist you in developing a restoration plan.

The two restoration areas are bordered by remnant shrub swamp and forested wetlands. An emergent marsh is found close by to the south and west of the restoration areas.

Native wetland plants identified on this site and which are suitable for planting and seeding in the restored wetlands are listed below. The tree and shrub spacing below is based on the rough rule that they should be spaced about half of the mature plant aerial spread.

Trees and saplings:

Red maple (*Acer rubrum*) 40ft spacing;  
Gray birch (*Betula populifolia*) 20ft spacing; and  
American elm (*Ulmus americana*) 50ft spacing.

Shrubs:

Speckled alder (*Alnus rugosa*) 10ft spacing;  
Smooth winter-berry holly (*Ilex verticillata*) 6ft spacing; and  
Northern arrow-wood (*Viburnum recognitum*) 6ft spacing.

Forbs:

Sensitive fern (*Onoclea sensibilis*);  
Meadow sweet (*Spiraea latifolia*); and  
Broad-leaf cattail (*Typha latifolia*).

Not all of these plants need be used in the restoration plan, and some may not be available when needed.

Wetland herb and shrub seed mixes acclimated for and gathered or grown in northern New England are available. Spreading rates are provided by the supplier.

Here are three possible sources:

<https://www.stoneyridgeenv.com/index.html>  
<https://newp.com/>

<https://www.piersonnurseries.com/products/>

Please call if you have questions about this work or if I may be of further assistance.

Sincerely,

A handwritten signature in black ink that reads "Michael Cuomo". The signature is written in a cursive style with a large, stylized 'M' and 'C'.

Michael Cuomo  
Maine Soil Scientist #211



## STORMWATER MANAGEMENT PLAN WELL FIELD 44 CANNABIS DISPENSARY 41 ROUTE 236, KITTERY, MAINE

Project No.: C277-22

December 22<sup>nd</sup>, 2022

### ◆ **Scope**

This stormwater management plan has been prepared for a proposed Adult-Use Marijuana Retail facility, consisting of a two-story 517 sq. ft. (1,034 sq. ft. gross) dwelling and associated parking lot. The site is currently approved as a Boat Storage Yard and consists of a gravel access drive and filled upland surrounded by forested and scrub shrub wetlands.

The project is designed to meet the stormwater management requirements outlined in §16.7.11.C “Stormwater and Surface Drainage” of the Town of Kittery Code of Ordinances. The project is subject to a Stormwater Permit-by-Rule (PBR) for proposed impervious surfaces generated from the development in excess of one-half acre but less than one acre.

### ◆ **Site and Watershed Description**

The project site is located off Route 236 (Harold L. Dow Highway), south of the Martin Road and Stevenson Road intersection. A 7½-minute series USGS map of the project area is attached. As noted above, the portion of the site where the facility is proposed has been previously developed to serve the Boat Storage Yard use, with a gravel access drive and wetland fills supplementing the existing meadowed upland.

The site is located in the Chickering Creek Watershed (source: USGS 7½-minute series, Portsmouth quadrangle). The site drains from west to east towards Route 236, where an existing 36” culverted crossing receives runoff from the large wetland complex that surrounds the subject parcel and extends northwesterly towards Martin Road.

The topography of the site is flat for the entirety of the proposed development, which is proposed to be located on a portion of the Boat Storage Yard. The remainder of the site is sloped in areas where sections of fill extend down to the surrounding wetlands, either from the Route 236 or from fills to create the former on-site use. Existing grades are 0.25% to 1% within the forested wetlands, 2% to 6% within meadowed and forested uplands, and in excess of 25% for sideslopes from the abutting Route 236. On-site elevations range from approximately 46’ in the northwestern upland corner of the parcel to 35’ at the culverted crossing of Route 236 in the southeast corner.

Proposed cuts and fills are moderate, ranging between 0 and 4 feet to accommodate the multi-story facility with egress to both stories from the circulating travelway.

### ◆ **Soils/Hydrologic Soil Groups**

Soil types and their respective Hydrologic Soil Groups (HSG) were determined by a Medium Intensity Soil Survey. A listing of the soils types can be found on the existing and developed stormwater management plans that accompany this report. Drainage classes range from Somewhat Excessively Drained to Poorly Drained. Test pits were dug at both proposed locations of on-site stormwater detention, with soils in both locations being moderately well drained.

#### ◆ **Methodology**

The stormwater quantity analysis was conducted using the HydroCAD Stormwater Modeling System by Applied Microcomputer Systems. The analysis was accomplished to determine the “Existing Condition” and “Developed Condition” stormwater flows. Both cases were analyzed for the 2, 10, and 25-year, 24-hour frequency storm events. The Existing Condition analyzes the site as it currently exists and the Developed Condition models the site with the proposed improvements described above.

#### ◆ **Water Quantity Analysis and Results**

##### Existing Condition

The site has been modeled in its partially-developed state for the existing conditions model. The existing 36” culverted crossing of Route 236 receives runoff from an incredibly large combination of subcatchments west and northwest of the subject parcel, including a significant portion of both sides of Martin Road, Ridgewood Drive, and the large wetland complexes therein. This existing culverted crossing directs stormwater flows into an equally large wetland complex east of Route 236 that exists as Kittery Land Trust property, which flows towards I-95 and eventually enters Chickering Creek.

In an attempt to capture the full hydrologic picture surrounding this parcel, the existing condition model includes all up-stream subcatchments that contribute to the 36” culverted crossing of Route 236, which includes the culverted crossing of Martin Road and the wetland complexes on either side. The single analysis point for the existing condition is the invert of the existing 48” culverted crossing of Dana Avenue, which is the downstream recipient of the previously-mentioned Route 236 culverted crossing as well as all stormwater flows from the Kittery Land Trust wetland complex across the street from the proposed development.

##### Developed Condition

The Developed Condition analysis addresses all site improvements consisting of the proposed 517 sq. ft. building, entrance, circulating travelway, parking aisles, utility services, and stormwater management areas. A detention basin is proposed to be constructed to manage on-site runoff from most of the impervious cover created, after which runoff is discharged to the surrounding wetlands and received by the Route 236 culverted crossing. The same analysis point is used from the existing condition for comparison of peak discharges for all storm events.

Tables showing Existing Conditions peak flows, Developed Condition peak flows, and the change in peak flow from Existing Condition to Developed Condition, are presented on a separate page. Comparison tables have been provided on the Stormwater: Developed Conditions sheet to demonstrate bench heights at all culverted crossings analyzed within this analysis in the existing and developed conditions

The analysis indicates decreases in peak flows at the designated analysis point across all storm events, resulting in no anticipated adverse effects on abutters or downstream systems due to water quantity. An additional comparison is also provided which assesses the headwater elevation differences between the existing and developed conditions. This analysis indicates no headwater change at the Martin Road culverted crossing, and a reduction in headwater elevation at the Dana Avenue culverted crossing. There are minor headwater increases observed across all storm events at the Route 236 culverted crossing, but the upstream impacts to surrounding properties from this increase should be completely eliminated due to the restored sections of wetland that provide greater continuity to the surrounding complex and allow for accumulated runoff to be distributed throughout wetland depressions and away from abutting residential uplands. The proposed detention pond daylights to a level spreader which will re-introduce sheet flow for the runoff that is discharged to the adjacent wetlands and received by the Route 236 culverted crossing.

◆ **Water Quality**

The project is designed with several Low Impact Development (LID) design practices to minimize adverse effects on water quality. The practices are summarized as follows and are further described in the MDEP publication “Maine Stormwater Best Management Practices Manual – Volume 1, Chapter 3: Low Impact Development”.

- Impervious areas are minimized. All parking lot aisles and the circulating travelway have been designed with the minimum amount of impervious area practicable while still promoting safe vehicular passage.
- Vegetated swales are utilized. Runoff from the proposed development will be collected by proposed vegetated swales and detention areas, which will provide some treatment of pollutants such as suspended solids and hydrocarbons prior to discharge from the site.
- Level Spreaders are utilized. Stormwater flow from the detention pond will be routed through a level spreader and undisturbed buffer prior to discharge from the site.

◆ **Summary**

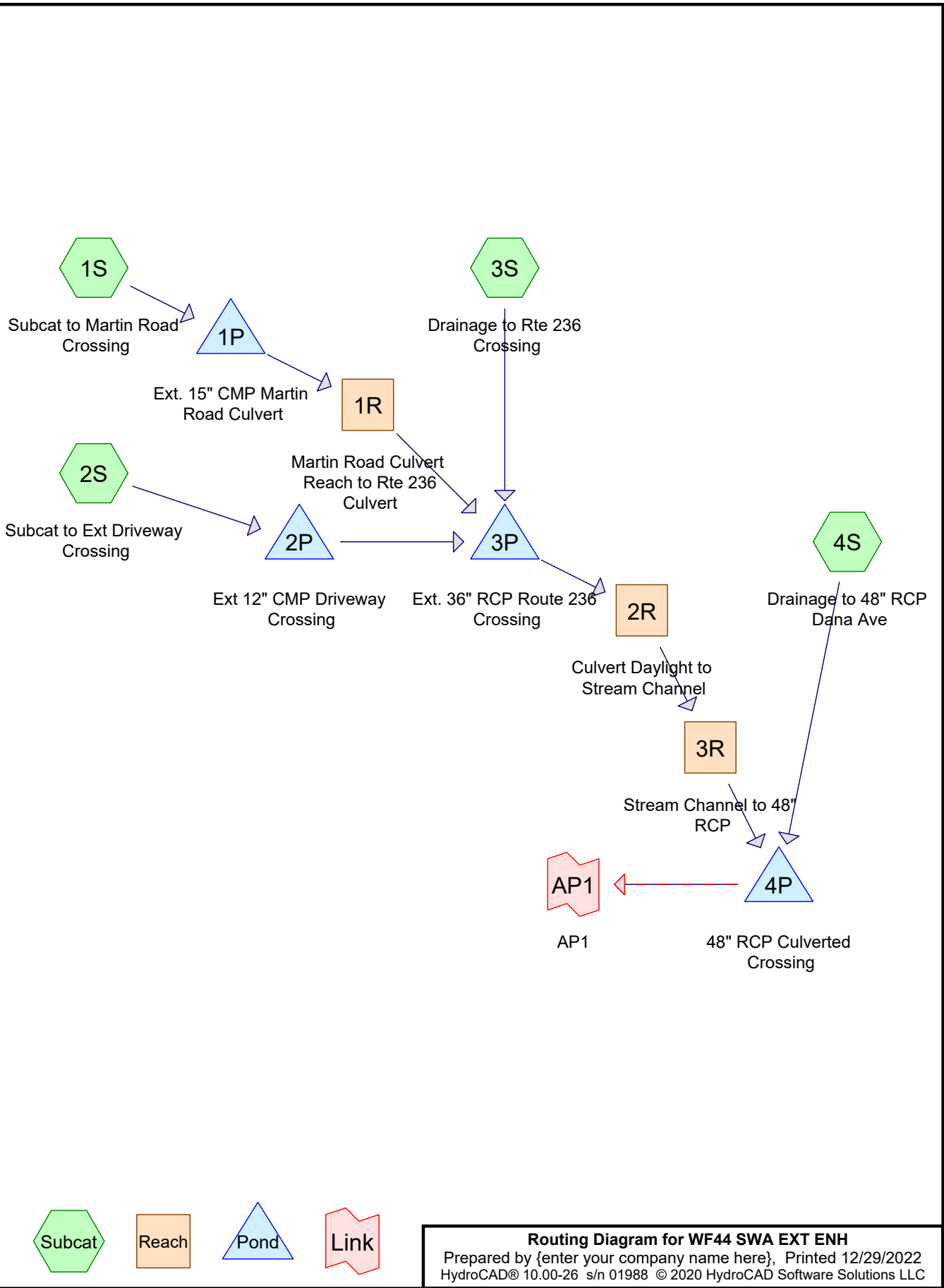
The use of level lip spreader, detention pond, and vegetated swales to attenuate peak flows results in no increase in peak runoff quantity from the proposed development. No adverse effects are anticipated on any downstream properties or drainage structures for the analyzed storm events. Runoff quality is addressed by the use of several LID design practices, as described above.

Sincerely;



Kenneth A. Wood, P.E.  
President  
C277-22 SWNarrative





## WF44 SWA EXT ENH

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.869	46	2 acre lots, 12% imp, HSG A (1S, 2S, 4S)
7.322	77	2 acre lots, 12% imp, HSG C (1S, 2S, 4S)
58.579	82	2 acre lots, 12% imp, HSG D (1S, 2S, 4S)
4.395	39	>75% Grass cover, Good, HSG A (4S)
0.326	74	>75% Grass cover, Good, HSG C (4S)
1.521	80	>75% Grass cover, Good, HSG D (4S)
1.919	35	Brush, Fair, HSG A (4S)
16.165	77	Brush, Fair, HSG D (1S, 2S, 4S)
0.955	96	Gravel surface, HSG D (2S, 3S)
1.610	98	Paved parking, HSG A (4S)
1.934	98	Paved parking, HSG C (1S, 2S, 4S)
6.437	98	Paved parking, HSG D (1S, 2S, 3S, 4S)
15.347	36	Woods, Fair, HSG A (1S, 4S)
3.141	73	Woods, Fair, HSG C (1S, 4S)
25.562	79	Woods, Fair, HSG D (1S, 2S, 3S, 4S)
4.517	82	Woods/grass comb., Fair, HSG D (3S)
<b>163.600</b>	<b>73</b>	<b>TOTAL AREA</b>

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Type III 24-hr 2 YEAR STORM Rainfall=3.33"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>1.37"  
 Flow Length=2,053' Tc=38.0 min CN=80 Runoff=38.51 cfs 5.002 af

**Subcatchment 2S: Subcat to Ext** Runoff Area=1,929,172 sf 12.87% Impervious Runoff Depth>1.43"  
 Flow Length=3,194' Tc=60.4 min CN=81 Runoff=31.70 cfs 5.262 af

**Subcatchment 3S: Drainage to Rte 236** Runoff Area=310,792 sf 13.95% Impervious Runoff Depth>1.66"  
 Flow Length=1,095' Tc=17.3 min CN=84 Runoff=10.66 cfs 0.988 af

**Subcatchment 4S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>0.43"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=17.72 cfs 2.468 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.06' Max Vel=0.45 fps Inflow=1.31 cfs 0.677 af  
 n=0.070 L=744.0' S=0.0186 '/' Capacity=2,224.76 cfs Outflow=1.30 cfs 0.579 af

**Reach 2R: Culvert Daylight to Stream** Avg. Flow Depth=0.14' Max Vel=0.33 fps Inflow=10.04 cfs 2.590 af  
 n=0.070 L=294.0' S=0.0032 '/' Capacity=5,614.66 cfs Outflow=8.10 cfs 2.417 af

**Reach 3R: Stream Channel to 48" RCP** Avg. Flow Depth=0.20' Max Vel=0.51 fps Inflow=8.10 cfs 2.417 af  
 n=0.070 L=1,004.0' S=0.0050 '/' Capacity=2,436.66 cfs Outflow=5.28 cfs 2.065 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=49.63' Storage=307,858 cf Inflow=38.51 cfs 5.002 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.31 cfs 0.677 af

**Pond 2P: Ext 12" CMP Driveway Crossing** Peak Elev=39.36' Storage=242,303 cf Inflow=31.70 cfs 5.262 af  
 12.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=2.01 cfs 1.048 af

**Pond 3P: Ext. 36" RCP Route 236 Crossing** Peak Elev=36.33' Storage=3,207 cf Inflow=10.69 cfs 2.615 af  
 36.0" Round Culvert n=0.011 L=100.0' S=-0.0030 '/' Outflow=10.04 cfs 2.590 af

**Pond 4P: 48" RCP Culverted Crossing** Peak Elev=30.45' Storage=9,262 cf Inflow=17.98 cfs 4.532 af  
 Primary=16.14 cfs 4.440 af Secondary=0.00 cfs 0.000 af Outflow=16.14 cfs 4.440 af

**Link AP1: AP1** Inflow=16.14 cfs 4.440 af  
 Primary=16.14 cfs 4.440 af

**Total Runoff Area = 163.600 ac Runoff Volume = 13.720 af Average Runoff Depth = 1.01"**  
**88.05% Pervious = 144.047 ac 11.95% Impervious = 19.554 ac**

**WF44 SWA EXT ENH**

Type III 24-hr 10 YEAR STORM Rainfall=5.34"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>2.95"  
 Flow Length=2,053' Tc=38.0 min CN=80 Runoff=82.60 cfs 10.765 af

**Subcatchment 2S: Subcat to Ext** Runoff Area=1,929,172 sf 12.87% Impervious Runoff Depth>3.02"  
 Flow Length=3,194' Tc=60.4 min CN=81 Runoff=66.98 cfs 11.159 af

**Subcatchment 3S: Drainage to Rte 236** Runoff Area=310,792 sf 13.95% Impervious Runoff Depth>3.36"  
 Flow Length=1,095' Tc=17.3 min CN=84 Runoff=21.18 cfs 1.995 af

**Subcatchment 4S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>1.42"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=74.23 cfs 8.109 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.10' Max Vel=0.63 fps Inflow=3.23 cfs 1.848 af  
 n=0.070 L=744.0' S=0.0186 '/' Capacity=2,224.76 cfs Outflow=3.23 cfs 1.672 af

**Reach 2R: Culvert Daylight to Stream** Avg. Flow Depth=0.22' Max Vel=0.44 fps Inflow=20.01 cfs 5.737 af  
 n=0.070 L=294.0' S=0.0032 '/' Capacity=5,614.66 cfs Outflow=17.58 cfs 5.465 af

**Reach 3R: Stream Channel to 48" RCP** Avg. Flow Depth=0.35' Max Vel=0.71 fps Inflow=17.58 cfs 5.465 af  
 n=0.070 L=1,004.0' S=0.0050 '/' Capacity=2,436.66 cfs Outflow=13.26 cfs 4.927 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=50.10' Storage=508,857 cf Inflow=82.60 cfs 10.765 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=3.23 cfs 1.848 af

**Pond 2P: Ext 12" CMP Driveway Crossing** Peak Elev=40.37' Storage=453,500 cf Inflow=66.98 cfs 11.159 af  
 12.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=3.68 cfs 2.115 af

**Pond 3P: Ext. 36" RCP Route 236 Crossing** Peak Elev=37.07' Storage=5,794 cf Inflow=21.55 cfs 5.783 af  
 36.0" Round Culvert n=0.011 L=100.0' S=-0.0030 '/' Outflow=20.01 cfs 5.737 af

**Pond 4P: 48" RCP Culverted Crossing** Peak Elev=32.41' Storage=34,092 cf Inflow=75.43 cfs 13.035 af  
 Primary=65.45 cfs 12.881 af Secondary=0.00 cfs 0.000 af Outflow=65.45 cfs 12.881 af

**Link AP1: AP1** Inflow=65.45 cfs 12.881 af  
 Primary=65.45 cfs 12.881 af

**Total Runoff Area = 163.600 ac Runoff Volume = 32.028 af Average Runoff Depth = 2.35"**  
**88.05% Pervious = 144.047 ac 11.95% Impervious = 19.554 ac**

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>4.02"  
 Flow Length=2,053' Tc=38.0 min CN=80 Runoff=111.47 cfs 14.658 af

**Subcatchment 2S: Subcat to Ext** Runoff Area=1,929,172 sf 12.87% Impervious Runoff Depth>4.10"  
 Flow Length=3,194' Tc=60.4 min CN=81 Runoff=89.98 cfs 15.120 af

**Subcatchment 3S: Drainage to Rte 236** Runoff Area=310,792 sf 13.95% Impervious Runoff Depth>4.47"  
 Flow Length=1,095' Tc=17.3 min CN=84 Runoff=27.89 cfs 2.660 af

**Subcatchment 4S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>2.20"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=118.64 cfs 12.549 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.12' Max Vel=0.68 fps Inflow=4.14 cfs 2.454 af  
 n=0.070 L=744.0' S=0.0186 '/ Capacity=2,224.76 cfs Outflow=4.14 cfs 2.248 af

**Reach 2R: Culvert Daylight to Stream** Avg. Flow Depth=0.27' Max Vel=0.49 fps Inflow=26.42 cfs 7.419 af  
 n=0.070 L=294.0' S=0.0032 '/ Capacity=5,614.66 cfs Outflow=23.88 cfs 7.116 af

**Reach 3R: Stream Channel to 48" RCP** Avg. Flow Depth=0.43' Max Vel=0.81 fps Inflow=23.88 cfs 7.116 af  
 n=0.070 L=1,004.0' S=0.0050 '/ Capacity=2,436.66 cfs Outflow=18.88 cfs 6.518 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=50.41' Storage=652,211 cf Inflow=111.47 cfs 14.658 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/ Outflow=4.14 cfs 2.454 af

**Pond 2P: Ext 12" CMP Driveway Crossing** Peak Elev=40.96' Storage=605,373 cf Inflow=89.98 cfs 15.120 af  
 12.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/ Outflow=4.34 cfs 2.567 af

**Pond 3P: Ext. 36" RCP Route 236 Crossing** Peak Elev=37.50' Storage=7,722 cf Inflow=28.74 cfs 7.474 af  
 36.0" Round Culvert n=0.011 L=100.0' S=-0.0030 '/ Outflow=26.42 cfs 7.419 af

**Pond 4P: 48" RCP Culverted Crossing** Peak Elev=33.69' Storage=59,635 cf Inflow=120.92 cfs 19.067 af  
 Primary=98.79 cfs 18.883 af Secondary=0.00 cfs 0.000 af Outflow=98.79 cfs 18.883 af

**Link AP1: AP1**

Inflow=98.79 cfs 18.883 af  
 Primary=98.79 cfs 18.883 af

**Total Runoff Area = 163.600 ac Runoff Volume = 44.987 af Average Runoff Depth = 3.30"**  
**88.05% Pervious = 144.047 ac 11.95% Impervious = 19.554 ac**

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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**Summary for Subcatchment 1S: Subcat to Martin Road Crossing**

Runoff = 111.47 cfs @ 12.52 hrs, Volume= 14.658 af, Depth&gt; 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
13,186	98	Paved parking, HSG C
84,109	98	Paved parking, HSG D
24,295	46	2 acre lots, 12% imp, HSG A
14,995	36	Woods, Fair, HSG A
157,513	77	2 acre lots, 12% imp, HSG C
30,028	73	Woods, Fair, HSG C
177,718	77	Brush, Fair, HSG D
362,281	79	Woods, Fair, HSG D
1,040,897	82	2 acre lots, 12% imp, HSG D
1,905,022	80	Weighted Average
1,661,002		87.19% Pervious Area
244,020		12.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0750	0.12		<b>Sheet Flow, SF 1</b> Woods: Light underbrush n= 0.400 P2= 3.33"
18.4	875	0.0251	0.79		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
12.5	1,128	0.0022	1.50	1,953.86	<b>Channel Flow, CF 1</b> Area= 1,300.0 sf Perim= 701.0' r= 1.85' n= 0.070 Sluggish weedy reaches w/pools
38.0	2,053	Total			

**Summary for Subcatchment 2S: Subcat to Ext Driveway Crossing**

Runoff = 89.98 cfs @ 12.80 hrs, Volume= 15.120 af, Depth&gt; 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
76,151	46	2 acre lots, 12% imp, HSG A
27,952	77	2 acre lots, 12% imp, HSG C
10,053	98	Paved parking, HSG C
31,291	96	Gravel surface, HSG D
63,490	98	Paved parking, HSG D
34,997	77	Brush, Fair, HSG D
333,371	79	Woods, Fair, HSG D
1,351,867	82	2 acre lots, 12% imp, HSG D
1,929,172	81	Weighted Average
1,680,913		87.13% Pervious Area
248,259		12.87% Impervious Area

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	50	0.0200	0.07		<b>Sheet Flow, SF 1</b> Woods: Light underbrush n= 0.400 P2= 3.33"
27.7	1,393	0.0281	0.84		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
20.6	1,751	0.0057	1.42	708.86	<b>Channel Flow, CF 1</b> Area= 500.0 sf Perim= 601.0' r= 0.83' n= 0.070 Sluggish weedy reaches w/pools
60.4	3,194	Total			

**Summary for Subcatchment 3S: Drainage to Rte 236 Crossing**

Runoff = 27.89 cfs @ 12.23 hrs, Volume= 2.660 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
10,297	96	Gravel surface, HSG D
43,366	98	Paved parking, HSG D
60,382	79	Woods, Fair, HSG D
196,747	82	Woods/grass comb., Fair, HSG D
310,792	84	Weighted Average
267,426		86.05% Pervious Area
43,366		13.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0600	0.11		<b>Sheet Flow, SF 1</b> Woods: Light underbrush n= 0.400 P2= 3.33"
4.9	351	0.0569	1.19		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
4.6	694	0.0094	2.49	995.12	<b>Channel Flow, CF 1</b> Area= 400.0 sf Perim= 301.0' r= 1.33' n= 0.070 Sluggish weedy reaches w/pools
17.3	1,095	Total			

**Summary for Subcatchment 4S: Drainage to 48" RCP Dana Ave**

Runoff = 118.64 cfs @ 12.34 hrs, Volume= 12.549 af, Depth> 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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Area (sf)	CN	Description
70,148	98	Paved parking, HSG A
503,709	46	2 acre lots, 12% imp, HSG A
191,462	39	>75% Grass cover, Good, HSG A
83,574	35	Brush, Fair, HSG A
653,542	36	Woods, Fair, HSG A
60,996	98	Paved parking, HSG C
133,473	77	2 acre lots, 12% imp, HSG C
106,804	73	Woods, Fair, HSG C
14,197	74	>75% Grass cover, Good, HSG C
89,436	98	Paved parking, HSG D
158,927	82	2 acre lots, 12% imp, HSG D
66,269	80	>75% Grass cover, Good, HSG D
357,466	79	Woods, Fair, HSG D
491,448	77	Brush, Fair, HSG D
2,981,451	61	Weighted Average
2,665,338		89.40% Pervious Area
316,113		10.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0550	0.23		<b>Sheet Flow, SF 1</b> Grass: Short n= 0.150 P2= 3.33"
3.2	376	0.0798	1.98		<b>Shallow Concentrated Flow, SCF 1</b> Short Grass Pasture Kv= 7.0 fps
4.8	321	0.0249	1.10		<b>Shallow Concentrated Flow, SCF 2</b> Short Grass Pasture Kv= 7.0 fps
7.4	1,522	0.0039	3.44	5,931.09	<b>Channel Flow, CF 1</b> Area= 1,725.0 sf Perim= 413.0' r= 4.18' n= 0.070 Sluggish weedy reaches w/pools
3.8	1,004	0.0109	4.36	1,962.74	<b>Channel Flow, CF 2</b> Area= 450.0 sf Perim= 163.0' r= 2.76' n= 0.070 Sluggish weedy reaches w/pools
22.9	3,273	Total			

**Summary for Reach 1R: Martin Road Culvert Reach to Rte 236 Culvert**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.12'

Inflow Area = 43.733 ac, 12.81% Impervious, Inflow Depth > 0.67" for 25 YEAR STORM event  
 Inflow = 4.14 cfs @ 18.87 hrs, Volume= 2.454 af  
 Outflow = 4.14 cfs @ 19.41 hrs, Volume= 2.248 af, Atten= 0%, Lag= 32.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.68 fps, Min. Travel Time= 18.1 min  
 Avg. Velocity = 0.52 fps, Avg. Travel Time= 23.7 min

Peak Storage= 4,498 cf @ 19.11 hrs  
 Average Depth at Peak Storage= 0.12'  
 Bank-Full Depth= 4.00' Flow Area= 400.0 sf, Capacity= 2,224.76 cfs



50.00' x 4.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 12.5 '/' Top Width= 150.00'  
Length= 744.0' Slope= 0.0186 '/'  
Inlet Invert= 48.50', Outlet Invert= 34.65'



**Summary for Reach 2R: Culvert Daylight to Stream Channel**

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.27'

Inflow Area = 95.156 ac, 12.92% Impervious, Inflow Depth > 0.94" for 25 YEAR STORM event  
Inflow = 26.42 cfs @ 12.31 hrs, Volume= 7.419 af  
Outflow = 23.88 cfs @ 12.59 hrs, Volume= 7.116 af, Atten= 10%, Lag= 16.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.49 fps, Min. Travel Time= 9.9 min  
Avg. Velocity = 0.28 fps, Avg. Travel Time= 17.5 min

Peak Storage= 14,236 cf @ 12.42 hrs  
Average Depth at Peak Storage= 0.27'  
Bank-Full Depth= 6.00' Flow Area= 1,770.0 sf, Capacity= 5,614.66 cfs

175.00' x 6.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 20.0 '/' Top Width= 415.00'  
Length= 294.0' Slope= 0.0032 '/'  
Inlet Invert= 34.95', Outlet Invert= 34.00'



**Summary for Reach 3R: Stream Channel to 48" RCP**

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.25' @ 12.90 hrs

Inflow Area = 95.156 ac, 12.92% Impervious, Inflow Depth > 0.90" for 25 YEAR STORM event  
Inflow = 23.88 cfs @ 12.59 hrs, Volume= 7.116 af  
Outflow = 18.88 cfs @ 13.15 hrs, Volume= 6.518 af, Atten= 21%, Lag= 33.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.81 fps, Min. Travel Time= 20.6 min  
Avg. Velocity = 0.46 fps, Avg. Travel Time= 36.4 min

Peak Storage= 23,402 cf @ 12.81 hrs  
 Average Depth at Peak Storage= 0.43'  
 Bank-Full Depth= 6.00' Flow Area= 660.0 sf, Capacity= 2,436.66 cfs

50.00' x 6.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
 Side Slope Z-value= 10.0 '/' Top Width= 170.00'  
 Length= 1,004.0' Slope= 0.0050 '/'  
 Inlet Invert= 34.00', Outlet Invert= 29.00'



**Summary for Pond 1P: Ext. 15" CMP Martin Road Culvert**

Inflow Area = 43.733 ac, 12.81% Impervious, Inflow Depth > 4.02" for 25 YEAR STORM event  
 Inflow = 111.47 cfs @ 12.52 hrs, Volume= 14.658 af  
 Outflow = 4.14 cfs @ 18.87 hrs, Volume= 2.454 af, Atten= 96%, Lag= 381.1 min  
 Primary = 4.14 cfs @ 18.87 hrs, Volume= 2.454 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Starting Elev= 49.00' Surf.Area= 231,086 sf Storage= 119,579 cf  
 Peak Elev= 50.41' @ 18.87 hrs Surf.Area= 469,035 sf Storage= 652,211 cf (532,632 cf above start)  
 Flood Elev= 52.50' Surf.Area= 556,200 sf Storage= 1,713,635 cf (1,594,056 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= 178.3 min ( 981.3 - 803.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	1,999,122 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,072	0	0
50.00	454,100	462,172	462,172
52.00	526,650	980,750	1,442,922
53.00	585,750	556,200	1,999,122

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	<b>15.0" Round CMP_Round 15"</b> L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 49.00' / 48.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=4.14 cfs @ 18.87 hrs HW=50.41' (Free Discharge)  
 ↳ **1=CMP\_Round 15"** (Inlet Controls 4.14 cfs @ 3.37 fps)

**Summary for Pond 2P: Ext 12" CMP Driveway Crossing**

Inflow Area = 44.288 ac, 12.87% Impervious, Inflow Depth > 4.10" for 25 YEAR STORM event  
 Inflow = 89.98 cfs @ 12.80 hrs, Volume= 15.120 af  
 Outflow = 4.34 cfs @ 19.12 hrs, Volume= 2.567 af, Atten= 95%, Lag= 378.8 min  
 Primary = 4.34 cfs @ 19.12 hrs, Volume= 2.567 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Starting Elev= 38.35' Surf.Area= 169,449 sf Storage= 57,800 cf  
 Peak Elev= 40.96' @ 19.12 hrs Surf.Area= 277,473 sf Storage= 605,373 cf (547,573 cf above start)  
 Flood Elev= 43.00' Surf.Area= 406,736 sf Storage= 1,309,652 cf (1,251,852 cf above start)

Plug-Flow detention time= 472.2 min calculated for 1.235 af (8% of inflow)  
 Center-of-Mass det. time= 163.5 min ( 982.2 - 818.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	1,744,640 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	160,837	0	0
40.00	210,051	370,888	370,888
42.00	350,230	560,281	931,169
44.00	463,241	813,471	1,744,640

Device	Routing	Invert	Outlet Devices
#1	Primary	38.35'	<b>12.0" Round CMP_Round 12"</b> L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.35' / 38.20' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.34 cfs @ 19.12 hrs HW=40.96' (Free Discharge)  
 ↑1=CMP\_Round 12" (Inlet Controls 4.34 cfs @ 5.52 fps)

**Summary for Pond 3P: Ext. 36" RCP Route 236 Crossing**

[62] Hint: Exceeded Reach 1R OUTLET depth by 2.83' @ 12.30 hrs

Inflow Area = 95.156 ac, 12.92% Impervious, Inflow Depth > 0.94" for 25 YEAR STORM event  
 Inflow = 28.74 cfs @ 12.24 hrs, Volume= 7.474 af  
 Outflow = 26.42 cfs @ 12.31 hrs, Volume= 7.419 af, Atten= 8%, Lag= 4.7 min  
 Primary = 26.42 cfs @ 12.31 hrs, Volume= 7.419 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Starting Elev= 34.95' Surf.Area= 1,133 sf Storage= 586 cf  
 Peak Elev= 37.50' @ 12.31 hrs Surf.Area= 4,847 sf Storage= 7,722 cf (7,136 cf above start)  
 Flood Elev= 49.50' Surf.Area= 70,300 sf Storage= 171,270 cf (170,684 cf above start)

Plug-Flow detention time= 6.1 min calculated for 7.405 af (99% of inflow)  
 Center-of-Mass det. time= 2.4 min ( 917.0 - 914.6 )

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	171,270 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	100	0	0
36.00	2,275	2,375	2,375
38.00	5,700	7,975	10,350
40.00	7,360	13,060	23,410
42.00	35,100	42,460	65,870
44.00	70,300	105,400	171,270

Device	Routing	Invert	Outlet Devices
#1	Primary	34.95'	<b>36.0" Round RCP_Round 36"</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.65' / 34.95' S= -0.0030 ' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

**Primary OutFlow** Max=26.28 cfs @ 12.31 hrs HW=37.49' (Free Discharge)

↑1=RCP\_Round 36" (Barrel Controls 26.28 cfs @ 4.89 fps)

**Summary for Pond 4P: 48" RCP Culverted Crossing**

[92] Warning: Device #2 is above defined storage

[62] Hint: Exceeded Reach 3R OUTLET depth by 4.37' @ 12.50 hrs

Inflow Area = 163.600 ac, 11.95% Impervious, Inflow Depth > 1.40" for 25 YEAR STORM event  
 Inflow = 120.92 cfs @ 12.34 hrs, Volume= 19.067 af  
 Outflow = 98.79 cfs @ 12.52 hrs, Volume= 18.883 af, Atten= 18%, Lag= 10.8 min  
 Primary = 98.79 cfs @ 12.52 hrs, Volume= 18.883 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 33.69' @ 12.52 hrs Surf.Area= 22,929 sf Storage= 59,635 cf

Plug-Flow detention time= 9.3 min calculated for 18.820 af (99% of inflow)  
 Center-of-Mass det. time= 6.2 min ( 875.5 - 869.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	267,755 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	4,210	0	0
30.00	7,080	5,645	5,645
32.00	14,930	22,010	27,655
34.00	24,400	39,330	66,985
36.00	45,950	70,350	137,335
38.00	84,470	130,420	267,755

**WF44 SWA EXT ENH**

Type III 24-hr 25 YEAR STORM Rainfall=6.60"

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Device	Routing	Invert	Outlet Devices
#1	Primary	29.00'	<b>48.0" Round RCP_Round 48"</b> L= 120.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.00' / 28.00' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 12.57 sf
#2	Secondary	38.00'	<b>100.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> 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=98.61 cfs @ 12.52 hrs HW=33.68' (Free Discharge)

↑1=RCP\_Round 48" (Barrel Controls 98.61 cfs @ 8.44 fps)

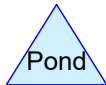
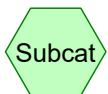
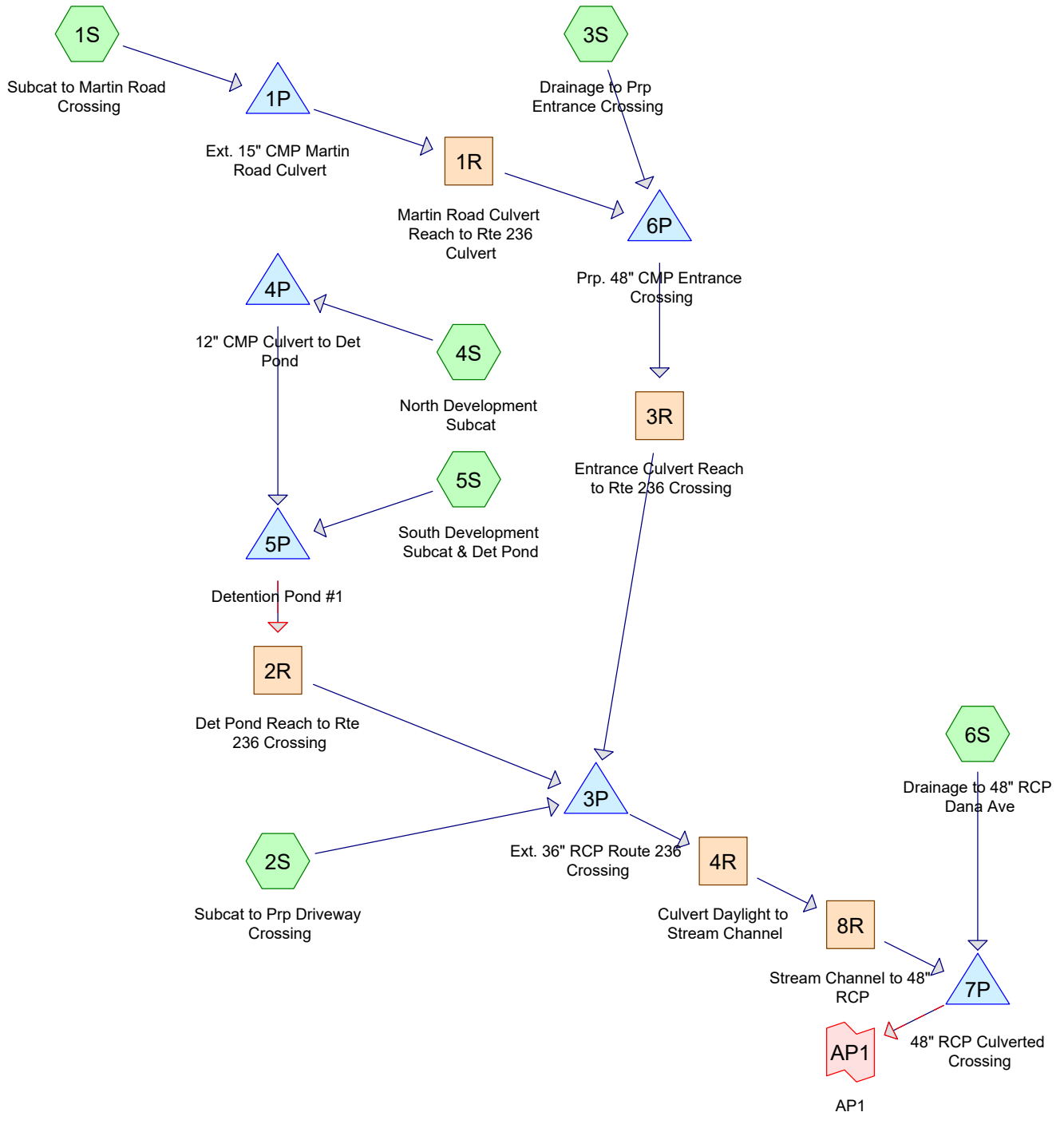
**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=29.00' (Free Discharge)

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

**Summary for Link AP1: AP1**

Inflow Area = 163.600 ac, 11.95% Impervious, Inflow Depth > 1.39" for 25 YEAR STORM event  
 Inflow = 98.79 cfs @ 12.52 hrs, Volume= 18.883 af  
 Primary = 98.79 cfs @ 12.52 hrs, Volume= 18.883 af, Atten= 0%, Lag= 0.0 min

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



**Routing Diagram for WF44 SWA DEV ENH**  
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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
13.869	46	2 acre lots, 12% imp, HSG A (1S, 2S, 6S)
7.322	77	2 acre lots, 12% imp, HSG C (1S, 2S, 6S)
58.664	82	2 acre lots, 12% imp, HSG D (1S, 2S, 6S)
4.395	39	>75% Grass cover, Good, HSG A (6S)
0.326	74	>75% Grass cover, Good, HSG C (6S)
2.061	80	>75% Grass cover, Good, HSG D (2S, 3S, 4S, 5S, 6S)
1.919	35	Brush, Fair, HSG A (6S)
16.165	77	Brush, Fair, HSG D (1S, 2S, 6S)
0.018	96	Gravel surface, HSG D (3S)
1.610	98	Paved parking, HSG A (6S)
1.934	98	Paved parking, HSG C (1S, 2S, 6S)
6.772	98	Paved parking, HSG D (1S, 2S, 3S, 4S, 5S, 6S)
0.012	98	Roofs, HSG D (4S, 5S)
15.347	36	Woods, Fair, HSG A (1S, 6S)
3.141	73	Woods, Fair, HSG C (1S, 6S)
25.873	79	Woods, Fair, HSG D (1S, 2S, 3S, 6S)
4.171	82	Woods/grass comb., Fair, HSG D (3S)
<b>163.600</b>	<b>73</b>	<b>TOTAL AREA</b>

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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
37.141	HSG A	1S, 2S, 6S
0.000	HSG B	
12.723	HSG C	1S, 2S, 6S
113.736	HSG D	1S, 2S, 3S, 4S, 5S, 6S
0.000	Other	
<b>163.600</b>		<b>TOTAL AREA</b>



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>1.37"  
 Flow Length=2,053' Tc=33.8 min CN=80 Runoff=40.72 cfs 5.010 af

**Subcatchment 2S: Subcat to Prp** Runoff Area=1,946,168 sf 13.28% Impervious Runoff Depth>1.43"  
 Flow Length=3,232' Tc=61.6 min CN=81 Runoff=31.53 cfs 5.306 af

**Subcatchment 3S: Drainage to Prp** Runoff Area=278,095 sf 14.10% Impervious Runoff Depth>1.66"  
 Flow Length=880' Tc=15.9 min CN=84 Runoff=9.88 cfs 0.885 af

**Subcatchment 4S: North Development** Runoff Area=7,250 sf 64.19% Impervious Runoff Depth>2.34"  
 Flow Length=48' Slope=0.0950 '/' Tc=2.9 min CN=92 Runoff=0.51 cfs 0.032 af

**Subcatchment 5S: South Development** Runoff Area=8,451 sf 57.92% Impervious Runoff Depth>2.16"  
 Flow Length=44' Slope=0.1000 '/' Tc=2.6 min CN=90 Runoff=0.56 cfs 0.035 af

**Subcatchment 6S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>0.43"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=17.72 cfs 2.468 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.06' Max Vel=0.43 fps Inflow=1.31 cfs 0.685 af  
 n=0.070 L=529.0' S=0.0161 '/' Capacity=2,066.93 cfs Outflow=1.30 cfs 0.611 af

**Reach 2R: Det Pond Reach to Rte 236** Avg. Flow Depth=0.01' Max Vel=0.37 fps Inflow=0.67 cfs 0.052 af  
 n=0.070 L=226.0' S=0.0226 '/' Capacity=7,957.89 cfs Outflow=0.50 cfs 0.052 af

**Reach 3R: Entrance Culvert Reach to** Avg. Flow Depth=0.13' Max Vel=1.01 fps Inflow=6.61 cfs 1.417 af  
 n=0.070 L=147.0' S=0.0364 '/' Capacity=3,110.73 cfs Outflow=6.58 cfs 1.403 af

**Reach 4R: Culvert Daylight to Stream** Avg. Flow Depth=0.16' Max Vel=0.35 fps Inflow=9.81 cfs 4.825 af  
 n=0.070 L=294.0' S=0.0032 '/' Capacity=5,614.66 cfs Outflow=9.79 cfs 4.584 af

**Reach 8R: Stream Channel to 48" RCP** Avg. Flow Depth=0.29' Max Vel=0.63 fps Inflow=9.79 cfs 4.584 af  
 n=0.070 L=1,004.0' S=0.0050 '/' Capacity=2,436.66 cfs Outflow=9.68 cfs 4.101 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=49.63' Storage=307,905 cf Inflow=40.72 cfs 5.010 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.31 cfs 0.685 af

**Pond 3P: Ext. 36" RCP Route 236 Crossing** Peak Elev=36.35' Storage=172,152 cf Inflow=36.69 cfs 6.761 af  
 36.0" Round Culvert n=0.013 L=100.0' S=-0.0030 '/' Outflow=9.81 cfs 4.825 af

**Pond 4P: 12" CMP Culvert to Det Pond** Peak Elev=41.38' Storage=87 cf Inflow=0.51 cfs 0.032 af  
 12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=0.46 cfs 0.032 af

**Pond 5P: Detention Pond #1** Peak Elev=40.98' Storage=1,021 cf Inflow=1.00 cfs 0.067 af  
 Primary=0.67 cfs 0.052 af Secondary=0.00 cfs 0.000 af Outflow=0.67 cfs 0.052 af

**Pond 6P: Prp. 48" CMP Entrance Crossing** Peak Elev=41.29' Storage=8,657 cf Inflow=9.89 cfs 1.496 af  
 48.0" Round Culvert w/ 12.0" inside fill n=0.013 L=40.0' S=0.0125 '/' Outflow=6.61 cfs 1.417 af

**WF44 SWA DEV ENH**

*Type III 24-hr 2 YEAR STORM Rainfall=3.33"*

Prepared by {enter your company name here}

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**Pond 7P: 48" RCP Culverted Crossing**

Peak Elev=30.44' Storage=9,139 cf Inflow=17.74 cfs 6.569 af  
Primary=15.86 cfs 6.445 af Secondary=0.00 cfs 0.000 af Outflow=15.86 cfs 6.445 af

**Link AP1: AP1**

Inflow=15.86 cfs 6.445 af  
Primary=15.86 cfs 6.445 af

**Total Runoff Area = 163.600 ac Runoff Volume = 13.736 af Average Runoff Depth = 1.01"**  
**87.83% Pervious = 143.690 ac 12.17% Impervious = 19.910 ac**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>2.96"  
 Flow Length=2,053' Tc=33.8 min CN=80 Runoff=87.41 cfs 10.780 af

**Subcatchment 2S: Subcat to Prp** Runoff Area=1,946,168 sf 13.28% Impervious Runoff Depth>3.02"  
 Flow Length=3,232' Tc=61.6 min CN=81 Runoff=66.73 cfs 11.252 af

**Subcatchment 3S: Drainage to Prp** Runoff Area=278,095 sf 14.10% Impervious Runoff Depth>3.36"  
 Flow Length=880' Tc=15.9 min CN=84 Runoff=19.64 cfs 1.786 af

**Subcatchment 4S: North Development** Runoff Area=7,250 sf 64.19% Impervious Runoff Depth>4.18"  
 Flow Length=48' Slope=0.0950 '/' Tc=2.9 min CN=92 Runoff=0.88 cfs 0.058 af

**Subcatchment 5S: South Development** Runoff Area=8,451 sf 57.92% Impervious Runoff Depth>3.98"  
 Flow Length=44' Slope=0.1000 '/' Tc=2.6 min CN=90 Runoff=1.00 cfs 0.064 af

**Subcatchment 6S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>1.42"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=74.23 cfs 8.109 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.10' Max Vel=0.60 fps Inflow=3.23 cfs 1.865 af  
 n=0.070 L=529.0' S=0.0161 '/' Capacity=2,066.93 cfs Outflow=3.23 cfs 1.734 af

**Reach 2R: Det Pond Reach to Rte 236** Avg. Flow Depth=0.01' Max Vel=0.37 fps Inflow=1.16 cfs 0.107 af  
 n=0.070 L=226.0' S=0.0226 '/' Capacity=7,957.89 cfs Outflow=0.96 cfs 0.106 af

**Reach 3R: Entrance Culvert Reach to** Avg. Flow Depth=0.19' Max Vel=1.31 fps Inflow=13.21 cfs 3.391 af  
 n=0.070 L=147.0' S=0.0364 '/' Capacity=3,110.73 cfs Outflow=13.16 cfs 3.366 af

**Reach 4R: Culvert Daylight to Stream** Avg. Flow Depth=0.25' Max Vel=0.48 fps Inflow=21.63 cfs 10.971 af  
 n=0.070 L=294.0' S=0.0032 '/' Capacity=5,614.66 cfs Outflow=21.61 cfs 10.584 af

**Reach 8R: Stream Channel to 48" RCP** Avg. Flow Depth=0.46' Max Vel=0.85 fps Inflow=21.61 cfs 10.584 af  
 n=0.070 L=1,004.0' S=0.0050 '/' Capacity=2,436.66 cfs Outflow=21.50 cfs 9.818 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=50.10' Storage=508,855 cf Inflow=87.41 cfs 10.780 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=3.23 cfs 1.865 af

**Pond 3P: Ext. 36" RCP Route 236** Peak Elev=37.24' Storage=330,830 cf Inflow=76.86 cfs 14.724 af  
 36.0" Round Culvert n=0.013 L=100.0' S=-0.0030 '/' Outflow=21.63 cfs 10.971 af

**Pond 4P: 12" CMP Culvert to Det Pond** Peak Elev=41.52' Storage=128 cf Inflow=0.88 cfs 0.058 af  
 12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=0.80 cfs 0.058 af

**Pond 5P: Detention Pond #1** Peak Elev=41.23' Storage=1,331 cf Inflow=1.77 cfs 0.122 af  
 Primary=1.16 cfs 0.107 af Secondary=0.00 cfs 0.000 af Outflow=1.16 cfs 0.107 af

**Pond 6P: Prp. 48" CMP Entrance Crossing** Peak Elev=41.73' Storage=15,603 cf Inflow=19.73 cfs 3.521 af  
 48.0" Round Culvert w/ 12.0" inside fill n=0.013 L=40.0' S=0.0125 '/' Outflow=13.21 cfs 3.391 af

**WF44 SWA DEV ENH**

*Type III 24-hr 10 YEAR STORM Rainfall=5.34"*

Prepared by {enter your company name here}

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**Pond 7P: 48" RCP Culverted Crossing** Peak Elev=32.38' Storage=33,665 cf Inflow=74.71 cfs 17.927 af  
Primary=64.74 cfs 17.711 af Secondary=0.00 cfs 0.000 af Outflow=64.74 cfs 17.711 af

**Link AP1: AP1**

Inflow=64.74 cfs 17.711 af  
Primary=64.74 cfs 17.711 af

**Total Runoff Area = 163.600 ac Runoff Volume = 32.050 af Average Runoff Depth = 2.35"**  
**87.83% Pervious = 143.690 ac 12.17% Impervious = 19.910 ac**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Subcat to Martin** Runoff Area=1,905,022 sf 12.81% Impervious Runoff Depth>4.03"  
 Flow Length=2,053' Tc=33.8 min CN=80 Runoff=118.01 cfs 14.678 af

**Subcatchment 2S: Subcat to Prp** Runoff Area=1,946,168 sf 13.28% Impervious Runoff Depth>4.10"  
 Flow Length=3,232' Tc=61.6 min CN=81 Runoff=89.68 cfs 15.247 af

**Subcatchment 3S: Drainage to Prp** Runoff Area=278,095 sf 14.10% Impervious Runoff Depth>4.48"  
 Flow Length=880' Tc=15.9 min CN=84 Runoff=25.86 cfs 2.381 af

**Subcatchment 4S: North Development** Runoff Area=7,250 sf 64.19% Impervious Runoff Depth>5.34"  
 Flow Length=48' Slope=0.0950 '/' Tc=2.9 min CN=92 Runoff=1.12 cfs 0.074 af

**Subcatchment 5S: South Development** Runoff Area=8,451 sf 57.92% Impervious Runoff Depth>5.14"  
 Flow Length=44' Slope=0.1000 '/' Tc=2.6 min CN=90 Runoff=1.27 cfs 0.083 af

**Subcatchment 6S: Drainage to 48" RCP** Runoff Area=2,981,451 sf 10.60% Impervious Runoff Depth>2.20"  
 Flow Length=3,273' Tc=22.9 min CN=61 Runoff=118.64 cfs 12.549 af

**Reach 1R: Martin Road Culvert Reach to** Avg. Flow Depth=0.12' Max Vel=0.65 fps Inflow=4.14 cfs 2.476 af  
 n=0.070 L=529.0' S=0.0161 '/' Capacity=2,066.93 cfs Outflow=4.14 cfs 2.323 af

**Reach 2R: Det Pond Reach to Rte 236** Avg. Flow Depth=0.02' Max Vel=0.37 fps Inflow=1.39 cfs 0.142 af  
 n=0.070 L=226.0' S=0.0226 '/' Capacity=7,957.89 cfs Outflow=1.18 cfs 0.141 af

**Reach 3R: Entrance Culvert Reach to** Avg. Flow Depth=0.23' Max Vel=1.45 fps Inflow=17.39 cfs 4.550 af  
 n=0.070 L=147.0' S=0.0364 '/' Capacity=3,110.73 cfs Outflow=17.33 cfs 4.521 af

**Reach 4R: Culvert Daylight to Stream** Avg. Flow Depth=0.30' Max Vel=0.53 fps Inflow=28.50 cfs 14.911 af  
 n=0.070 L=294.0' S=0.0032 '/' Capacity=5,614.66 cfs Outflow=28.48 cfs 14.445 af

**Reach 8R: Stream Channel to 48" RCP** Avg. Flow Depth=0.55' Max Vel=0.94 fps Inflow=28.48 cfs 14.445 af  
 n=0.070 L=1,004.0' S=0.0050 '/' Capacity=2,436.66 cfs Outflow=28.39 cfs 13.517 af

**Pond 1P: Ext. 15" CMP Martin Road** Peak Elev=50.41' Storage=652,236 cf Inflow=118.01 cfs 14.678 af  
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=4.14 cfs 2.476 af

**Pond 3P: Ext. 36" RCP Route 236** Peak Elev=37.72' Storage=440,638 cf Inflow=103.21 cfs 19.908 af  
 36.0" Round Culvert n=0.013 L=100.0' S=-0.0030 '/' Outflow=28.50 cfs 14.911 af

**Pond 4P: 12" CMP Culvert to Det Pond** Peak Elev=41.59' Storage=153 cf Inflow=1.12 cfs 0.074 af  
 12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.01 cfs 0.074 af

**Pond 5P: Detention Pond #1** Peak Elev=41.39' Storage=1,548 cf Inflow=2.25 cfs 0.157 af  
 Primary=1.39 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=1.39 cfs 0.142 af

**Pond 6P: Prp. 48" CMP Entrance Crossing** Peak Elev=41.97' Storage=20,228 cf Inflow=26.09 cfs 4.703 af  
 48.0" Round Culvert w/ 12.0" inside fill n=0.013 L=40.0' S=0.0125 '/' Outflow=17.39 cfs 4.550 af

**WF44 SWA DEV ENH**

*Type III 24-hr 25 YEAR STORM Rainfall=6.60"*

Prepared by {enter your company name here}

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**Pond 7P: 48" RCP Culverted Crossing** Peak Elev=33.67' Storage=59,160 cf Inflow=120.47 cfs 26.066 af  
Primary=98.34 cfs 25.791 af Secondary=0.00 cfs 0.000 af Outflow=98.34 cfs 25.791 af

**Link AP1: AP1**

Inflow=98.34 cfs 25.791 af

Primary=98.34 cfs 25.791 af

**Total Runoff Area = 163.600 ac Runoff Volume = 45.012 af Average Runoff Depth = 3.30"**  
**87.83% Pervious = 143.690 ac 12.17% Impervious = 19.910 ac**

**Summary for Subcatchment 1S: Subcat to Martin Road Crossing**

Runoff = 118.01 cfs @ 12.46 hrs, Volume= 14.678 af, Depth> 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
13,186	98	Paved parking, HSG C
84,109	98	Paved parking, HSG D
24,295	46	2 acre lots, 12% imp, HSG A
14,995	36	Woods, Fair, HSG A
157,513	77	2 acre lots, 12% imp, HSG C
30,028	73	Woods, Fair, HSG C
177,718	77	Brush, Fair, HSG D
362,281	79	Woods, Fair, HSG D
1,040,897	82	2 acre lots, 12% imp, HSG D
1,905,022	80	Weighted Average
1,661,002		87.19% Pervious Area
244,020		12.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.0750	0.29		<b>Sheet Flow, SF 1</b> Range n= 0.130 P2= 3.33"
18.4	875	0.0251	0.79		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
12.5	1,128	0.0022	1.50	1,953.86	<b>Channel Flow, CF 1</b> Area= 1,300.0 sf Perim= 701.0' r= 1.85' n= 0.070 Sluggish weedy reaches w/pools
33.8	2,053	Total			

**Summary for Subcatchment 2S: Subcat to Prp Driveway Crossing**

Runoff = 89.68 cfs @ 12.81 hrs, Volume= 15.247 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
76,151	46	2 acre lots, 12% imp, HSG A
27,952	77	2 acre lots, 12% imp, HSG C
10,053	98	Paved parking, HSG C
34,997	77	Brush, Fair, HSG D
73,197	98	Paved parking, HSG D
13,850	80	>75% Grass cover, Good, HSG D
354,389	79	Woods, Fair, HSG D
1,355,579	82	2 acre lots, 12% imp, HSG D
1,946,168	81	Weighted Average
1,687,756		86.72% Pervious Area
258,412		13.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	50	0.0200	0.07		<b>Sheet Flow, SF 1</b> Woods: Light underbrush n= 0.400 P2= 3.33"
27.7	1,393	0.0281	0.84		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
21.8	1,789	0.0053	1.37	683.53	<b>Channel Flow, CF 1</b> Area= 500.0 sf Perim= 601.0' r= 0.83' n= 0.070 Sluggish weedy reaches w/pools
61.6	3,232	Total			

**Summary for Subcatchment 3S: Drainage to Prp Entrance Crossing**

Runoff = 25.86 cfs @ 12.21 hrs, Volume= 2.381 af, Depth> 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
767	96	Gravel surface, HSG D
39,205	98	Paved parking, HSG D
3,521	80	>75% Grass cover, Good, HSG D
52,906	79	Woods, Fair, HSG D
181,696	82	Woods/grass comb., Fair, HSG D
278,095	84	Weighted Average
238,890		85.90% Pervious Area
39,205		14.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0600	0.11		<b>Sheet Flow, SF 1</b> Woods: Light underbrush n= 0.400 P2= 3.33"
4.9	351	0.0569	1.19		<b>Shallow Concentrated Flow, SCF 1</b> Woodland Kv= 5.0 fps
3.2	479	0.0094	2.49	995.12	<b>Channel Flow, CF 1</b> Area= 400.0 sf Perim= 301.0' r= 1.33' n= 0.070 Sluggish weedy reaches w/pools
15.9	880	Total			

**Summary for Subcatchment 4S: North Development Subcat**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.12 cfs @ 12.05 hrs, Volume= 0.074 af, Depth> 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"



Area (sf)	CN	Description
308	98	Roofs, HSG D
4,346	98	Paved parking, HSG D
2,596	80	>75% Grass cover, Good, HSG D
7,250	92	Weighted Average
2,596		35.81% Pervious Area
4,654		64.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	48	0.0950	0.28		<b>Sheet Flow, SF 1</b> Grass: Short n= 0.150 P2= 3.33"

**Summary for Subcatchment 5S: South Development Subcat & Det Pond**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.27 cfs @ 12.04 hrs, Volume= 0.083 af, Depth> 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
210	98	Roofs, HSG D
4,685	98	Paved parking, HSG D
3,556	80	>75% Grass cover, Good, HSG D
8,451	90	Weighted Average
3,556		42.08% Pervious Area
4,895		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	44	0.1000	0.28		<b>Sheet Flow, SF 1</b> Grass: Short n= 0.150 P2= 3.33"

**Summary for Subcatchment 6S: Drainage to 48" RCP Dana Ave**

Runoff = 118.64 cfs @ 12.34 hrs, Volume= 12.549 af, Depth> 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 YEAR STORM Rainfall=6.60"

Area (sf)	CN	Description
70,148	98	Paved parking, HSG A
503,709	46	2 acre lots, 12% imp, HSG A
191,462	39	>75% Grass cover, Good, HSG A
83,574	35	Brush, Fair, HSG A
653,542	36	Woods, Fair, HSG A
60,996	98	Paved parking, HSG C
133,473	77	2 acre lots, 12% imp, HSG C
106,804	73	Woods, Fair, HSG C
14,197	74	>75% Grass cover, Good, HSG C
89,436	98	Paved parking, HSG D
158,927	82	2 acre lots, 12% imp, HSG D
66,269	80	>75% Grass cover, Good, HSG D
357,466	79	Woods, Fair, HSG D
491,448	77	Brush, Fair, HSG D
2,981,451	61	Weighted Average
2,665,338		89.40% Pervious Area
316,113		10.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0550	0.23		<b>Sheet Flow, SF 1</b> Grass: Short n= 0.150 P2= 3.33"
3.2	376	0.0798	1.98		<b>Shallow Concentrated Flow, SCF 1</b> Short Grass Pasture Kv= 7.0 fps
4.8	321	0.0249	1.10		<b>Shallow Concentrated Flow, SCF 2</b> Short Grass Pasture Kv= 7.0 fps
7.4	1,522	0.0039	3.44	5,931.09	<b>Channel Flow, CF 1</b> Area= 1,725.0 sf Perim= 413.0' r= 4.18' n= 0.070 Sluggish weedy reaches w/pools
3.8	1,004	0.0109	4.36	1,962.74	<b>Channel Flow, CF 2</b> Area= 450.0 sf Perim= 163.0' r= 2.76' n= 0.070 Sluggish weedy reaches w/pools
22.9	3,273	Total			

**Summary for Reach 1R: Martin Road Culvert Reach to Rte 236 Culvert**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.12'

Inflow Area = 43.733 ac, 12.81% Impervious, Inflow Depth > 0.68" for 25 YEAR STORM event  
 Inflow = 4.14 cfs @ 18.79 hrs, Volume= 2.476 af  
 Outflow = 4.14 cfs @ 19.16 hrs, Volume= 2.323 af, Atten= 0%, Lag= 21.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.65 fps, Min. Travel Time= 13.5 min  
 Avg. Velocity = 0.50 fps, Avg. Travel Time= 17.7 min

Peak Storage= 3,347 cf @ 18.93 hrs  
 Average Depth at Peak Storage= 0.12'  
 Bank-Full Depth= 4.00' Flow Area= 400.0 sf, Capacity= 2,066.93 cfs

50.00' x 4.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 12.5 '/' Top Width= 150.00'  
Length= 529.0' Slope= 0.0161 '/'  
Inlet Invert= 48.50', Outlet Invert= 40.00'



**Summary for Reach 2R: Det Pond Reach to Rte 236 Crossing**

[79] Warning: Submerged Pond 5P Primary device # 1 OUTLET by 0.02'

Inflow Area = 0.360 ac, 60.82% Impervious, Inflow Depth > 4.71" for 25 YEAR STORM event  
Inflow = 1.39 cfs @ 12.15 hrs, Volume= 0.142 af  
Outflow = 1.18 cfs @ 12.49 hrs, Volume= 0.141 af, Atten= 15%, Lag= 20.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.37 fps, Min. Travel Time= 10.1 min  
Avg. Velocity = 0.37 fps, Avg. Travel Time= 10.1 min

Peak Storage= 720 cf @ 12.32 hrs  
Average Depth at Peak Storage= 0.02'  
Bank-Full Depth= 4.00' Flow Area= 1,200.0 sf, Capacity= 7,957.89 cfs

200.00' x 4.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 25.0 '/' Top Width= 400.00'  
Length= 226.0' Slope= 0.0226 '/'  
Inlet Invert= 39.75', Outlet Invert= 34.65'



**Summary for Reach 3R: Entrance Culvert Reach to Rte 236 Crossing**

[79] Warning: Submerged Pond 6P Primary device # 1 OUTLET by 0.23'

Inflow Area = 50.117 ac, 12.97% Impervious, Inflow Depth > 1.09" for 25 YEAR STORM event  
Inflow = 17.39 cfs @ 12.41 hrs, Volume= 4.550 af  
Outflow = 17.33 cfs @ 12.46 hrs, Volume= 4.521 af, Atten= 0%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.45 fps, Min. Travel Time= 1.7 min  
Avg. Velocity = 0.84 fps, Avg. Travel Time= 2.9 min

Peak Storage= 1,753 cf @ 12.43 hrs  
Average Depth at Peak Storage= 0.23'  
Bank-Full Depth= 4.00' Flow Area= 400.0 sf, Capacity= 3,110.73 cfs

50.00' x 4.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 12.5 '/' Top Width= 150.00'  
Length= 147.0' Slope= 0.0364 '/'  
Inlet Invert= 40.00', Outlet Invert= 34.65'



**Summary for Reach 4R: Culvert Daylight to Stream Channel**

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.30'

Inflow Area = 95.156 ac, 13.30% Impervious, Inflow Depth > 1.88" for 25 YEAR STORM event  
Inflow = 28.50 cfs @ 14.18 hrs, Volume= 14.911 af  
Outflow = 28.48 cfs @ 14.45 hrs, Volume= 14.445 af, Atten= 0%, Lag= 16.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.53 fps, Min. Travel Time= 9.3 min  
Avg. Velocity = 0.36 fps, Avg. Travel Time= 13.8 min

Peak Storage= 15,873 cf @ 14.30 hrs  
Average Depth at Peak Storage= 0.30'  
Bank-Full Depth= 6.00' Flow Area= 1,770.0 sf, Capacity= 5,614.66 cfs

175.00' x 6.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
Side Slope Z-value= 20.0 '/' Top Width= 415.00'  
Length= 294.0' Slope= 0.0032 '/'  
Inlet Invert= 34.95', Outlet Invert= 34.00'



**Summary for Reach 8R: Stream Channel to 48" RCP**

[62] Hint: Exceeded Reach 4R OUTLET depth by 0.25' @ 15.00 hrs

Inflow Area = 95.156 ac, 13.30% Impervious, Inflow Depth > 1.82" for 25 YEAR STORM event  
Inflow = 28.48 cfs @ 14.45 hrs, Volume= 14.445 af  
Outflow = 28.39 cfs @ 14.99 hrs, Volume= 13.517 af, Atten= 0%, Lag= 32.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.94 fps, Min. Travel Time= 17.8 min  
 Avg. Velocity = 0.59 fps, Avg. Travel Time= 28.1 min

Peak Storage= 30,350 cf @ 14.69 hrs  
 Average Depth at Peak Storage= 0.55'  
 Bank-Full Depth= 6.00' Flow Area= 660.0 sf, Capacity= 2,436.66 cfs

50.00' x 6.00' deep channel, n= 0.070 Sluggish weedy reaches w/pools  
 Side Slope Z-value= 10.0 '/' Top Width= 170.00'  
 Length= 1,004.0' Slope= 0.0050 '/'  
 Inlet Invert= 34.00', Outlet Invert= 29.00'



**Summary for Pond 1P: Ext. 15" CMP Martin Road Culvert**

Inflow Area = 43.733 ac, 12.81% Impervious, Inflow Depth > 4.03" for 25 YEAR STORM event  
 Inflow = 118.01 cfs @ 12.46 hrs, Volume= 14.678 af  
 Outflow = 4.14 cfs @ 18.79 hrs, Volume= 2.476 af, Atten= 96%, Lag= 380.0 min  
 Primary = 4.14 cfs @ 18.79 hrs, Volume= 2.476 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Starting Elev= 49.00' Surf.Area= 231,086 sf Storage= 119,579 cf  
 Peak Elev= 50.41' @ 18.79 hrs Surf.Area= 469,037 sf Storage= 652,236 cf (532,657 cf above start)  
 Flood Elev= 52.50' Surf.Area= 556,200 sf Storage= 1,713,635 cf (1,594,056 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= 179.8 min ( 979.5 - 799.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	1,999,122 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,072	0	0
50.00	454,100	462,172	462,172
52.00	526,650	980,750	1,442,922
53.00	585,750	556,200	1,999,122

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	<b>15.0" Round CMP_Round 15"</b> L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 49.00' / 48.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=4.14 cfs @ 18.79 hrs HW=50.41' (Free Discharge)

↑1=CMP\_Round 15" (Inlet Controls 4.14 cfs @ 3.37 fps)

**Summary for Pond 3P: Ext. 36" RCP Route 236 Crossing**

[62] Hint: Exceeded Reach 2R OUTLET depth by 3.07' @ 14.20 hrs

[62] Hint: Exceeded Reach 3R OUTLET depth by 2.95' @ 14.20 hrs

Inflow Area = 95.156 ac, 13.30% Impervious, Inflow Depth > 2.51" for 25 YEAR STORM event  
 Inflow = 103.21 cfs @ 12.78 hrs, Volume= 19.908 af  
 Outflow = 28.50 cfs @ 14.18 hrs, Volume= 14.911 af, Atten= 72%, Lag= 84.4 min  
 Primary = 28.50 cfs @ 14.18 hrs, Volume= 14.911 af

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

Starting Elev= 34.95' Surf.Area= 60,733 sf Storage= 34,073 cf

Peak Elev= 37.72' @ 14.18 hrs Surf.Area= 249,312 sf Storage= 440,638 cf (406,565 cf above start)

Flood Elev= 49.50' Surf.Area= 452,670 sf Storage= 2,826,250 cf (2,792,177 cf above start)

Plug-Flow detention time= 197.8 min calculated for 14.082 af (71% of inflow)

Center-of-Mass det. time= 113.3 min ( 950.9 - 837.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	2,826,250 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	11,000	0	0
36.00	115,700	126,700	126,700
38.00	271,050	386,750	513,450
40.00	389,500	660,550	1,174,000
42.00	405,040	794,540	1,968,540
44.00	452,670	857,710	2,826,250

Device	Routing	Invert	Outlet Devices
#1	Primary	34.95'	<b>36.0" Round RCP_Round 36"</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.65' / 34.95' S= -0.0030 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

**Primary OutFlow** Max=28.50 cfs @ 14.18 hrs HW=37.72' (Free Discharge)

↑1=RCP\_Round 36" (Barrel Controls 28.50 cfs @ 4.90 fps)

**Summary for Pond 4P: 12" CMP Culvert to Det Pond**

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.166 ac, 64.19% Impervious, Inflow Depth > 5.34" for 25 YEAR STORM event  
 Inflow = 1.12 cfs @ 12.05 hrs, Volume= 0.074 af  
 Outflow = 1.01 cfs @ 12.08 hrs, Volume= 0.074 af, Atten= 10%, Lag= 1.8 min  
 Primary = 1.01 cfs @ 12.08 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 41.59' @ 12.08 hrs Surf.Area= 339 sf Storage= 153 cf

Plug-Flow detention time= 6.1 min calculated for 0.074 af (99% of inflow)  
 Center-of-Mass det. time= 4.4 min ( 750.8 - 746.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	1,743 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	175	0	0
42.00	450	313	313
44.00	980	1,430	1,743

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	<b>12.0" Round CMP_Round 12"</b> L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.98 cfs @ 12.08 hrs HW=41.58' (Free Discharge)  
 ↑1=CMP\_Round 12" (Inlet Controls 0.98 cfs @ 2.05 fps)

**Summary for Pond 5P: Detention Pond #1**

- [82] Warning: Early inflow requires earlier time span
- [92] Warning: Device #4 is above defined storage
- [79] Warning: Submerged Pond 4P Primary device # 1 INLET by 0.39'

Inflow Area = 0.360 ac, 60.82% Impervious, Inflow Depth > 5.22" for 25 YEAR STORM event  
 Inflow = 2.25 cfs @ 12.05 hrs, Volume= 0.157 af  
 Outflow = 1.39 cfs @ 12.15 hrs, Volume= 0.142 af, Atten= 38%, Lag= 6.1 min  
 Primary = 1.39 cfs @ 12.15 hrs, Volume= 0.142 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 41.39' @ 12.15 hrs Surf.Area= 1,376 sf Storage= 1,548 cf

Plug-Flow detention time= 68.8 min calculated for 0.142 af (90% of inflow)  
 Center-of-Mass det. time= 35.7 min ( 786.7 - 751.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	40.00'	4,360 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	890	0	0
41.00	1,200	1,045	1,045
42.00	1,650	1,425	2,470
43.00	2,130	1,890	4,360

Device	Routing	Invert	Outlet Devices
#1	Primary	40.00'	<b>12.0" Round CMP_Round 12"</b> L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.00' / 39.75' S= 0.0063 ' S= 0.0063 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	40.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	42.00'	<b>2.0" x 2.0" Horiz. Orifice/Grate</b> C= 0.600 in 24.0" Grate (1% open area) Limited to weir flow at low heads
#4	Secondary	43.00'	<b>20.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

**Primary OutFlow** Max=1.39 cfs @ 12.15 hrs HW=41.39' (Free Discharge)

↑ **1=CMP\_Round 12"** (Passes 1.39 cfs of 2.81 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 1.39 cfs @ 3.53 fps)

↑ **3=Orifice/Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=40.00' (Free Discharge)

↑ **4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 6P: Prp. 48" CMP Entrance Crossing

[62] Hint: Exceeded Reach 1R OUTLET depth by 1.94' @ 12.40 hrs

Inflow Area = 50.117 ac, 12.97% Impervious, Inflow Depth > 1.13" for 25 YEAR STORM event  
 Inflow = 26.09 cfs @ 12.21 hrs, Volume= 4.703 af  
 Outflow = 17.39 cfs @ 12.41 hrs, Volume= 4.550 af, Atten= 33%, Lag= 11.8 min  
 Primary = 17.39 cfs @ 12.41 hrs, Volume= 4.550 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 41.97' @ 12.41 hrs Surf.Area= 20,359 sf Storage= 20,228 cf  
 Flood Elev= 46.00' Surf.Area= 48,500 sf Storage= 89,900 cf

Plug-Flow detention time= 23.5 min calculated for 4.550 af (97% of inflow)  
 Center-of-Mass det. time= 13.4 min ( 896.8 - 883.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	40.00'	89,900 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	140	0	0
42.00	20,630	20,770	20,770
44.00	48,500	69,130	89,900

Device	Routing	Invert	Outlet Devices
#1	Primary	40.50'	<b>48.0" Round CMP_Round 48" w/ 12.0" inside fill</b> L= 40.0' CMP, projecting, no headwall, Ke= 0.900



Inlet / Outlet Invert= 39.50' / 39.00' S= 0.0125 '/' Cc= 0.900  
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 10.11 sf

**Primary OutFlow** Max=17.36 cfs @ 12.41 hrs HW=41.97' (Free Discharge)

↑1=CMP\_Round 48" (Inlet Controls 17.36 cfs @ 3.05 fps)

**Summary for Pond 7P: 48" RCP Culverted Crossing**

[92] Warning: Device #2 is above defined storage

[62] Hint: Exceeded Reach 8R OUTLET depth by 4.51' @ 12.50 hrs

Inflow Area = 163.600 ac, 12.17% Impervious, Inflow Depth > 1.91" for 25 YEAR STORM event  
 Inflow = 120.47 cfs @ 12.34 hrs, Volume= 26.066 af  
 Outflow = 98.34 cfs @ 12.52 hrs, Volume= 25.791 af, Atten= 18%, Lag= 10.6 min  
 Primary = 98.34 cfs @ 12.52 hrs, Volume= 25.791 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 33.67' @ 12.52 hrs Surf.Area= 22,831 sf Storage= 59,160 cf

Plug-Flow detention time= 8.8 min calculated for 25.791 af (99% of inflow)  
 Center-of-Mass det. time= 5.7 min ( 913.9 - 908.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	267,755 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	4,210	0	0
30.00	7,080	5,645	5,645
32.00	14,930	22,010	27,655
34.00	24,400	39,330	66,985
36.00	45,950	70,350	137,335
38.00	84,470	130,420	267,755

Device	Routing	Invert	Outlet Devices
#1	Primary	29.00'	<b>48.0" Round RCP_Round 48"</b> L= 120.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.00' / 28.00' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 12.57 sf
#2	Secondary	38.00'	<b>100.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> 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=98.17 cfs @ 12.52 hrs HW=33.66' (Free Discharge)

↑1=RCP\_Round 48" (Barrel Controls 98.17 cfs @ 8.43 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=29.00' (Free Discharge)

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

**Summary for Link AP1: AP1**

Inflow Area = 163.600 ac, 12.17% Impervious, Inflow Depth > 1.89" for 25 YEAR STORM event  
Inflow = 98.34 cfs @ 12.52 hrs, Volume= 25.791 af  
Primary = 98.34 cfs @ 12.52 hrs, Volume= 25.791 af, Atten= 0%, Lag= 0.0 min

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

**Well Field 44 Cannabis Dispensary - Existing Condition Peak Flows**

Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	16.14	65.45	98.79

Rainfall Event Totals (in.)	
2-Year	3.33
10-Year	5.34
25-Year	6.60

**Well Field 44 Cannabis Dispensary - Developed Condition Peak Flows**

Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	15.86	64.74	98.34

**Well Field 44 Cannabis Dispensary - Change in Peak Flows**

Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	-0.28	-0.71	-0.45

**Headwater Elevations: 25-Year Rainfall Event**

Analysis Point	Existing Elev. (ft)	Developed Elev. (ft)	Location in Analysis
1P	50.41	50.41	Martin Road Crossing (15" CMP)
2P	40.96	N/A	Ext. On-Site Driveway: 12" Culvert Removed
3P	37.50	37.72	Route 236 Crossing (36" RCP)
6P	N/A	41.97'	Prp. Entrance Crossing (48" CMP)
7P	33.69	33.67	Dana Ave Crossing (48" RCP)



## WELL FIELD 44 CANNABIS DISPENSARY 41 ROUTE 236 (HAROLD L. DOW HIGHWAY), KITTERY, MAINE

### OPERATION AND MAINTENANCE PROGRAM STORMWATER MANAGEMENT BMP'S

This project contains specific Best Management Practices (BMP's) for the conveyance, storage, and treatment of stormwater and the prevention of erosion. These BMP's consist of level lip spreaders and detention ponds. All components should be inspected quarterly, and after every significant rain event of 1" in any 24-hour period.

The party responsible for implementing this Operation and Maintenance Program (O & M Program) shall be the property owner or owner's representative.

#### **Stormwater Detention Areas**

The Stormwater Detention Areas shall be inspected to ensure that there is no channeling of stormwater and that no debris accumulates within the detention areas. The vegetative cover conditions shall be maintained. The inlets and outlets shall be inspected for erosion and any evidence of debris that could clog the culverts. Emergency spillways and level spreaders shall be inspected for any evidence of rilling and channeling and shall be maintained to promote a level, sheet-flow discharge.

#### **Snow Removal**

Snow shall be stockpiled only in the approved snow storage areas. Plowing of snow into wetland areas or detention ponds is prohibited. Additionally, a mostly sand mix (reduced salt) shall be applied during winter months to prevent excessive salt from leaching into wetland areas. Excess sand shall be removed from the storage areas, all paved surfaces and adjacent areas each spring.

#### **Seeding, Fertilizing and Mulching**

All exposed soil materials and stockpiles must be either temporarily or permanently seeded, fertilized and mulched in accordance with plan specifications. This is one of the most important features of the Erosion Control Plan, which will provide both temporary and permanent stabilization. Eroded or damaged lawn areas must be repaired until a 75% effective growth of vegetation is established and permanently maintained.

#### **Rip Rap Armoring**

All areas prone to erosion rilling shall be stabilized with riprap armor. Annually in spring and late fall, as well as after all instances of heavy rainfall, riprap shall be inspected to have all woody vegetation growing through the armor layer. Repairs shall be made in locations where underlying gravel and/or filter fabric is showing, or if stones have been dislodged.

#### **Outlet Structures**

All outlet structures associated with stormwater BMPs shall be inspected annually in spring and late fall, as well as after all instances of heavy rainfall. Outlet structures shall be inspected to ensure all seals remain intact, all orifices are unobstructed, and all trash racks are free of debris. Accumulated sediments and debris within the outlet structure

shall be removed and properly disposed of. Any damage to trash racks and debris guards shall also be repaired as needed.

### **Culverted Crossings**

Proper erosion and sedimentation controls shall be established upstream of the thin wetland section that flows along the eastern edge of the property at the toe of slope of Route 236 (Harold L. Dow Highway), as well as the existing 36" RCP culverted crossing of Route 236 that receives runoff from the on-site wetlands. Construction sequencing of the proposed entrance and proposed 36" CMP culverted crossing of said entrance shall utilize the existing southerly gravel drive and ensure that stormwater flow is uninterrupted at all times in the above-mentioned section of wetlands as depicted on the plan set.

### **Record Keeping (During Construction)**

The construction inspector shall maintain documentation of all inspections as well as maintenance or corrective actions that were taken in response to the inspection. This documentation shall be maintained for at least three years after the site is permanently stabilized. The scope of construction inspections shall include, but not be limited to, the inspection of the sediment and erosion control measures as well as material storage areas and all points at which vehicles access the site.

### **Record Keeping (Post Construction)**

Routine maintenance and inspections will be accomplished by the owner or a third party contracted by the owner. The inspector shall have knowledge of erosion and stormwater control, including the standards and conditions of the permit.

All inspections accomplished in accordance with this program shall be documented on the attached Inspection & Maintenance Log. Copies of the Log shall be kept by the property owner or owner's representative, and be made available to the Department (Maine Department of Environmental Protection) or Town of Kittery, upon request.

All post-construction documentation, such as inspection and cleaning logs shall be maintained for at least five years.

Additional responsibilities to include, on or by July 1 of each year, providing a completed and signed certification to the Code Enforcement Officer in a form provided by the Town, if requested, certifying that the person has inspected the stormwater management facilities and that they are adequately maintained and functioning as intended by the stormwater management plan, or that they require maintenance or repair, describing any required maintenance and any deficiencies found during inspection of the stormwater management facilities and, if the stormwater management facilities require maintenance or repair of deficiencies in order to function as intended by the approved stormwater management plan, the person must provide a record of the required maintenance or deficiency and corrective action(s) taken.

### **Re-certification (as noted in Appendix B. of Chapter 500 Stormwater Management)**

Submit a certification of the following to the Department within three months of the expiration of each five-year interval from the date of issuance of the permit noting the following;

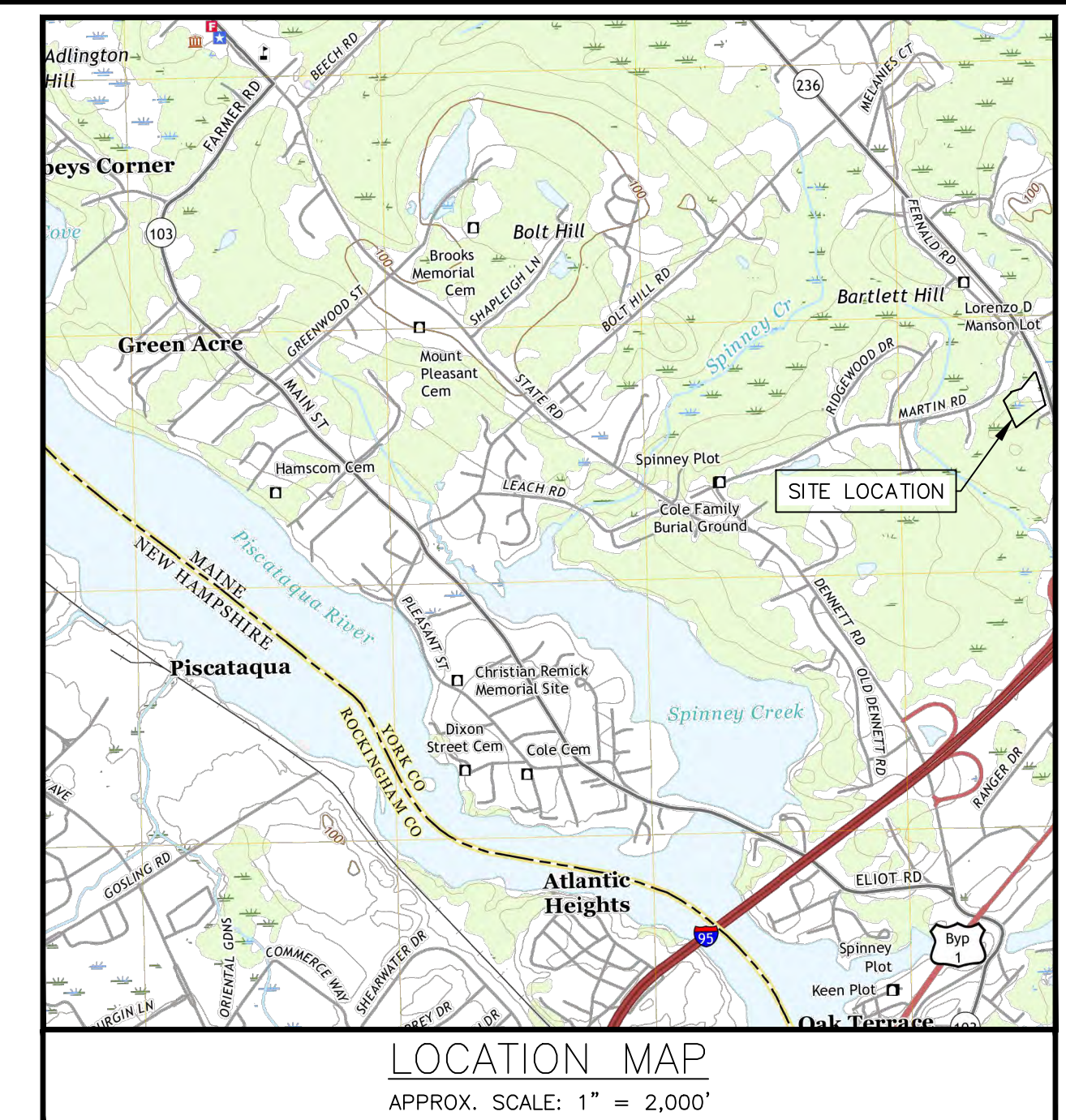
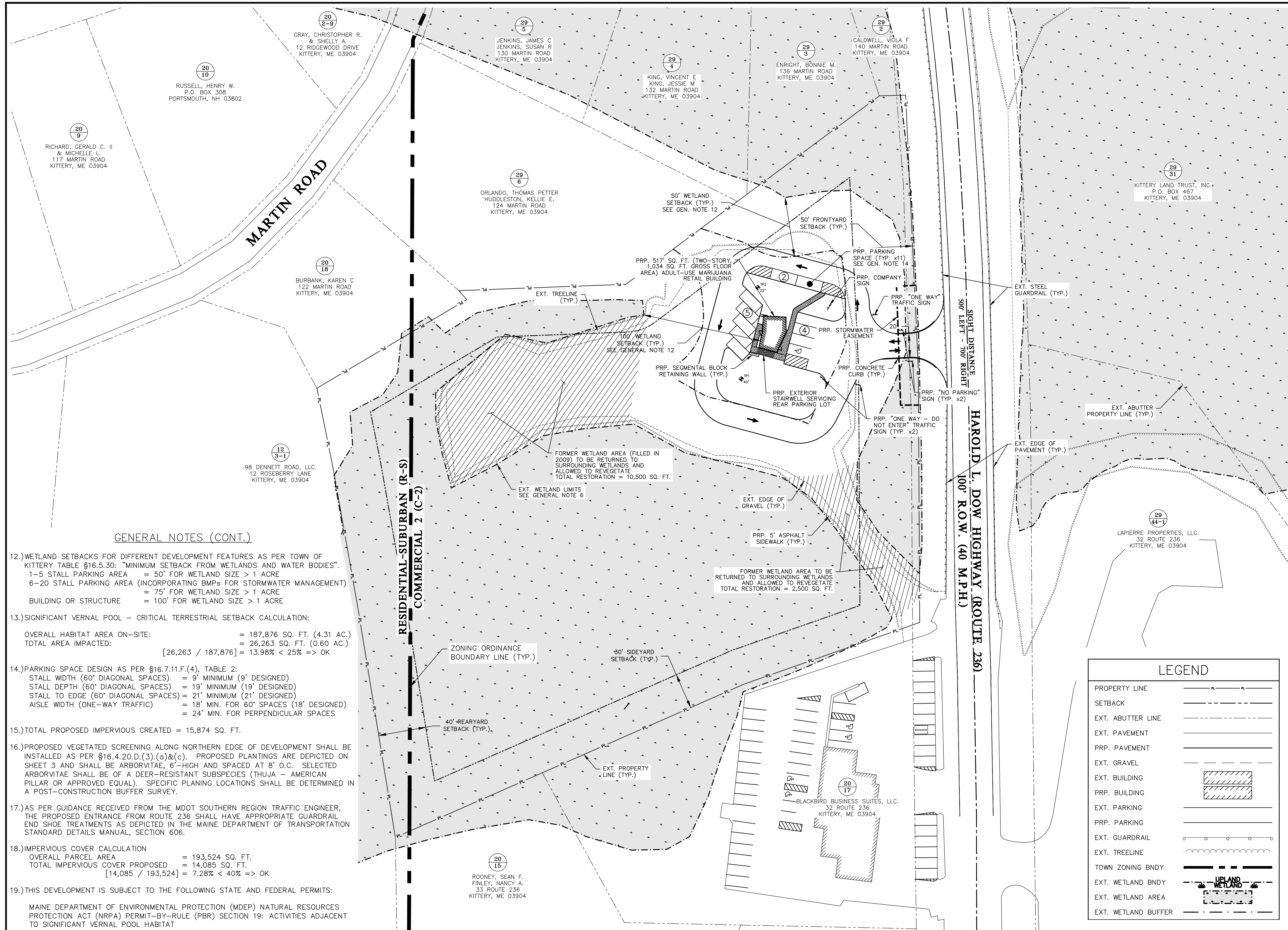
- (a) **Identification and repair of erosion problems.** All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
- (b) **Inspection and repair of stormwater control system.** All aspects of the stormwater control system have been inspected for damage, wear, and

malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

- (c) **Maintenance.** The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) Program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES Program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.





**GENERAL NOTES**

- THIS PLAN DEPICTS THE DEVELOPMENT OF THE SUBJECT PARCEL INTO AN ADULT-USE MARIJUANA RETAIL STORE SERVICED BY A PAVED TRAVELWAY AND ASSOCIATED PARKING LOT. THE PROPOSED TRAVELWAY AND PARKING HAVE BEEN DESIGNED IN ACCORDANCE WITH THE TOWN OF KITTERY §16.5.27: 'STREETS AND PEDESTRIANWAYS/SIDEWALKS SITE DESIGN STANDARDS'.
- THE SUBJECT PARCEL, LOCATED OFF OF HAROLD L. DOW HIGHWAY (ROUTE 236), IS IDENTIFIED AS LOT 1 ON TAX MAP 29, CONTAINS APPROXIMATELY 4.44 ACRES, AND IS LOCATED IN THE COMMERCIAL-2 AND RESIDENTIAL-SUBURBAN ZONING DISTRICTS. ALL DEVELOPMENT RELATED TO THIS PROJECT SHALL TAKE PLACE WITHIN THE COMMERCIAL-2 DISTRICT.
- DIMENSIONAL REQUIREMENTS FOR THE 'C-2' ZONING DISTRICT AS PER §16.4.20.D.(2):
 

MINIMUM LOT SIZE:	40,000 SQ. FT. (1 ACRE) (4.44 EXISTING)
MINIMUM SETBACKS:	50' FRONTYARD (50' PROPOSED)
	30' SIDEYARD & REARYARD (MINIMUMS DEPICTED)
	(40' IF ABUTTING RESIDENTIAL USE)
MAXIMUM BUILDING HEIGHT:	40' (18' PROPOSED)
MAXIMUM IMPERVIOUS COVERAGE:	40% (SEE GENERAL NOTE #18)
MINIMUM STREET FRONTAGE:	150' (442' EXISTING)
- ALL EXISTING BOUNDARY INFORMATION AND ON-SITE CONDITIONS ARE AS PER PLAN REFERENCE 1. EXISTING CONTOURS ARE DEPICTED FROM STATE LIDAR IMAGERY. EXISTING CONDITIONS OF ABUTTING PROPERTIES ARE APPROXIMATE.
- PARKING REQUIREMENTS AS PER §16.7.11.F.(4).(d):
 

RETAIL STORES	= 1 SPACE/175 SQ.FT. GROSS FLOOR AREA
	= [517 SQ. FT. TOTAL FLOOR AREA] x 2 FLOORS
	= [1,034 SQ. FT.] / 175 SQ. FT. => 5.91 SPACES
	=> 6 SPACES REQUIRED (11 PROPOSED, 1 ADA)
- A WETLAND DELINEATION WAS PERFORMED ON NOVEMBER 22, 2021 IN ACCORDANCE WITH THE STANDARDS OF THE 1987 U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL. THIS DELINEATION WAS PERFORMED BY MICHAEL CUOMO, SOIL SCIENTIST AND LINWORK DEPICTED ON THIS PLAN SET WAS SURVEY-LOCATED BY ATTAR ENGINEERING, INC.
- TOTAL PROPOSED WETLAND IMPACTS = 1,367 SQ. FT. THIS DEVELOPMENT ALSO PROPOSES TO RESTORE ~13,000 SQ. FT. OF PREVIOUSLY-FILLED WETLANDS ON-SITE. REFER TO THE ATTACHED WETLAND RESTORATION NARRATIVE PREPARED BY MICHAEL CUOMO, PROJECT WETLAND SCIENTIST.
- THE CONTRACTOR MUST CONTACT DIG SAFE AND ALL LOCAL UTILITIES PRIOR TO THE START OF CONSTRUCTION TO VERIFY THE LOCATION OF EXISTING SUBSURFACE UTILITIES AND CONDITIONS. LOCATING AND PROTECTING ANY UNDERGROUND OR ABOVE-GROUND UTILITY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL PROPOSED SIGNS SHALL COMPLY WITH REQUIREMENTS OF THE GENERAL PERFORMANCE STANDARDS OUTLINED IN §16.5.23: "SIGNS"
- THE PROPOSED DEVELOPMENT SHALL BE SERVICED BY THE TOWN WATER AND TOWN SEWER (KITTERY WATER DISTRICT AND KITTERY SEWER SERVICES, RESPECTIVELY) ALL UTILITY MATERIALS, SIZES, AND CONSTRUCTION PRACTICES SHALL BE IN ACCORDANCE WITH THE KITTERY WATER DISTRICT (KWD) AND KITTERY SEWER SERVICES (KSS).
- THE NEAREST FIRE HYDRANT IS APPROXIMATELY 500' NORTHERLY, LOCATED AT THE INTERSECTION OF MARTIN ROAD AND FERNALD ROAD AS PER THE TOWN OF KITTERY GIS. A NEW HYDRANT IS PROPOSED FOR THIS DEVELOPMENT AND DEPICTED ON THE GRADING & UTILITIES PLAN (SHEET 3).

--- GENERAL NOTES CONTINUED ELSEWHERE ON SHEET 1 ---

**GENERAL NOTES (CONT.)**

- WETLAND SETBACKS FOR DIFFERENT DEVELOPMENT FEATURES AS PER TOWN OF KITTERY TABLE §16.5.30: "MINIMUM SETBACK FROM WETLANDS AND WATER BODIES".
 

1-5 STALL PARKING AREA	= 50' FOR WETLAND SIZE > 1 ACRE
6-20 STALL PARKING AREA (INCORPORATING BMPs FOR STORMWATER MANAGEMENT)	= 75' FOR WETLAND SIZE > 1 ACRE
BUILDING OR STRUCTURE	= 100' FOR WETLAND SIZE > 1 ACRE
- SIGNIFICANT VERNAL POOL - CRITICAL TERRESTRIAL SETBACK CALCULATION:
 

OVERALL HABITAT AREA ON-SITE:	= 187,876 SQ. FT. (4.31 AC.)
TOTAL AREA IMPACTED:	= 26,263 SQ. FT. (0.60 AC.)
	[26,263 / 187,876] = 13.98% < 25% => OK
- PARKING SPACE DESIGN AS PER §16.7.11.F.(4), TABLE 2:
 

STALL WIDTH (60° DIAGONAL SPACES)	= 9' MINIMUM (9' DESIGNED)
STALL DEPTH (60° DIAGONAL SPACES)	= 19' MINIMUM (19' DESIGNED)
STALL TO EDGE (60° DIAGONAL SPACES)	= 21' MINIMUM (21' DESIGNED)
AISLE WIDTH (ONE-WAY TRAFFIC)	= 18' MIN. FOR 60° SPACES (18' DESIGNED)
	= 24' MIN. FOR PERPENDICULAR SPACES
- TOTAL PROPOSED IMPERVIOUS CREATED = 15,874 SQ. FT.
- PROPOSED VEGETATED SCREENING ALONG NORTHERN EDGE OF DEVELOPMENT SHALL BE INSTALLED AS PER §16.4.20.D.(3)(a)&(c). PROPOSED PLANTINGS ARE DEPICTED ON SHEET 3 AND SHALL BE ARBORVITAE, 6'-HIGH AND SPACED AT 8' O.C. SELECTED ARBORVITAE SHALL BE OF A DEER-RESISTANT SUBSPECIES (THUJA - AMERICAN PILLAR OR APPROVED EQUAL). SPECIFIC PLANTING LOCATIONS SHALL BE DETERMINED IN A POST-CONSTRUCTION BUFFER SURVEY.
- AS PER GUIDANCE RECEIVED FROM THE MDOT SOUTHERN REGION TRAFFIC ENGINEER, THE PROPOSED ENTRANCE FROM ROUTE 236 SHALL HAVE APPROPRIATE GUARDRAIL END SHOE TREATMENTS AS DEPICTED IN THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD DETAILS MANUAL, SECTION 606.
- IMPERVIOUS COVER CALCULATION
 

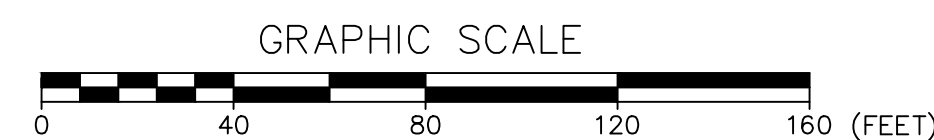
OVERALL PARCEL AREA	= 193,524 SQ. FT.
TOTAL IMPERVIOUS COVER PROPOSED	= 14,085 SQ. FT.
	[14,085 / 193,524] = 7.28% < 40% => OK
- THIS DEVELOPMENT IS SUBJECT TO THE FOLLOWING STATE AND FEDERAL PERMITS:
 

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (MDEP) NATURAL RESOURCES PROTECTION ACT (NRPA) PERMIT-BY-RULE (PBR) SECTION 19: ACTIVITIES ADJACENT TO SIGNIFICANT VERNAL POOL HABITAT

MDEP STORMWATER PBR FOR IMPERVIOUS COVER GENERATED LESS THAN 1 ACRE

**LEGEND**

PROPERTY LINE	---
SETBACK	- - - - -
EXT. ABUTTER LINE	---
EXT. PAVEMENT	=====
PRP. PAVEMENT	=====
PRP. GRAVEL	=====
EXT. BUILDING	▨▨▨▨
PRP. BUILDING	▨▨▨▨
EXT. PARKING	=====
PRP. PARKING	=====
EXT. GUARDRAIL	=====
EXT. TREELINE	~~~~~
TOWN ZONING BNDY	=====
EXT. WETLAND BNDY	=====
EXT. WETLAND AREA	▨▨▨▨
EXT. WETLAND BUFFER	=====



STATE OF MAINE  
YORK COUNTY ss. REGISTRY OF DEEDS  
RECEIVED \_\_\_\_\_, 20\_\_\_\_  
AT \_\_\_\_\_, M., AND RECORDED IN  
PLAN BOOK \_\_\_\_\_, PAGE \_\_\_\_\_  
ATTEST \_\_\_\_\_ REGISTER

TOWN OF KITTERY PLANNING BOARD  
FINAL SITE PLAN APPROVED:

###/###/####	DATE

1.) "STANDARD BOUNDARY SURVEY" FOR PROPERTY AT 41 ROUTE 236, KITTERY, YORK COUNTY, MAINE. OWNED BY JUDY B. HALEY AND JOHN E. HALEY. PREPARED BY NORTH EASTERLY SURVEYING, INC. PLAN DATED 05/06/2008 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 329, PAGE 37.

**INDEX OF SHEETS:**

1.) PRELIMINARY SITE PLAN	TAX MAP 29, LOT 1:
2.) EXISTING CONDITIONS PLAN	GREEN GRASS LLC,
3.) GRADING & UTILITIES PLAN	32 ROUTE 236, UNIT 1
4.) EROSION & SEDIMENTATION CONTROL DETAILS	KITTERY, ME 03904
5.) SITE DETAILS	Y.C.R.D. DEED BOOK 18924, PAGE
6.) STORMWATER: EXISTING CONDITIONS	10
7.) STORMWATER: DEVELOPED CONDITIONS	
8.) STORMWATER: EXPANDED DEVELOPED CONDITIONS	
9.) PHOTOMETRIC PLAN	
10.) LANDSCAPING PLAN	
11.) BOUNDARY SURVEY	

**OWNER OF RECORD:**

E	THIRD PARTY REVIEW REVISIONS	12/29/22
D	PRELIMINARY REVIEW REVISIONS	09/29/22
C	PRELIMINARY REVIEW REVISIONS	08/04/22
B	PRELIMINARY REVIEW REVISIONS	07/13/22
A	SITE PLAN REVIEW APPLICATION	06/30/22
NO.	DESCRIPTION	DATE
	REVISIONS	

PRELIMINARY SITE PLAN  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR:  
WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
CIVIL • STRUCTURAL • MARINE • SURVEYING  
1284 STATE ROAD - ELIOT, MAINE 03903  
PHONE: (207)439-6023 FAX: (207)439-2128

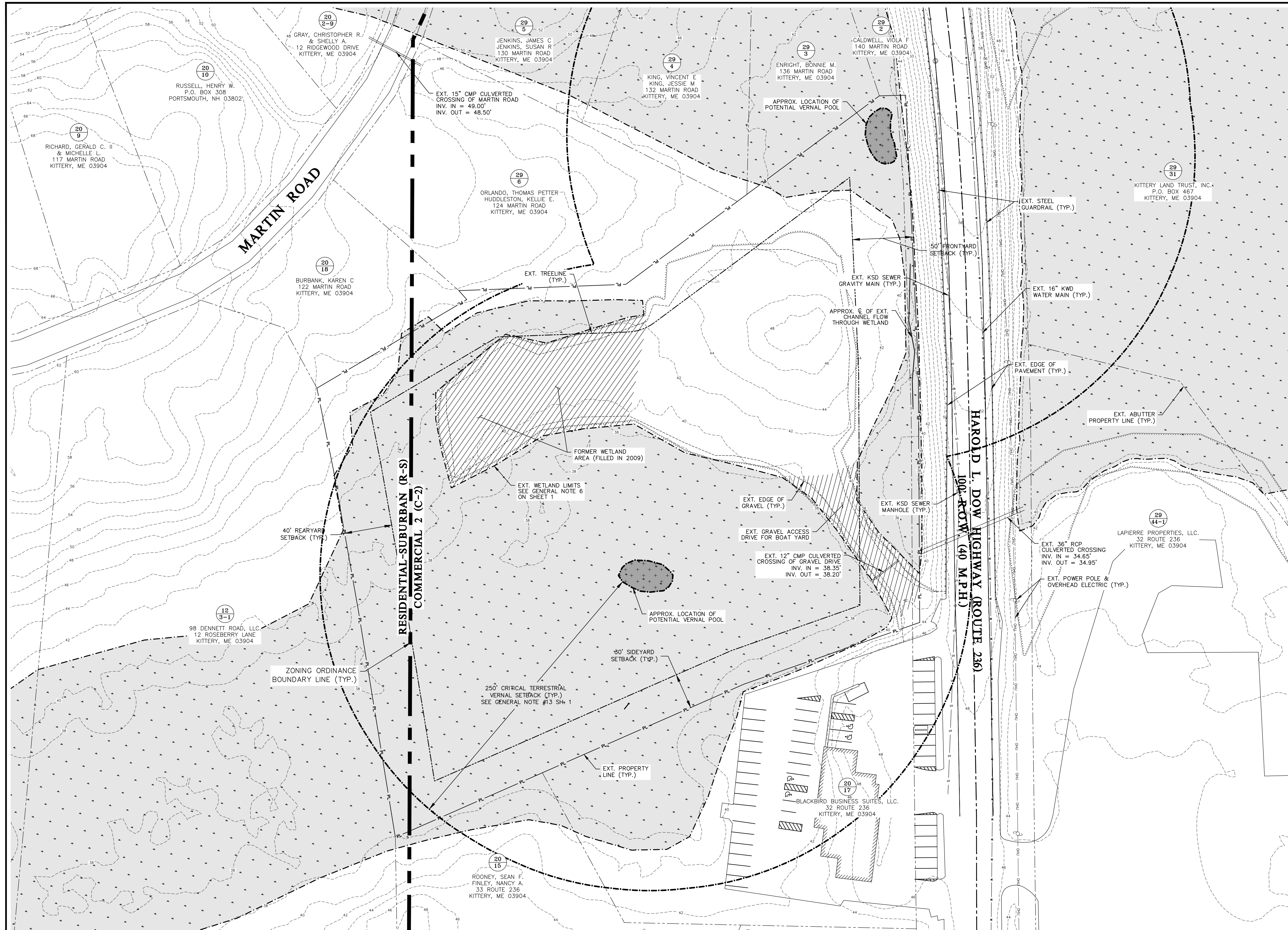
SCALE: 1" = 40'  
DATE: 04/26/22  
JOB NO: C277-21

APPROVED BY: \_\_\_\_\_  
FILE: WF44 DEV BASE.DWG

DRAWN BY: MJS  
REVISION DATE: E : 12/29/22  
SHEET: 1

STATE OF MAINE  
KENNETH A. WOOD  
No. 5992  
REGISTERED PROFESSIONAL ENGINEER





LEGEND	
PROPERTY LINE	---
SETBACK	---
EXT. ABUTTER LINE	---
EXT. PAVEMENT	---
EXT. GRAVEL	▨
EXT. BUILDING	▩
EXT. PARKING	▧
EXT. GUARDRAIL	—○—
EXT. TREELINE	—○—
TOWN ZONING BNDY	—●—
EXT. WETLAND BNDY	—●—
EXT. WETLAND AREA	▨
EXT. WETLAND BUFFER	▨
EXT. SEWER LINE	—S—
EXT. SEWER MANHOLE	⊙
EXT. WATER LINE	—W—
EXT. OVERHEAD ELEC	—OHU—
EXT. POWER POLE	⊕
EXT. MAJOR CONTOUR	---XXX---
EXT. MINOR CONTOUR	---XXX---



TAX MAP 29, LOT 1

EXISTING CONDITIONS PLAN  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

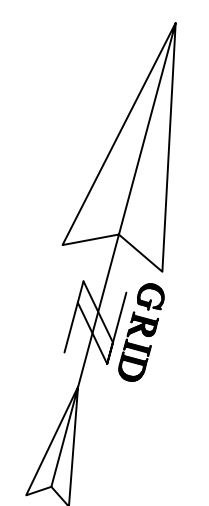
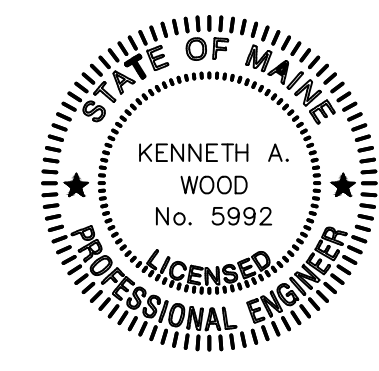
FOR:  
WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
CIVIL ♦ STRUCTURAL ♦ MARINE ♦ SURVEYING  
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SCALE: 1" = 40'	APPROVED BY: MJS	DRAWN BY: MJS
DATE: 04/26/22	REVISION DATE: E : 12/29/22	

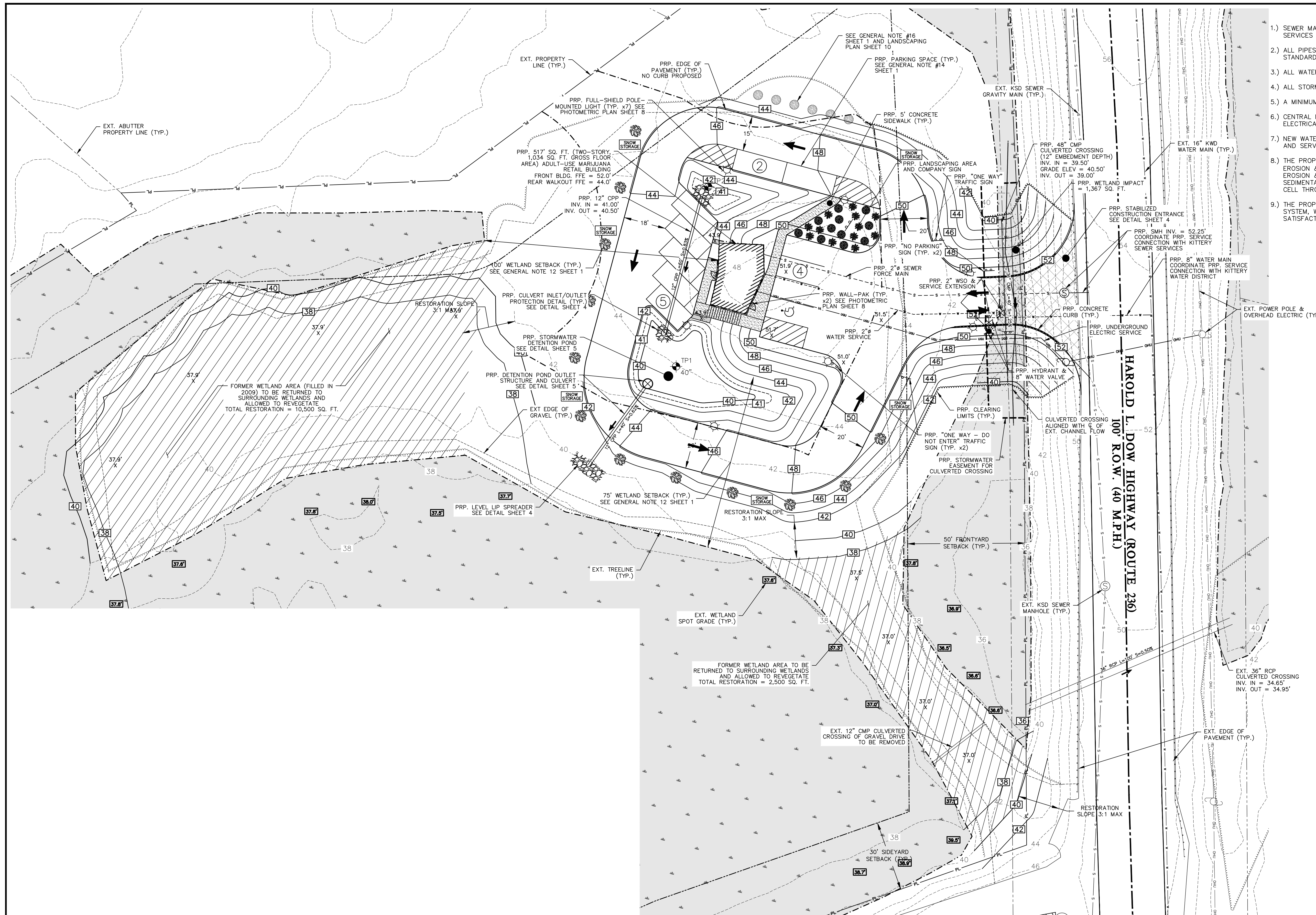
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NO.	DESCRIPTION	DATE
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	REVISIONS	

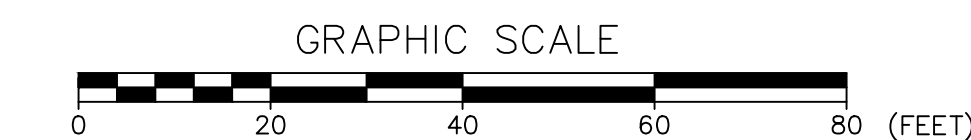


GRADING & UTILITIES NOTES:

- 1.) SEWER MAIN TO BE 8" SDR 35 PVC. ALL OTHER APPURTENANCES SHALL MEET KITTELY SEWER SERVICES STANDARDS. SEE DETAIL FOR TYPICAL INDIVIDUAL SERVICE SIZES.
- 2.) ALL PIPES, VALVES, FITTINGS, AND CONNECTIONS SHALL MEET CURRENT KITTELY WATER DISTRICT STANDARDS.
- 3.) ALL WATER SERVICE TO BE EQUIPPED WITH CURB STOPS.
- 4.) ALL STORM DRAINS TO BE ADS N-12 (PE) OR APPROVED EQUAL.
- 5.) A MINIMUM OF 5.0' OF COVER SHALL BE MAINTAINED OVER ALL WATER LINES.
- 6.) CENTRAL MAINE POWER COMPANY WILL PREPARE THE ELECTRICAL PLAN FOR CONSTRUCTION. ALL ELECTRICAL, TELEPHONE, AND CABLE SERVICES WILL BE UNDERGROUND.
- 7.) NEW WATER AND SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH RESPECTIVE DISTRICT AND SERVICES REQUIREMENTS.
- 8.) THE PROPOSED STORMWATER BMP REPRESENTS A LIMITED AREA TO BE CONSTRUCTED WITH ALL EROSION & SEDIMENT CONTROL MEASURES IN PLACE. THIS "CELL" SHALL BE PROTECTED BY THE EROSION & SEDIMENT CONTROL PLAN. EROSION & SEDIMENT CONTROL SHALL BE MAINTAINED FOR THE CELL THROUGHOUT THE COMPLETION OF THE ENTIRE PROJECT.
- 9.) THE PROPOSED BUILDING SHALL BE SERVICED BY A FULL NFPA 13 FIRE SUPPRESSION SPRINKLER SYSTEM, WITH INCLUDED MONITORED ALARMS AND A KEYED ENTRY KNOX BOX SYSTEM TO THE SATISFACTION OF THE KITTELY FIRE CHIEF.

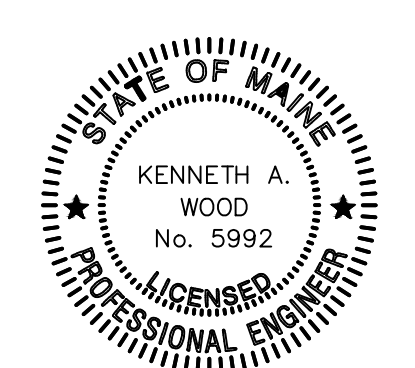


LEGEND	
PROPERTY LINE	---
SETBACK	---
EXT. ABUTTER LINE	---
EXT. PAVEMENT	---
PRP. PAVEMENT	---
EXT. GRAVEL	---
EXT. BUILDING	---
PRP. BUILDING	---
EXT. PARKING	---
PRP. PARKING	---
EXT. GUARDRAIL	---
EXT. TREELINE	---
PRP. TREELINE	---
TOWN ZONING BNDY	---
EXT. WETLAND BNDY	---
EXT. WETLAND AREA	---
EXT. WETLAND BUFFER	---
EXT. SEWER LINE	---
EXT. SEWER MANHOLE	---
PRP. SEWER LINE	---
EXT. WATER LINE	---
PRP. WATER LINE	---
EXT. OVERHEAD ELEC	---
EXT. POWER POLE	---
PRP. U.G. ELECTRIC	---
EXT. MAJOR CONTOUR	---
EXT. MINOR CONTOUR	---
PRP. MAJOR CONTOUR	---
PRP. MINOR CONTOUR	---
PRP. SPOT GRADE	---



TAX MAP 29, LOT 1

NO.	DESCRIPTION	DATE
E	THIRD PARTY REVIEW REVISIONS	12/29/22
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C	PRELIMINARY REVIEW REVISIONS	08/04/22
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A	SITE PLAN REVIEW APPLICATION	06/30/22
NO.	DESCRIPTION	DATE



GRADING & UTILITIES PLAN  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTELY, ME 03904

FOR: WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
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JOB NO: C277-21	FILE: WF44 DEV BASE.DWG	SHEET: 3

# EROSION & SEDIMENTATION CONTROL NOTES

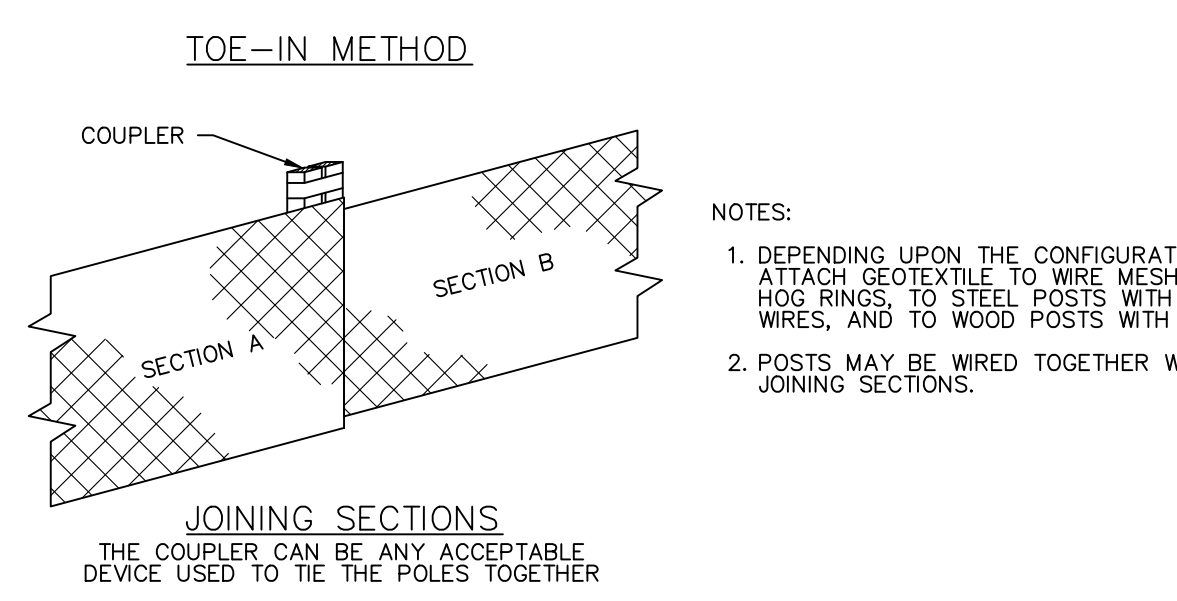
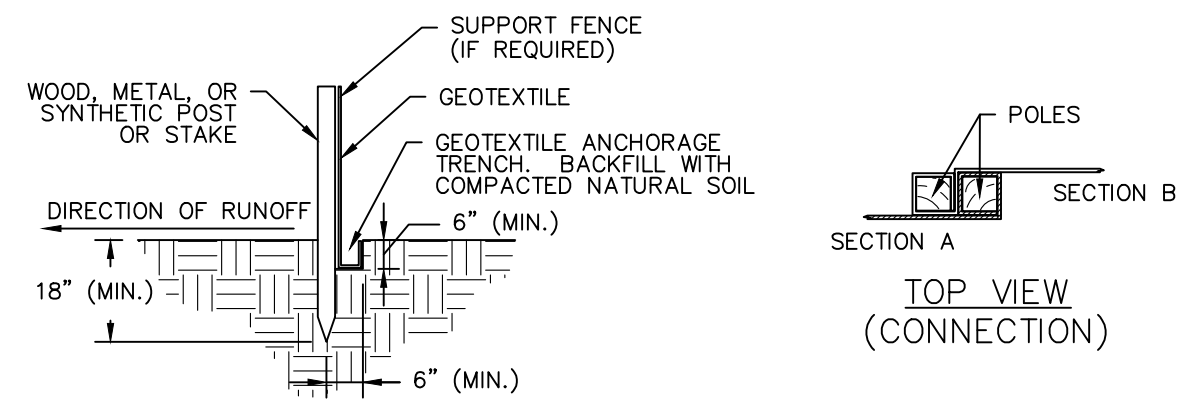
- PRIOR TO ANY SNOW EVENT, SILTATION FENCE OR HAY BALE BARRIERS WILL BE INSTALLED DOWNSLOPE OF ALL STRIPPING OR CONSTRUCTION OPERATIONS. A DOUBLE SILT FENCE BARRIER SHALL BE INSTALLED DOWNSLOPE OF ANY SOIL MATERIAL STOCKPILES. SILT FENCES SHALL BE INSPECTED AFTER EACH RAIN EVENT AND DAILY DURING PROLONGED RAIN. SILT AND SOIL PARTICLES ACCUMULATING BEHIND THE FENCE SHALL BE REMOVED AFTER EACH SIGNIFICANT RAIN EVENT AND IN NO INSTANCE SHOULD ACCUMULATION EXCEED 1/2 THE HEIGHT OF THE FENCE. TORN OR DAMAGED AREAS SHALL BE REPAIRED.
- TEMPORARY AND PERMANENT VEGETATION AND MULCHING IS AN INTEGRAL COMPONENT OF THE EROSION AND SEDIMENTATION CONTROL PLAN. ALL AREAS SHALL BE INSPECTED AND MAINTAINED UNTIL THE DESIRED VEGETATIVE COVER IS ESTABLISHED. THESE CONTROL MEASURES ARE ESSENTIAL TO EROSION PREVENTION AND ALSO REDUCE COSTLY REWORK OF GRADED AND SHAPED AREAS.
- SEEDING, FERTILIZER AND LIME RATES AND TIME OF APPLICATION WILL BE DEPENDENT ON SOIL REQUIREMENTS. TEMPORARY VEGETATION SHALL BE MAINTAINED IN THESE AREAS UNTIL PERMANENT SEEDING IS APPLIED. ADDITIONALLY, EROSION AND SEDIMENTATION MEASURES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- ALL LAWN AREA, OUTER POND SIDE SLOPES AND SWALES SHALL BE PERMANENTLY SEEDDED WITH THE FOLLOWING MIXTURE: 20 LB/ACRE CREEPING RED FESCUE, 2 LB/ACRE REDTOP AND 20 LB/ACRE TALL FESCUE FOR A TOTAL OF 42 LB/ACRE. FERTILIZER AND LIME RATES SHALL BE DEPENDENT ON SOIL TESTING. IN THE ABSENCE OF SOIL TESTS, FERTILIZE WITH 10-20-20 (N-P205-K2O1) AT 800 LB/ACRE AND LIME AT 3 TONS/ACRE. MULCH WITH HAY AT 70-90 LB/1000 S.F. 4" OF LOAM SHALL BE APPLIED PRIOR TO SEEDING.
- POND BOTTOMS AND INNER POND SIDESLOPES SHALL BE PERMANENTLY SEEDDED WITH THE FOLLOWING MIXTURE: 20 LB/ACRE CREEPING RED FESCUE, 8 LB/ACRE BIRDSFOOT TREFOIL AND 20 LB/ACRE TALL FESCUE FOR A TOTAL OF 48 LB/ACRE. SEE THE ABOVE NOTE FOR FERTILIZER, LIME AND MULCHING RATES.
- TEMPORARY VEGETATION OF ALL DISTURBED AREAS, MATERIAL STOCKPILES AND OTHER SUCH AREAS SHALL BE ESTABLISHED BY SEEDING WITH EITHER WINTER RYE AT A RATE OF 112 LB/ACRE OR ANNUAL RYEGRASS AT A RATE OF 40 LB/ACRE. WINTER RYE SHALL BE USED FOR FALL SEEDING AND ANNUAL RYEGRASS FOR SHORT DURATION SEEDING. SEEDING SHALL BE ACCOMPLISHED BEFORE OCTOBER 1. TEMPORARY STABILIZATION WITH MULCH OF DISTURBED AREAS SHALL TAKE PLACE WITHIN 7 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS. AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY SHALL BE TEMPORARILY STABILIZED WITH MULCH WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
- TEMPORARY SEEDING OF DISTURBED AREAS SHALL BE ACCOMPLISHED BEFORE OCTOBER 1. PERMANENT SEEDING SHALL BE ACCOMPLISHED BEFORE SEPTEMBER 15.
- ALL SEEDED AREAS SHALL BE MULCHED WITH HAY AT A RATE OF 2 BALES (70-90 LB) PER 1000 S.F. OF SEEDED AREA.
- ALL DISTURBED AREAS ON THE SITE SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR TEMPORARILY STABILIZED PER E&S NOTE 6. PERMANENT STABILIZATION MEANS 90% COVER WITH MATURE, HEALTHY PLANTS FOR PLANTED AREAS AND FOR SODDED AREAS, COMPLETE BINDING OF SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.
- A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT ALL ACCESSES TO PUBLIC ROADS (SEE PLAN). TEMPORARY CULVERTS SHALL BE PROVIDED AS REQUIRED.
- SLOPES BETWEEN 2:1 AND 3:1 (INCLUDING 3:1) SHALL BE TREATED WITH POLYJUTE OPEN WEAVE GEOTEXTILE (OR EQUIVALENT) AFTER SEEDING. JUTE MATS SHALL BE ANCHORED PER MANUFACTURER'S SPECIFICATIONS. SLOPES BETWEEN 2:1 AND 1.5:1 (INCLUDING 2:1) SHALL BE ANCHORED WITH RIPRAP. SLOPES ARE PROHIBITED FROM BEING STEEPER THAN 1.5:1.
- EXCESSIVE DUST CAUSED BY CONSTRUCTION OPERATIONS SHALL BE CONTROLLED BY APPLICATION OF WATER OR CALCIUM CHLORIDE.
- THE CONTRACTOR MAY OPT TO USE EROSION CONTROL MIX BERM AS A SEDIMENT BARRIER IN LIEU OF SILTATION FENCE OR HAY BALE BARRIERS WITH APPROVAL FROM THE INSPECTING ENGINEER.
- SEDIMENT BARRIERS SHALL BE DOUBLED WITH 75' OF WETLANDS OR OTHER PROTECTED NATURAL RESOURCES.
- TEMPORARY E&S CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION. ACCUMULATED SEDIMENTS SHALL BE REMOVED AND THE AREA STABILIZED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT. THE STANDARDS CAN BE FOUND IN THE FOLLOWING DOCUMENT: MDEP CHAPTER 500 (STORMWATER MANAGEMENT), APPENDIX C: HOUSEKEEPING. HOUSEKEEPING PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, SPILL PREVENTION, GROUNDWATER PROTECTION, FUGITIVE SEDIMENT AND DUST, DEBRIS AND OTHER MATERIALS, EXCAVATION DEWATERING, AUTHORIZED NON-STORMWATER DISCHARGES AND UNAUTHORIZED NON-STORMWATER DISCHARGES. ANY SPILL OR RELEASE OF HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE MDEP; FOR OIL SPILLS, CALL 1-800-482-0777; FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664.
- WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.
- ALL SEDIMENT BARRIERS AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
- SEDIMENT BARRIERS SHALL BE INSTALLED DOWN-GRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO STOCKPILES.
- THE PROPOSED STORMWATER MANAGEMENT AREAS INTENDED FOR USE AS PERMANENT, POST-CONSTRUCTION BMP'S SHALL BE USED TO TEMPORARILY MANAGE FLOWS DURING CONSTRUCTION. THESE BMP'S SHALL BE MAINTAINED DURING THEIR TEMPORARY USE BY INSTALLING THE APPROPRIATE MEASURES DURING CONSTRUCTION, INCLUDING UNDERDRAINS, SOIL FILTER MEDIA, ETC. SEDIMENT REMOVAL AND SLOPE STABILIZATION SHALL TAKE PLACE AS NECESSARY FOR TEMPORARY CONSTRUCTION MANAGEMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT. THESE STANDARDS CAN BE FOUND IN THE FOLLOWING DOCUMENT: MDEP CHAPTER 500 (STORMWATER MANAGEMENT), APPENDIX C: HOUSEKEEPING. HOUSEKEEPING PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, SPILL PREVENTION, GROUNDWATER PROTECTION, FUGITIVE SEDIMENT AND DUST, DEBRIS AND OTHER MATERIALS, EXCAVATION DEWATERING, AUTHORIZED NON-STORMWATER DISCHARGES AND UNAUTHORIZED NON-STORMWATER DISCHARGES (DETAILED BELOW).

## ROAD & DRIVEWAY CONSTRUCTION NOTES

- ROADS & DRIVEWAYS TO BE CONSTRUCTED IN ACCORDANCE WITH THE APPROPRIATE CROSS SECTION DETAIL. GRAVEL FILL TO BE COMPACTED TO 95% MODIFIED PROCTOR IN ACCORDANCE WITH ASTM D 1557. LIFT THICKNESSES TO BE A MAXIMUM OF 6".
- ALL STUMPS, ORGANIC MATERIAL, ROCKS AND BOULDERS TO BE REMOVED TO A MINIMUM DEPTH OF 24" BELOW SUBBASE.
- ALL STUMPS, LEDGE AND LARGE BOULDERS TO BE REMOVED FROM THE CONSTRUCTION AREA. THE CONSTRUCTION AREA SHALL BE CLEARED AND ROUGH GRADED.
- ALL CULVERTS TO BE ADS N-12 (HDPE) OR APPROVED EQUAL. CULVERT INLETS AND OUTLETS TO BE PROTECTED IN ACCORDANCE WITH THE CULVERT INLET/OUTLET PROTECTION DETAIL.
- THE CONTRACTOR MUST CONTACT DIG SAFE AND ALL LOCAL UTILITIES PRIOR TO THE START OF CONSTRUCTION TO VERIFY THE LOCATION OF EXISTING SUBSURFACE UTILITIES AND CONDITIONS. LOCATING AND PROTECTING ANY UNDERGROUND OR ABOVE GROUND UTILITY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

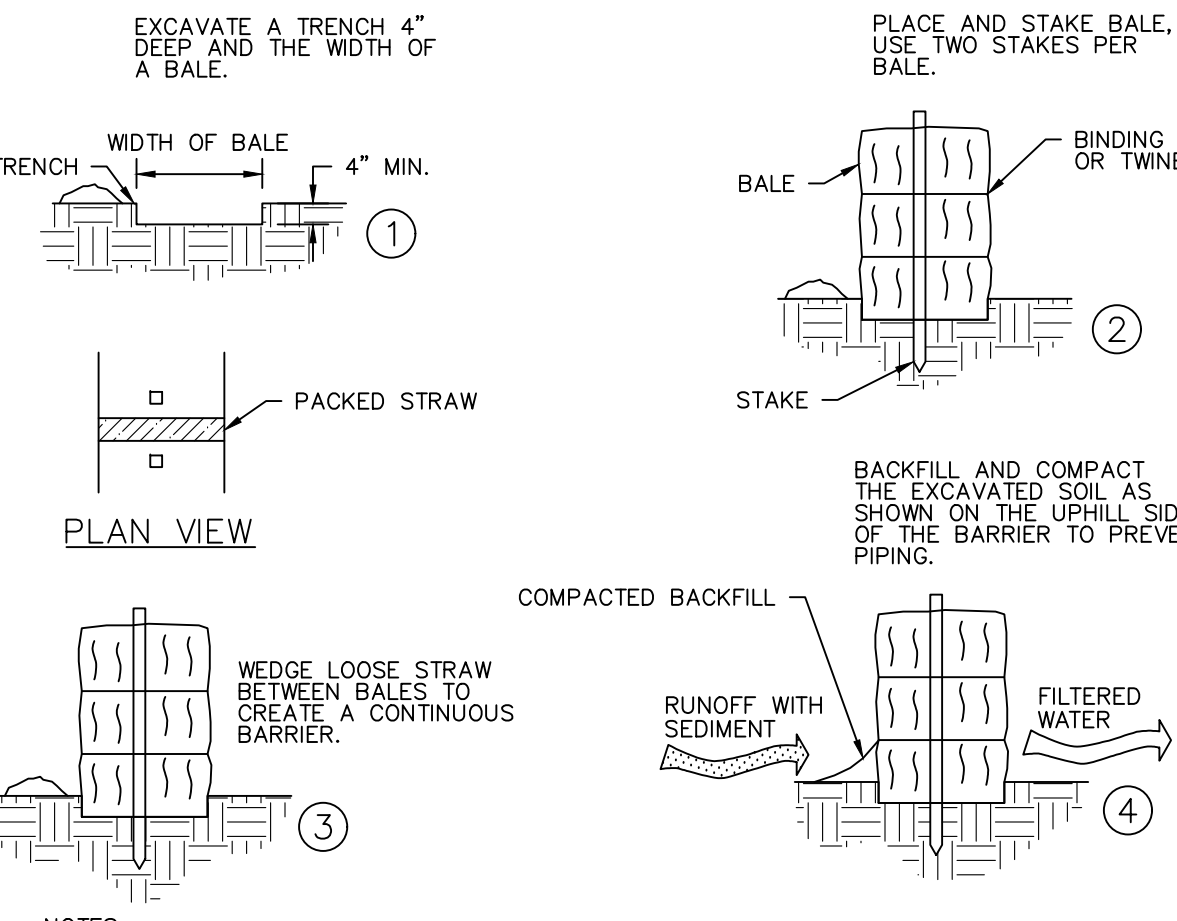
## E&S INSPECTION/MAINTENANCE DURING CONSTRUCTION

- INSPECTION AND CORRECTIVE ACTION.** INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK, PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES, AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT WHICH PRODUCES 0.5 INCHES OR MORE WITHIN SAID 24 HOUR PERIOD. A TOWN-APPOINTED ENGINEER WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS AND SHALL ALSO ENSURE THAT THE RECOMMENDED MAINTENANCE IS PERFORMED.
- MAINTENANCE.** IF BEST MANAGEMENT PRACTICES (BMPs) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMPs OR SIGNIFICANT REPAIR OF BMPs ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT WHICH PRODUCES 0.5 INCHES OR MORE WITHIN A 24 HOUR PERIOD. ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.
- DOCUMENTATION.** KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS; THE DATE(S) OF THE INSPECTIONS; AND MAJOR OBSERVATIONS PERIOD OF THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS; MATERIALS STORAGE AREAS, AND VEHICLES ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPs THAT NEED MAINTENANCE, BMPs THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPs ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEETING REPLACEMENT, AND LOCATION NEETING ADDITIONAL BMPs, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN. THE LOG MUST BE MADE ACCESSIBLE TO DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.



- NOTES:
- DEPENDENT UPON THE CONFIGURATION, ATTACH GEOTEXTILE TO WIRE MESH WITH HOC RINGS, TO STEEL POSTS WITH TIE WIRES, AND TO WOOD POSTS WITH STAPLES.
  - POSTS MAY BE WIRED TOGETHER WHEN JOINING SECTIONS.

## TEMPORARY SILT FENCE - NTS



- NOTES:
- PLACE BALES IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR.
  - PLACE BALES 10' AWAY FROM THE TOE OF SLOPE.
  - IN SLOPING AREAS WHERE SURFACE FLOW FOLLOWS THE BALE LINE, INSTALL PERPENDICULAR BALE CHECKS AT APPROPRIATE INTERVALS (100' MAX.)

- EXPOSED AREAS SHOULD BE LIMITED TO AN AREA THAT CAN BE MULCHED IN ONE DAY.
- AN AREA SHALL BE CONSIDERED STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH HAY AT A RATE OF 140-180 LB/1000 S.F. (DOUBLE THE NORMAL RATE) OR DORMANT SEED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SO THAT THE SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
- FROM OCTOBER 15 TO APRIL 1, LOAM AND SEED WILL NOT BE REQUIRED. DURING PERIODS OF TEMPERATURES ABOVE FREEZING, DISTURBED AREAS SHALL BE FINE GRADED AND PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL PERMANENT SEEDING CAN BE APPLIED. AFTER NOVEMBER 1, DISTURBED AREAS MAY BE LOAMED, FINE GRADED AND DORMANT SEED AT A RATE 200-300% HIGHER THAN THE SPECIFIED PERMANENT SEEDING RATE. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, DISTURBED AREAS SHALL BE GRADED BEFORE FREEZING AND TEMPORARILY STABILIZED WITH MULCH. DISTURBED AREAS SHALL NOT BE LEFT OVER THE WINTER OR FOR ANY OTHER EXTENDED PERIOD OF TIME UNLESS STABILIZED WITH MULCH.
- FROM NOVEMBER 1 TO APRIL 15 ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, TRACK OR WOOD CELLULOSE FIBER. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 3%, SLOPES EXPOSED TO DIRECT WINDS AND FOR SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1, THE SAME APPLIES TO ALL SLOPES GREATER THAN 8%.
- DURING WINTER CONSTRUCTION, DORMANT SEEDING OR MULCH AND ANCHORING SHALL BE APPLIED TO ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
- SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
- ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE MDEP.

## CONSTRUCTION HOUSEKEEPING PUNCHLIST

- ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED, AND PLANTINGS SHALL BE ESTABLISHED (GRASS SEEDS HAVE GERMINATED WITHIN 90% VEGETATIVE COVER).
- ALL TRASH, SEDIMENTS, DEBRIS, OR ANY SOLID WASTE SHALL BE REMOVED FROM STORMWATER CHANNELS, CATCH BASINS, DETENTION STRUCTURES, DISCHARGE POINTS, AND LEVEL SPREADERS.
- ALL EROSION AND SEDIMENTATION DEVICES SHALL BE REMOVED (SILTATION FENCES AND POSTS, DIVERSIONS AND SEDIMENT STRUCTURES, ETC.)
- ALL DELIVERABLES (CERTIFICATIONS, SURVEY INFORMATION, AS-BUILT PLANS, REPORTS, NOTICES OF TERMINATION, ETC.) IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS SHALL BE SUBMITTED TO THE TOWN, THE MAINE DEP, HOMEOWNER'S ASSOCIATION, OWNER, AND/OR ALL APPROPRIATE ENTITIES.

## STORMWATER DISCHARGE REQUIREMENTS

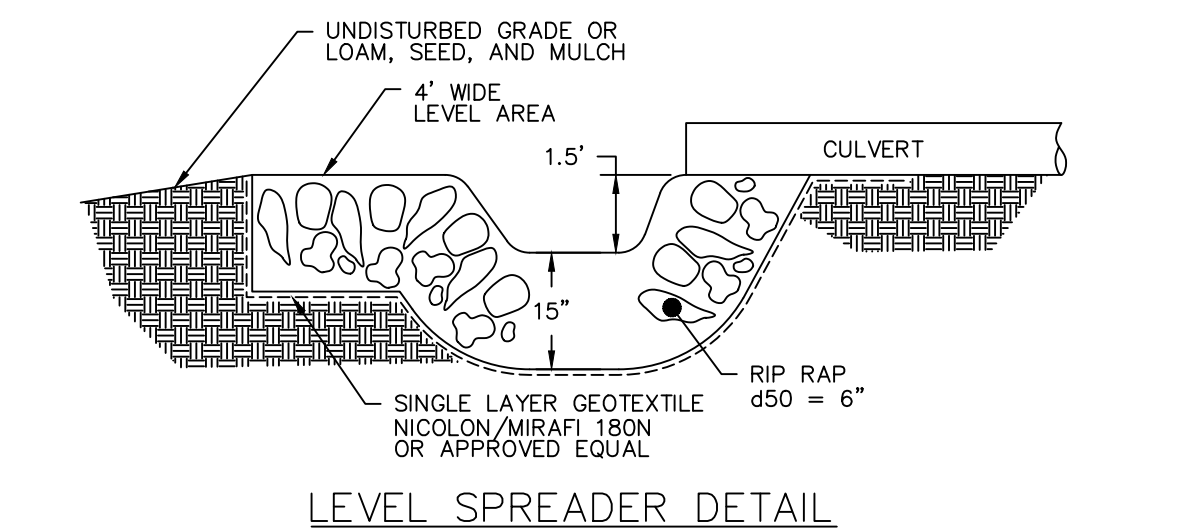
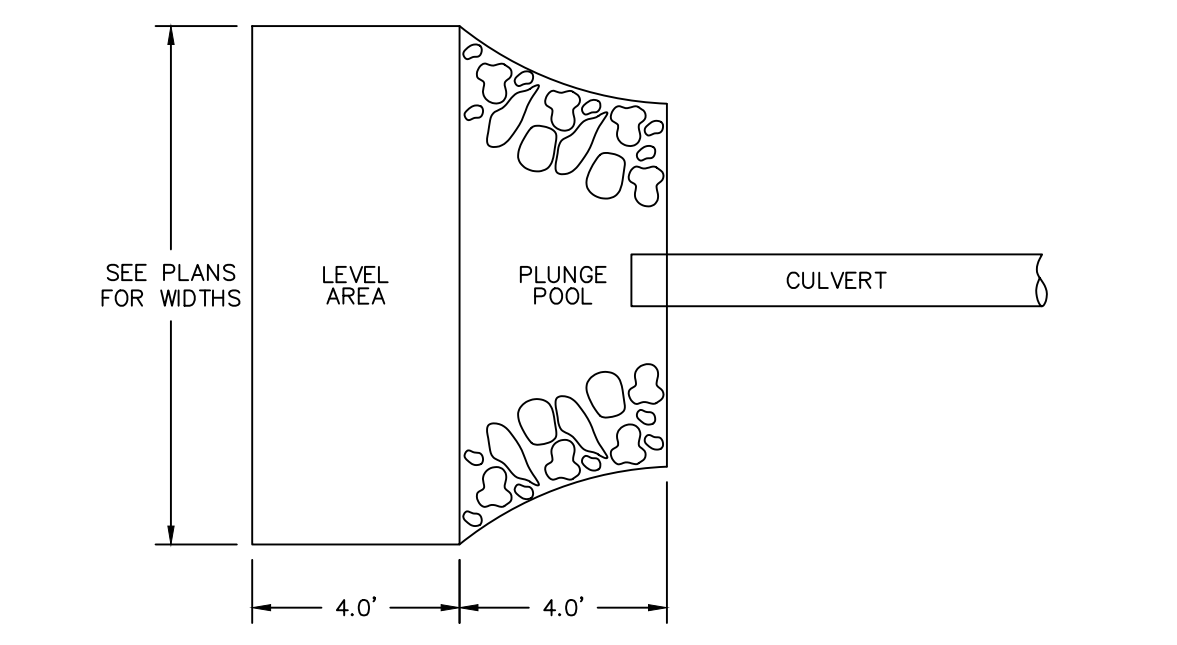
AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:

- DISCHARGES FROM FIREFIGHTING ACTIVITY;
- FIRE HYDRANT FLUSHINGS;
- VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
- DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX C(3);
- ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
- PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
- UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
- UNCONTAMINATED GROUNDWATER OR SPRING WATER;
- FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
- UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5))
- PORTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS
- LANDSCAPE IRRIGATION

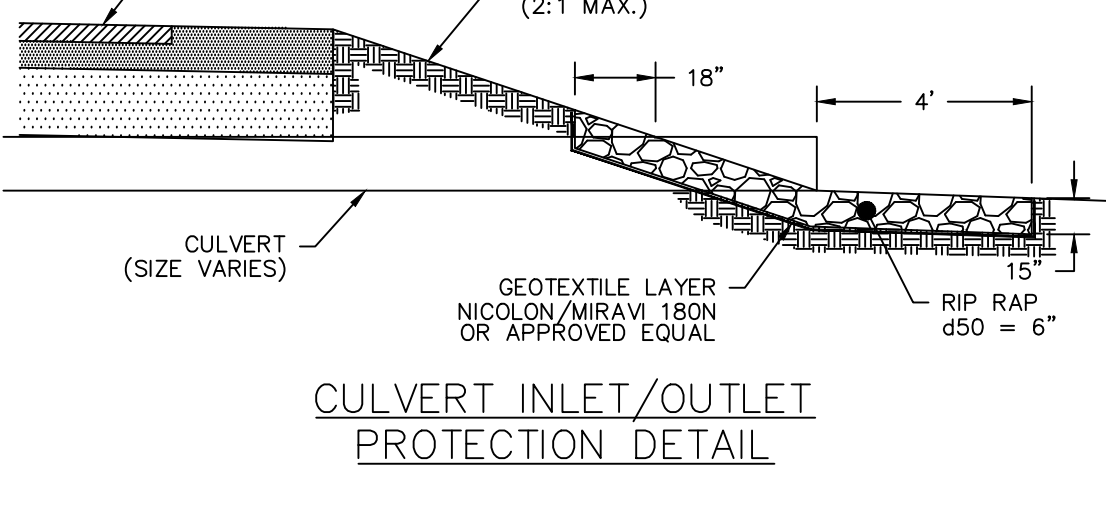
UNAUTHORIZED NON-STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:

- WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
- FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
- SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
- TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE

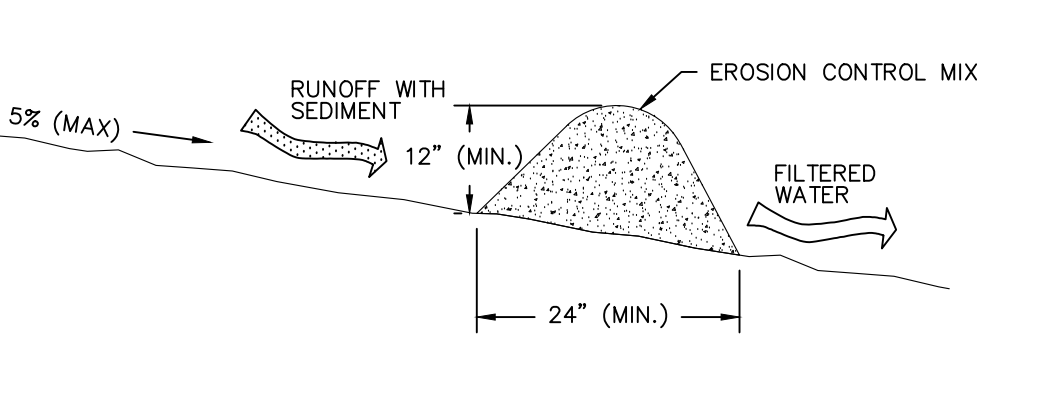
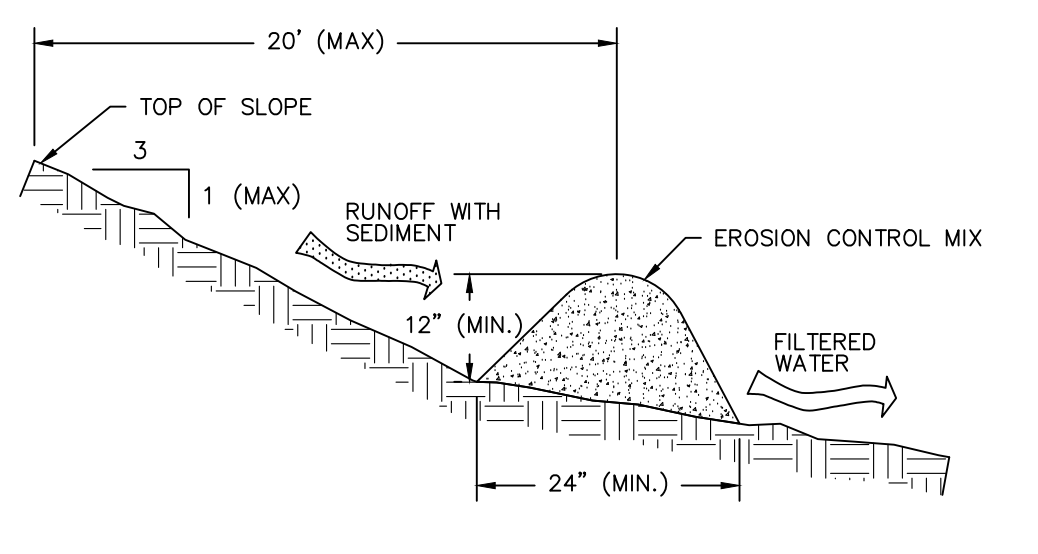
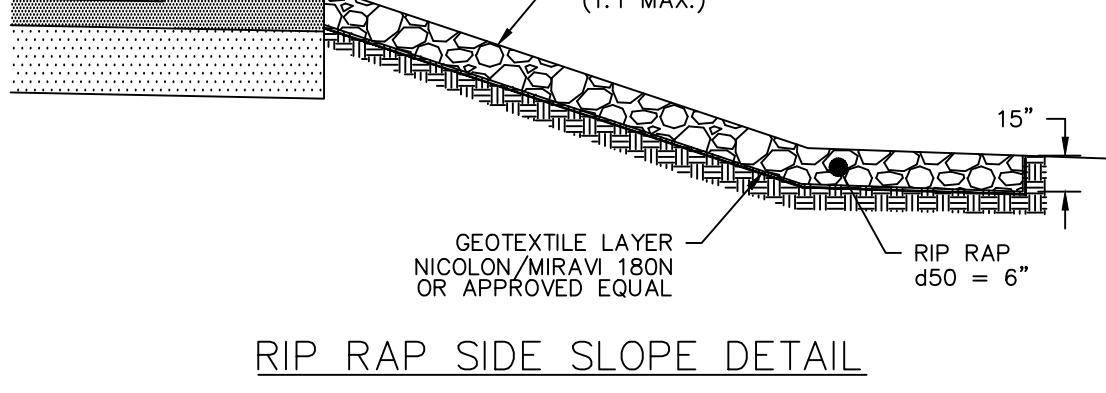
## HAY BALE BARRIER - NTS



## CULVERT INLET/OUTLET PROTECTION DETAIL

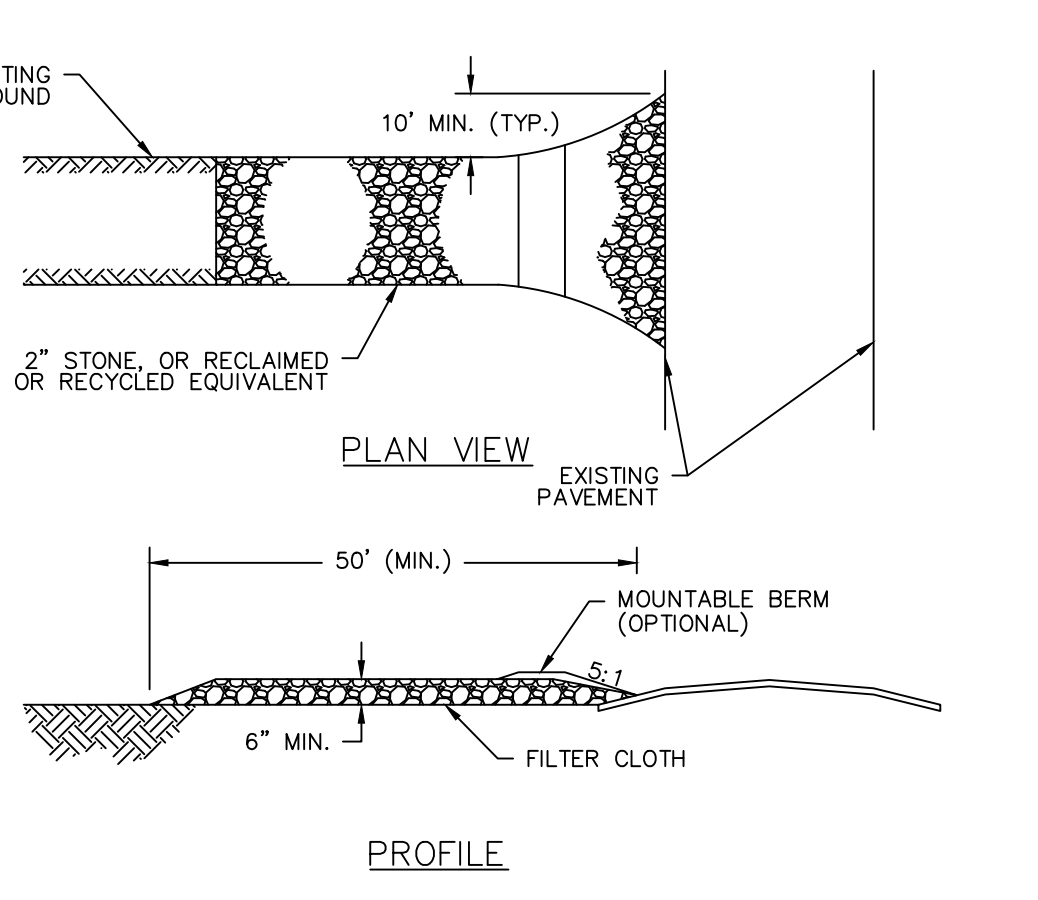


## RIP RAP SIDE SLOPE DETAIL



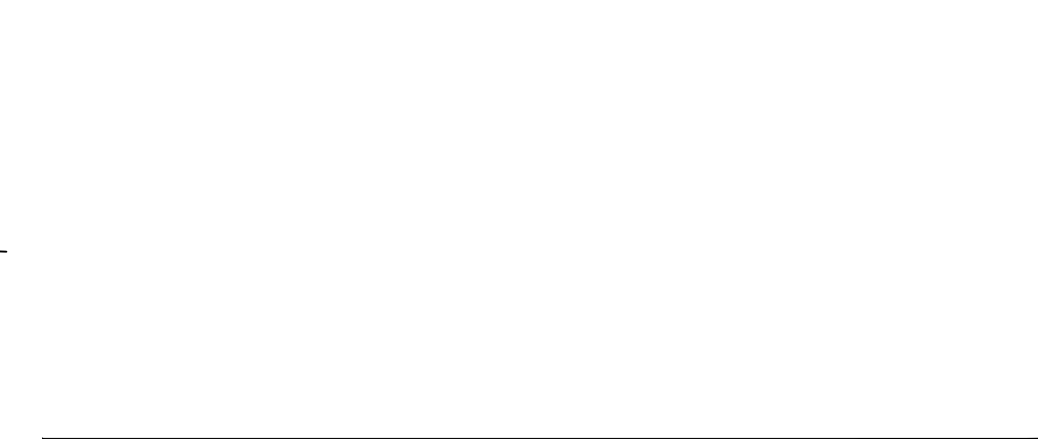
- EROSION CONTROL MIX COMPOSITION STANDARDS:
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80 AND 100% DRY WEIGHT BASIS.
  - PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70% MAXIMUM OF 85% PASSING A 0.75" SCREEN.
  - THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
  - LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
  - SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm
  - THE pH SHOULD FALL BETWEEN 5.0 AND 8.0.

## EROSION CONTROL MIX BERM - NTS



- NOTES:
- GEOTEXTILE: PLACE FILTER CLOTH OVER ENTIRE AREA TO BE COVERED WITH AGGREGATE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENTIAL LOT.
  - PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED. IF PIPING IS IMPOSSIBLE, A MOUNTABLE BERM WITH A 5:1 SLOPE WILL BE PERMITTED.

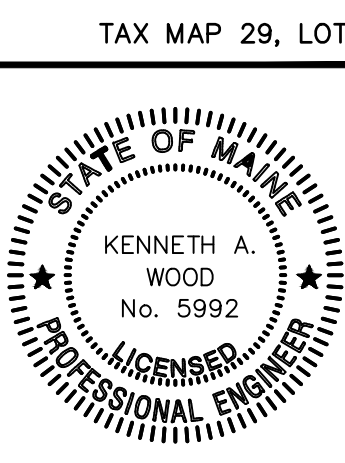
## STABILIZED CONSTRUCTION ENTRANCE



EROSION & SEDIMENTATION CONTROL DETAILS  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

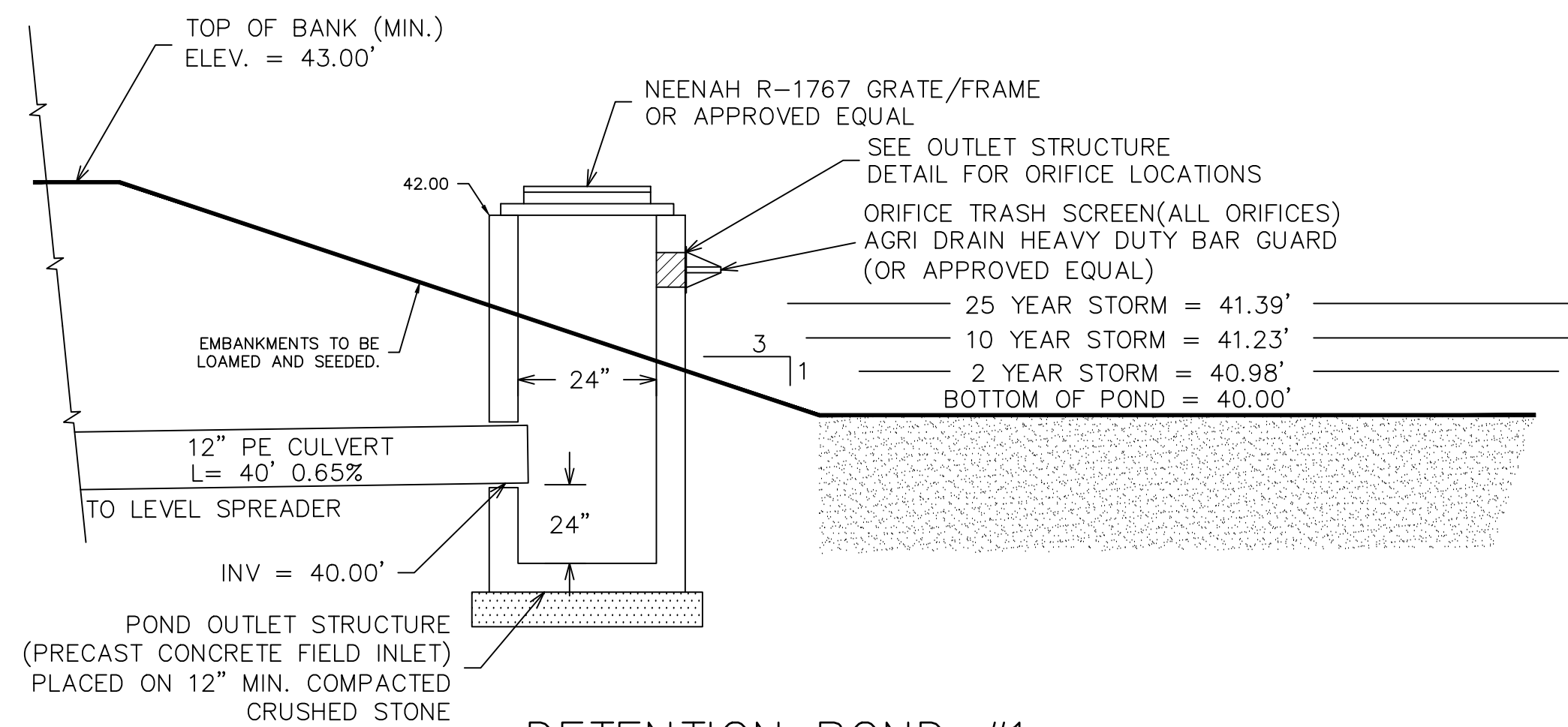
FOR: WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
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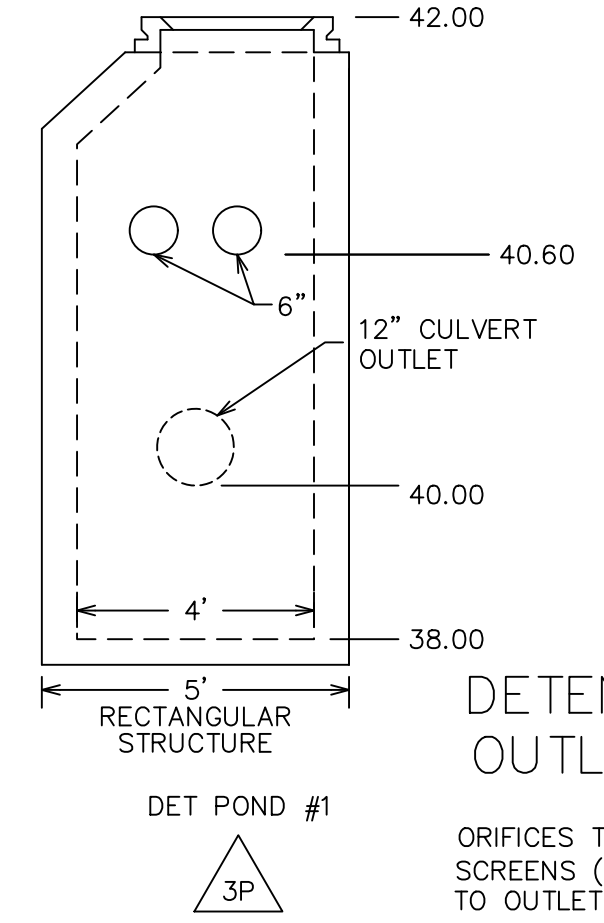
NO.	DESCRIPTION	DATE
D	THIRD PARTY REVIEW REVISIONS	12/29/22
C	PRELIMINARY REVIEW REVISIONS	09/29/22
B	PRELIMINARY REVIEW REVISIONS	08/04/22
A	SITE PLAN REVIEW APPLICATION	06/30/22
NO.	DESCRIPTION	DATE
REVISIONS		

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: MJS
DATE: 04/26/22	FILE: WF44 DEV BASE.DWG	REVISION DATE: 04/26/22
JOB NO: C277-21	SHEET: 4	



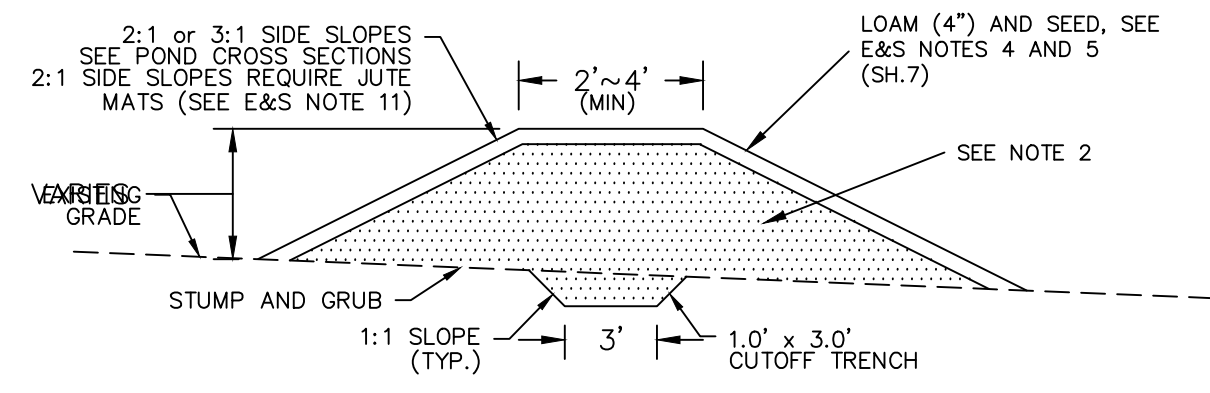
**DETENTION POND #1**  
(NTS)

NOTES: PIPE JOINTS TO BE WATER TIGHT



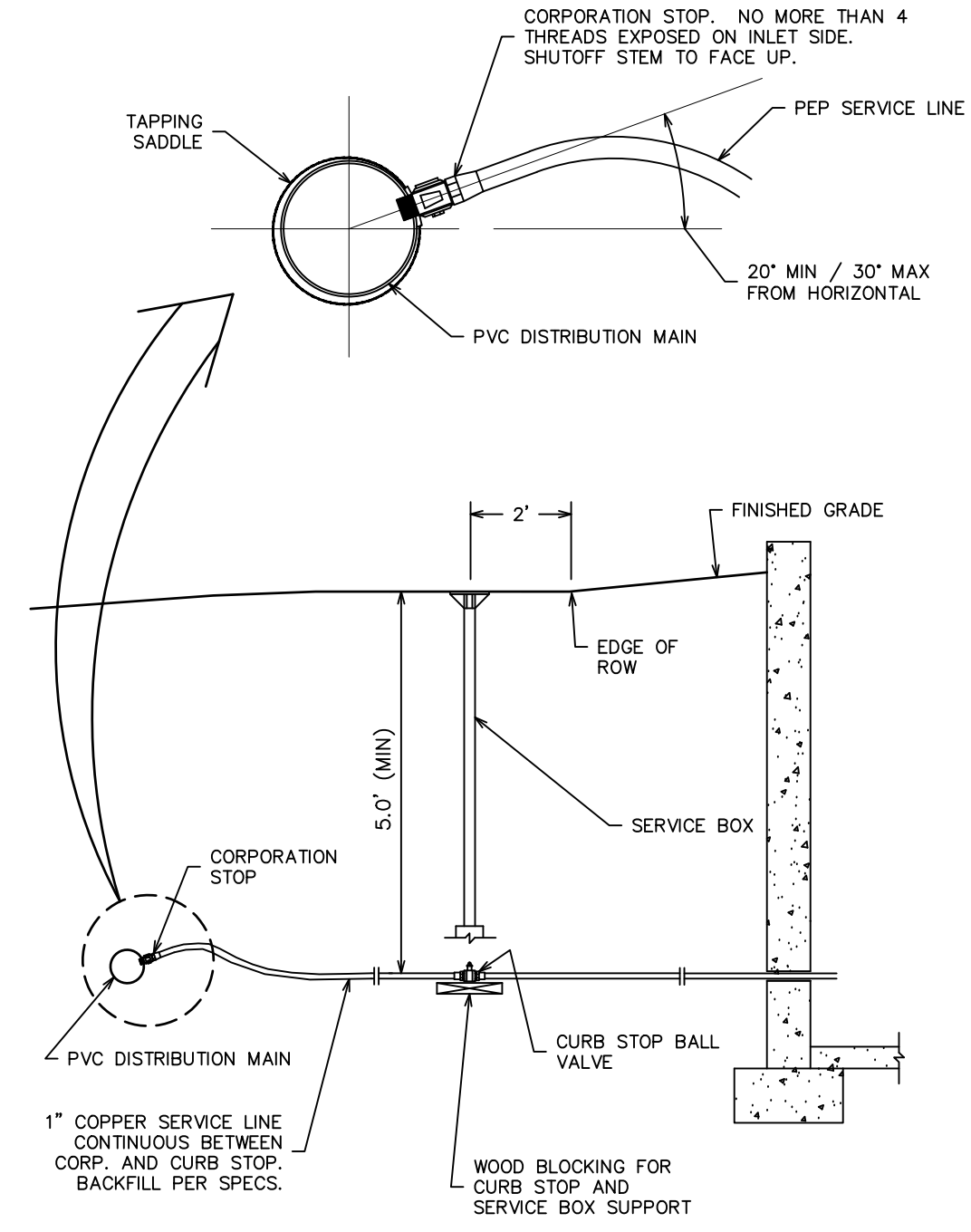
**DETENTION POND #1 OUTLET STRUCTURE**  
(NTS)

ORIFICES TO BE PROTECTED WITH TRASH SCREENS (2" MAX. OPENINGS) FASTENED TO OUTLET STRUCTURES WITH SS PARTS.

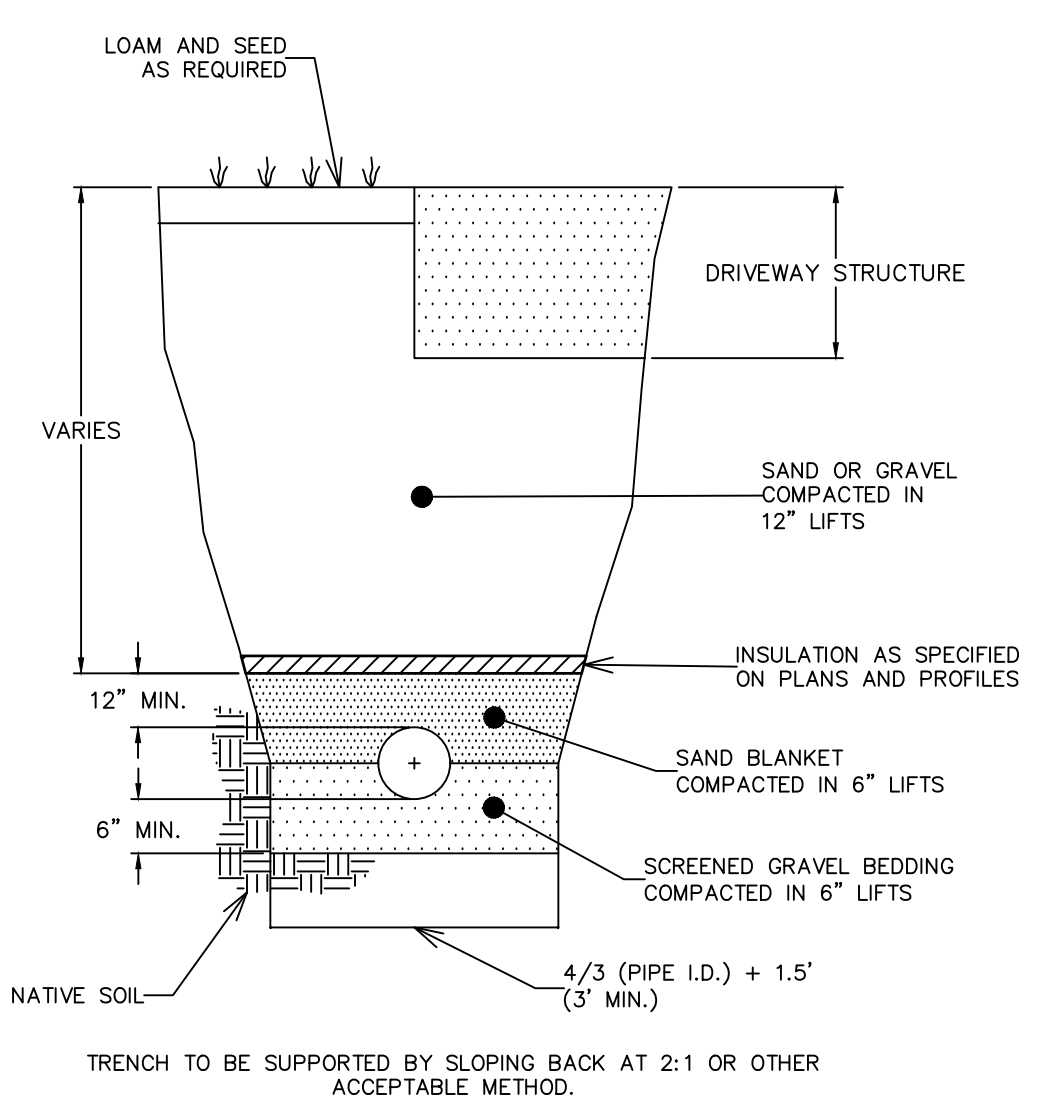
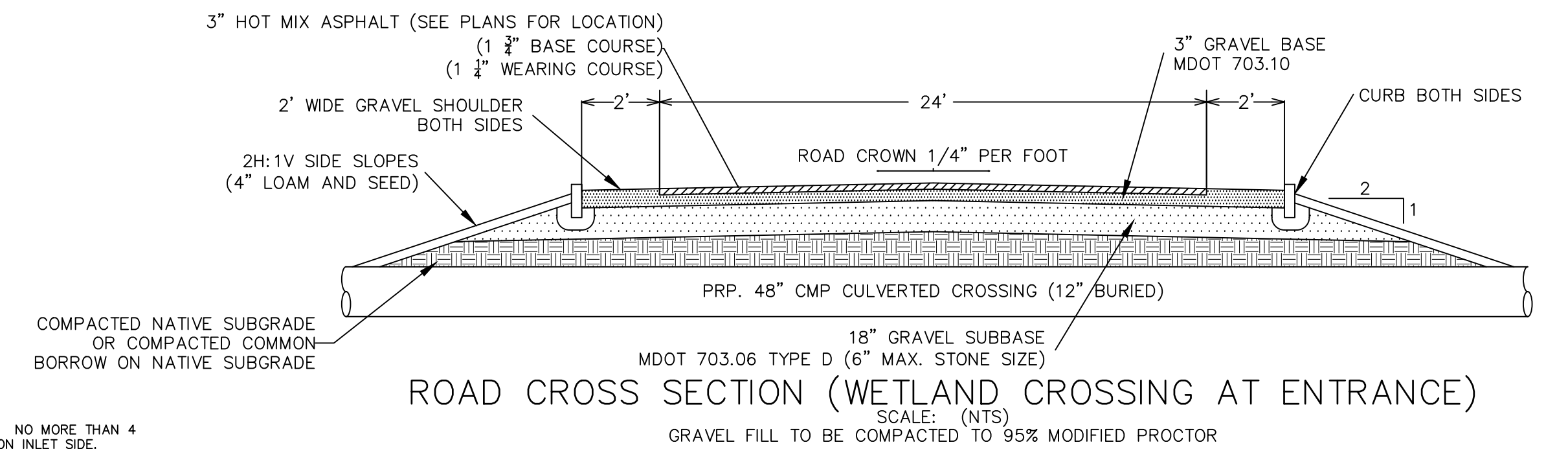
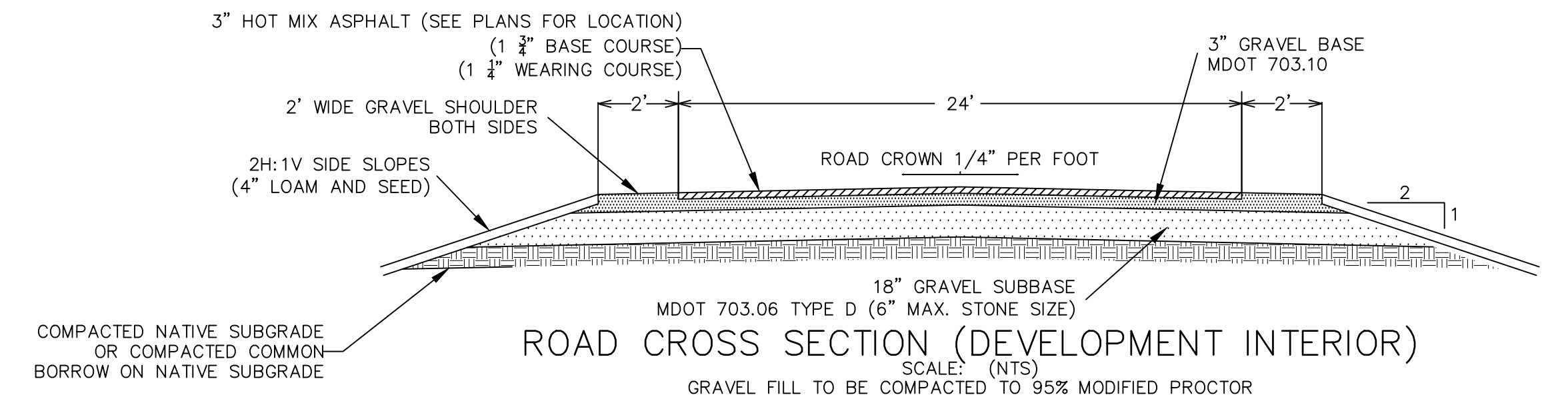


**FILTER POND EMBANKMENT AND BERM DETAIL**  
SCALE: 1" = 5'

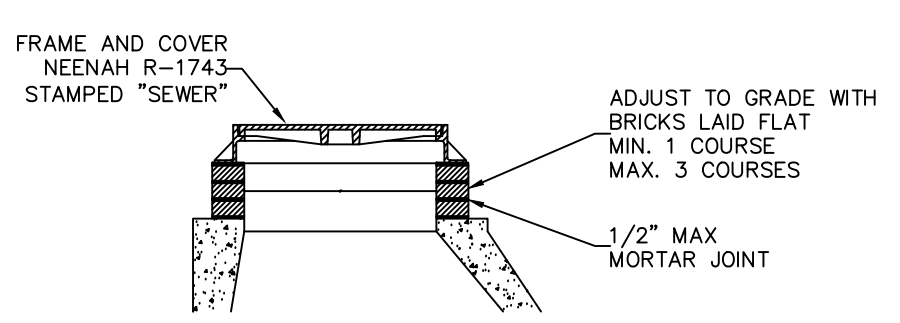
- EMBANKMENT CONSTRUCTION NOTES**
1. ALL ORGANIC MATERIAL, STUMPS, ROCKS AND BOULDERS SHALL BE REMOVED TO A MINIMUM DEPTH OF 24" BELOW SUBGRADE OF THE BASIN EMBANKMENT. ALL EXCAVATIONS BELOW THE BASIN EMBANKMENT SHALL HAVE A MINIMUM SLOPE OF 1H : 1V.
  2. ALL BASIN EMBANKMENT FILL MATERIAL SHALL BE WELL GRADED BORROW WITH A MINIMUM OF 20% FINES CONTENT. EMBANKMENT FILL SHALL BE PLACED IN 12" (MAX.) LIFTS AND BE COMPACTED TO 95% MODIFIED PROCTOR. A CUTOFF TRENCH SHALL BE EXCAVATED AS SHOWN PRIOR TO CONSTRUCTION OF EMBANKMENT.
  3. DETENTION BASIN AND ALL EXCAVATIONS SHALL BE KEPT FREE OF WATER DURING CONSTRUCTION.



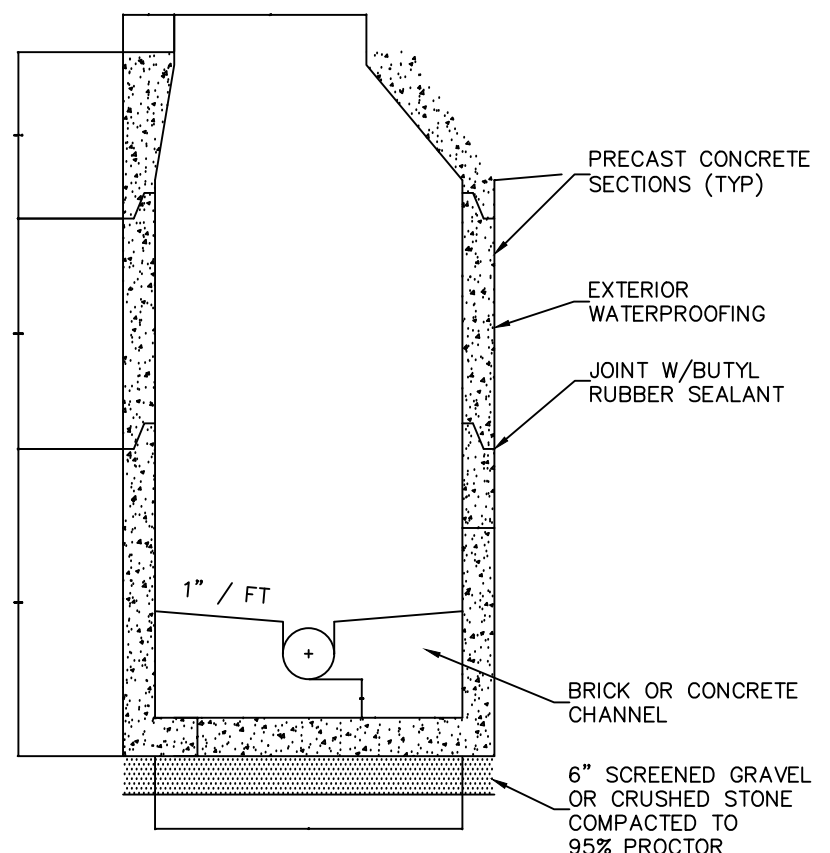
**WATER SERVICE DETAIL**  
(NTS)



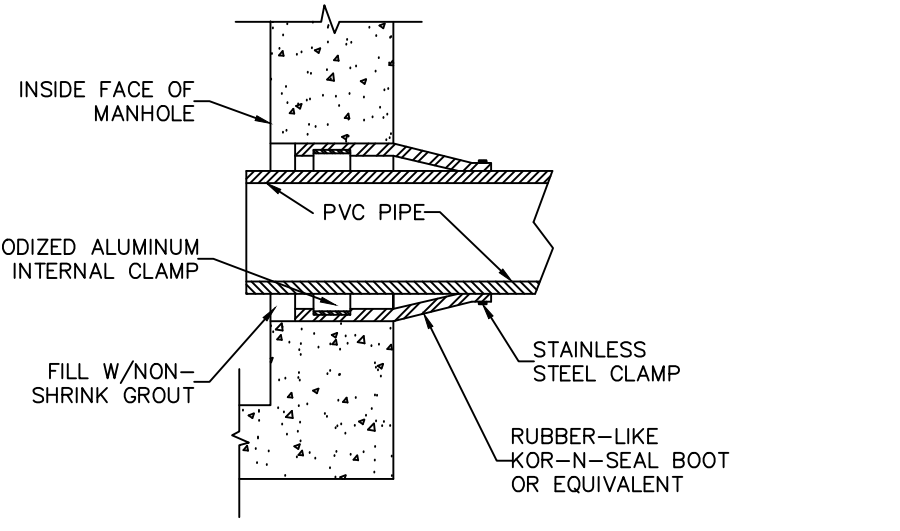
**SEWER PIPE TRENCH**  
(NTS)



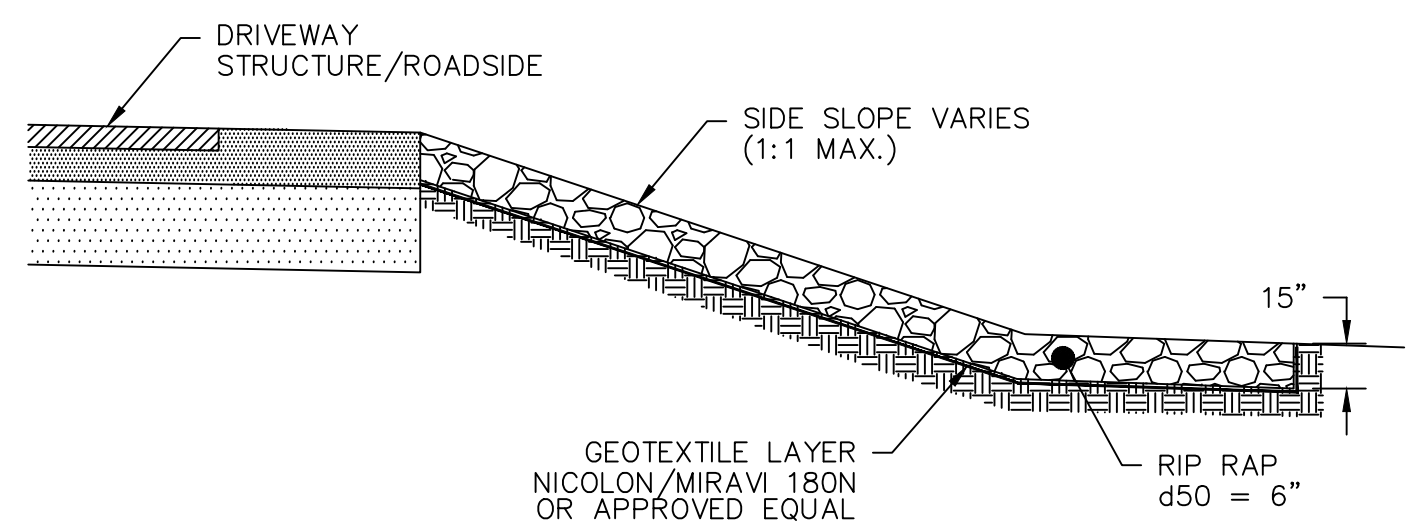
**STANDARD COVER AND FRAME**  
SCALE: NTS



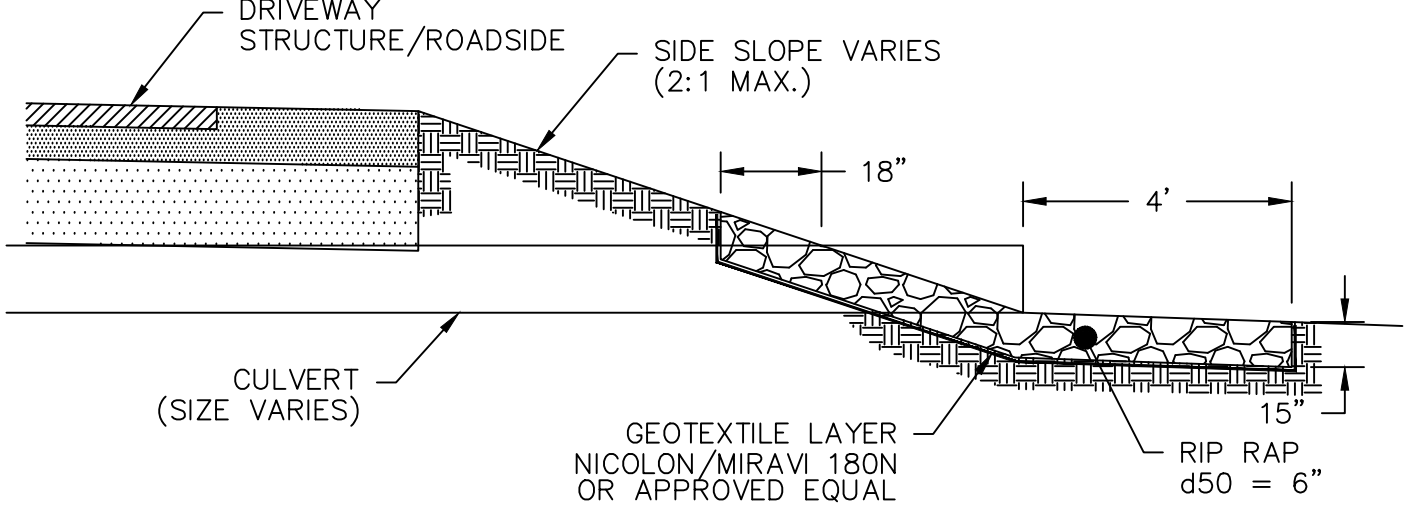
**TYPICAL SANITARY MANHOLE**  
SCALE: NTS



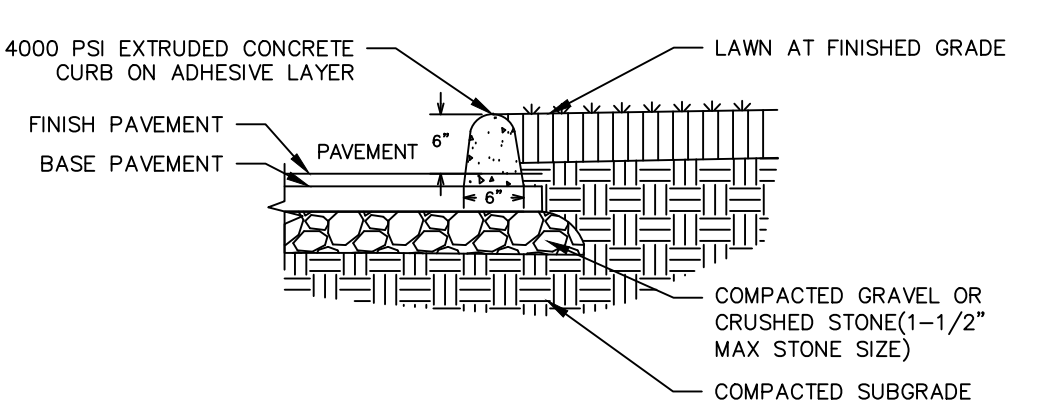
**TYPICAL BOOT GASKET**  
SCALE: NTS



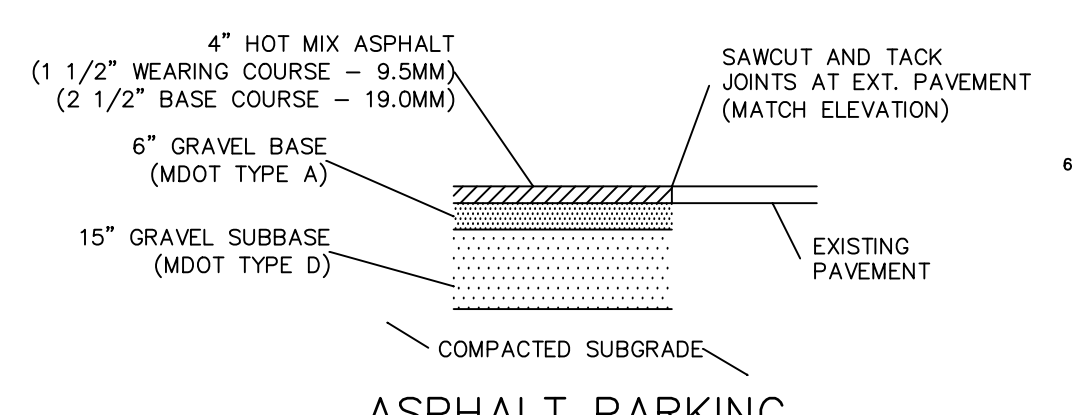
**RIP RAP SIDE SLOPE DETAIL**



**CULVERT INLET/OUTLET PROTECTION DETAIL**

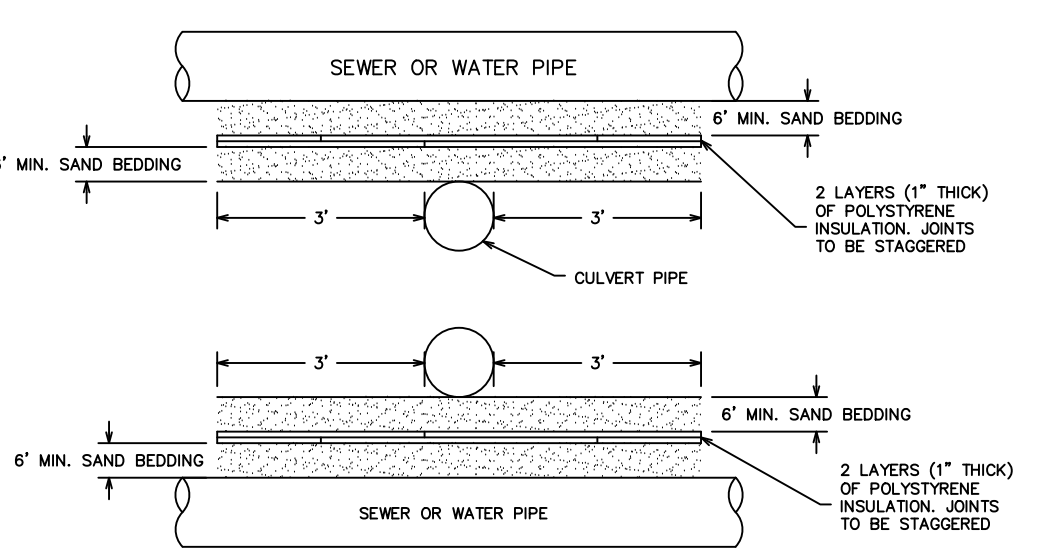


**EXTRUDED CONCRETE CURB DETAIL**  
(NTS)

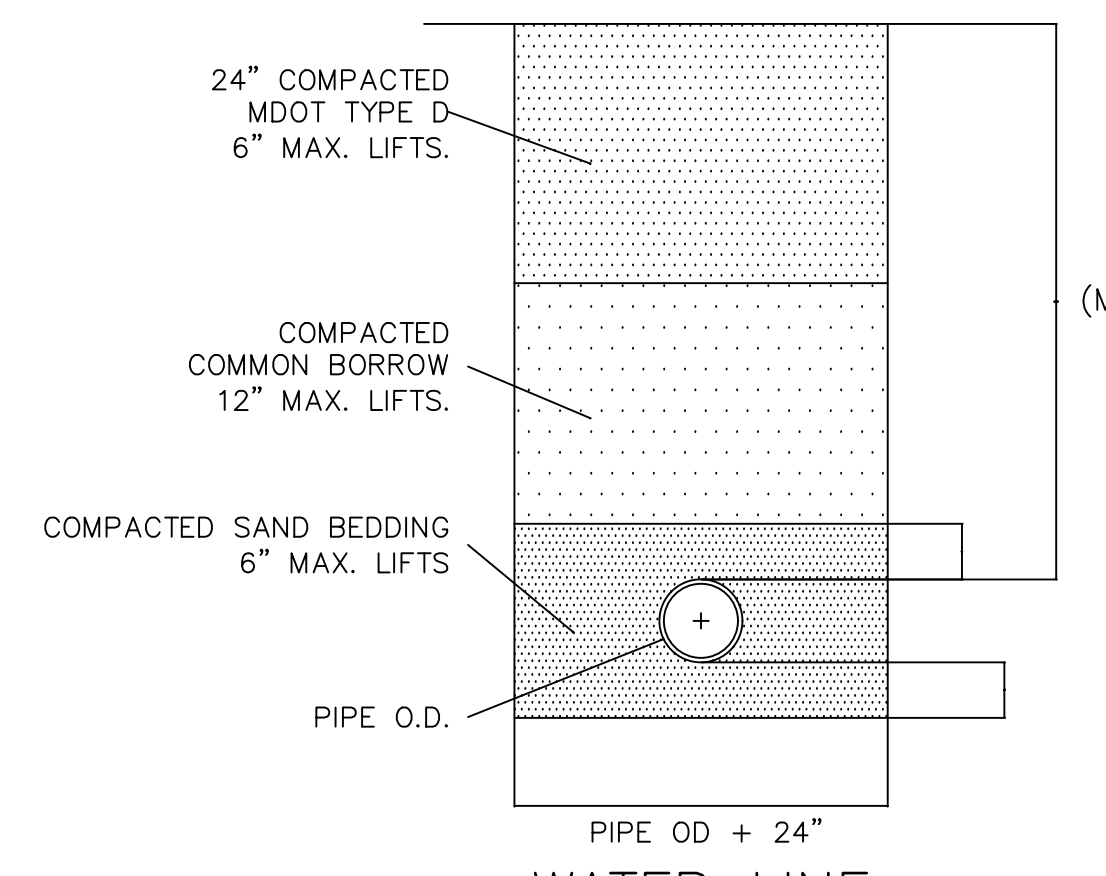


**ASPHALT PARKING CROSS SECTION**  
(NTS)

GRAVEL FILL TO BE COMPACTED TO 95% MODIFIED PROCTOR

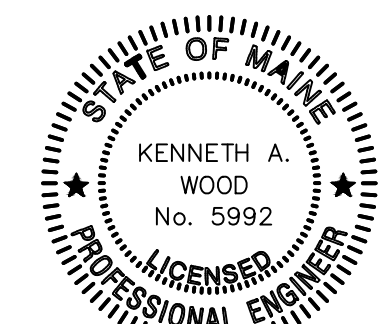


**CULVERT CROSSING**  
(NTS)



**WATER LINE TRENCH DETAIL**  
(NTS)

NO.	DESCRIPTION	DATE
E	THIRD PARTY REVIEW REVISIONS	12/29/22
D	PRELIMINARY REVIEW REVISIONS	09/29/22
C	PRELIMINARY REVIEW REVISIONS	08/04/22
B	PRELIMINARY REVIEW REVISIONS	07/13/22
A	SITE PLAN REVIEW APPLICATION	06/30/22
NO.	DESCRIPTION	DATE



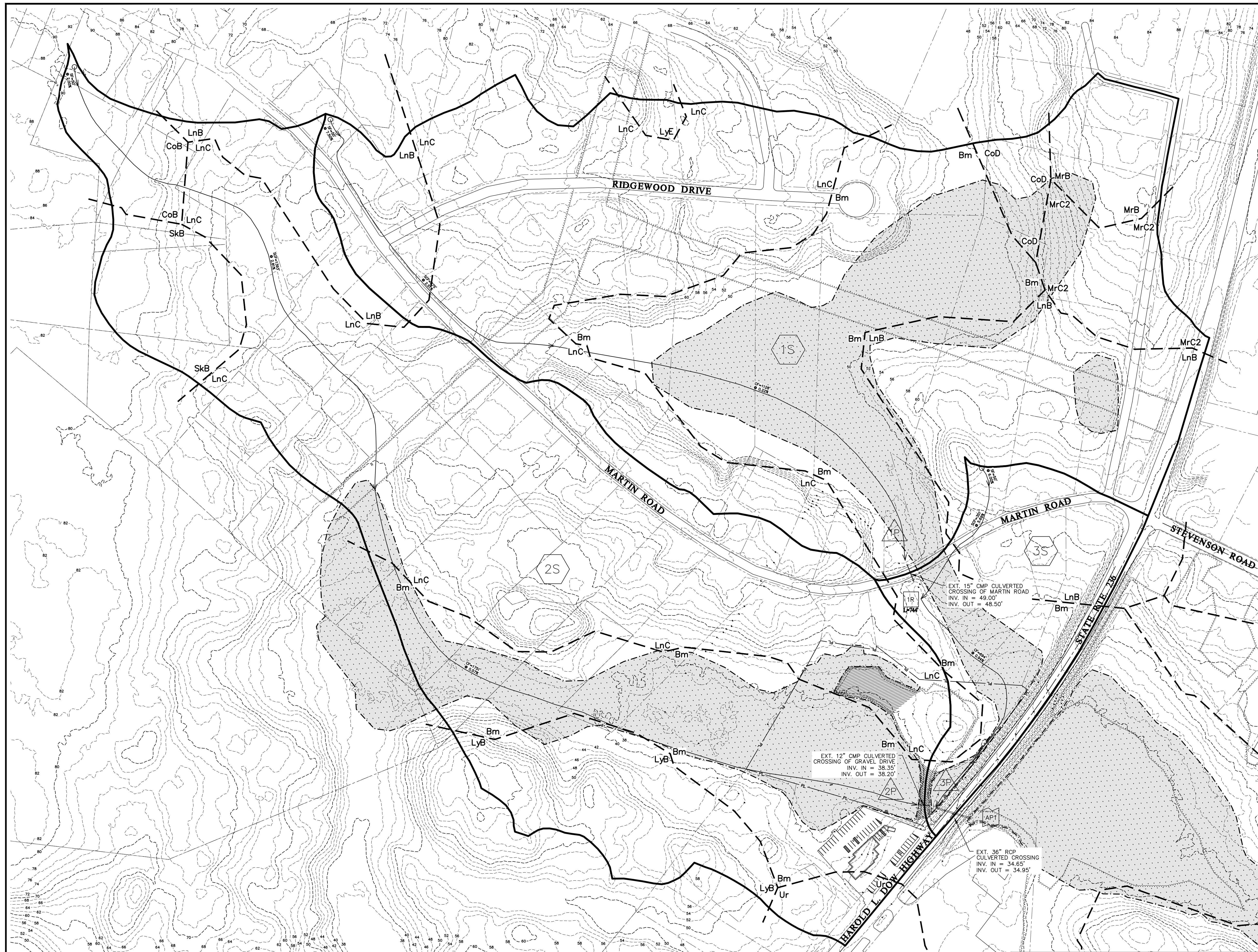
TAX MAP 29, LOT 1

SITE DETAILS  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR: WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
CIVIL • STRUCTURAL • MARINE • SURVEYING  
1284 STATE ROAD - ELIOT, MAINE 03903  
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: AS NOTED	APPROVED BY: MJS	DRAWN BY: MJS
DATE: 04/26/22	REVISION DATE: E : 12/29/22	
JOB NO: C277-21	FILE: WF44 DEV BASE.DWG	SHEET: 5



**SOILS LEGEND**

SYMBOL	SOIL SERIES NAME	HSC	SLOPES
Bm	BIDDEFORD MUCKY PEAT	D	0-3%
CoB	COLTON GRAVELLY SANDY LOAM	A	0-8%
CoD	COLTON GRAVELLY SANDY LOAM	A	15-25%
LnB	LYMAN LOAM, ROCKY	D	3-8%
LnC	LYMAN LOAM, ROCKY	D	8-15%
LyB	LYMAN-ROCK OUTCROP COMPLEX	D	0-3%
LyE	LYMAN-ROCK OUTCROP COMPLEX	D	15-80%
MrB	MARLOW FINE SANDY LOAM	C	3-8%
MrC2	MARLOW FINE SANDY LOAM	C	8-15%
SkB	SKERRY FINE SANDY LOAM	C/D	0-8%
Ur	URBAN LAND	-	N/A
HeC	HERMON SANDY LOAM	A	8-15%
Ra	RAYNHAM SILT LOAM	C/D	0-3%
Sc	SCANTIC SILT LOAM	D	0-3%

**FLOW TYPES**

SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW

NOTE: SOILS INFORMATION IS TAKEN FROM CUSTOM SOIL RESOURCE REPORT FOR YORK COUNTY, MAINE, MEDIUM INTENSITY, INFORMATION GATHERED FROM THE NATIONAL RESOURCES CONSERVATION SERVICE (NRCS). SURVEY AREA DATA IS VERSION 20, DATED 08/31/2021.

- SUBCATCHMENT
- REACH
- POND (LEVEL SPREADER)
- ANALYSIS POINT

**LEGEND**

PROPERTY LINE	
EXT. ABUTTER LINE	
EXT. GRAVEL	
EXT. PAVEMENT	
EXT. BUILDING	
EXT. WETLAND BNDY	
EXT. WETLAND AREA	
EXT. MAJOR CONTOUR	
EXT. MINOR CONTOUR	
EXT. STORM LINE	
EXT. GUARDRAIL	
SOIL TYPE BOUNDARY	
EXT. SUBCATCHMENT	
EXT. To FLOW LINE	
EXT. To GRADE CALC	

TAX MAP 29, LOT 1

STORMWATER: EXISTING CONDITIONS  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR:  
WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

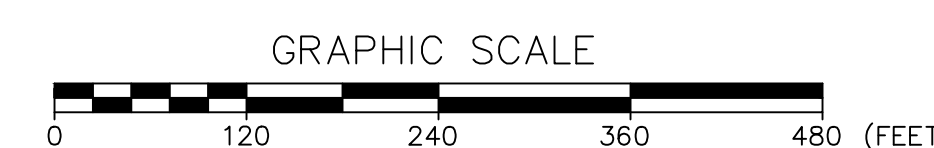
**ATTAR ENGINEERING, INC.**

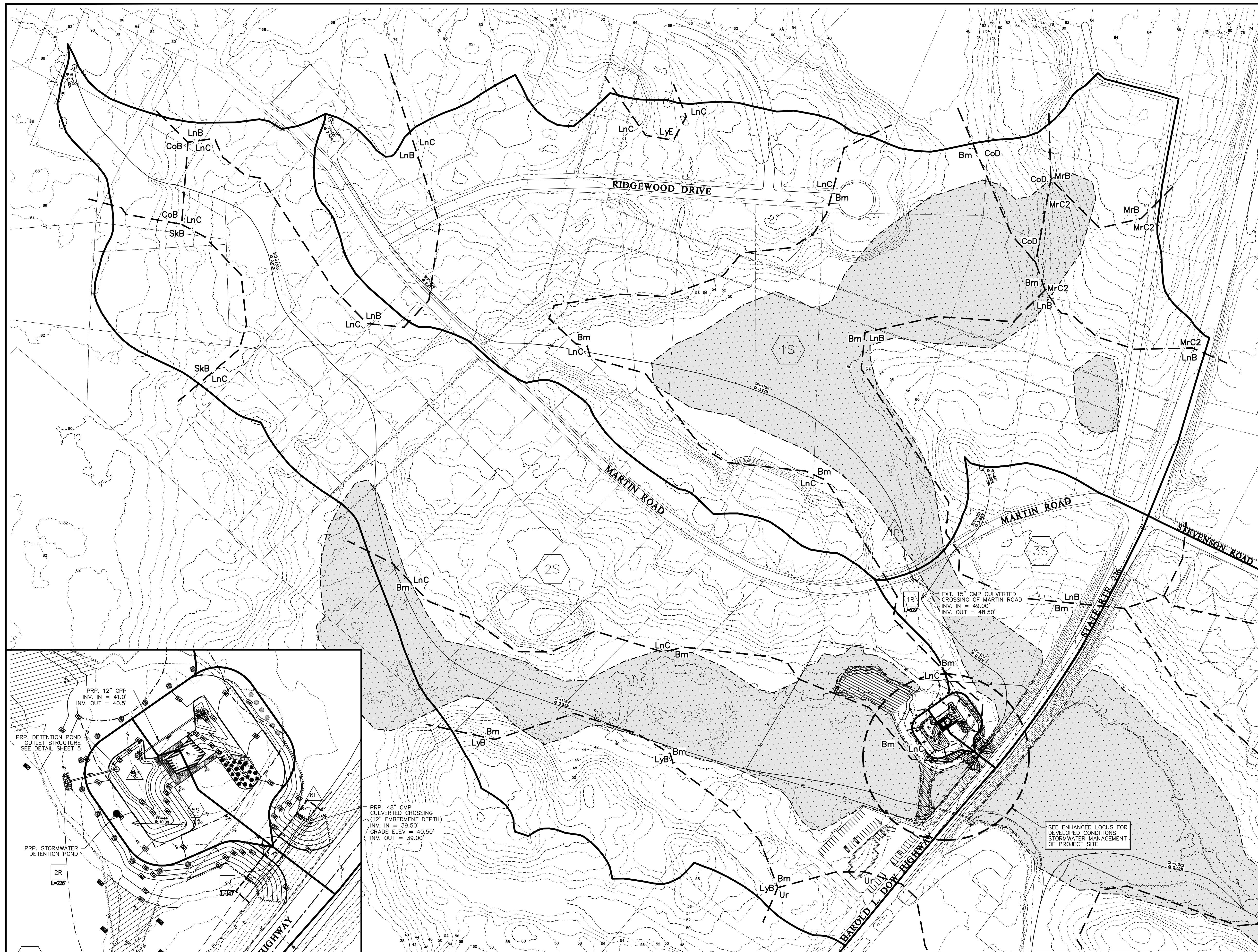
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1284 STATE ROAD - ELIOT, MAINE 03903  
PHONE: (207)439-6023 FAX: (207)439-2128



SCALE: 1" = 120'	APPROVED BY:	DRAWN BY: MJS
DATE: 07/13/22		REVISION DATE: C : 12/29/22
JOB NO: C277-21	FILE: WF44 DEV.BASE.DWG	SHEET: 6

NO.	DESCRIPTION	DATE
C	THIRD PARTY REVIEW REVISIONS	12/29/22
B	PRELIMINARY REVIEW REVISIONS	09/29/22
A	PRELIMINARY REVIEW REVISIONS	08/04/22
NO.	DESCRIPTION	DATE
	REVISIONS	





**SOILS LEGEND**

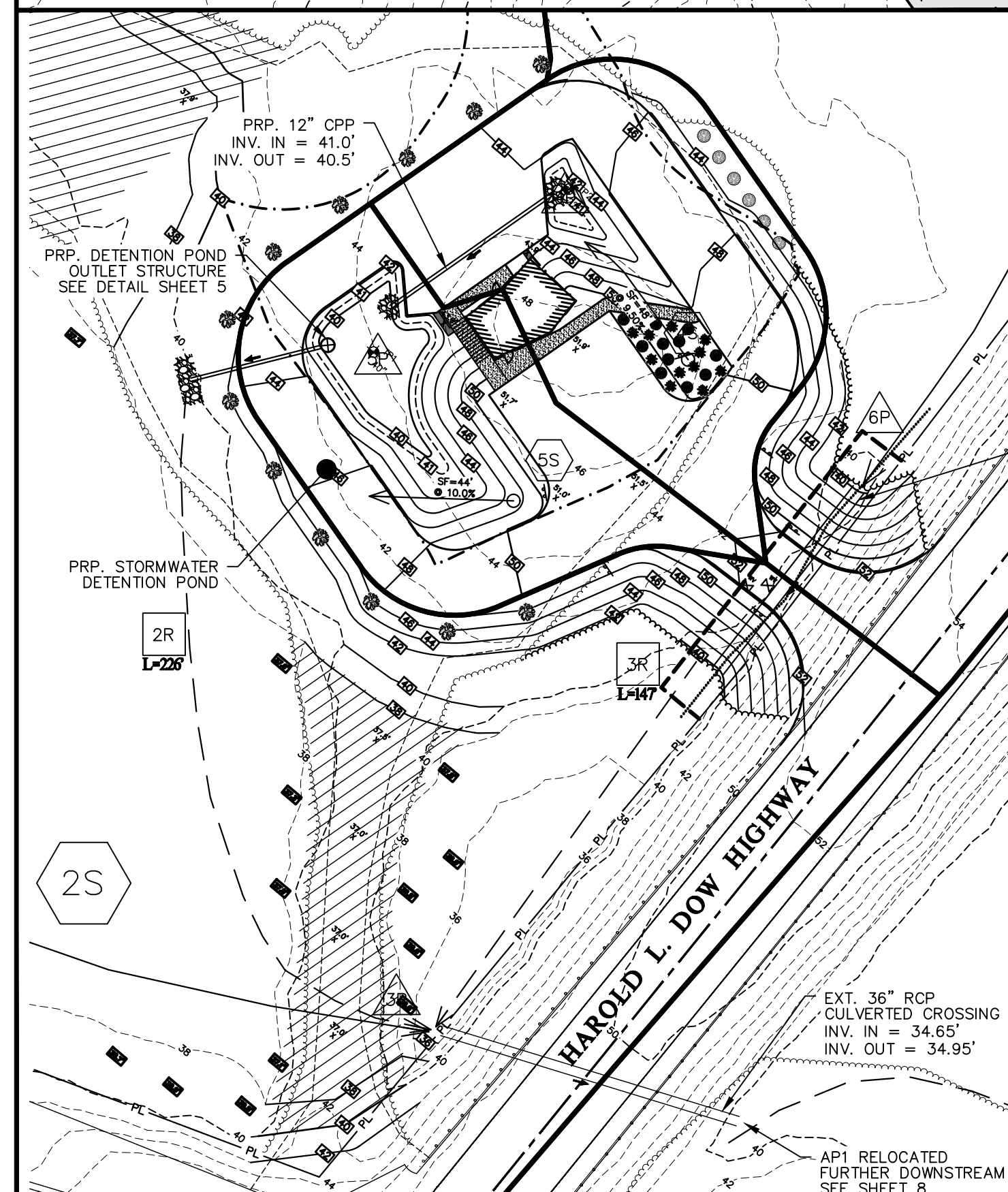
SYMBOL	SOIL SERIES NAME	HSG	SLOPES
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CoB	COLTON GRAVELLY SANDY LOAM	A	0-8%
CoD	COLTON GRAVELLY SANDY LOAM	A	15-25%
LnB	LYMAN LOAM, ROCKY	D	3-8%
LnC	LYMAN LOAM, ROCKY	D	8-15%
LyB	LYMAN-ROCK OUTCROP COMPLEX	D	0-3%
LyE	LYMAN-ROCK OUTCROP COMPLEX	D	15-80%
MrB	MARLOW FINE SANDY LOAM	C	3-8%
MrC2	MARLOW FINE SANDY LOAM	C	8-15%
SkB	SKERRY FINE SANDY LOAM	C/D	0-8%
Ur	URBAN LAND	-	N/A
HeC	HERMON SANDY LOAM	A	8-15%
Ro	RAYNHAM SILT LOAM	C/D	0-3%
Sc	SCANTIC SILT LOAM	D	0-3%

**FLOW TYPES**

SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW

NOTE: SOILS INFORMATION IS TAKEN FROM CUSTOM SOIL RESOURCE REPORT FOR YORK COUNTY, MAINE, MEDIUM INTENSITY, INFORMATION GATHERED FROM THE NATIONAL RESOURCES CONSERVATION SERVICE (NRCS). SURVEY AREA DATA IS VERSION 20, DATED 08/31/2021.

LEGEND	
PROPERTY LINE	---
EXT. ABUTTER LINE	---
EXT. GRAVEL	---
EXT. PAVEMENT	---
PRP. PAVEMENT	---
PRP. PARKING	---
EXT. BUILDING	---
PRP. BUILDING	---
EXT. WETLAND BNDY	---
EXT. WETLAND AREA	---
EXT. MAJOR CONTOUR	XXX
EXT. MINOR CONTOUR	XXX
PRP. MAJOR CONTOUR	XXX
PRP. MINOR CONTOUR	XXX
PRP. SPOT GRADE	102.0' x
EXT. STORM LINE	D
PRP. STORM LINE	D
EXT. GUARDRAIL	---
PRP. WETLAND IMPACT	---
SOIL TYPE BOUNDARY	---
PRP. SUBCATCHMENT	---
PRP. Tc FLOW LINE	---
PRP. Tc GRADE CALC	Sf=xxx' x.xxx
PRP. SILTATION FENCE	---

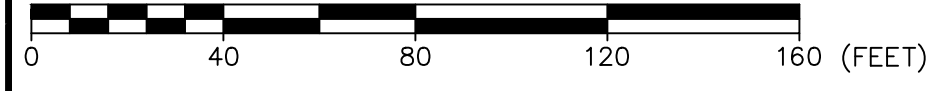


PRP. 48" CMP CULVERTED CROSSING (12" EMBEDMENT DEPTH)  
 INV. IN = 39.50'  
 GRADE ELEV = 40.50'  
 INV. OUT = 39.00'

EXT. 36" RCP CULVERTED CROSSING  
 INV. IN = 34.65'  
 INV. OUT = 34.95'

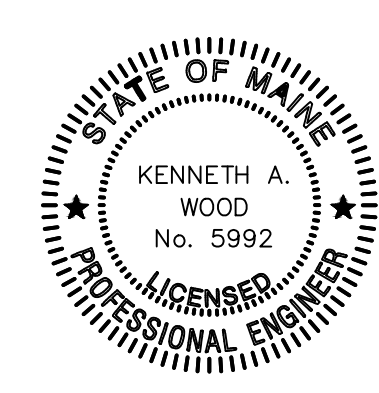
API RELOCATED FURTHER DOWNSTREAM  
 SEE SHEET 8

**ENHANCED STORMWATER LOCUS GRAPHIC SCALE**



- 1S SUBCATCHMENT
- 1R REACH
- 1P POND (LEVEL SPREADER)
- AP1 ANALYSIS POINT

NO.	DESCRIPTION	DATE
C	THIRD PARTY REVIEW REVISIONS	12/29/22
B	PRELIMINARY REVIEW REVISIONS	09/29/22
A	PRELIMINARY REVIEW REVISIONS	08/04/22
NO.	DESCRIPTION	DATE



STORMWATER: DEVELOPED CONDITIONS  
 WELL FIELD 44 CANNABIS DISPENSARY  
 41 ROUTE 236, KITTERY, ME 03904

FOR: WELL FIELD 44, LLC.  
 8 DEXTER LANE UNIT 8  
 KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
 CIVIL • STRUCTURAL • MARINE • SURVEYING  
 1284 STATE ROAD - ELIOT, MAINE 03903  
 PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 120'		MJS
DATE:		REVISION DATE:
07/13/22		C : 12/29/22
JOB NO: C277-21	FILE: WF44 DEV.BASE.DWG	SHEET: 7



Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	16.14	65.45	98.79

Event	Total (in.)
2-Year	3.33
10-Year	5.34
25-Year	6.60

Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	15.86	64.74	98.34

Analysis Point	2 Year Storm (cfs)	10 Year Storm (cfs)	25 Year Storm (cfs)
AP1	-0.28	-0.71	-0.45

Analysis Point	Existing Elev. (ft)	Developed Elev. (ft)	Location in Analysis
1P	50.41	50.41	Martin Road Crossing (15" CMP)
2P	40.96	N/A	Ext. On-Site Driveway: 12" Culvert Removed
3P	37.50	37.72	Route 236 Crossing (36" RCP)
6P	N/A	41.97	Prp. Entrance Crossing (48" CMP)
7P	33.69	33.67	Dana Ave Crossing (48" RCP)

**SOILS LEGEND**

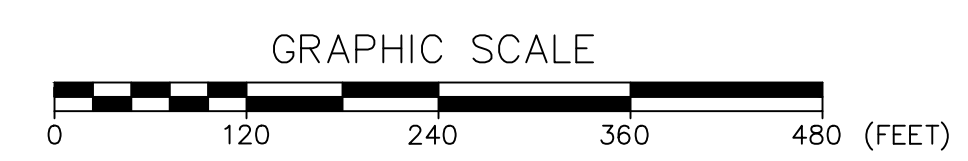
SYMBOL	SOIL SERIES NAME	HSG	SLOPES
Bm	BIDDEFORD MUCKY PEAT	D	0-3%
CoB	COLTON GRAVELLY SANDY LOAM	A	0-8%
CoD	COLTON GRAVELLY SANDY LOAM	A	15-25%
LnB	LYMAN LOAM, ROCKY	D	3-8%
LnC	LYMAN LOAM, ROCKY	D	8-15%
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Ur	URBAN LAND	-	N/A
HeC	HERMON SANDY LOAM	A	8-15%
Rd	RAYNHAM SILT LOAM	C/D	0-3%
Sc	SCANTIC SILT LOAM	D	0-3%

**FLOW TYPES**

SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW

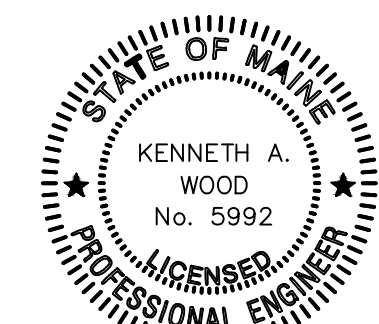
NOTE: SOILS INFORMATION IS TAKEN FROM CUSTOM SOIL RESOURCE REPORT FOR YORK COUNTY, MAINE, MEDIUM INTENSITY, INFORMATION GATHERED FROM THE NATIONAL RESOURCES CONSERVATION SERVICE (NRCS). SURVEY AREA DATA IS VERSION 20, DATED 08/31/2021.

PROPERTY LINE	---
EXT. ABUTTER LINE	- - - - -
EXT. GRAVEL	▨
EXT. PAVEMENT	▬
PRP. PAVEMENT	▬
PRP. PARKING	▬
EXT. BUILDING	▨
PRP. BUILDING	▨
EXT. WETLAND BNDY	▬
EXT. WETLAND AREA	▨
EXT. MAJOR CONTOUR	XXX
EXT. MINOR CONTOUR	XXX
PRP. MAJOR CONTOUR	XXX
PRP. MINOR CONTOUR	XXX
PRP. SPOT GRADE	102.0' x
EXT. STORM LINE	D
PRP. STORM LINE	D
EXT. GUARDRAIL	▬
PRP. WETLAND IMPACT	▨
SOIL TYPE BOUNDARY	▬
PRP. SUBCATCHMENT	▬
PRP. Tc FLOW LINE	○
PRP. Tc GRADE CALC	○
PRP. SILTATION FENCE	▬



- 1S SUBCATCHMENT
- 1R REACH
- 1P POND (LEVEL SPREADER)
- AP1 ANALYSIS POINT

NO.	THIRD PARTY REVIEW REVISIONS	DATE
A	THIRD PARTY REVIEW REVISIONS	12/29/22
NO.	DESCRIPTION	DATE
	REVISIONS	



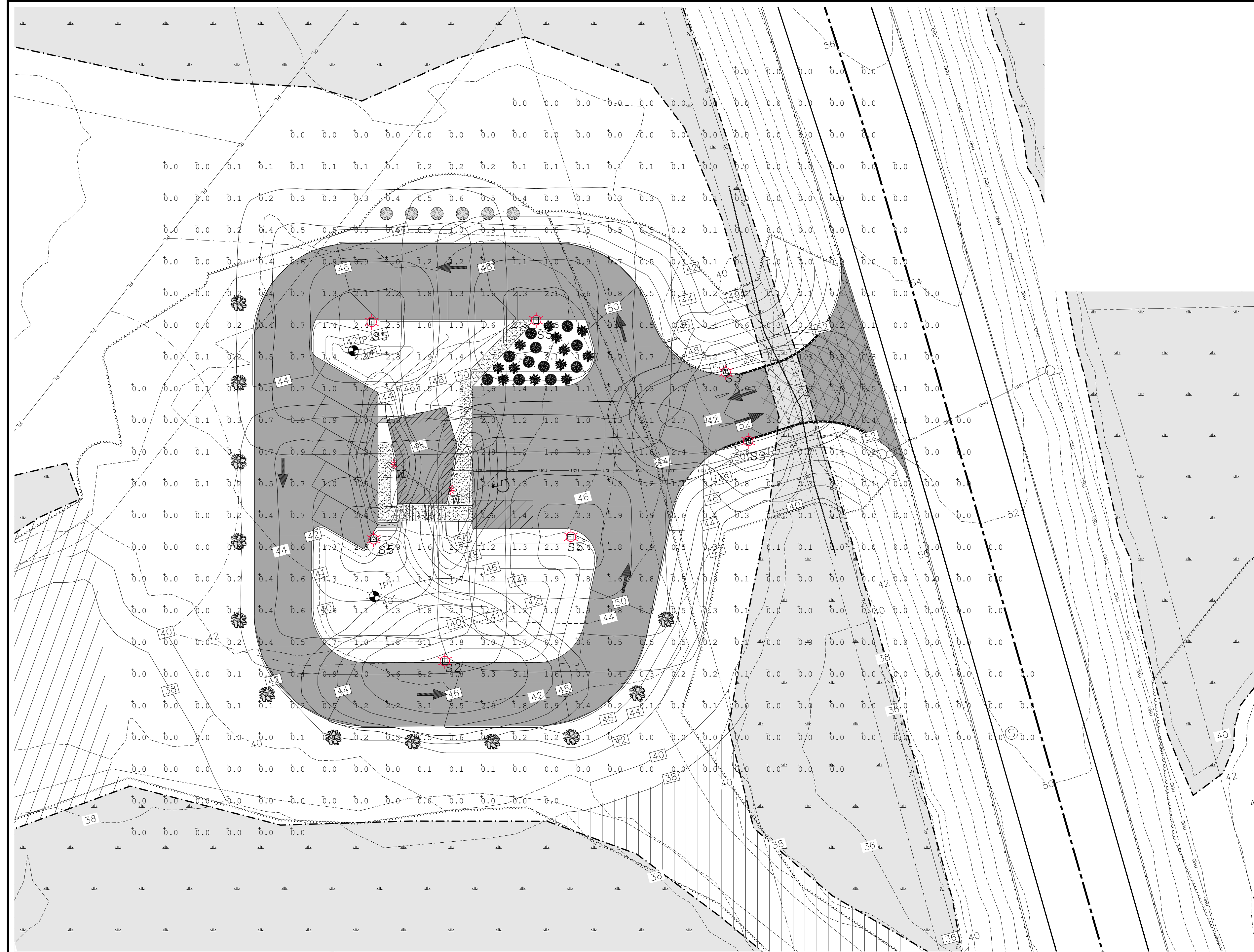
STORMWATER: EXPANDED DEVELOPED CONDITIONS  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR: WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

**ATTAR ENGINEERING, INC.**  
CIVIL • STRUCTURAL • MARINE • SURVEYING  
1284 STATE ROAD - ELIOT, MAINE 03903  
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 120'	MJS	MJS
DATE:		REVISION DATE:
09/29/22		A : 12/29/22

JOB NO: C277-21 FILE: WF44 DEV.BASE.DWG SHEET: 8



**EOF**  
LED Emergency Outdoor Full Cutoff

**Product Description**

The LED Emergency Outdoor Full Cutoff combines 90-minute emergency lighting with a low profile, architectural design. The EOF is designed for outdoor use, with an optional cold-weather kit for added reliability in northern climates. The EOF comes standard with a photocell, with an optional motion sensor adding even more energy efficiency. An internal selector switch allows bypassing the photocell for control of the unit from a wall switch. A non-emergency unit is available for locations not requiring battery-backup, providing a uniform look for all fixtures.

**Construction**

- IP65 Rated enclosure
- Outside die cast Aluminum body
- Separable bezel for easy installation and maintenance

**Optical System**

- Polycarbonate lens
- Utilizes advanced LED technology with CCT of 3000K and 5000K
- CRI 70+

**Electrical**

- Input voltage of 120/277VAC
- Maintenance free NiCad battery provides 90-minute emergency operation
- LED indicator light & test button with self-testing, self diagnostic option
- Photocell standard with wall switch control
- Motion sensor option for additional energy saving
- Operating Temperature:
  - -14F to 122F (5°C to +50°C)
  - -10F to 122F (5°C to +50°C)
  - -10F to 122F (5°C to +50°C)

**Mounting and Installation**

- Fixture mounts directly to J-Boxes and walls with screws
- Wiring possible through backplate or 1/2" knockout
- For installations where power surge may be possible, NICOR recommends installing additional surge protection at the electrical distribution panel

**Finish**

- Fine textured, UV-stabilized powder coat bronze finish

**Listings**

- UL 924, 924-1, 924-2, 924-3, 924-4, 924-5, 924-6, 924-7, 924-8, 924-9, 924-10, 924-11, 924-12, 924-13, 924-14, 924-15, 924-16, 924-17, 924-18, 924-19, 924-20, 924-21, 924-22, 924-23, 924-24, 924-25, 924-26, 924-27, 924-28, 924-29, 924-30, 924-31, 924-32, 924-33, 924-34, 924-35, 924-36, 924-37, 924-38, 924-39, 924-40, 924-41, 924-42, 924-43, 924-44, 924-45, 924-46, 924-47, 924-48, 924-49, 924-50, 924-51, 924-52, 924-53, 924-54, 924-55, 924-56, 924-57, 924-58, 924-59, 924-60, 924-61, 924-62, 924-63, 924-64, 924-65, 924-66, 924-67, 924-68, 924-69, 924-70, 924-71, 924-72, 924-73, 924-74, 924-75, 924-76, 924-77, 924-78, 924-79, 924-80, 924-81, 924-82, 924-83, 924-84, 924-85, 924-86, 924-87, 924-88, 924-89, 924-90, 924-91, 924-92, 924-93, 924-94, 924-95, 924-96, 924-97, 924-98, 924-99, 924-100

**Warranty**

- 1-year limited system warranty standard
- Warranty does not cover product failure due to an overvoltage event (power surge)



NICOR, Inc. 2200 Midway Place NE, Albuquerque, NM 87107 P: 800.621.6263 F: 800.892.8393  
www.nicorlighting.com April 2, 2021 9:17 AM

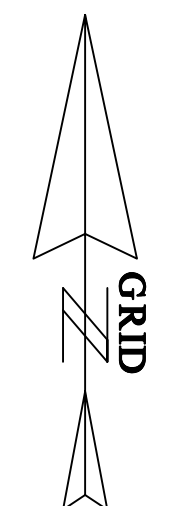
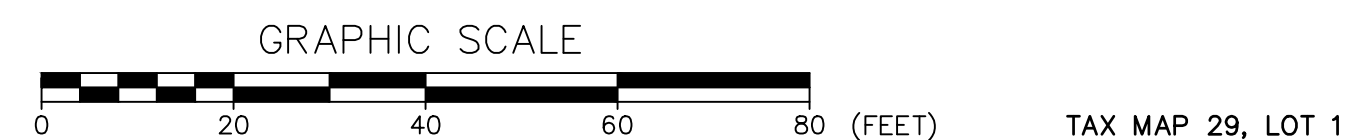


Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	MANUFACTURER
[Symbol]	1	S2	Single	MRS-LED-06L-SIL-2-UNV-DIM-30-70CRI-BRZ / 4SQB3S11G15GA BRZ (15' AFG)	LSI
[Symbol]	2	S3	Single	MRS-LED-03L-SIL-3-UNV-DIM-30-70CRI-BRZ / 4SQB3S11G15-GA-BRZ (15' AFG)	LSI
[Symbol]	4	S5	Single	MRS-LED-06L-SIL-5W-UNV-DIM-30-70CRI-BRZ / 4SQB3S11G15GA BRZ (15' AFG)	LSI
[Symbol]	2	W	Single	EOF1MV3KBZAC / WALL MTD 10' AFG	NICOR

**LIGHTING REQUIREMENTS**

- UNIFORMITY RATIOS FOR APPLICABLE PROJECT AREAS PER §16.7.11.H:
  - ILLUMINATION OF ACCESS DRIVES: UNIFORMITY RATIO OF NOT MORE THAN 4:1  
PROPOSED: 3.85:1 AVERAGE TO MINIMUM RATIO
  - ILLUMINATION OF PARKING LOTS: UNIFORMITY RATIO OF NOT MORE THAN 20:1  
PROPOSED: 13.25:1 MAXIMUM TO MINIMUM RATIO
  - ILLUMINATION LEVEL OF ACCESS DRIVES AND PARKING LOTS: NOT TO EXCEED 8 FOOTCANDLES  
PROPOSED: 5.3 FOOTCANDLES MAXIMUM ILLUMINATION LEVEL
  - ILLUMINATION LEVEL AT PROPERTY LINE OF NONRESIDENTIAL USE WITH ABUTTING PROPERTIES IN A RESIDENTIAL DISTRICT: NOT TO EXCEED 0.1 FOOTCANDLES  
PROPOSED: 0.0 FOOTCANDLES AT PROPERTY LINE ABUTTING ALL MARTIN ROAD PROPERTIES

LEGEND	
PROPERTY LINE	---
SETBACK	---
EXT. ABUTTER LINE	---
EXT. PAVEMENT	---
PRP. PAVEMENT	---
EXT. GRAVEL	---
EXT. BUILDING	---
PRP. BUILDING	---
EXT. PARKING	---
PRP. PARKING	---
EXT. GUARDRAIL	---
EXT. TREELINE	---
PRP. TREELINE	---
TOWN ZONING BNDY	---
EXT. WETLAND BNDY	---
EXT. WETLAND AREA	---
EXT. WETLAND BUFFER	---
EXT. OVERHEAD ELEC	---
EXT. POWER POLE	---
PRP. LIGHT FIXTURE	---
PRP. U.G. ELECTRIC	---
EXT. MAJOR CONTOUR	---
EXT. MINOR CONTOUR	---
PRP. MAJOR CONTOUR	---
PRP. MINOR CONTOUR	---



NO.	DESCRIPTION	DATE
B	THIRD PARTY REVIEW REVISIONS	12/29/22
A	INCLUDE MISSING LIGHT POLE	08/25/22
NO.	DESCRIPTION	DATE
REVISIONS		

PHOTOMETRIC PLAN  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR:  
WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
KITTERY, MAINE 03904

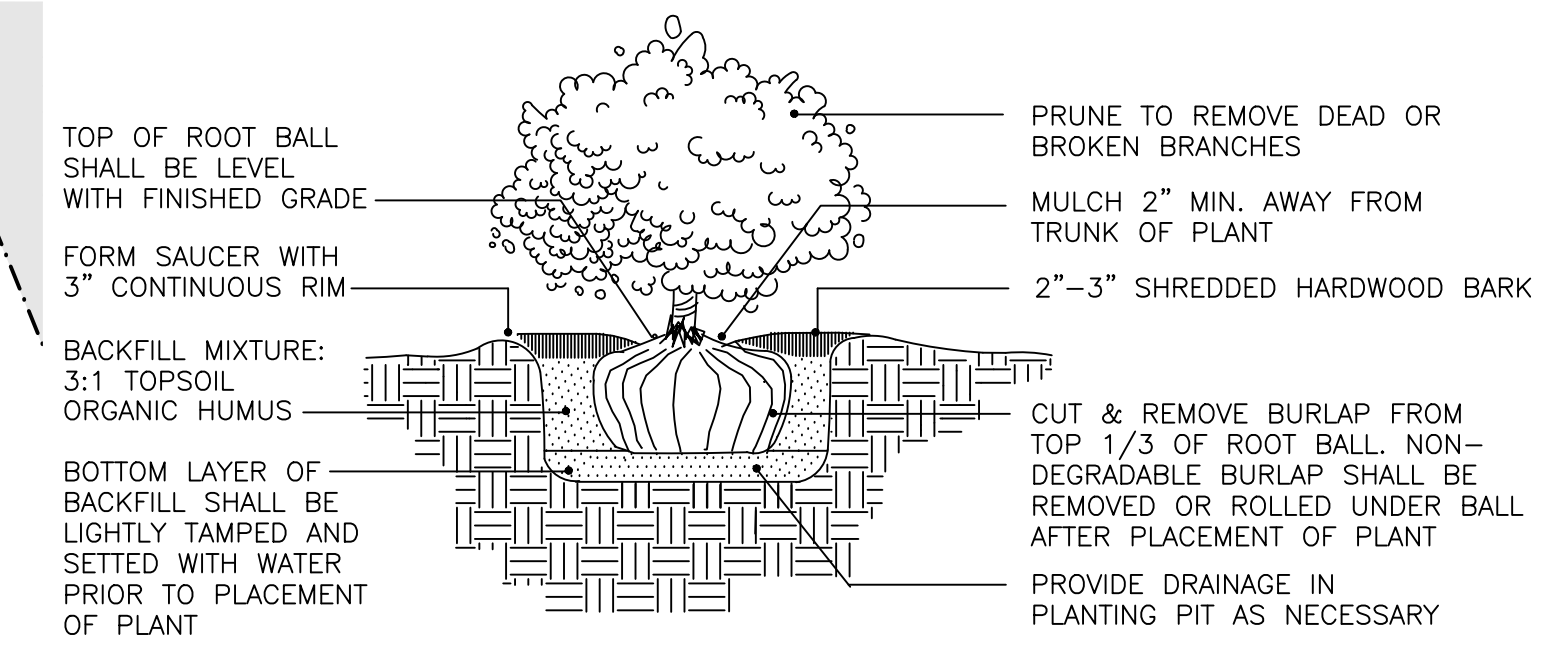
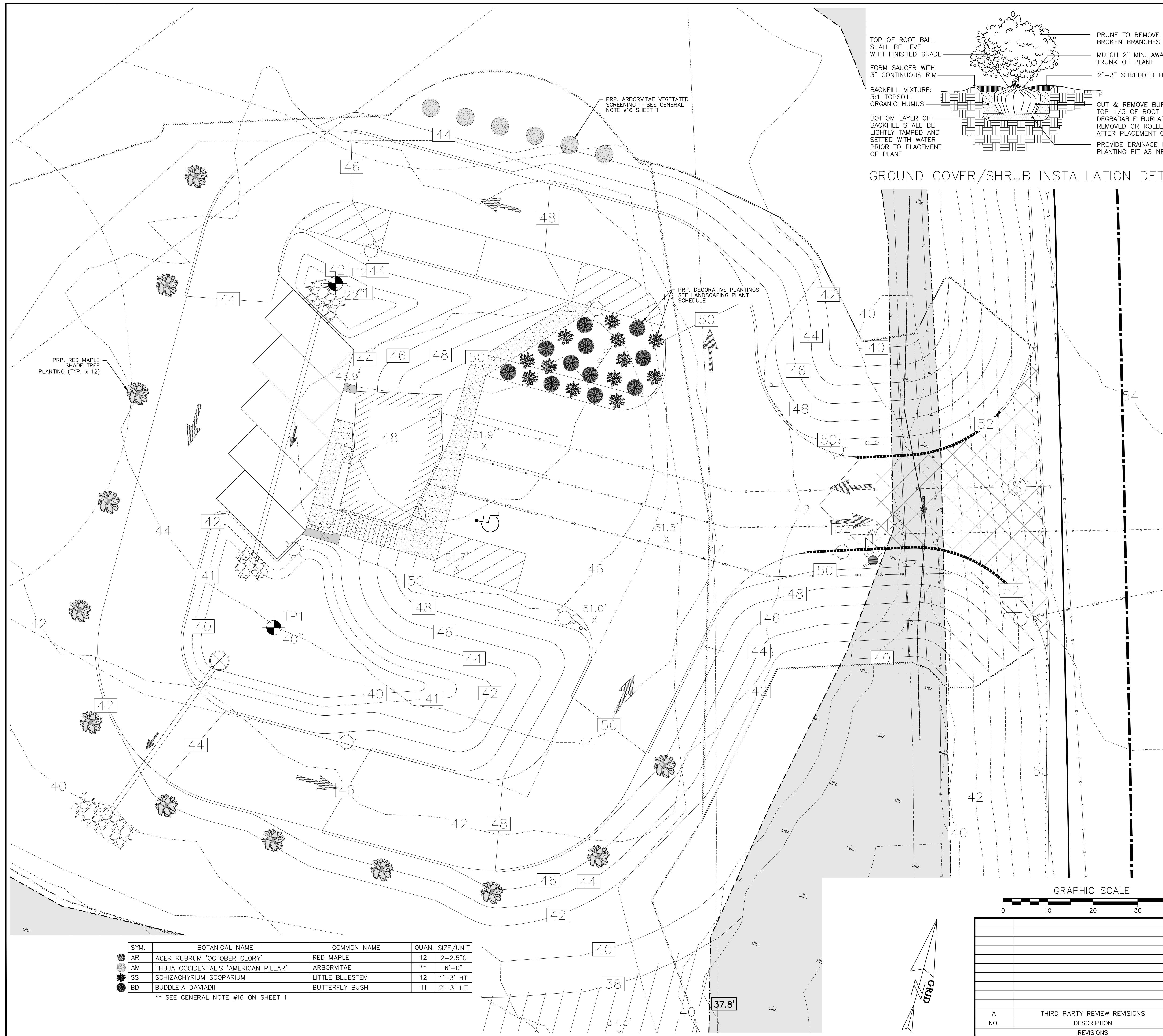
**ATTAR ENGINEERING, INC.**  
CIVIL ♦ STRUCTURAL ♦ MARINE ♦ SURVEYING  
1284 STATE ROAD - ELIOT, MAINE 03903  
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 20'  
DATE: 08/04/22

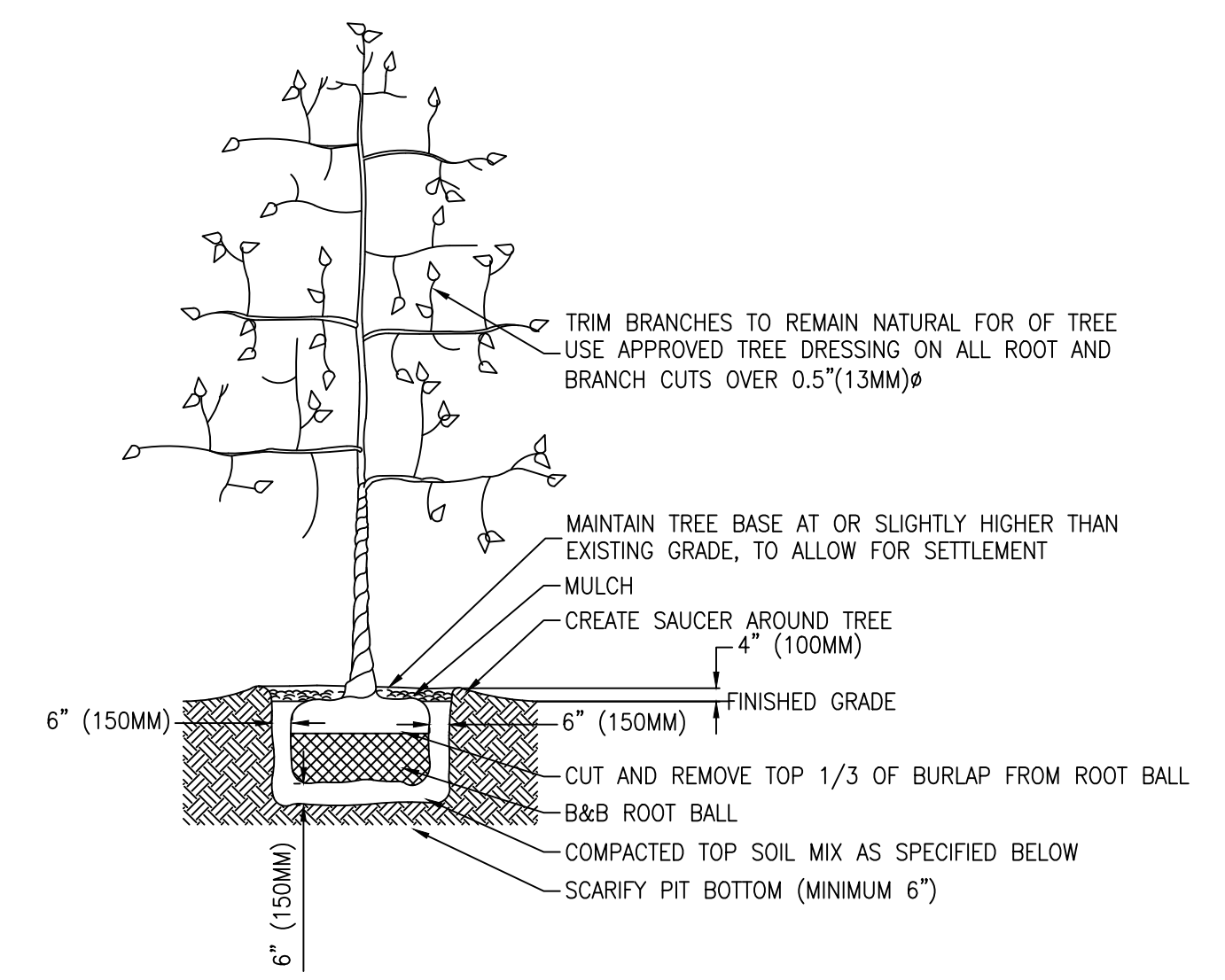
APPROVED BY: \_\_\_\_\_  
DRAWN BY: MJS  
REVISION DATE: B : 12/29/22

JOB NO: C277-21 FILE: WF44 DEV BASE.DWG SHEET: 9



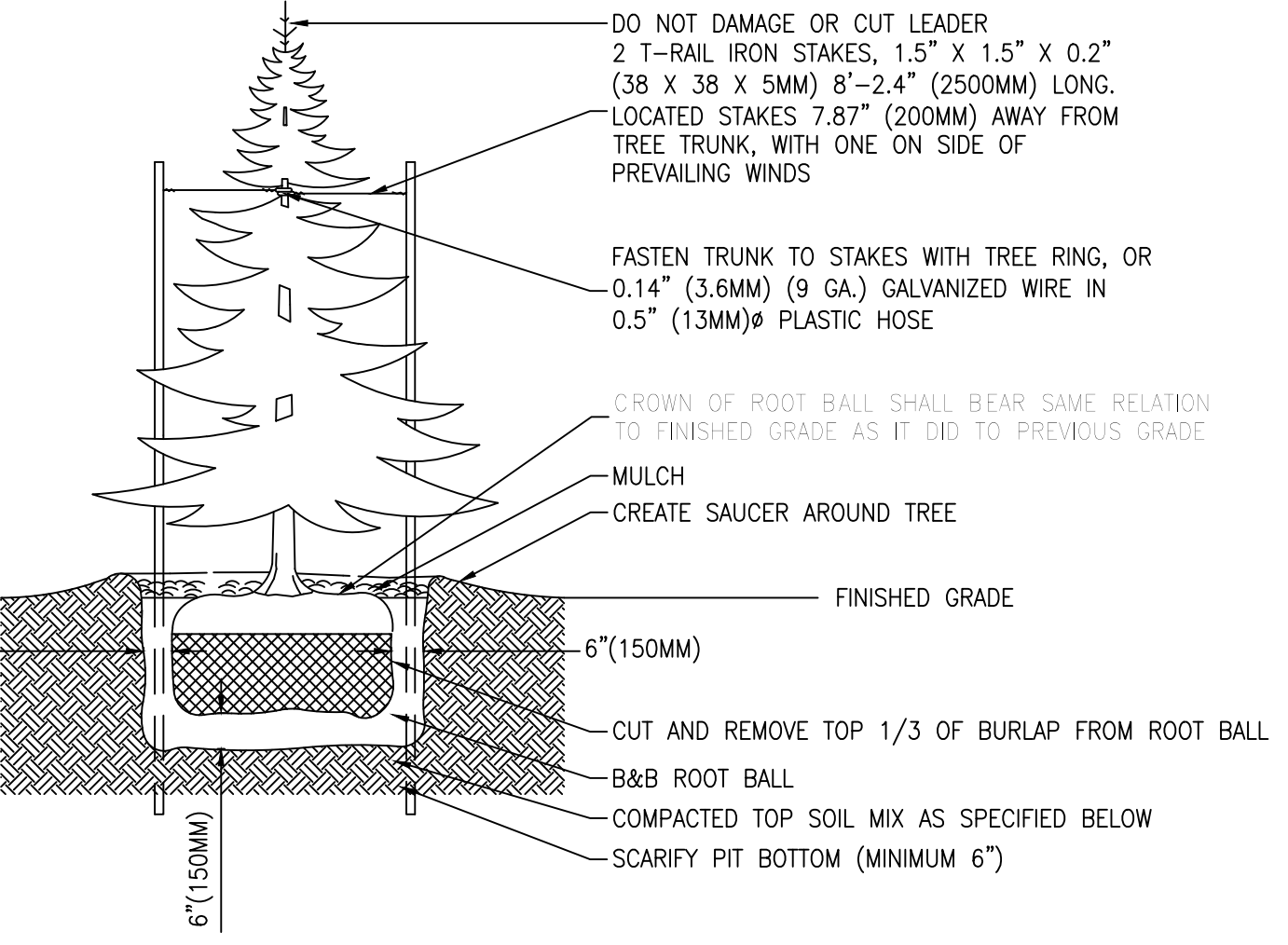


GROUND COVER/SHRUB INSTALLATION DETAIL



DECIDUOUS TREE INSTALLATION DETAIL

- SPECIFICATIONS:**
- DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE.
  - WATER THOROUGHLY AFTER INSTALLATION.
  - REMOVE TREE RINGS AND STAKES TWO YEARS AFTER INSTALLATIONS
  - PROVIDED DRAINAGE FOR PLANTING PIT IN IMPERMEABLE SOIL.



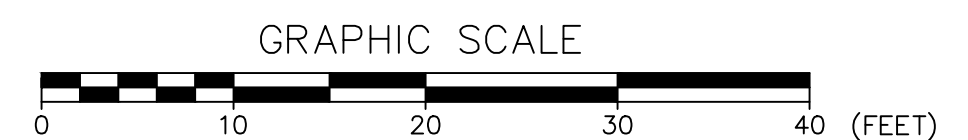
CONIFEROUS TREE INSTALLATION DETAIL

- SPECIFICATIONS:**
- DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE.
  - WATER THOROUGHLY AFTER INSTALLATION.
  - REMOVE TREE RINGS AND STAKES TWO YEARS AFTER INSTALLATIONS
  - PROVIDED DRAINAGE FOR PLANTING PIT IN IMPERMEABLE SOIL.

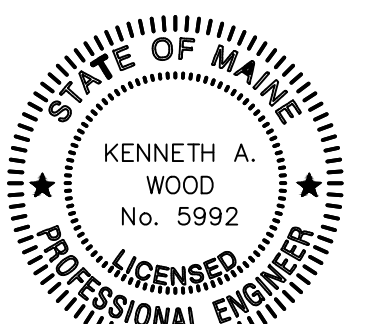
LEGEND	
PROPERTY LINE	---
SETBACK	---
EXT. ABUTTER LINE	---
EXT. PAVEMENT	---
PRP. PAVEMENT	---
EXT. GRAVEL	---
EXT. BUILDING	---
PRP. BUILDING	---
EXT. PARKING	---
PRP. PARKING	---
EXT. GUARDRAIL	---
EXT. TREELINE	---
PRP. TREELINE	---
TOWN ZONING BNDY	---
EXT. WETLAND BNDY	---
EXT. WETLAND AREA	---
EXT. WETLAND BUFFER	---
EXT. SEWER LINE	S
EXT. SEWER MANHOLE	⊙
PRP. SEWER LINE	---PS---
EXT. WATER LINE	---
PRP. WATER LINE	---PW---
EXT. OVERHEAD ELEC	---OHU---
EXT. POWER POLE	⊕
PRP. U.G. ELECTRIC	---UGU---
EXT. MAJOR CONTOUR	---XXX---
EXT. MINOR CONTOUR	---XXX---
PRP. MAJOR CONTOUR	---XXX---
PRP. MINOR CONTOUR	---XXX---
PRP. SPOT GRADE	102.0'

SYM.	BOTANICAL NAME	COMMON NAME	QUAN.	SIZE/UNIT
AR	ACER RUBRUM 'OCTOBER GLORY'	RED MAPLE	12	2-2.5" C
AM	THUJA OCCIDENTALIS 'AMERICAN PILLAR'	ARBORVITAE	**	6'-0"
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	12	1'-3' HT
BD	BUDDLEIA DAVIADII	BUTTERFLY BUSH	11	2'-3' HT

\*\* SEE GENERAL NOTE #16 ON SHEET 1



NO.	THIRD PARTY REVIEW REVISIONS	DATE
A	THIRD PARTY REVIEW REVISIONS	12/29/22
NO.	DESCRIPTION	DATE
	REVISIONS	



LANDSCAPING PLAN  
WELL FIELD 44 CANNABIS DISPENSARY  
41 ROUTE 236, KITTERY, ME 03904

FOR:  
WELL FIELD 44, LLC.  
8 DEXTER LANE UNIT 8  
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PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 10'  
DATE: 09/29/22

APPROVED BY: \_\_\_\_\_  
DRAWN BY: MJS  
REVISION DATE: A : 12/29/22

JOB NO: C277-21 FILE: WF44 DEV BASE.DWG SHEET: 10